



Skills for a global future

Working and learning together

15-17 August 2018
Sydney



New Zealand
VOCATIONAL EDUCATION
AND TRAINING
Research Forum



27th National Vocational Education and Training Research Conference

CONFERENCE GUIDE

PROGRAM AND ABSTRACT BOOKLET

PRESENTED BY



SUPPORTED BY



Thank you to the following organisations for contributing to the *27th National Vocational Education and Training Research Conference 'No Frills'*.

Co-hosts



Supporting sponsors



Australian Government
Department of Education and Training



Dinner sponsor



ACPET is the peak body representing the independent education and training sector in Australia. With over 850 member organisations, located in all states and territories, ACPET is committed to providing a range of quality services to members and ensuring the significant contribution of the independent sector to education and training in Australia is recognised.

ACPET's goal is to assist members to deliver quality education and training services and ensure a level playing field for all providers across all jurisdictions.

Welcome reception sponsor



Keynote speaker sponsors



Tea break sponsors



Scholarship sponsors



WELCOME



On behalf of NCVER, New Zealand co-hosts Industry Training Federation and Ako Aotearoa, and our supporters, TAFE NSW and AVETRA, we welcome you to the *27th National Vocational Education and Training Research Conference 'No Frills'*.

This is NCVER's first international partnership and we warmly welcome our international co-hosts and delegates both to the conference and to Australia.

The conference theme 'Skills for a global future: working and learning together' reflects the international nature of this year's conference by exploring the future skills Australia and New Zealand will need to operate and succeed in an increasingly interconnected world.

Over the next two days, we will be covering topics as varied as employability and foundation skills, apprentices and trainees, rural and remote, digital learning, creativity in VET, international perspectives, and developing the skills of tomorrow with the knowledge and resources we have available today.

This conference is a key part of NCVER's commitment to engage the VET community in research and to build research capacity and capability across the sector.

Importantly, it is *your* conference. We encourage you to take the opportunity to connect and share knowledge with this outstanding group of VET researchers and professionals from across the globe.

Finally, I would also like to take this opportunity to warmly thank our event sponsors for their valued contribution.

We hope you enjoy your time in Sydney.

Dr Mette Creaser
Interim Managing Director
National Centre for Vocational Education Research



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ABOUT THE CONFERENCE

'No Frills' is a well-known annual national conference where researchers and practitioners in the vocational education and training (VET) sector come together to present, discuss and share information about key issues confronting the sector.

The conference also provides valuable professional development opportunities through a program of hands-on pre-conference workshops incorporating activities on data and research analytics and research practice.

This year's theme 'Skills for a global future: working and learning together' reflects the international nature of the *27th National Vocational Education and Training Research Conference 'No Frills'* and the *New Zealand Vocational Education and Training Research Forum*. This theme also signals the pivotal role that VET plays in preparing people for an increasingly globalised workforce.

Last year we looked at *Skilling for tomorrow* (Payton 2017), which took a broad view of the trends changing the world of work, the skills employers seek and the ways in which VET providers can respond. A year on, we return to the topic of future skills, but this time we explore skills within the increasingly interconnected world in which Australia and New Zealand not only operate, but in which they seek to succeed.

A key part of NCVET's commitment to disseminate research, the conference aims to be informative and practical, and contribute to building capacity for VET research. It exposes VET practitioners to the value of research for their teaching and their organisation's business development.

Major support for the 'No Frills' conference is provided by the Australian Government and state and territory governments, through the Department of Education and Training.

For speakers

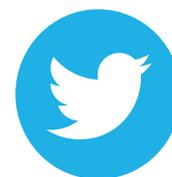
Presentations will be uploaded and saved on laptops in allocated rooms, under NCVET 2018 'No Frills' Conference. We ask that speakers check their presentation and audio visual material before presenting. If you have any concerns, please speak with Georgia Basford-Fox or June Ingham (NCVET staff members) at the registration desk during the break preceding your presentation or at the beginning of each day.

Stay connected

Follow us on twitter: @NCVET

Twitter: Delegates are encouraged to tweet during the conference using the hashtag: **#NoFrills2018**. You are also able to tweet directly from the mobile conference app. Tap this link while on your smartphone to download and install: <https://crowd.cc/s/1EE1e>.

Please note our PR & Social Media Officer (Helen Wildash) will be taking photos and tweeting during presentations.



#NoFrills2018

GENERAL INFORMATION



Conference venue

Co-hosted with New Zealand's Industry Training Federation and Ako Aotearoa, the conference will be held in Sydney at the Aerial UTS Function Centre, located on Level 7 of Building 10, University of Technology Sydney, 235 Jones Street, Ultimo.



Registration desk

For the pre-conference workshops, the registration desk is located in CB05C.01.15 (Level 1, Room 15) at UTS Haymarket Campus (Building 5, Block C, Ultimo Road & Quay Street, Haymarket). It will be open from 11:00am on Wednesday, 15 August.

On Thursday, 16 August, the registration desk will be at Aerial UTS Function Centre (Building 10, Level 7, 235 Jones Street, Ultimo), and open from 8:00am.



Pre-conference workshops

Professional development workshops will run concurrently on Wednesday 15 August. The workshops start at 11:00am and will be hosted at UTS Haymarket Campus (Building 5, Block C, Ultimo Road & Quay Street, Haymarket). Delegates who have pre-paid for the workshops will have their allocated workshop details on the back of their name badge.



Mobile conference app

This year we're bringing back the mobile conference app. Packed with features such as timetables, session reminders, speaker bios, networking functions and more, the app will be your essential conference partner.

The app is available on iPhone and Android. Tap this link while on your smartphone to download and install: <https://crowd.cc/s/1EE1e>.



Drop-in data hub

This year, delegates interested in accessing data can speak to an NCVER data expert, one on one. This personalised service will provide delegates with data information from a basic introduction to VOCSTATS, to constructing tables for specific data, or exploring NCVER's range of data products and tools, we'll be happy to point you in the right direction.

We will also have a knowledgeable NCVER staff member on hand to help you navigate NCVER's free international research database, VOCEDplus, which contains over 75 000 Australian and international tertiary education research and statistical publications.

Personalised tours of the new look NCVER Portal will also be available to help familiarise you with the improved search and navigation functionality, an all-new RTO Hub and visualisation gallery which hosts our collection of infographics and interactive data tools.

Time slots for these 'drop-in' sessions can be booked at the registration desk.



Delegate identification and security

All delegates will be given a name badge at registration. For security reasons, we ask that you wear your name badge at all times, which identifies you as a conference delegate. This name badge is also the official entrance pass to all conference sessions, morning and afternoon teas, lunches, the welcome reception and conference dinner (if pre-paid).



NCVER team

The NCVER team is here to make your conference time rewarding and educational. If you have any questions, please go to the conference registration desk. See page 11 for pics of the NCVER team!



Internet access

Wi-Fi will be available during the conference with details provided at the registration desk.



Mobile phones

As a matter of courtesy, please turn off or silence your mobile phone during all sessions.



Climate

Temperatures in Sydney will be around 18°C, going down to 8°C at night.

We strongly recommend you bring warm (layered) clothing due to the varying temperatures in the two buildings.



Dress

Delegates may choose to wear comfortable smart casual clothing during the conference and social events.



Parking

Due to the proximity of the conference venue (Sydney CBD), no parking is available at the campus for delegates. Paid council parking is available by meter and there are nearby council car parks. Further information can be found on the [City of Sydney website](#).



Taxi

Silver Service 13 31 00
Taxis Combined 12 22 27



Conference evaluation

We would appreciate your feedback. A survey evaluation will be emailed to you after the conference.



Post-conference

Following the conference, papers will be available from VOCEDplus <<http://www.voced.edu>>, the tertiary education research database produced by NCVER. Please send an electronic copy of your paper/presentation to voced@ncver.edu.au by 24 August 2018.

An email notification will be sent to conference delegates once all papers received are uploaded.



SOCIAL PROGRAM

Welcome reception

Delegates are invited to attend the welcome reception on Wednesday 15 August 5.15pm – 6.45pm at *The Muse* located at the TAFE NSW Campus, 651 Harris St, Ultimo. The reception is a great opportunity for you to meet and network with other delegates. Poster presentations will be on display during this time.

Attending the welcome reception is included in your conference registration fee.

Conference dinner

The dinner will be held at *Turner Hall*, TAFE NSW, 19 Mary Ann St, Ultimo on Thursday 16 August at 6.30pm. Delegates will be treated to a sumptuous three-course dinner with an opportunity to network with colleagues in a relaxed and informal setting.

We're thrilled to have Kevin Sheedy as our guest speaker. As a player, coach and ambassador, Kevin Sheedy has had one of the most successful careers in Australian sporting history. But there is more to Kevin Sheedy than football. He is a marketer, a thinker, an innovator, the holder of awards for community service and an inspirational speaker, capable of talking about subjects way beyond the boundaries of sport. A qualified plumber, Kevin is also an Australian Apprenticeships Ambassador for the Australian Government.

The conference dinner is available to delegates who booked and paid for the dinner with their conference registration. The blue dot on your name tag denotes your registration for the dinner.

The dinner has unallocated seating although some tables will be reserved for our co-host, sponsors and special guests.

Dress is smart casual.

The dinner is kindly sponsored by the Australian Council for Private Education and Training (ACPET).



Kevin Sheedy

ABOUT OUR CO-HOSTS



Industry Training Federation

The Industry Training Federation (ITF) is the national body for New Zealand's 11 Industry Training Organisations (ITOs) and the collective voice for the industry training and apprenticeships sector in New Zealand. ITF work with key government agencies, education sector groups, employers and industry, promoting the benefits of work-based education and training and advocate for education, skills and employment policies to support the development of a skilled, qualified, and productive workforce. ITF encourage employer-led education and training, a system that supports lifetime learning and vocational education that meets real industry needs.



Ako Aotearoa

Ako Aotearoa work with organisations across New Zealand's tertiary education system to build educational capability for learner success. Recognising that there is no single solution towards achieving the 'best possible educational outcome for all learners', their aim is to lead the drive to establish what counts as good and effective tertiary teaching. They add value to organisations where initiatives to support effective teaching and learning are already underway, and share and celebrate these practices as widely as possible. Ako Aotearoa are proud to celebrate teaching excellence and excellent teachers, co-fund innovative teaching and learning projects, provide high-quality professional learning and development opportunities, and lead initiatives that contribute to raising the levels of success for priority groups – including Māori and Pacific learners.

ABOUT OUR SUPPORTERS

TAFE NSW

TAFE NSW is Australia's leading provider of vocational education and training with over 500 000 enrolments each year. Their ambition is to be the brand in global demand to build skills for success in today's and tomorrow's world.



TAFE NSW offers the best of campus-based delivery as well as flexible, online and work-based learning. Collaboration, diversity and the strong relationships between their locations contribute to and magnify the value of TAFE NSW and importantly, the benefits that are delivered to communities and the economy of NSW.

They are embracing the challenge of transforming TAFE NSW to be a competitive and sustainable business, while maintaining a wider economic and social role in supporting the NSW Government's goals under NSW 2021.

AVETRA

AVETRA is Australia's only national, independent association of researchers in vocational education and training (VET). It was established in 1997 with initial financial assistance from the Australian National Training Authority Research Advisory Council and receives support from the National Centre for Vocational Education Research (NCVER). With a substantial and growing membership, it is committed to:

- furthering the contribution of VET research to the development of Australian VET policy
- independently reviewing VET research priorities
- promoting independent and significant research in VET, with due regard for the intellectual property rights of researchers
- raising the profile of VET research in the academic and training communities
- promoting training in research methods for those working in or with the VET sector
- providing platforms for the dissemination of research findings.

AVETRA membership is open to any individual who is engaged in, or has an interest in, VET research and its results.



ABOUT OUR KEYNOTES



Dr Lene Tanggaard

Dr Lene Tanggaard is a Professor of Psychology and Vice Head of the Department of Communication and Psychology at the University of Aalborg, Denmark. She is also Director of The International Centre for the Cultural Psychology of Creativity (ICCP), and co-director of the Center for Qualitative Studies.

Lene is regional editor of The International Journal of Qualitative Research in Education, co-editor of *Psykologisk Pædagogisk Rådgivning*. She has given many keynotes at international conferences, and she is author of numerous research papers and books on learning and creativity with a particular focus on VET.



Dr Andrew Charlton

Dr Andrew Charlton is co-founder of AlphaBeta, a leading economic analytics company based in Sydney and Singapore. He has previously worked for the United Nations and the London School of Economics.

From 2008-2010, through the period of the global financial crisis, he served as senior economic advisor to the Prime Minister of Australia and Australia's senior government official to the G20 economic summits. He received a Doctorate and Masters in Economics from the University of Oxford, where he studied as a Rhodes Scholar. He is the author of two books, *Ozonomics* (2007) and *Fair Trade for All* (2005), co-written with Nobel laureate, Joseph Stiglitz.



The Hon. Karen Andrews

The Hon Karen Andrews MP was first elected to federal parliament in 2010 to represent the electorate of McPherson on the southern Gold Coast. Mrs Andrews has held several portfolios in the Coalition Government and has been Assistant Minister for Vocational Education and Skills since July 2016.

Mrs Andrews is focused on raising the status of VET and ensuring it provides people with the skills industry is looking for to secure the jobs of the future. Her qualifications include a BEng(Mech) and a GradDip in Industrial Relations.



Mr Kevin Sheedy AM

As a player, coach and ambassador, Kevin Sheedy has had one of the most successful careers in Australian sporting history.

But there is more to Kevin Sheedy than football. He is a marketer, a thinker, an innovator, the holder of awards for community service and an inspirational speaker, capable of talking about subjects way beyond the boundaries of sport.

A qualified plumber, Kevin is also an Australian Apprenticeships Ambassador for the Australian Government.

NCVER STAFF



Mette Creaser
Interim Managing
Director



Genevieve Knight
Acting National Manager,
Research, Knowledge
Management and
Communications



Phil Loveder
Stakeholder
Engagement Manager



Deanne Loan
Digital Publishing
and Communications
Manager



Michelle Circelli
Acting National
Research Manager



June Ingham
Team Leader,
Communications and
Events



Liesel O'Dwyer
Team Leader,
Research Operations



Adrian Ong
Research Officer



Amber Tomas
Survey Methodologist



Brad McDonald
Research Officer



Cameron Forrest
Research Officer



Georgia Basford-Foxx
Events and
Administration Officer



Helen Wildash
PR & Social Media
Officer



Kelly Marshall
Data Analyst



Keryn Bain
Research Officer



Mandy Mihelic
Research Officer



Marc Ruediger
Research Officer



Olga Reyes
Research Officer



Patrick Korbel
Quantitative Analyst



Radhika Naidu
Systems Librarian

SCHOLARSHIPS

Scholarships were offered again this year, for the second year running. This initiative, which is part of NCVET's commitment to build capacity and capability in VET research, is designed to facilitate attendance and widen participation from across the VET sector.

Congratulations to the following 'No Frills' 2018 scholarship recipients:

- **VDC Practitioner Scholarship: Ms Xenia Girdler, Global Reconciliation**

Presentation, Thursday 1:30pm: *Delivering a diploma of community services (alcohol and other drugs and mental health) in the remote town of Katherine (NT): a case study*

- **AAIR Early Career Researcher Scholarship: Mr Daniel Jolley, Curtin University**

Presentation, Thursday 3:30pm: *Is vocational training failing to prepare fitness students for employment and future study?*

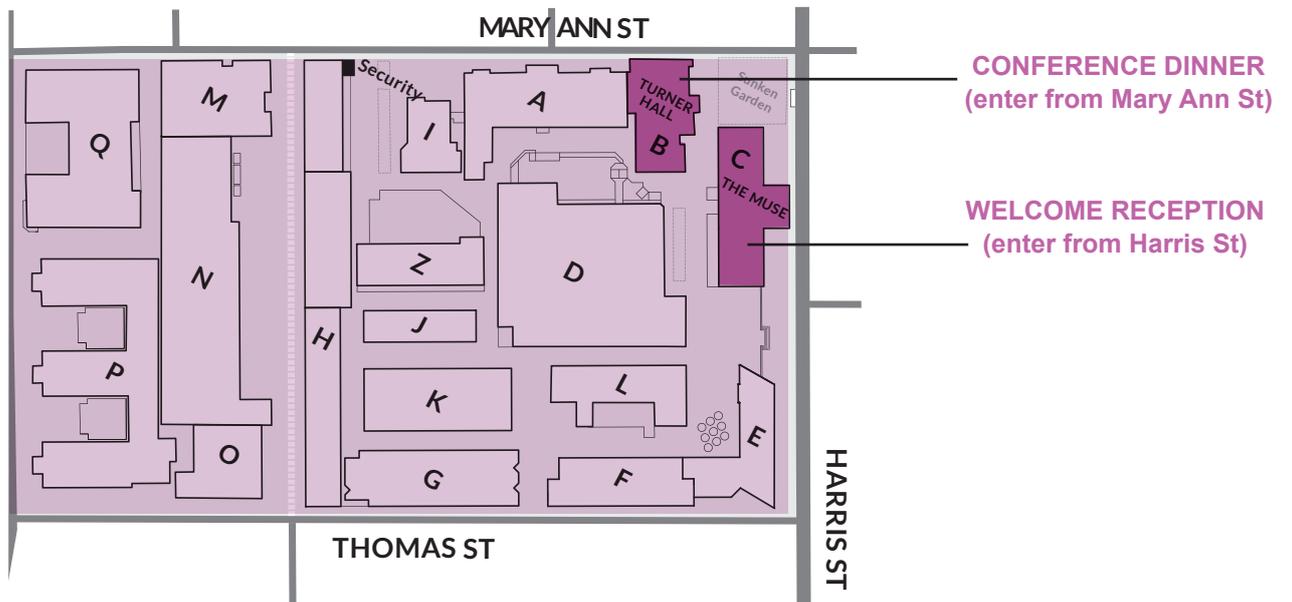
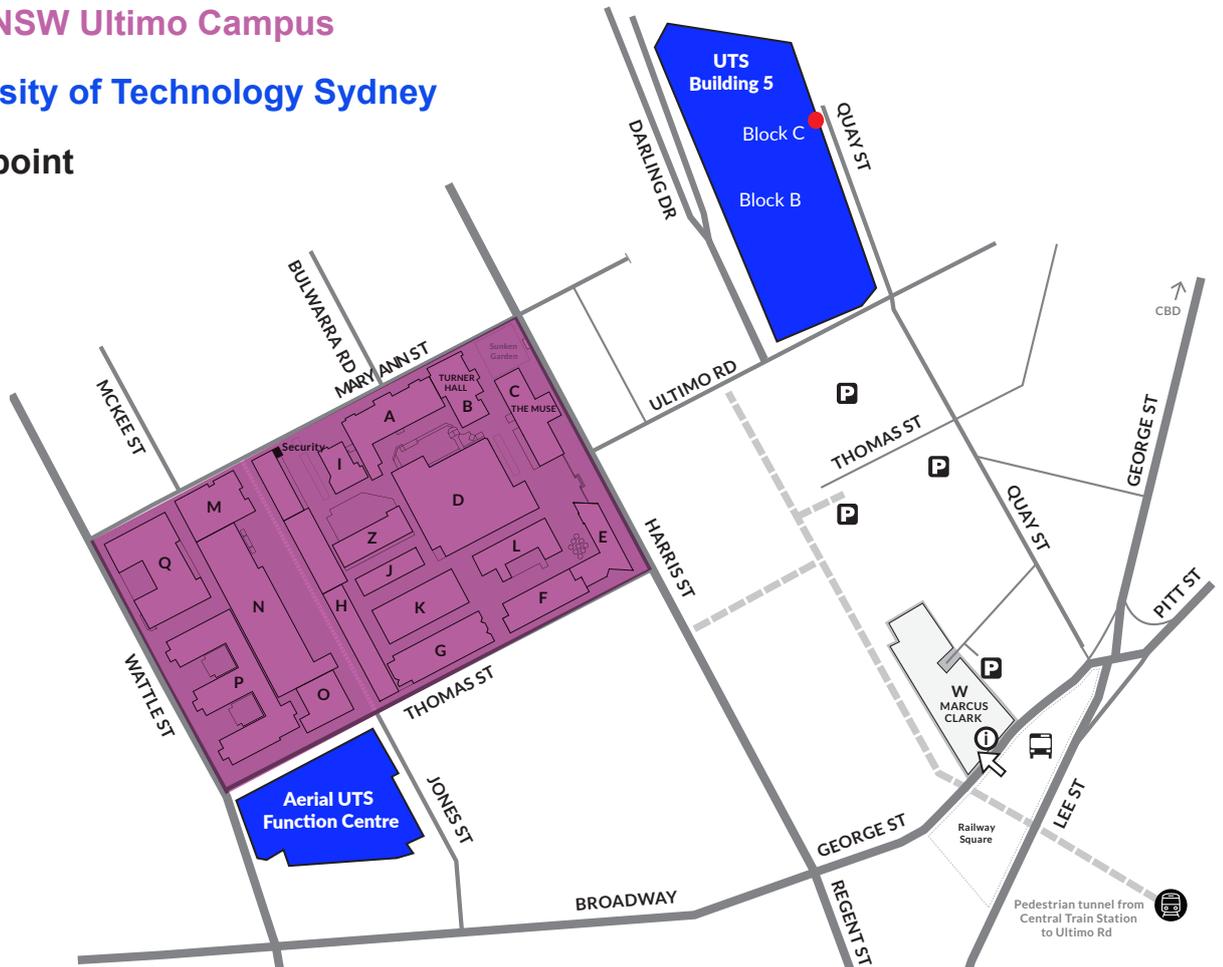
- **NCVER Early Career Researcher Scholarship: Dr Stacey Jenkins, Charles Sturt University**

Presentation, Thursday 11:00am: *Skills for a global future for women in regional Australia.*



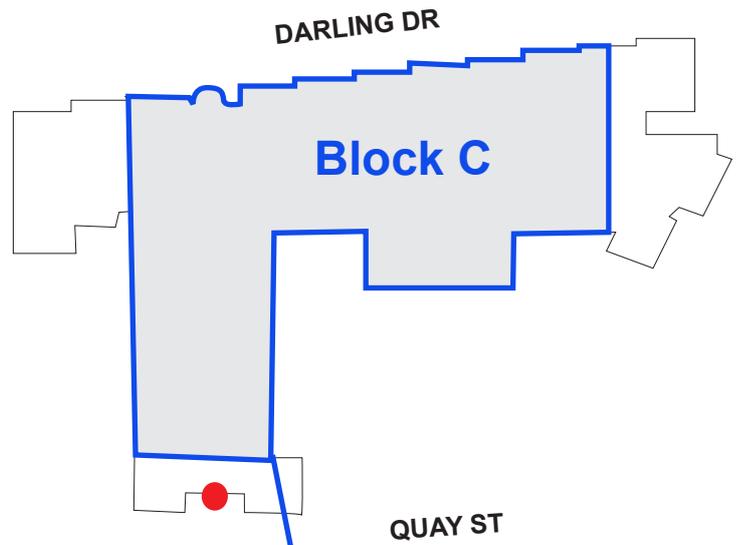
CONFERENCE VENUES

- TAFE NSW Ultimo Campus
- University of Technology Sydney
- Entry point

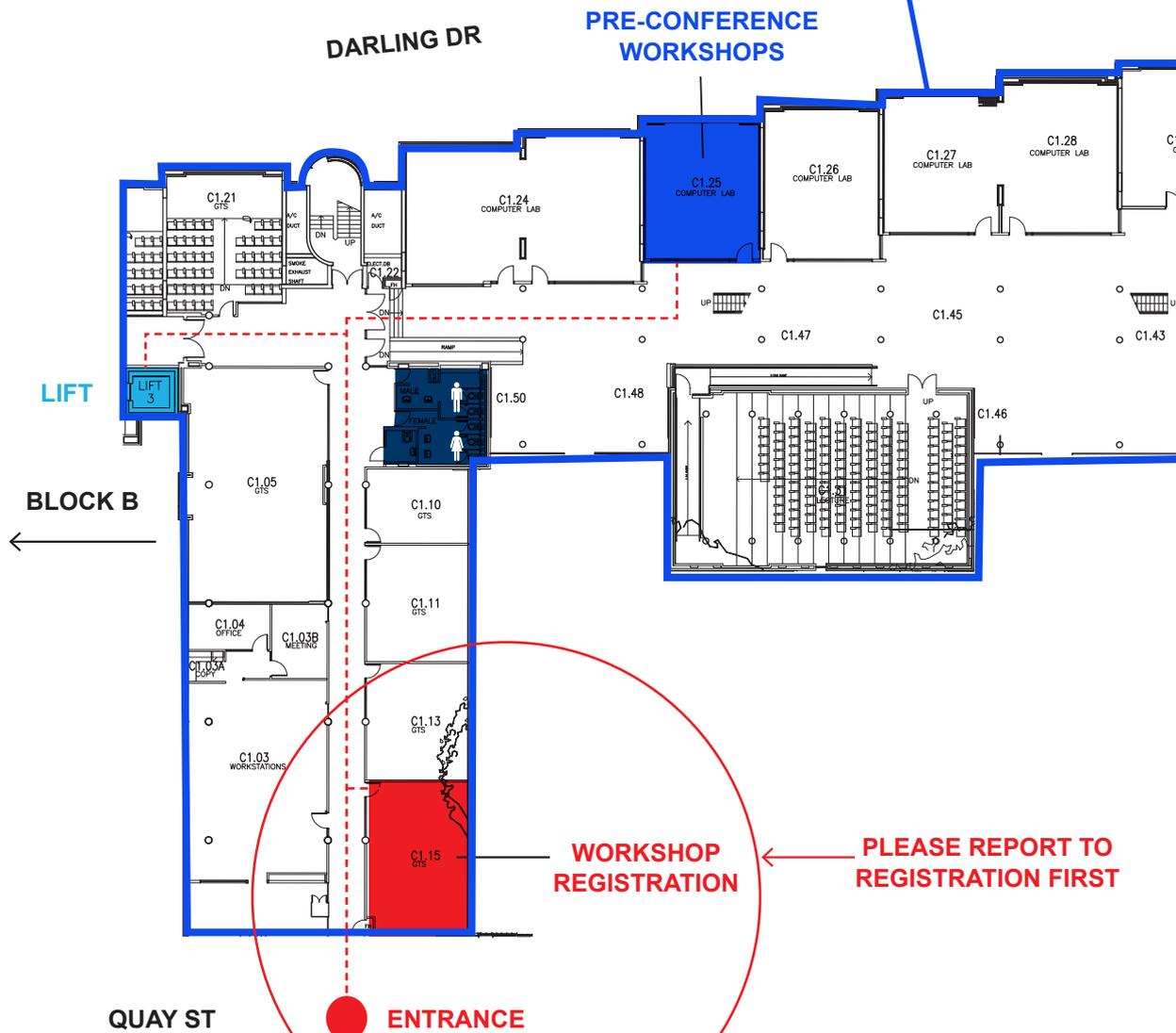


PRE-CONFERENCE PD WORKSHOPS

UTS Haymarket Campus
Building 5, Block C



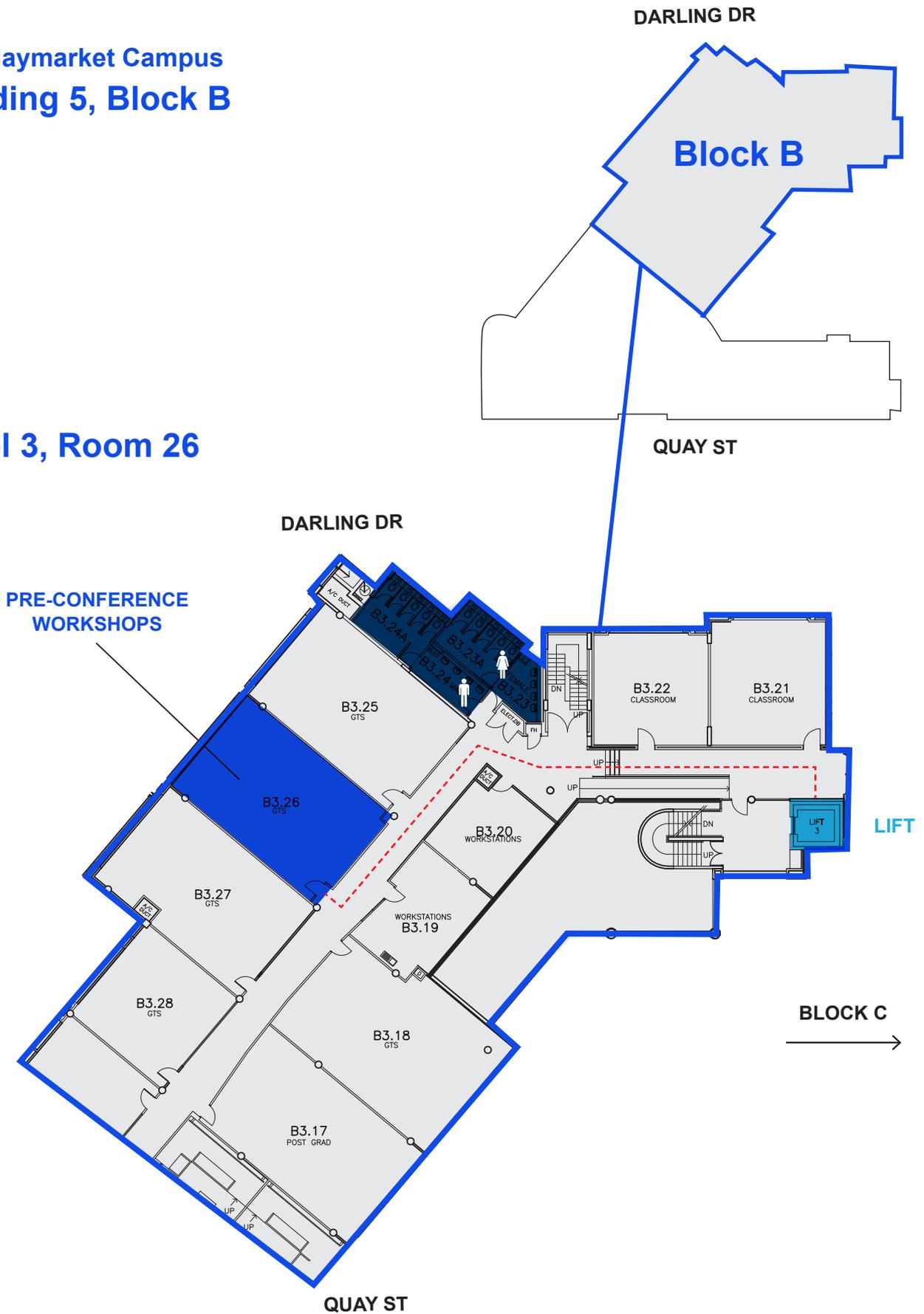
Level 1, Room 25



PRE-CONFERENCE PD WORKSHOPS

UTS Haymarket Campus
Building 5, Block B

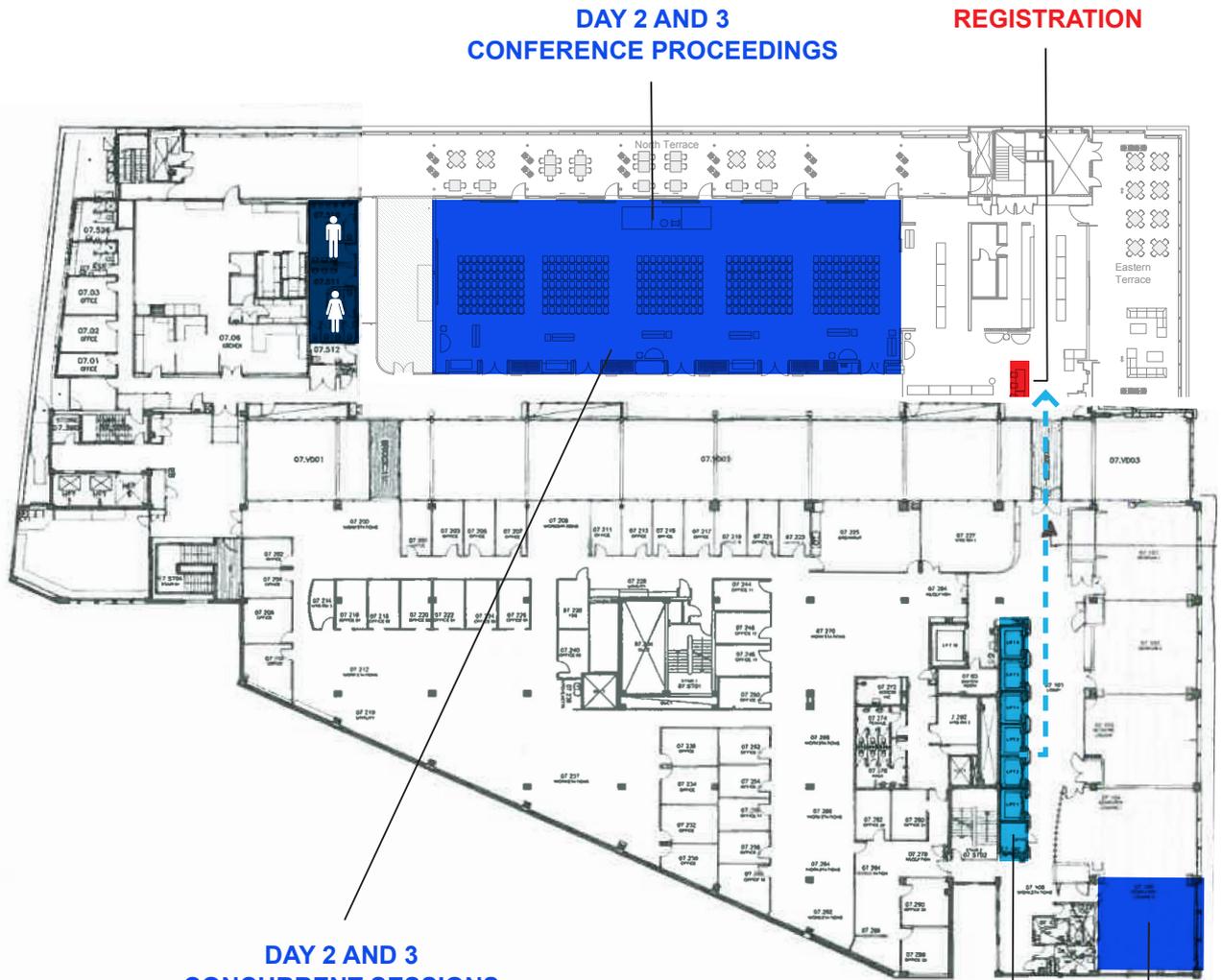
Level 3, Room 26



DAY 2 & 3 CONFERENCE

Aerial UTS Function Centre

Building 10, Level 7, 235 Jones Street, Ultimo



DAY 2 AND 3 CONCURRENT SESSIONS

LIFTS DATA HUB



CONFERENCE PROGRAM

Wednesday 15 AUGUST 2018

PROGRAM

11:00	Registration open (University of Technology Sydney, Haymarket campus, 1 Quay Street, Haymarket, Building 5C, Level 1, Room 15)
11:30	Pre-conference professional development workshops
11:30	Workshop 1 and 2
13:00	Light snack break
13:30	Workshop 3 and 4
15:00	Light snack break
15:30	Workshop 5 and 6
17:00	Walk to Welcome reception
17:15	Welcome reception (The Muse, TAFE NSW Ultimo Campus, 651 Harris Street, Ultimo) <i>Poster presentations will be on display during the Welcome reception. A dedicated poster session with presenters will be held on Friday 17 August during morning tea.</i>
18:45	Close

PRE-CONFERENCE PD WORKSHOPS

- 11:30 1 Research and statistics at NCVER: the who, what and how**
Recent changes in the VET sector are affecting the way that VET research is prioritised and funded, and how VET data is collected, used and disclosed. Research priorities now have a stronger connection to all Australian governments' VET policy priorities, and the skill development challenges of industry. A new National VET data policy agreed by Skills Ministers at the COAG Industry and Skills Council, effective from 1 January 2018, will provide more comprehensive and timely data to increase the efficiency and transparency of the sector, and improve understanding of Australia's VET market and management of the national VET system. This workshop will describe the new national research program, processes and priorities, explain how to access data under the arrangements of the new National VET data policy, and showcase new data products, resources and services of benefit to practitioners and researchers.
Genevieve Knight & Michelle Circelli, NCVER
- 2 Finding, interpreting and comparing survey estimates**
Ever wondered if your RTO or state is performing better or worse than average? This workshop will assist you to locate, understand and interpret estimates and margins of error from NCVER surveys, including the Student Outcomes Survey and the Survey of Employer Use and Views. During the workshop you will learn:
• what type of information these surveys collect
• how to find survey results and margins of error
• why margin of error is important when interpreting estimates
• statistical methods and guidance on comparing estimates. This will be a hands-on workshop where you will be guided through the process of finding and comparing estimates that interest you.
Amber Tomas & Olga Reyes, NCVER
- 13:30 3 Better bang for your buck: encouraging others to make use of your work**
As researchers and evaluators, we all like to think our work is useful and useable. But how often do we stop to think about how our work will be used, and whether our methodologies, findings, conclusions and reports actually encourage that use? It's not as simple as just making your work visible; use of research and hence its relevance to end-users depends on a range of factors like targeting, dissemination, the clarity of your findings and any policy implications. This workshop will discuss ways in which researchers can encourage the 'use' process, and invite discussion on how we might do this better.
Anne Alkema, Industry Training Federation NZ
- 4 VOCEDplus: telling the VET story**
Are you new to the VET sector, or looking to find essential information on the current status and history of VET? Whether you're after a broad overview or specific policy and governance information, you'll find it (and more) in NCVER's newly released VET Knowledge Bank. This workshop provides a 'hands on' tour of the extensive information found on VOCEDplus, all the latest features, as well as:
• The VOCEDplus Pod Network
• The Timeline of VET policy initiatives
• Research resources like 'Focus on...' and the 'Glossary of VET' You'll discover tips for finding relevant information using all these enhanced features, as well as a refresher on searching VOCEDplus to discover current and past research, policy, and practice, both from Australia and overseas.
Radhika Naidu, NCVER
- 15:30 5 The importance of building VET research communities and capabilities - pros and cons in contemporary times**
This workshop involves a discussion and development of a plan to support VET research communities. Participants will be provided with some practical examples of how VET research communities and capabilities have been used in other places, the benefits that have been observed, and the issues that have been addressed. They will also be given an opportunity to discuss plans for establishing these communities and developing these capabilities in their own jurisdictions.
Linda Simon and Melinda Waters, Australian Vocational Education and Training Research Association (AVETRA)
- 6 Understanding and using Longitudinal Surveys of Australian Youth (LSAY) data**
Longitudinal datasets can be complex to use, but we are here to help! This workshop will introduce you to the LSAY cohorts, covering the data and topic structure, questionnaires, variables and some of the more common traps and pitfalls you'll face when using longitudinal data. We'll also guide you through the many tools and resources available to help you interrogate and make sense of the data. In the second half of the workshop we will tackle some real world examples. If time is on our side we may even get to plot some results!
Keryn Bain & Cameron Forrest, NCVER

Thursday 16 AUGUST 2018

CONFERENCE PROGRAM - DAY 1

8:00	Registration open (Aerial UTS Function Centre, Building 10, Level 7, 235 Jones Street, Ultimo)
9:00	Acknowledgement of Country: Aunty Joan Tranter, Inaugural Elder in Residence, University of Technology Sydney
9:05	Welcome address: Dr Mette Creaser, Interim Managing Director, NCVER
9:15	Co-host welcome address: Mr Michael Ross, Principal Advocacy Advisor, Industry Training Federation
9:30	Address: Dr Genevieve Knight, Acting National Manager Research, NCVER, <i>Skills for a global future</i>
9:40	International keynote address (sponsored by Wallis Strategic Market and Social Research): Professor Lene Tanggaard, Aalborg University, Denmark, <i>Creativity in VET</i>
10:30	Morning tea (sponsored by Catapult eLearning)
11:00	Concurrent sessions 1 - 6
18:30	Conference Dinner (Turner Hall, TAFE NSW Ultimo Campus, 19 Mary Ann Street, Ultimo) Dinner speaker: Kevin Sheedy, AFL Legend and Australian Apprenticeships Ambassador

CONCURRENT SESSIONS - DAY 1

ROOMS:	WATTLE	THOMAS	BROADWAY	JONES	HARRIS
1 11:00	PRACTITIONER Working around the words: tutor strategies and the tutor voice in vocational education <i>Emma McLaughlin, Wellington Institute of Technology</i>	EMPLOYABILITY AND FOUNDATION SKILLS Measuring 'soft skills' in young Australians <i>Cameron Forrest, NCVER</i>	POLICY Global skills regulation and public policy: resetting the agenda <i>Damian Oliver, TAFE NSW</i>	INTERNATIONAL 21st century skills for work and life and a move to the greening of economies for sustainable development <i>Rupert Maclean, College of the North Atlantic - Qatar & John Fien, RMIT University</i>	RURAL AND REMOTE Skills for a global future for women in regional Australia <i>Stacey Jenkins, Charles Sturt University</i> NCVER EARLY CAREER RESEARCHER SCHOLARSHIP
2 11:45	PRACTITIONER Embedding capability in the secondary tertiary context <i>Andy Kilsby, Otago Polytechnic</i>	EMPLOYABILITY AND FOUNDATION SKILLS Literacy, social skills and the fourth industrial revolution <i>Lesley Farrell, University of Melbourne</i>	SKILLS Demand for vocational skills – insights from internet job vacancies <i>Patrick Korbelt, NCVER</i>	INTERNATIONAL Factors influencing teachers' enactment of Australian VET curricula internationally <i>Louise King, Charles Darwin University</i>	RURAL AND REMOTE The aspirations for VET of students in rural and remote locations <i>Leanne Fray, University of Newcastle</i>
12:30	Lunch				
3 13:30	PRACTITIONER Competing priorities in vocational education: teachers adapting to reforms <i>Patrick Locke, University of Sydney</i>	EMPLOYABILITY AND FOUNDATION SKILLS The buried N in LLN: the challenge of numeracy and maths, crucial foundation skills for a global future <i>Dave Tout, Australian Council for Educational Research (ACER)</i>	SKILLS Embedded research informing policy and practice in foundation level workplace training programmes <i>Anne Alkema, Industry Training Federation</i>	INTERNATIONAL Australian VET courses for international students <i>Steve Nerlich, Australian Government Department of Education and Training</i>	RURAL AND REMOTE Delivering a diploma of community services (alcohol and other drugs and mental health) in the remote town of Katherine (NT): a case study <i>Xenia Girdler, Global Reconciliation</i> VDC PRACTITIONER SCHOLARSHIP
4 14:15	PRACTITIONER A reflexive model of vocational practice: its potential for students in VET <i>James Harrison, Otago Polytechnic</i>	EMPLOYABILITY AND FOUNDATION SKILLS The role of transferable 'life skills' in skills provision <i>Ndungu Kahihu, CAP Youth Empowerment Institute</i>	SKILLS Graduate profile outcomes: ready to fly <i>Helen Anderson, New Zealand School of Tourism</i>	INTERNATIONAL Demystifying the international VET training market <i>Marc Ruediger, NCVER</i>	OTHER The professionalisation of adult education <i>Karen Dymke, Thoughtfulworks</i>
15:00	Afternoon tea				
5 15:30	PRACTITIONER Is vocational training failing to prepare fitness students for employment and future study? <i>Daniel Jolley, Curtin University</i> AAIR EARLY CAREER RESEARCHER SCHOLARSHIP	EMPLOYABILITY AND FOUNDATION SKILLS The role of foundation-level VET in preparing young people for employment <i>Adelaide Reid, Community Colleges New Zealand</i>	INDUSTRY Enterprise Registered Training Organisations: training and learning practices <i>Erica Smith, Federation University Australia</i>	INTERNATIONAL Towards a high-quality continuing education and training in Singapore: characteristics, challenges and policies <i>Zan Chen, Institute for Adult Learning, Singapore</i>	OTHER Show me the money! VET funding in the past and into the future <i>Kelly Marshall, NCVER</i>
6 16:15		EMPLOYABILITY AND FOUNDATION SKILLS Developing work-ready capabilities: an evaluation of a pilot programme at Otago Polytechnic <i>Philippa Keaney, Otago Polytechnic</i>	INDUSTRY Work, innovation and learning in small medium enterprises (SMEs) <i>Silin Yang, Institute for Adult Learning, Singapore</i>	OTHER How do we arrive at VET completion rates, with a special focus on what is driving the likelihood of VET <i>Brad McDonald & Adrian Ong, NCVER</i>	OTHER Developing tomorrow's skills and building community: innovations from Australia's adult and community education providers <i>Don Perlcut, Community Colleges Australia</i>

Friday 17 AUGUST 2018

CONFERENCE PROGRAM - DAY 2

8:30	Registration open (Aerial UTS Function Centre, Building 10, Level 7, 235 Jones Street, Ultimo)
8:55	Welcome: Dr Mette Creaser, Interim Managing Director, NCVER
9:00	Ministerial address: The Hon Karen Andrews, Assistant Minister for Vocational Education and Skills
9:15	Keynote address (sponsored by Cloudassess): Dr Andrew Charlton, Director, AlphaBeta, <i>Future of work: what skills will Australians need to succeed?</i>
10:00	Co-host address: Mr Ian Rowe, Acting Assistant Deputy Director Sector Services, Ako Aotearoa
10:15	Morning tea (sponsored by Prodigy Learning) and poster presentations (Presenters will be on hand to discuss their work with delegates)
11:00	Concurrent sessions 7 - 11
16:15	5 minute break
16:20	Closing remarks, Best Poster Award and 2019 co-host handover
16:30	Conference close

POSTER PRESENTATIONS - DAY 2 - HARRIS ROOM

<p>A novel model to overcome technical report writing difficulties for first year engineering students <i>Md Aftabuzzaman, Melbourne Polytechnic</i></p>	<p>Set for work, set for life, set for the future: best practice guidelines for a successful and sustainable vocational education <i>Ken Eastwood, The Skills Organisation</i></p>	<p>Skills in the workforce: perspectives from Tasmanian STEM industry <i>Jennifer Earle, University of Tasmania</i></p>
<p>Changes in the working lives of VET practitioners in recent years: a case study <i>Chris Ho, Box Hill Institute</i></p>	<p>Australian multi-industry pilot programs support better apprenticeship completion rates and employer engagement <i>Gary Workman, Apprenticeship Employment Network</i></p>	

CONCURRENT SESSIONS - DAY 2

ROOMS:	WATTLE	THOMAS	BROADWAY	JONES
7	<p>11:00 APPRENTICES & TRAINEES Women in trades: how women have succeeded in trades where they are traditionally under-represented <i>Kylie Taffard, BCITO Lead Organisation in Women in Trades Research Consortia</i></p>	<p>11:00 YOUNG PEOPLE How do Australian youth find careers information? <i>Peta Skujins, Apprenticeship and Traineeship Information Service</i></p>	<p>11:00 POLICY Australian VET policy: processes, stakeholders and issues <i>Hugh Guthrie, Centre for Vocational and Educational Policy, MGSE, University of Melbourne</i></p>	<p>11:00 SKILL NEEDS Right skills. Right time? The \$4 billion annual cost of over-qualification affecting one in four Australian workers <i>Silvia Munoz, SkillsIQ</i></p>
	11:45 Lunch			
8	<p>12:45 APPRENTICES & TRAINEES Slicing VET data differently: tropical seasonality and evidence-based policy <i>Don Zoellner, Charles Darwin University</i></p>	<p>12:45 YOUNG PEOPLE From school to VET: how students transition and how we can help them <i>Michelle Circelli, NCVER</i></p>	<p>12:45 DIGITAL LEARNING e-assessments for learning: supporting learning as becoming <i>Selena Chan, Ara Institute of Canterbury</i></p>	<p>12:45 SKILL NEEDS Cutting through the noise: defining the future skill needs for Queenslanders <i>Caroline Smith, Jobs Queensland</i></p>
	<p>13:30 APPRENTICES & TRAINEES Factors influencing apprenticeship completion in Scotland <i>Malcolm Greig, Skills Development Scotland</i></p>	<p>13:30 YOUNG PEOPLE The role of VET in shaping the aspirations of Indigenous secondary school students <i>Sally Patfield, University of Newcastle</i></p>	<p>13:30 DIGITAL LEARNING Pedagogically framing VET online <i>Deniese Cox, Griffith University</i></p>	<p>13:30 SKILL NEEDS Making a job versus getting a job: the future of work has changed! <i>Don McLaren, Telford Agricultural Institute</i></p>
14:15 Afternoon tea				
10	<p>14:45 APPRENTICES & TRAINEES The future of technical training <i>Geoff Crittenden, Weld Australia</i></p>	<p>14:45 YOUNG PEOPLE Preparing young people for the global future of work <i>Alex Snow, The Foundation for Young Australians</i></p>	<p>14:45 DIGITAL LEARNING Evaluating lecturer experience of a video assessment of student practice skills in an undergraduate midwifery degree programme <i>Carolyn McIntosh, Otago Polytechnic</i></p>	<p>14:45 SKILL NEEDS The student as researcher: preparing people for a rapidly changing workforce <i>Henry Pook, Holmesglen</i></p>
	<p>15:30 APPRENTICES & TRAINEES Analytics and insight: developing a tool to support building and construction apprentices' completion <i>Karen Vaughan, NZ Council for Educational Research</i></p>	<p>15:30 OTHER Harnessing existing skills and experience of recently arrived migrants and refugees. Implementation and assessment of a novel student support program which informs on VET pathways to training, education and employment <i>Craig Poole & Christine Jolly, TAFE Queensland</i></p>	<p>15:30 DIGITAL LEARNING Digital humanity: algorithmic identity and employment <i>Janine Arantes, Holmesglen</i></p>	<p>15:30 OTHER Coaching for success: a student academic support model <i>Sharon Aris, Australian College of Applied Psychology</i></p>
11	<p>15:30 APPRENTICES & TRAINEES Analytics and insight: developing a tool to support building and construction apprentices' completion <i>Karen Vaughan, NZ Council for Educational Research</i></p>	<p>15:30 OTHER Harnessing existing skills and experience of recently arrived migrants and refugees. Implementation and assessment of a novel student support program which informs on VET pathways to training, education and employment <i>Craig Poole & Christine Jolly, TAFE Queensland</i></p>	<p>15:30 DIGITAL LEARNING Digital humanity: algorithmic identity and employment <i>Janine Arantes, Holmesglen</i></p>	<p>15:30 OTHER Coaching for success: a student academic support model <i>Sharon Aris, Australian College of Applied Psychology</i></p>

Listed in alphabetical order of presenter surname.

A novel model to overcome technical report writing difficulties for first year engineering students

POSTER

Dr Md Aftabuzzaman, Melbourne Polytechnic

Written communication skills are a critical competency required in the workforce and it is one of the generic attributes that mentioned in Stage One Competency of Engineers Australia. Technical information can be contextualised by graphical presentations (such as drawings, models etc.), by concept maps or by mathematical modelling. However, comprehensive delivery of engineering ideas often requires written description. Engineering programs have been designed to habituate students in technical report writing, however a systematic development of this key skill is lacking in many higher education programs. In particular, first year students who are transiting from a much-guided learning environment at secondary school to a more independent learning system at universities and TAFEs, face the challenges of writing technical reports at the early stages of their tertiary education.

The objective of present study is to develop and implement the “technical writing skill development model” among first year engineering student in a systematic way to achieve well-versed written communication skill.

The proposed model consists of implementing a block program embedded in an existing first year subject. The model includes delivery of ranges of topics in scientific and technical writing running 30 minutes per week for 8 consecutive weeks of the second semester of the first year. The topics include lecture materials, hands-on activities, and facilitated in-class study skills and guided discussions. Students' feedback will be collected at the end of semester to assess the effectiveness of the model.

The program is anticipated to improve the technical report writing skill in a systematic approach addressing core challenges for first year students as they transit from secondary school to tertiary education. Furthermore, it is expected that at the end of the program students likely to overcome threats pertaining to engineering study continuation which may evolve due to difficulties related to writing skill.

Contextualizing technical knowledge is a versatile skill that lacks in many engineering students due to unavailability of a systematic approach of report writing training at the early stage of their higher education. The model evolved in the present study is anticipated to lay a foundation for technical writing skills development. The approach and an implementation study of the model is expected to demonstrate the effectiveness in improving technical writing skill for first year students.

Embedded research informing policy and practice in foundation level workplace training programmes

SKILLS

Ms Anne Alkema, Industry Training Federation NZ

New Zealand' s results in the Survey of Adult Skills (PIAAC) are much like those in Australia. This translates to around 43 percent of our adult populations not being fully equipped with skills in literacy, numeracy and problem-solving in technology rich environments that enable them to participate fully in learning, life and work. Most of these people are in work, so the challenge is to upskill them in literacy and numeracy, and digital literacy, while they work.

New Zealand has retained a workplace literacy and numeracy fund that supports employees to develop their literacy and numeracy skills within the context of their jobs and workplace. The Industry Training Federation is contracted by the Tertiary Education Commission to manage Skills Highway, the government' s 'brand' for this work. The Skills Highway programme includes an embedded research and evaluation programme. The purpose of this work is to:

- provide evidence to government about the outcomes/impact of funded programmes on individual employees and the companies
- provide evidence to government on the impact of foundation learning policy changes, including those related to vocational training
- use research evidence in an ongoing way to inform policy and practice
- use research evidence to 'tell stories' for employers
- share evidence with practitioners so they actively engage with research to inform practice
- involve practitioners as action researchers.

This presentation will describe the research and evaluation methods, the findings from projects, and the value of having an ongoing research programme nested within a wider framework of government-funded work. It will also describe a 'work in progress' that is being co-funded by Ako Aotearoa. This two-year project is investigating the teaching and workplace learning practices that support successful outcomes for Maori and Pasifika workplace employees.

The latter is of particular importance in the Zealand setting where around a third of the 7,000 foundation level workplace learners each year are Maori and Pasifika. While we know these programmes attract, engage and retain these employees we need to know more about how this happens. We are also investigating how these employees:

- transfer their new knowledge to the workplace
- continue to develop their knowledge and skills so they move into more skilled roles
- go on to a career or qualifications pathway
- use their knowledge and skills in their whanau and community lives.

Graduate profile outcomes: ready to fly

SKILLS

Dr Helen Anderson, New Zealand School of Tourism

Defining skills for a global future in vocational education is a challenge for educators, students, researchers and politicians. Looking forward to where we might want to go, looking at what we are doing now and considering if there is something already in place that might work has the look, somewhat, of a fishing expedition albeit one that might at least identify the issues.

Graduate profiles are an indicator of the direction and values of an education system and it is timely to provide an analysis of these to add to the important discussion surrounding vocational education, its direction, pedagogies and its values.

The study to be presented is Stage 2 of an analysis of the Graduate Profile Outcomes assigned to qualifications at levels one to six on the New Zealand Qualifications Framework as an outcome of the NZQA Targeted Review of Qualifications. Each newly developed qualification now includes a set of Graduate Profile Statements that any programme must meet if it is to be approved under that qualification.

Stage 1 of this study analysed the GPOs from qualifications listed as an outcome of 55 topic reviews completed at that time. The approach taken was built from qualitative research and created groupings of statements both from a semantic analysis and from an analysis focused on implied value. The analysis identified consistent themes among the graduate profile statements and how these themes relate to the incomplete but growing international literature on vocational education and the development of programmes of study.

The outcomes of Study 1 were concerning for the limited evidence of GPO statements that might connect with the notions of future learning, sustainable engagement in change and the importance of the tough (soft) skills needed in evolving workplaces. In Study 2 a further 17 topic reviews have been added and there are some differences between the earlier and later reviews with regard to the future focus of the GPO statements.

This paper will summarise the outcomes of Study 1, add the outcomes of Study 2 and consider the implications of the GPO profile that emerges for the direction of vocational education and the value of GPOs.

Digital humanity: Algorithmic identity and employment

DIGITAL LEARNING

Ms Janine Arantes, Holmesglen

Alongside technological progression, the analysis of 'big data' described as data too large to be analysed by standard databases, has become part of every domain, including education and employment. Far from just recording results and behaviours, anonymised 'big data', is being analysed to predict attitudes and behaviours, through the use of digital profiles.

With human intervention removed in many modern-day selection processes, and an increasing amount of 'big data' collected from secondary education sources, this digital profile may have significant impact on students' future employment prospects. Currently on the cusp of mainstream implementation, digital personalised learning in secondary education enables the creation of a very detailed and intimate digital identity that students cannot curate themselves.

For the purposes of the presentation, this digital profile will be called the 'Algorithmic Identity'. The 'Algorithmic Identity' is assigned to the student without their knowledge or comprehension by the proprietors of analytics tools used in digital personalised learning. It is also the digital profile used by talent analytics in the selection process that enables predictions about cultural fit, possibility of success in a role and whether employees are likely to leave the workplace at a given time. Although used for these critical decisions, impacting both the student and society at large, the literature suggests that understanding and awareness of this identity and how it is used, remains largely unnoticed and unmet.

Therefore, the presentation is of interest to anyone who wants to understand more about ethical considerations that may be apparent with the use of talent analytics. This may be a student applying for a job at a large corporation or a careers advisor working with students. But more specifically it could be anyone who is female, ATSI, or lives in a low socio-economic suburb, as the presentation explores the algorithmic identity and employment from an ethical perspective.

This presentation aims to explore how employment may be impacted due to the 'Algorithmic Identity', focusing on notions of bias, discrimination and inequality. The presentation is based on a section of a PhD literature review completed in 2017 and encourages participants of the conference to consider whether this identity enables implicit biases to be perpetuated in the employment process. Aimed at raising awareness and invoking discussion, the presentation will use real world examples in the scholarly literature to illuminate various ethical considerations that may be currently obfuscated but may also have impact and consequences on students' employment opportunity.

Coaching to success: a student academic support model

OTHER

Ms Sharon Aris, Australian College of Applied Psychology

Successful student completion of study is a key outcome of vocational education and learning programs. However, what enables some students to succeed in a program while others struggle is less understood. This paper presents the evaluative findings of a highly successful student intervention program called 'the coaching clinic' and uses statistical data and case study examples to provide insights into the key interventions that enabled nine in ten students referred to this to successfully complete their study unit.

In 2016 ACAP embarked on research into student completions to enable us to better understand why some students passed and others failed in the same study programs. From this a map of the student journey was produced, some of which has been previously reported at No Frills in 2016 (The Truth About Data... Discovering What Learners Really Want).

Two key findings from this was that students often failed to complete units of study for non-study related reasons and that some students had difficulties transitioning to an adult learning modality. That is, the former group failed to progress due to their external circumstances, while the latter experienced difficulties functioning in the structures of the learning environment.

The Coaching Clinic was developed in response to this to provide a one-stop-shop for student academic and personal support. The clinic was based on a case management model, with the central principle being that a holistic view of the student is crucial to their success. Thus, this favours one-to-one relationship building, adopts a strengths-based approach and seeks to curate support programs according to individual student needs. It was also understood as using a learning model based on the pedagogy of 'learning by doing' that is most familiar from sports coaching. This is particularly relevant to vocational education as it enables learners to receive side-by-side support as they focus on building mastery. In the coaching clinic this was particularly crucial for learners transitioning from high school learning to mastering study in an adult learning environment.

Teachers referred students to the clinic after their first failed resubmission of an assessment or if they had completed some but not all of the unit requirements once the trimester had finished. Depending on need, students received a range of supports that included effective time management strategies, learning support to aid assessment comprehension, the development of individualised study plans, intensive assessment draft support and emotional support. Significantly, most students referred to coaching clinic graduated from their diploma study programs and several have now progressed to studies in higher education. Another successful outcome of this program has been the re-engagement of students who for personal reasons needed to defer. As a result of the assistance they received by the coaching clinic several felt supported to return to their studies. Finally, a feedback loop has been created to curricular staff through advice on where assessment designs were creating roadblocks to student success.

e-assessments for learning: supporting learning as becoming

DIGITAL LEARNING

Dr Selena Chan, Ara Institute of Canterbury

With New Zealand's (NZ) shift from competency based to graduate profile outcomes qualifications, the contribution of assessments for learning has attained greater importance. Therefore, the NZ vocational education is now able to place greater emphasis on assisting learners to meet graduate profile outcomes through 'learning to become' (Hodkinson, Biesta & James, 2008). Completing a qualification is therefore envisioned to not just be a process of gaining credentials, but to assist learners to 'learn to become' (Chan, 2013) and to support the development not only of occupational identities, but of learner identities (Pryor & Crossuard, 2010). In particular, to ensure graduates are prepared for a future of work which is increasingly challenged by the advent of 'industry 4.0'.

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The presentation will overview the main findings from the Ako Aotearoa (NZ Centre of Teaching Excellence) and NZ Qualifications Authority (NZQA) funded project to develop guidelines for e-assessments for learning. The guidelines were derived from seven innovative e-assessment for learning projects carried out across four institutes of technology or polytechnics (ITPs). The project envisages assessments for learning as processes to develop learner efficacy (i.e. so the learner knows where and how their learning is progressing and what they need to do to reach learning goals). Digital tools / platforms, extend possibilities for learners to record and reflect on their learning. Feedback cycles to assist learners are also readily availed either synchronously or asynchronously from teachers, peers, workplace trainers, technical experts etc.

However, how e-assessment tools and platforms are developed and implemented requires deep understanding of teaching and learning and how the potentialities of digital tools and platforms may be used to enhance assessments for learning. Hence, the project also developed a range of 'tools' and platforms to be used to assist with the design, development and deployment of e-assessments across vocational learning contexts

Future of work: What skills will Australians need to succeed?



Keynote address

Dr Andrew Charlton, AlphaBeta

What will the future of human work look like? As machines become more sophisticated, their capability to do human tasks is increasing and human work will change. What tasks (if any) will be left for humans? And what skills will human's need to succeed in a future increasingly dominated by machines.

Twenty-five years on, it is a good time to consider the challenges and opportunities for industry training and apprenticeships, as the vocational education and training system as a whole grapples with profound societal and technological changes.

Towards a high-quality continuing education and training in Singapore: characteristics, challenges and policies

INTERNATIONAL

Dr Zan Chen, Institute for Adult Learning, Singapore

Continuing Education and Training (CET is used in this study to refer to adult vocational education and training; it is a more commonly used term than VET in Singapore) is critical to Singapore's effort to compete in the global economy and respond to its major economic and social challenges. In the face of a rapidly changing economy, one of the major challenges in CET is to enable Singaporeans to participate and develop deep skills and gain mastery to raise the workforce productivity, competency and resilience through a culture of lifelong learning. However, our current understanding about the overall CET system remains fragmented and lacks depth. We are unclear of who the CET professionals and providers are, what approaches and forms of delivery they use, what influences their practices and decision making, how technology is used to advance their business operations and training delivery, how manpower resourcing and continual skills development occurs within the CET sector, what challenges they face, what are their needs for professional development, and how CET policies and initiatives may impact their practices and development.

This paper reports a national CET landscape study which gathers baseline information about the organisations and professionals working in the CET sector, including their profiles, beliefs, practices and challenges they face, as well as the impact of government policies and initiatives on them.

The results provide CET professionals and providers with an understanding of the environment in which they work, thereby potentially contributing to their strategic decisions about their personal career trajectories and organisational business development. Outcomes of this study include identification of gaps and challenges that CET professionals and providers may have towards blended learning using technology-enabled learning and workplace learning, as well as the forms of collaborative activities that may be required. The baseline information about the profiles of CET professionals and changes in demand and supply can be useful reference for the design of necessary professional development programmes for the professionals. It will also potentially enable CET providers to better manage their programmes offerings and business models. For policy makers, understanding how CET professionals and providers perceive and respond to CET policies and the challenges faced by the practitioners can help them improve existing policies, design new initiatives, and roll out well calibrated interventions if necessary. With such understanding, both the practitioners and policy makers will be better positioned to make more purposeful efforts for an integrated, high-quality system of education and training that responds to constantly evolving skills for a global future, as well as fosters a culture that supports lifelong learning.

From school to VET: choices, experiences and outcomes

YOUNG PEOPLE

Ms Michelle Circelli, NCVET (authored by Ms Kristen Osborne, NCVET)

The transition from school to further education and work is a milestone in the life of a young person. For some young people, part of that transition may involve vocational education and training (VET). This presentation discusses the key learnings from recent research commissioned or undertaken by NCVET focused on the transition of school students into VET, their experiences and their outcomes. The presentation explores what influences young people to undertake VET post-school, the factors that support them to complete VET and their outcomes following participation in VET. Findings such as the importance of exposing students to VET-related experiences while they are at school and offering appropriate academic and social support while they are undertaking VET study are discussed.

Pedagogically framing VET online

DIGITAL LEARNING

Mrs Denise Cox, Griffith University (co-authored by Dr Sarah Prestridge, Griffith University)

Teaching online is one of the fastest growing innovations in education globally, affecting all levels of education – including VET. While online education increases learning accessibility for a wide range of participants, it is also acknowledged as a challenging undertaking for many teachers. Online education is inherently different to face-to-face teaching and teaching online requires more than simply learning the technology involved – it requires pedagogy different to that of face-to-face teaching. Low student grades, successful completion rates, isolation, and disengagement are but a few of the issues within online education in general, but also within VET online. At present, there is a significant need for research in this field to support the rapid changes taking place.

Despite the increasing prevalence of online VET, little is known about the nature and development of its online teaching practices as much of the online education research to date has been conducted within university contexts. These studies provide the foundations for online pedagogical approaches, but they do not take into consideration the different instructional design, teacher qualifications, and student learning needs associated with VET. Higher education research has identified some constraints that impact online teaching practices include class size, teacher workload, teacher knowledge, and the discipline being taught. However, the relevance of these factors within online VET is not yet known. Furthermore, the competency-based training model of VET and the dual-identity of VET teachers may introduce additional influences.

When focused specifically on pedagogy, teachers are influenced not only by their knowledge of teaching but also by their beliefs about teaching and their idea of what a good teacher does. Yet research shows that a teacher's own preferred approach to teaching is not always aligned to their implemented practices – the teaching context itself introduces constraints that cause teachers to adapt away from their preferred practice.

This PhD research project investigates what constraints and opportunities influence teaching practices within a 70-teacher, fully-online team at TAFE Queensland. A combination of survey, observation, and interview will be used to identify how and why teachers adapt their pedagogical practices in the context of teaching VET online. This paper will specifically report on the results of the digital survey that captures a range of perceived ideal teaching practices of online VET teachers.

In these results, data will be presented on teachers' knowledge – knowledge of teaching, of the content being taught, and of technology used to support the teaching and learning process. The results of the survey will form baseline data that will direct qualitative methods within this research. It is also envisaged that this baseline data will inform further research about student outcomes and best-practice initiatives specific to VET. Implications associated with professional development interventions and organisational strategies that alleviate teaching context constraints identified will also be presented

The future of technical training

APPRENTICES & TRAINEES

Mr Geoff Crittenden, Weld Australia

In the digital era, disruptive technologies have started to play a key role in several sectors, including education and training. Increasingly, old-school training techniques are being replaced with innovative teaching methods that rely on augmented and virtual reality systems.

This presentation will explore the advancements in augmented and virtual reality technology being used to train welders, and the range of benefits offered by using augmented and virtual reality solutions to train and upskill the welding workforce, such as reduction in cost, reduced emissions, eliminated risk and increased success rates.

Applied to the training of welders, augmented and virtual reality training systems are student-focused, allowing individual students

ABSTRACTS

to progress at their own pace. Welding apprentices learn and understand welding procedures and techniques through a gamified, interactive training method, gaining hands-on experience in a controlled, safe environment. With zero risks involved, apprentices can respond to realistic scenarios without pressure or fear of injury. Augmented and virtual reality training is enabling future welders to acquire the skills and the self-confidence they need before moving into real world workshops. The new paradigm in vocational, technical and industrial training, augmented and virtual reality training technologies are proven to be efficient and environmentally sustainable, offering significantly reduced CO2 emissions when compared to traditional welding training and slashing consumable usage. These systems allow training centres and industry to save costs and time whilst training professional welders.

In recent tests comparing augmented reality technology to traditional welding training, the results demonstrated that 34% more welders were certified in 56% less time, saving up to 68% on the overall cost of welder training. In addition, the same augmented reality training technology increased the time on arc by three to five times, and enabled training institutes to educate four times more students while maintaining existing lab infrastructure.

There are a range of other benefits offered by augmented reality training technologies. The augmented reality world can contextualise job-specific training, giving students the opportunity to experience the consequences of their decisions in a safe environment—mistakes simply invite exploration, rather than resulting in health and safety risks.

The acquisition and retention of knowledge and skills is similarly improved, with hands-on practice provided in conjunction with theoretical study. For a student, processing information that may already be perceived as tedious is unlikely to result in positive learning outcomes.

The professionalisation of Adult Education

OTHER

Ms Karen Dymke, Thoughtfulworks

Professionalisation is the process through which an occupation gradually fulfils the criteria assigned to a profession (Hoyle, 1982) Currently the professional training, expectation and development for teachers, trainers and educators in the VET sector is very limited. However the demands of teaching in this sector are complex and diverse. Educators in the VET sector need a much more comprehensive opportunity to be afforded continuous and systematic training to meet the needs of students. This includes a deep and current understanding of the principles of androgogy, and an awareness, in many sectors, of the impact of learning disorders, trauma and mental health issues which impact many students. As a recipient of a Fellowship in 2017 with the International Specialised Skills Institute, Karen investigated this topic further to identify what progressions have been made in Europe and how this may inform progress on the professionalisation of adult educators in Australia.

Skills in the workforce: perspectives from Tasmanian STEM industry

POSTER

Mrs Jennifer Earle, University of Tasmania

There has been an escalation of national and international focus (Siekmann & Fowler, 2017) on meeting the needs of current and future workforce skills through advancing the development of skills in science, technology, engineering and mathematics (STEM). “ International research indicates that 75% of the fastest growing occupations now require STEM skills and knowledge” (Office of the Chief Scientist [OCS], 2014), p. 7), and demand for STEM skills and knowledge in Australia will continue to grow as Australia competes in an emerging global economy.

Despite the sharp focus on STEM, analysis of 2011 Census data highlighted an imbalance between growth of a STEM-qualified population against growth of STEM-related occupations. This imbalance implies a need for developing high level STEM literacy across the workforce, as well as establishing a reliable pipeline of STEM graduates into the workforce and calls for a core STEM education for all students supported by “ inspirational teaching, inquiry-based learning and critical thinking” (OCS, 2014, p. 20).

There is a dearth of research that analyses the nature of ‘ STEM skills’ deemed essential for Australia’ s current and future workforce. This is contrasted by a wealth of ideas for educational STEM activities and projects underway in Australia, a large number of articles published in practitioner journals and an abundance of innovative integrated STEM classroom activities, with little analysis of their effectiveness (Mizell & Brown, 2016).

A strategic approach to building an appropriately skilled workforce through alignment with education and training courses is hindered by the nebulous nature of the concept of ‘ STEM skills’ that owns various definitions according to its application to varying agendas (Siekmann, 2016).

My research responds to the growing sense of urgency for the development of a strategic approach to building STEM capacity in Australia by focusing on the industry of its island state of Tasmania. The composition of skills needed for a future workforce is explored to elucidate an unambiguous framework for those skills needed in Tasmanian growth industries. This information will assist endeavours to build essential skills into education and training curricula to close the gap between skills demanded by employers and skills generated in education and training systems.

Set for work, set for life, set for the future: best practice guidelines for a successful and sustainable vocational education

POSTER

Mr Ken Eastwood, Oyster Workshop (co-authored by Ms Sarah Rennie, Oyster Workshop, and Mr Nigel Stud-dart, Education Business Solutions)

System drivers in vocational education in New Zealand have become disconnected from the future of work and the workplace. There is a lack of confluence between the world of work and the world of learning, resulting in a call for an outcomes-focussed framework. A lack of clear navigation is not limited to low socioeconomic groups or those not in employment, education or training (NEETS). Nearly a third of people enrolling in trades training in NZ have a degree and student debt (ITF,2017). A demand-driven learner facing economy requires work prepared entrants. The vocational education and training working group called for a system driven by outcomes rather than inputs. Without alignment of these worlds to outcomes we are giving our students a safe landing, but at the wrong airport. The picture is complicated by funding in this space which may produce a lack of clarity of direction and purpose. Dual pathways, engineering education to employment (EE2E), secondary tertiary alignment resource (STAR), employment passports, pre-trades and Gateway are all funding streams in the secondary tertiary transition space. The definition of Level 2 credits between NZQA unit standards and NCEA achievement standards, as used by schools, in New Zealand creates complex dynamics. These funding streams are sometimes seen as a credit opportunity driven by the need for 80 credits at Level 2 to meet targets. This space is further complicated by timetabling which varies across schools within the same catchment.

This is of particular issue in rural areas where students are often economically disadvantaged and lack the services available in city centres. This includes public transport and access to health and education as well as ready access to role models and peer support.

Set4Life methodology set out to address these needs by recognition of the individual nature of each journey and by providing a human relationship-based support structure.

Interventions included providing unbiased and funding agnostic careers exposure, advice and guidance (Set4Life, Workchoice) and identifying key gaps in service and education, and supporting this educationally, pastorally and practically in the transition space into work (Set4Life Navigator).

Findings in this transition space included the need for a Workbroker and that some students emerging with Level 2 did not meet established workplace needs for literacy and numeracy.

Students, educators and employers benefited from guidance and effective navigation through this ever-changing space. Set4Life provided system integration with a weather eye to the future of the demand economy. This developed not only individual potential for productivity providing grounded and work ready employees, but also highlighted the need for employer training and capacity. Conscious development of the workplace and employer, the learning environment and the learner, can produce a seamless coalition bridging this transition. A unique advantage of this approach lies in the ability of the navigator to be agile and responsive acting as a key touchpoint for system change.

The Set4Life approach acted as an agent for this change developing cultural acceptance and capacity for multiple pathways, technical and academic, equally valued.

Literacy, social skills and the fourth industrial revolution

EMPLOYABILITY & FOUNDATION SKILLS

Lesley Farrell, University of Melbourne (co-authored by Chris Corbel, University of Melbourne)

The Fourth Industrial Revolution is transforming work - reshaping not just the production process but the way products and services are imagined, developed, produced and distributed. Increasingly, machines are doing the work that people used to do. Virtually any routine task can be automated. Industrial robots are increasingly used in manufacturing, taking over tasks formerly undertaken by skilled and semi-skilled workers. Even professions such as Law, Accounting and Engineering are facing the automation of routine tasks that involve making calculations, recognizing patterns and searching vast tranches of documents. There are many industrial and professional tasks that robots can do faster, more accurately and, increasingly, cheaper than human employees.

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Within this context there is a growing recognition that the distinctively human contributions to work - the tasks that robots cannot yet reliably undertake - are associated with social skills. This recognition is reflected in the labour market, which increasingly rewards social skills. Deming (2015) has demonstrated that despite the emphasis on STEM knowledge in the public debate, given a choice between a candidate with high maths capability and low social skills, and one with low maths capability and high social skills, employers will choose the candidate with low maths and high social skills. Deming notes that the strongest growth in both jobs and wages occurs when social skills are paired with technological skills and STEM knowledge, especially maths. Jobs growth is also occurring in areas requiring high social skills but low technological/STEM demands, for instance service roles in health and customer service, although wages remain low in these fields and employment precarious.

Social skills, or soft skills, are 'core competencies' required by industry and developed by education systems. But, what are these social skills, and how are they developed and assessed? They are commonly labelled 21st century skills: problem solving, team work, collaboration etc – activities that rely on human interaction. In this paper we take the position that these skills are better understood as literacy practices – sophisticated forms of reading, writing, listening and speaking upon which the contemporary workplace relies. We make this argument on the basis that contemporary forms of work routinely require technologically mediated communication to create and maintain relationships and to move projects forward in geographically and temporally distributed teams. Problem solving software platforms are a ubiquitous feature of contemporary workplaces and require employees to read, and especially to write, in new ways and to an extent well beyond what was expected in previous workplace configurations. Social skills, or soft skills, are mediated through literacy practices and learned and animated in literacy practices. While the importance of 'basic' workforce literacy is well acknowledged, and even assessed through PIAAC and other assessment programs, it is generally the technical practice, and not the sophisticated social practice, of literacy that is prioritized in these assessment programs.

In this paper we call on preliminary data and analysis to sketch the argument that the Fourth Industrial Revolution, sometimes known as Industry 4.0, may be accompanied by Literacy 4.0 – the need for a new and fundamentally different form of literacy education.

Measuring 'soft skills' in young Australians

EMPLOYABILITY & FOUNDATION SKILLS

Mr Cameron Forrest (co-authored by Ms Keryn Bain, NCVET)

Employers and educators are increasingly recognising the importance of skills other than intelligence and technical knowledge for workplace performance. Skills such as communication, problem solving, leadership, and creativity may be even more important than academic achievement for predicting productivity in modern work environments. Since they are not specific to any one job role, it is also thought that they create a more flexible and responsive workforce.

Measuring these skills, however, has proven difficult. Personality tests are widely used, but do not measure skills as such, and their relationship with job performance varies. Other measures tend to be specific to a particular skill or industry and can be very long and resource-intensive to administer. This presentation addresses issues in soft skill measurement and presents the preliminary validation of a new measure of soft skills, piloted in the most recent survey for the Longitudinal Surveys of Australian Youth (LSAY). This measure was specifically designed with young Australians in mind, and prioritised ease-of-use and relevance to education and employment outcomes. This presentation will cover how the measure was developed, which skills were measured, and how such a measure might be used to explore the relationship between soft skills and labour market outcomes.

The aspirations for vocational education and training of students in rural and remote locations

RURAL & REMOTE

Dr Leanne Fray, University of Newcastle (co-authored by Miss Sally Patfield and Professor Jennifer Gore, University of Newcastle)

Students in regional and remote communities often face a complex set of challenges in education, particularly education beyond secondary schooling (MacKillop et al, 2012; Jaegar et al, 2015; Lamb et al, 2015). Despite a range of policy and funding reforms across the Vocational Education and Training (VET) sector (Atkinson & Stanwick, 2016), including new pathways to entry into tertiary education (Webb et al. 2015), participation by students from outer regional, remote and very remote areas continues to decline (NCVER, 2017).

While there has been a proliferation of research on the aspirations for university of students in these areas, relatively little analytical work has been undertaken focusing on students' aspirations for VET (NSW DEC 2012). In particular, little is known about who amongst students from regional and remote areas aspires to VET or VET-related careers and the challenges these students face. Drawing on survey data from more than 1500 students in regional and remote locations of NSW, from Years 3 to 12, and interview data with 173

students, and some of their parents and teachers, this paper provides a comprehensive profile of who aspires to VET and VET-related careers. We found gender, school stage, prior achievement and access to cultural capital to be significant predictors of who aspires to VET and VET-related careers in regional and remote areas. Students, their parents and teachers reported significant challenges in accessing VET including cost, distance, the restricted range of courses available, poor internet access, and moving away from community. In addition, many students had limited access to people with experience of VET to assist them in making choices as they move through school towards work.

The evidence from this study provides a foundation which can inform the role of schools and VET institutions in shaping the future of the sector. It also highlights a clear disparity between larger systemic aims for building a strong vocational workforce and the vocational desires of school children.

Delivering a diploma of community services (alcohol and other drugs and mental health) in the remote town of Katherine (NT): a case study

RURAL & REMOTE

Ms Xenia Girdler, Global Reconciliation VDC Practitioner Scholarship recipient

Objective: To describe the instructional design and implementation process of a contextualised Diploma of Community Services in Katherine (NT) in collaboration with local industry and practitioners.

Method: This is a descriptive case study of how, in response to a need, a city-based Diploma of Community Services (Alcohol and other Drugs and Mental Health) was modified and delivered in the remote region of Katherine in the Northern Territory. The key aspects included organisational agreements, understanding local needs and realities, collaborative development of a contextualised course design, overcoming funding shortfalls, incorporating two-way learning, managing with sparse resources, and building a conducive learning environment.

Results: Of the 24 students who completed the course in the first two iterations of the program, 91% received their Diploma. Workshops conducted as part of the course enabled students to develop cross-agency and cross-sector connections as well as professional collaborations. After graduation, several students successfully applied for higher paying positions within their own or alternative services whilst others decided to go onto further study. The program has since been delivered across the NT in Alice Springs, Tennant Creek, Katherine and the remote community of Ngukurr.

Discussion: The lessons learnt from this endeavour could be utilised by other remote area health services and city-based training organisations to design and deliver vocational courses in remote areas of Australia.

Factors influencing apprenticeship completion in Scotland

APPRENTICES & TRAINEES

Mr Malcolm Greig, Skills Development Scotland

Completing an apprenticeship has been shown to be a critical factor in an individual's future employment, progression and career development. Previous research highlights that, when compared with apprentices who do not complete, completers are more likely to be in employment and more likely to be working at a higher level, for higher pay and doing a job with more responsibilities. Complementary evidence from employers shows that apprentice completers are better able to do their job and are better at working with others. Business organisations in the UK have also stressed the importance of completions rather than the number of starts as a policy priority.

Identifying those most likely to complete and providing appropriate support to those least likely to complete, is therefore an important component in tackling youth unemployment, increasing the skills and productivity of the workforce, and obtaining value from publicly subsidised vocational training. International research, notably in England, Australia and Germany, has identified factors specific to the apprentice, their employer, occupation, training provider and the labour market that are associated with a higher chance of apprenticeship completion. However, to date there has been no comparable research in Scotland, which operates its own distinct and well-established apprenticeship system.

Building on evidence from other countries, this research conducted logistic regression on records of apprenticeship leavers in Scotland, covering those who started in the period 2007 to 2015. A total of 78,952 apprenticeship leavers were analysed, consisting of 59,737 completers and 19,215 non-completers. A positive relationship with apprenticeship completion was found for female apprentices, older apprentices, those from less deprived areas, those employed by a large employer, those receiving training provided by public sector organisations and those in selected technical frameworks. A higher local unemployment rate in the apprenticeship start year was also positively associated with completion. Conversely, apprentices from a minority ethnic background, employed with a small employer,

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or undertaking an apprenticeship at a lower level were less likely to complete, as were female apprentices in certain male-dominated occupations.

There are implications for apprenticeship policy, in Scotland and beyond, in targeting support towards lower-performing apprentices and looking in more depth at the reasons why apprentices in some industries, occupation frameworks and types of training are more likely to complete than others.

Australian VET policy: processes, stakeholders and issues

POLICY

Mr Hugh Guthrie, Centre for Vocational and Educational Policy, Melbourne Graduate School of Education, University of Melbourne

The processes and practices used to develop, implement and evaluate VET policy, programs and initiatives has been the subject of media and other scrutiny in recent times. In part, this is because there have been some notable failures in policy and program development and implementation which have played their part in damaging the VET 'brand'.

The presentation will introduce the policy development process used in VET based on a comparison with 'ideal approaches' promoted by Australian governments. It will also discuss the players involved in the policy and implementation processes and the extent to which the diversity of VET's remit affects both the number of players and the extent to which policy development and its implementation is challenging for the sector.

NCVER's policy timeline will be used to introduce a number of selected policy and other initiatives over the last 20 years. These will be used to identify and describe a number of the key issues confronted by those developing and implementing VET policy and other initiatives, using examples such as the 'marketisation' of VET provision in a range of jurisdictions, the growth of Australian VET programs both on and offshore and VET FEE-HELP. Aspects that will also be considered include: the challenges of implementing nationally-agreed policy and initiatives at the jurisdictional level; accessing and weighting the voices in the policy debate and dealing with the unforeseen consequences of the development and implementation processes.

The presentation will conclude with a range of the 'ways forward' required to improve the development and implementation processes and improve the standing of VET and its programs in Australia.

Changes in the working lives of VET practitioners in recent years: A case study

POSTER

Mr Chris Ho, Box Hill Institute

The purpose of my case study, undertaken by means of interviews in the Hospitality Departments of two VET Institutes in Melbourne, Victoria, Australia, was to gain an in-depth understanding of the changes which have occurred in recent years and their effects on the working lives of the VET practitioners. To achieve this, I used a qualitative research method to seek answers to the research questions, by using a set of case study procedures which allowed me to systematically collect evidence, and produce findings based on the data collected. These findings will also be applicable beyond the immediate boundaries of my case study.

Recent changes in the workplace for Vocational Education and Training (VET) practitioners have been occasioned by four predominant factors: changes in state and federal government policies; changes in training packages in order to make them more relevant; the advancement in technology and the way it has been integrated into a blended learning approach; the adoption of a business model approach in vocational education to ensure that centres within institutions remain profitable and viable.

My findings indicate that there has been a dramatic increase in the administrative work load placed onto the VET practitioners, caused by these changes. In particular, the pressures on VET practitioners to be more productive, the pressure on administration staff (centre managers and above) to perform financially for their centres and their institutions and, in many cases, the lack of the necessary communication and leadership skills required to build productive and enthused teams able to focus more on viability and profitability is leaving trainers feeling confused and inadequate as they grapple with students who now must be treated as both learners and clients.

As an outcome of my study, I have proposed a transformational model – applicable at both an individual and organisational – that will alleviate the stress and the pressure in times of change, and that will transform the VET practitioner's workplace into one that will be more personally productive for both themselves and for the institutions in which they work.

Skills for a global future for women in regional Australia

RURAL & REMOTE

Dr Stacey Jenkins, Charles Sturt University (co-authored by Dr Donna Bridges, A/Professor Branka Krivokapic-Skoko and Dr Larissa Bambery Charles Sturt University) [NCVER Early Career Researcher Scholarship recipient](#)

Vocational skills are crucial for the development of a globally connected future for regional Australia. Many local government and regional development organisations have recognised the importance of addressing skill shortages and bringing skilled tradespeople into regions in order to drive economic growth. Despite these views, fewer regions focus on the potential to 'grow their own' skilled workers and build significant training and development opportunities and networks for young people. There continues to be an acceptance of the view that young people will leave regional towns to gain skills and employment opportunities in major cities. Alston (2004) and Argent and Walmsley (2008) have identified that young women have a significantly higher rate of outmigration than young men. Alston highlights that this is linked to a decline in full-time employment opportunities for young women; a macho rural culture that excludes women and a lack of cultural support for young women to stay in regions; and significant barriers for young women to access education to equip them for employment in the modern workforce. Alston (2004; 299) argues that 'far greater attention to human capital... institutional capital... and social capital... is needed if Australia's small rural towns are to survive and flourish'.

Much of the research on tradeswomen in male-dominated industries has focused on the barriers they experience in gaining their skills and the reasons why they leave the industries (Women NSW 2017). Where there has been research on tradeswomen in male-dominated industries in regions, it has identified the ways in which regionality exacerbates problems with retention in training and employment (Strachan et al 2002). To date there has been less examination of those who complete training in male-dominated sectors and continue to work in these sectors within regional Australia.

Drawing on Alston's call to explore the interaction of human capital and social capital, this emerging study investigates how and why women recruited into the trades (industries such as construction, electrical, mechanics) in regional NSW are able to complete their vocational studies and achieve ongoing employment or retention in the industry. The research explores the nature of resilience amongst tradeswomen in regional NSW, what it means in terms of its embodiment as a quality and as a coping mechanism and how it enables women to succeed in terms of longevity, personal and career satisfaction within male-dominated industries. It examines how cultural capital, brought by regional women into these industries and social capital, available to them as members of a professional networks and locational settings contribute to their capacity to remain in employment and training within the industries

Is vocational training failing to prepare fitness students for employment and future study?

PRACTITIONER

Mr Daniel Jolley, Curtin University [AAIR Early Career Researcher Scholarship recipient](#)

Introduction: The fitness industry has undergone significant change, with a rapid increase in the number of fitness professionals, and recent changes to the Fitness training package. Units of competency in fitness qualifications are closely tied to the performance of job tasks, rather than requiring a deep understanding of underpinning knowledge, and the ability to seek out and analyse new information. Employers worldwide have expressed the desire for employees to possess generic employability skills, such as critical thinking ability (CTA). As the Australian Qualifications Framework (AQF) now requires students to be prepared for higher levels of education, basic CTA is a required skill in Certificate III & IV qualifications. To date, the knowledge and CTA of vocational fitness students and graduates has not been assessed.

Methods: A survey, consisting of ten factual statements, and ten statements containing misconceptions about fundamental exercise and nutrition topics, was designed following consultation with vocational and university lecturers in relevant fields. Participants were required to determine whether the statements were correct without using reference material. The survey also gathered demographic information, and assessed CTA,

opinions on sources of professional information, and the use of these sources. The survey was administered to students immediately prior (PRE) to commencing their course (n=111), and again at the conclusion (POST) of the course (n=67). Personal trainers with this qualification (PRO) were also surveyed (n=70).

Results: Knowledge (KNOW) increased during the course, and misconceptions (MISC) decreased, however no difference was observed between POST and PRO groups. Years of experience was not correlated with changes in KNOW or MISC, though educational attainment (AQF level) and CTA was. Professionals used a wider variety of sources than students, but these were of inconsistent quality. A regression analysis showed that the use of academic sources accounted for 17.9% of the variation in MISC, and CRA 10.2%, while KNOW and industry experience accounted for only 0.7% each. Higher AQF level correlated with increased trust in academic sources, and decreased trust in personal trainers, magazines, and alternative health practitioners. Higher KNOW and lower MISC scores also correlated with trust in academic sources, and negatively with magazines, personal trainers, online sources, and alternative health

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practitioners. Those who completed the qualification had a higher AQF level prior to entering the course, scored higher in CTA, and lower in MISC, than those who did not complete.

Conclusions: While a vocational fitness course leads to improved knowledge and fewer misconceptions about exercise and nutrition, it does not equip graduates with generic skills for professional development and future employability. The CTA developed at higher levels of education may aid in the completion of vocational fitness qualifications and assist graduates in discerning between appropriate sources of information, while experience as a personal trainer does not. Given CTA has been identified as a key employability skill, and is a requirement for higher levels of education, vocational fitness qualifications should increase focus on the development of basic critical thinking skills.

The role of transferable 'life skills' in skills provision

EMPLOYABILITY & FOUNDATION SKILLS

Mr Ndungu Kahihu, CAP Youth Empowerment Institute

One of the many challenges facing the Technical and Vocational Education and Training (TVET) sector in Sub Saharan Africa is the failure to provide transferable life skills (soft skills) that youth need in order to be successful in the world of work, business and life. Many employers say they would prefer to hire youth who, in addition to possessing requisite technical skills, also possess such 'life skills' like: positive attitudes, honesty, initiative, ambition, communication, respect, ability to follow instructions and work in teams etc. Yet training in these skills is not part of the curriculum of most government TVET institutions in Africa. Even in cases where life skills topics are integrated in the curriculum, these are usually optional and therefore instructors tend to omit them.

This results in youth who are often not able to succeed at work or in developing their own business and lack the resilience to recover from inevitable setbacks. In turn many employers who are usually deeply dissatisfied with the public TVET system and often must invest their own resources in training new staff. TVET therefore suffers a bad reputation among employers as well as potential students, their parents and public.

CAP Youth Empowerment Institute (CAP YEI) a Kenyan NGO that works to empower youth with technical skills and livelihood opportunities (www.capyei.org) has been successfully integrating life skills as part of its program in Kenya since 2011. An independent assessment carried out by a team from the University of Minnesota, suggested that the key to this success lay in the emphasis placed on the provision of transferable life skills in conjunction with technical skills.

In 2017 CAP YEI partnered with the Curriculum Development and Certification Council (CDAAC) a department of the Government responsible for TVET curriculum in Kenya to test whether the life skills curriculum can be successfully applied in government owned Vocational Training Centers (VTC). This collaboration was supported by 'Youmatch' a regional project covering Sub Saharan Africa and the Middle East funded by German GIZ (<http://www.youmatch.global/>) that aims to address the mismatch between skills offered and employer requirements.

The research involved 10 Government VTC's. The ten VTC's were randomly divided into a control group of 5 and a treatment group of 5. 12 Instructors from the treatment group were trained on the CAP YEI life skills program and provided materials and support to train 230 youth in the VTC's. A questionnaire was administered to both treatment and control samples to assess the status of the youth before training and after. Some of the behaviour, attitudes and perceptions change variables assessed included: self-esteem, self-efficacy, mindset, optimism, relationship with others, team work, negotiation, perceptions of TVET and work ethics. By comparing the effect of the life skills training on the treatment group against the sample from the control group, the researchers hoped to show whether the training had a measurable effect on the youth targeted. An assessment of the trainer's experience and recommendations for life skill delivery was also carried out.

This paper will present the findings of this research as well as recommendations for further application beyond Kenya to other developing country.

Developing work-ready capabilities: an evaluation of a pilot programme at Otago Polytechnic

EMPLOYABILITY & FOUNDATION SKILLS

Ms Philippa Keaney, Otago Polytechnic

Much has been written and debated about what constitutes employability, and how best to develop the transferable or soft skills that contribute to work-readiness. Institutions are increasingly focusing on ways of incorporating these human-centred attributes into curricula, and into learning and teaching design and delivery.

Otago Polytechnic's response to this has been the development of a Learner Capability Framework, which has drawn on industry input

to identify 24 transferable skills or capabilities that are sought after by employers. These capabilities are in addition to the course-specific knowledge and skills learners acquire through course work.

A web-based tool, 'iamcapable,' has been developed in conjunction with the framework, to enable learners to track the development of these capabilities, which are substantiated by verified evidence. The framework and tool are being rolled out at Otago Polytechnic's Auckland International Campus and piloted with a number of programmes at Otago Polytechnic Dunedin.

Ongoing industry validation informs a continual process of realignment with the needs of employers and identifies the particular capabilities relevant to different disciplines. Academic staff embed within their courses opportunities for learners to both develop and evidence identified capabilities.

A Learner Capability Profile is generated by the 'iamcapable' tool and provides a summary of academic achievement, as well as evidenced capabilities. Focusing on enhancing identified capabilities is a self-reflective process for learners, who can then better articulate these capabilities to potential employers.

A mid-pilot evaluation of 'iamcapable' at Otago Polytechnic's Dunedin campus identifies positive potential for future implementation of the framework and tool, as well as practical and theoretical challenges. The experiences of two very different cohorts (a degree-level engineering programme and a secondary level health and wellbeing course) provide insights into how the framework and the 'iamcapable' tool can add value to learners, and to academic planning and reporting.

Challenges to implementation are also considered. For academic staff, these include post-curricula-redevelopment fatigue, resistance to change, time and effort involved, and issues with customisation of the web-based tool for discrete programmes and courses. For learners, challenges include time and effort involved, and the ability to perceive the value of developing work-ready capabilities.

Within the context of the pilot, theoretical questions include whether employment as a measure of success for graduates is the best measure, or whether this elides other possibilities for ways of being and existing? Furthermore, to what extent are soft skills actually transferable between different work and cultural contexts, and within a global environment in which the very concept of employment is in flux?

Embedding capability in the secondary tertiary context

PRACTITIONER

Mr Andy Kilsby, Otago Polytechnic

In 2012, Otago Polytechnic commenced Secondary Tertiary programme delivery in Otago. Our vision was to create a discernible secondary tertiary learning environment in the region, which placed the needs of learners at the centre of delivery and provided an alternative to traditional secondary delivery.

A partnership between Otago Polytechnic and all Otago secondary schools was created - Otago Secondary Tertiary College. Learning programmes were developed utilising Ministry of Education and Tertiary Education Commission funding (Trades Academy, Secondary Tertiary Alignment Resource and Dual Pathways), premised on a blended delivery between secondary and tertiary for secondary students. Programmes have provided students with rich opportunities to develop their specific trades skills, and to transition to further education and/or employment. Like most institutions in the space, we have experienced challenges in successfully articulating the purpose of our programmes to learners which is compounded by the myriad funding and unstructured framework of programmes.

In response to this challenge, we recognised that there was an opportunity to innovate in curriculum design by embedding a capability framework which might support a better-articulated linkage for our vocational pathway delivery in the secondary-tertiary context. The work, in partnership with the Future Skills Academy, comprises the development and implementation of the Learner Capability Framework (LCF). The LCF seeks to enable learners to gather evidence of individual capability, have that evidence assessed and verified and presented in a capability profile.

In 2018, we have redesigned our curriculum in a pilot programme within the Otago Secondary Tertiary College. This redesign according to three key principles:

- What are learner experiences that engage, and provide an insight into pathway – i.e. further education and/or employment?
- How can these exercises be designed to provide naturally occurring evidence of capability which learners can readily incorporate into a learner capability profile?
- How do we incorporate this learner experience and the evidentiary outputs into required modes of learning assessment within programme requirements – i.e. Unit Standards/Graduate Profile Outcomes?

This presentation charts the progress of the work and provides a summary of our findings from the pilot to date. Key findings from the

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work so far point to a need to unpack the concept of capability whilst understanding the nature of embedding reflection in practice for young learners for whom the concept may be unknown.

We have identified an initial reflective process, and are collaborating with Minded, a Wellington based edtech company. We seek to incorporate digital learning experiences into our delivery in support of a seamless learner experience for young learners who are discovering the concept of personal capability.

We believe a capability platform which develops learner reflective practice, enables the harvesting of evidence of capability into a succinct profile, and is integrated into a relevant and engaging curriculum will provide a powerful experience for learners in transition.

Factors influencing teachers' enactment of Australian VET curricula internationally

INTERNATIONAL

Ms Louise King, Charles Darwin University

This paper explores the factors that influence the implementation of Training Packages in twelve different countries. In particular, it focuses on those factors which influence teachers' capacities to enact highly prescriptive and regulated curricula in contexts for which it was not designed. The question for the paper is:

What are the contextual factors that influence teachers' enactment of the intended curriculum in transnational settings?

In depth interviews were conducted with thirteen VET teachers, who taught Australian VET programs overseas, as part of a research project on the relevance, quality and sustainability of Australian transnational VET. These teachers taught across a range of vocational areas including: Electro-technology, Architecture, Aged Care, Hospitality, Business, Project Management, Events Management and Design. They were based in countries in the Pacific, Asia and the Middle East. The use of qualitative interviews in the research design provided rich descriptions and in-depth accounts of the phenomenon (enacting VET curriculum) from the perspective of those involved (teachers) within the social context of teaching in a range of countries. The interviews provided a means to elicit, analyse and consider data about the contextual experience, actions and relationships of multiple teachers regarding the different educational contexts in which they teach Australian VET programs offshore.

The five contextual factors found to have the most influence on teachers' enactment of Training Packages overseas related to: i) information, ii) resources, iii) materials, iv) institutional arrangements; and v) student readiness. However, rather than being a fixed set of factors, these were manifested quite differently across national and cultural contexts. As a result, there were different kinds of dissonances between the curriculum intentions and what teachers enacted across countries. What these findings reveal is that a teachers' capacity to enact the curriculum, as it was intended, relies not only on their previous knowledge and experience of the curriculum, associated pedagogies and regulations, but also to their ability to understand and influence the range of contextual factors associated with curriculum implementation. This analysis is useful because it informs the types of professional, material, practical and institutional support that teachers need to understand their situation and guide their enactment in transnational VET.

Right skills. Right time? The \$4 billion annual cost of over-qualification affecting one in four Australian workers

SKILL NEEDS

Ms Silvia Munoz, SkillsIQ Ltd (authored by Ms Melinda Brown, SkillsIQ)

An objective of the education and training system is to equip workers with the skills and knowledge to meet the requirements of their jobs. This is predominantly done through the completion of qualifications. At any given point in time, some workers will have the right type of qualifications, while others will not. Those who do not possess the right type of qualification could be over-qualified, under-qualified, or hold a qualification that is misaligned to the requirements of their current job.

'Creeping credentialism' and qualification inflation is a growing trend in Australia, where employers hire people with higher qualifications than are needed for job roles, and over time the qualification becomes a pseudo-entry requirement for those roles. A review of over three million national online job advertisements showed that, between 2015 and 2017, jobs with a requirement for bachelor's degrees had increased by 41 per cent. This trend is not unique to Australia, and can result in a mismatch where workers have the formal qualifications but lack the practical skills to perform on the job, leading to lower productivity and higher staff turnover.

This research examines the skills mismatch regarding over-qualification. It uses a combination of data sources to quantify the cost of over-qualification in Australia. The sources include the Australian Bureau of Statistics (ABS) Census of Population and Housing, earnings and tuition cost data, and O*NET, a large scale US labour market survey.

The findings reveal that over-qualification is very common in Australia, and this over-qualification comes at a cost. Across the whole

economy, one in four, or 2.5 million Australian workers, can be considered over-qualified for their current roles. Eight per cent (1 in 13) of Australian workers have acquired a bachelor's degree that is not required to perform their current role.

Over-qualification is significantly higher in VET-supported 'people-facing' sectors such as Retail, the Community Sector, Sports and Recreation, and Hospitality and Tourism, where 35 per cent of workers, on average, have spent money and time on qualifications that are not required to perform their current jobs.

The cost of over-qualification to individuals is estimated at \$4 billion per year. This is equivalent to \$555 million in superfluous tuition fees which individuals pay and \$3.6 billion in lost income. The majority of the superfluous tuition fees (80 per cent) are driven by acquiring bachelor's degrees that are not required for roles.

SkillsIQ's findings point to the need to recalibrate policy settings and employer and individual awareness and expectations so that people achieve 'the right qualification at the right time'. The VET sector can play a pivotal role in minimising the cost to all stakeholders by supporting people to be suitably 'skills-ready' for current and future roles. Over-qualification and skills mismatch can apply to people of all working ages. Better practices therefore need to be implemented on an ongoing basis as part of an overall strategy to alleviate the mismatch-related costs for employers, individuals and the wider society.

Demand for vocational skills - insights from internet job postings

SKILLS

Dr Patrick Korbel, NCVET (co-authored by Ms Kristen Osborne, Mr Ian White, Mr Emerick Chew, NCVET)

NCVER has comprehensive and extensive data on the supply side of vocational education and training (VET) through our national collections and surveys. We want to supplement and complement this with data on the demand side of VET – that is, data on the demand for VET graduates and vocational skills. One such source of data is internet job postings – publicly posted listings in which employers advertise for the people and skills that they require.

NCVER has used data collected by Burning Glass Technologies to investigate three topics and address the current information gap on the demand side of VET:

- employability skills
- trending and emerging skills
- personal care and support skills.

This research has examined the skills workers needed to progress through their career, skills that are common across multiple industries and occupations and skills that have emerged or have become more frequently requested in recent years. These are three areas in which up to date data on the demand for vocational skills has the potential to inform the sector and help prepare the skills needed for a global future.

This presentation will review the findings of that research and reflect on the potential for new sources of data, such as internet job postings, and how they can be used to improve policy and practice in the VET sector.

Competing priorities in vocational education: teachers adapting to reforms

PRACTITIONER

Mr Patrick Locke, University of Sydney

This paper will examine how vocational education teachers in Australia respond and react to reforms aimed at marketizing the sector. Since the 1980s public budget pressures and neoliberal economic philosophy have prompted governments to focus on getting 'more for less' (Hood 1991) by increasingly borrowing practices from business to make the public service more efficient. Education policy has not been immune from these transformations. The vocational education sector in Australia has taken these changes comparatively further than many other developed nations (Wheelahan 2014). Vocational education has often been the 'testing ground' for educational policy reforms in Australia due to its comparatively low status and autonomy compared to the higher education sector (Harris 2017; Simmons 2010). Repeated reforms over the past ten years have put vocational education in a state of flux, resulting in an abundance of academic commentary examining the various reforms. This fast pace of change has resulted in much of the research not including the perspective of vocational teachers – those who are actually implementing the changes and mediating their effects on-the-ground. Teachers additionally felt that they did not have a voice in the policy creation process (Martin 2012), which is problematic as these reforms are ultimately enacted in the classroom. To this end, the research forefronts the opinions and experiences of those actually involved in the implementation process and uncovers their effects on-the-ground.

The paper presents research from the New South Wales (NSW) in which the vocational education sector was increasingly opened up

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to the private sector during the 2015 Smart and Skilled reforms. The traditional public provider of vocational education, Technical and Further Education (TAFE), underwent substantial changes in order to adapt and attempt to compete in the new vocational education marketplace. This paper used a mixed methods approach to examine how experienced teachers within TAFE adapted to these changes. These teachers had become accustomed to, and embraced the values of, what they described as 'the public education ethos' and as such had difficulty adapting to marketization policies that they saw as incompatible with these values. By utilising the education sociology framework of Legitimation Code Theory (Maton 2014) the paper examines the principles underlying the teachers' beliefs and practice, helping to understand and explain the tensions and stresses felt by the teachers as they adapted to the new vocational education landscape in NSW. The paper concludes that both teacher experience, and the disciplinary orientation of teachers were important in explaining teachers' reticence of reforms and ability to adapt to them.

21st century skills for work and life and a move to the greening of economies for sustainable development

INTERNATIONAL

Dr Rupert Maclean, QAPCO and UNESCO Chairs on TVET and Sustainable Development, College of the North Atlantic-Qatar, Doha and Professor John Fien, RMIT University, Melbourne

Human capital, which is central to sustainability, comprises the knowledge, skills and competencies that can be used to advance personal, societal and economic wellbeing. However, research to date on human capital and development has been contested, indeed often unhelpful, in at least two ways. First, much research has seen human capital primarily in microeconomic terms – the value of increased human capital to an individual's wellbeing. Limited research has adopted a macroeconomic view of the role of human capital in national development, i.e. what can human capital formation contribute to a country. Second, research has focused on returns-on-investment in education, using quantity (the number of years in formal education) as the key variable. Critiques of this approach emphasize the quality of education through the development of higher-level cognitive skills (e.g. critical thinking and problem-solving) and social skills (e.g. communication, leadership, team work). These are essential 21st Century skills for life and employability in rapidly changing economies. Global warming and other environmental issues are increasingly driving many of these changes, and the movement towards "greening the economy" is impacting on the skills needed for employability. This is the green skills agenda.

This paper presentation examines key aspects of the global challenges for TVET arising from the fundamental changes in society, technology and global economic shifts. In doing this it examines the relationship between green skills and 21st Century skills and analyses contributions to human capital development. The paper draws on findings from research undertaken by the presenters for the Asian Development Bank on 'Education and Skills for Inclusive Growth, Green Jobs and the Greening of Economies in Asia', and research they are currently undertaking on 'Improving and Enriching the Human Capital of Qatar through the Identification and Development of 21st Century Skills for Sustainability and Employability'. Case studies will be provided from Australia, SE Asia, South Asia and Qatar.

Show me the money! VET funding in the past and into the future

OTHER

Ms Kelly Marshall, NCVER

For over two decades, the National Centre for Vocational Education Research (NCVER) has collected financial data on Australia's public VET system. The Finance Collection includes information about operating revenue, expenditure and assets, and provides a useful snapshot of the nation's investment into VET. The purpose of this presentation is to provide an overview of the past 10 years of VET finance. In particular, will highlight trends and discuss federal and state policy initiatives which may have had an impact.

The second part of the presentation will discuss how NCVER will be collecting this information into the future. Recently the focus and scope of the collection has changed, in order to better answer questions governments, RTOs and the general public have about VET funding. Specifically, the new funding data will provide more information on the flow of funding between states, territories and the Commonwealth, the overall VET asset base, and how the money is spent.

Finally, new interactive tools will be demonstrated which can be used to further explore the funding data.

How do we arrive at VET completion rates, with a special focus on what is driving the likelihood of VET

OTHER

Mr Brad McDonald and Mr Adrian Ong, NCVER

People participate in vocational education and training (VET) for a variety of reasons and at different stages of their life. Some undertake

VET to gain necessary vocational skills to enter the labour market for the first time, while others enter in order to upgrade existing skills, learn new ones, or simply for personal interest.

In this session, we will talk about the completion rates methodology and the recently published VET program completion rates 2016 publication and data slicer. We will also present the key findings from an exploratory project looking at the factors influencing the likelihood of completing a government-funded VET qualification.

Evaluating lecturer experience of a video assessment of student practice skills in an undergraduate midwifery degree programme

DIGITAL LEARNING

Ms Carolyn McIntosh, Otago Polytechnic

Background: Undergraduate midwifery education is increasingly provided in a blend of online modules, face to face teaching, online fora and practice placements in a range of maternity settings. Flexible programmes provide better access to midwifery education for rural women and potentially improves recruitment and retention of midwives in rural and hard to staff areas. Blended learning is a preferred option for some indigenous communities, allowing individuals to retain support from traditional networks while gaining a qualification and contributing to the health and wellbeing of the wider community.

To enable students to remain in their home areas, a process for online video assessment of midwifery skills (VAMPS) was developed for our students. Students work in local groups, filming each other in a simulated practice setting while undertaking a variety of communication and practice skills from a prepared scenario. Students are then able to review and assess their own work before submitting the video recording for assessment and moderation by midwifery lecturers.

Findings from previous surveys of students in 2014 & 2015 identified increases in skill acquisition and confidence as a result of repetition of the skills. Challenges included the technical aspects of the filming and the time needed to complete the assessment.

Method: A focus group was held in January 2018. Ethics approval, (OPREC #758)

Participants: The Lecturers involved in teaching first year skills, preparing students for the video assessment, and examining the students' submitted work participated in the focus group.

Analysis: Content analysis of the transcripts.

Results: Findings from this research will be available to share at this conference.

Implications: It is anticipated findings will inform the assessment and inspire other innovative assessment strategies

Making a job versus getting a job: the future of work has changed!

SKILL NEEDS

Mr Don McLaren, Telford Campus Massey University New Zealand (co-authored by Mr Ian Whitehouse, Digital Coaching and Consultancy Pty Ltd)

The world of work is transforming before our eyes yet for many who work or attend our education and training institutions we continue to see reactive rather than proactive solutions and/or situations.

"Education is the passport to the future, for tomorrow belongs to those who prepare for it today." - Malcolm X

History shows a career was about a predictable set of capabilities that aligned somewhat with the needs of an industry or nations resources as the basis of economic development. The Deloitte Review of July 2017 article, Navigating the Future of Work concludes that individuals need to set their sights on longer careers, with multiple stages, each involving ongoing training and reskilling.

Automation, artificial intelligence (AI) and other disruptive technologies are changing the future and nature of work which is already seeing increases in underemployment, casualisation and the emergence of gig culture of the work force as we know it. With future predictions indicating that this is going to become more dominate, educational and training institutions and governments have a vital role to play in enabling and empowering our future workforce.

For example, the current Australia review into Reforming Training Packages where the focus may lead to less qualifications and increased specialisations (skill sets) is a purposeful example in the eyes of the authors of a proactive response to a future need. Another example is reforming (our suggestion) the way education and training is funded so that it includes separate arrangements for both training and assessment and specialisations instead of qualifications.

This change in focus will in the views of the authors empower and enable individuals to be better prepared to create a job that they can connect with and have ownership over for the future and when coupled with sound "soft/life skill" prerequisites like communication,

ABSTRACTS

planning, resilience, initiative, technology and finance provide transferable grounding for future endeavours.

Our focus for this presentation is based upon aspects that include the changing and challenging values that education and training providers will face in the future and the fundamental core knowledge and skill requirements that will be needed for individuals to survive in this fast-changing global environment, noting that many of the historically held learning values, knowledge and skills will potentially become obsolete.

The methods used to guide and inform this body of work include a global literature review and case studies that have been sourced from both Australia and New Zealand .

Reframing the thinking about training and education to an “investment in your (institutions and individuals) future” mindset is the strong theme that has come through the research. That is to say that strategic investment by institutions and individuals will allow for a more rapid refocusing of specialisations that enable and empower individuals to create a job/ the job(s) of the future and allow to them to adapt and respond quickly to future work opportunities on their terms (including remuneration) rather than fighting to find a job in a diminishing underemployment employer-based future.

There have been many reviews into this space from different perspectives such as STEM and Innovation and Entrepreneurship. This paper is designed to enhance the work of others by bring to life some real and tangible ways in which institutions and individuals can start to implement.

Working around the words: tutor strategies and the tutor voice in vocational education.

PRACTITIONER

Ms Emma McLaughlin, Wellington Institute of Technology (co-authored by Ms Aleeshea Reid, Programme Leader Foundation Education of Open Polytechnic)

Talk to many trades and vocational tutors about embedding literacy or supporting their learners to learn challenging language in their courses and you will often see a reluctance to even engage in a conversation. After working in this field for several years we saw a need to take a different approach. Starting with what the tutor is already doing through analysis of real teaching sessions, we have identified several strategies that are effective in supporting learner literacy and language development. By focusing on strategies that tutors use in their teaching, and designing and building on these, we have devised a strengths-based approach to tutor professional development in embedding language and literacy.

This session focuses on research into language used in the trades area of vocational education (McLaughlin and Parkinson, 2018). This research identifies a range of strategies learners use to learn the words of a trade and how tutors support them to do this, primarily through tutor-talk and tutor-learner interaction around the practical tasks. We will present how we have attempted to turn findings from this research into practice. We will share a resource that offers an organizational approach to making literacy and language a more inclusive and engaging aspect of tutor practice development by putting the tutor at the centre.

As Lave and Wenger state, “language is part of practice and it is through practice that people learn” (Lave and Wenger, 1991, p.85). What we hope to demonstrate is a way to support this practice that is relevant for both tutors and learners, integrating the practical work with learning the words and working together to support achieving vocational outcomes.

Australian VET courses for international students

INTERNATIONAL

Mr Steve Nerlich, Australian Government Department of Education and Training

The presence of international students in Australia’s vocational education and training (VET) sector enriches the cultural diversity of the student population and creates opportunities for enhancing all students’ global awareness and intercultural competence. International student numbers in the VET sector are currently growing strongly and are expected to continue doing so over 2018, with many of these students keen to pursue opportunities available in Australia for work experience, both during and after their studies.

NCVER recently released survey findings about the 2017 outcomes of international students who studied in Australia in 2016. The report International onshore VET graduate outcomes 2017 found these students had very positive outcomes and retained high levels of satisfaction with their Australian training course.

Australia’s VET providers are also pursuing opportunities for expanding offshore delivery of VET to international students, who may never study in Australia but still see an Australian VET qualification as a valuable asset. The Australian Government Department of Education and Training is currently undertaking international research to investigate why offshore students choose to study Australian

courses and what their career objectives may be.

There is much scope in offshore VET delivery for innovation in pedagogy and curriculum, with growing demand for an education that is relevant to local conditions, rather than duplicating teaching practices and course material that are designed for students in Australia. There is also much potential for expanding the use of online course delivery offshore.

This presentation will also consider Australian VET students who briefly become international students when studying abroad in other countries while completing their Australian VET course. This growing area is supported by government funding with the intention of giving Australian students new skills and perspectives, so that they can work effectively within the increasingly-globalised workplaces of the twenty first century.

Global skills regulation and public policy: resetting the agenda

POLICY

Damian Oliver, TAFE NSW (authored by Mr Damian McKenzie-McHarg, TAFE NSW)

Regulation and public policy are central to how the skills sector operates and both go hand in hand. If policy favours subsidies, this affects how governments that fund subsidies regulate the sector. Regulation and policy in the VET sector in Australia is onerous, complex, fraught, contentious and at best strained.

As in many areas, there is a dual regulatory structure with certain funding and regulatory functions held at state and territory level and the overall regulatory and licensing function held at federal level.

Curiously, many in the sector see regulation and policy as an intrusion on the core business of the sector yet it is central to how the sector contributes to broader social and economic goals and how skills are designed with an industry focus in mind. On any objective analysis, policy and regulation must be at the heart of any discussion about the future of skills development both nationally and globally yet the sector is often beset by a siege mentality and as a result, fails to grasp the opportunities for it to take a leading voice in such matters.

One example is whether the current regulatory approach and RTO standards force RTOs to spend inordinate time on developing compliant assessment practices and tools at the expense of the actual training, modes of delivery and compressed time frames (unduly short courses) which limit students' ability to acquire skills over time as they mature and reflect on their formal training. Such questions that challenge basic assumptions are legitimate.

Australia's VET sector design (training [packages, skills services provider etc.]) is world leading along with other countries like Finland and Germany yet it is forever immersed in self-criticism and controversy. We need to remove our gaze from this often-pointless finger pointing and look objectively at several crucial issues:

1. How does the skills sector contribute to broader social wellbeing? This includes analysis of the roles of vocational and higher education.
2. How does current VET sector policy and regulation contribute to these objectives?
3. How does policy and regulation in other countries stack up, with a particular focus on Finland and Germany, two countries with highly advanced VET regimes like Australia.
4. How do we ensure VET policy and regulation ensures the integrity of individual training outcomes as well as the broader skills needs of the modern society and economy?
5. What criteria should be adopted to guide optimal policy and regulatory settings to facilitate national and global skills development?
6. What opportunities are there for mutual recognition of skills globally in areas where there is a high degree of workforce mobility globally?
7. What can we learn from policy disasters such as VET FEE HELP and the scourge of unduly short courses and the associated myth of compressed learning?
8. How can the VET and Higher Education sectors work in tandem? Can the dual sector entities play in leading the development of dual sector qualifications?
9. How can we engage with industry to reinvigorate our apprenticeship system and make sure it is based on an employment model that can attract young people with a natural skills disposition and generate workplace relevant skills as part of training?
10. What is the best mix of market-based regulation versus more traditional mandate style regulation by which certain practices are prohibited outright and minimum requirements (such as course duration) are prescribed?

The role of VET in shaping the aspirations of Indigenous secondary school students

YOUNG PEOPLE

Miss Sally Patfield, University of Newcastle (co-authored by Professor Jenny Gore, Dr Leanne Fray and A/Professor Maree Gruppetta, University of Newcastle)

The Vocational and Education Training (VET) sector continues to make a major contribution to the tertiary education of Indigenous Australians. Indigenous students are much more likely to participate in VET than in higher education, a trend that has endured despite policy reforms and considerable change within the tertiary education landscape in recent years (Ackehurst, Polvere & Windley, 2017; Windley, 2017). Nonetheless, in the annual Closing the Gap report, the Federal Government has largely overlooked the important impact of VET in relation to labour market outcomes and facilitating pathways into higher education for Indigenous Australians (Windley, 2017). In this paper, we build on the limited body of research investigating aspirations for VET and VET-related occupations among school students (Gore et al., 2017) by narrowing the focus to Indigenous young people. Our aim is to strengthen the evidence base on the role of VET in shaping aspirations during schooling, within the context of major shifts in the 'world of work' over the coming years.

Drawing on extended interviews conducted with 32 Indigenous secondary students (Years 7-11, aged approximately 13-17 years) enrolled in government schools in New South Wales, Australia, we examined how Indigenous students engage with, and talk about, VET. These students aspired to both VET and higher education pathways, with a range of 'traditional' VET-related occupational aspirations emerging, including mechanic, electrician, carpenter, beauty therapist, and veterinary nurse. However, there was often misalignment between occupational aspirations and the educational pathways students envisaged taking, explained in part by the fact that many students had little firsthand exposure to VET. Those with exposure knew someone who had already pursued a VET pathway or, they were currently participating in VET in Schools (VETiS) themselves. VETiS operated in two crucial ways for these Indigenous students. First, participation in VETiS sparked post-school aspirations. Second, VETiS provided motivation to stay on at school through igniting a passion for education in a different kind of learning environment.

In relation to the conference theme, our analysis highlights that VET plays a multifaceted role in supporting Indigenous school students and in preparing them for their post-school futures. However, as the 'world of work' rapidly changes, we argue that students need to be exposed to a broad range of post-school options, particularly in the primary and middle years. In addition, schools need to ensure they are forward-looking to provide appropriate opportunities that nurture students' aspirations in rapidly changing times, while offering tangible experiences such as VETiS so that students can align these aspirations with suitable pathways.

Developing tomorrow's skills and building community: innovations from Australia's adult and community education providers

OTHER

Dr Don Perlgut, Community Colleges Australia

Australian adult and community education providers have a unique role in Australia's education and training system. As well as providing non-accredited and vocational training, they play a remarkable, often unseen role in economic and community development – especially in regional and rural locations. Community providers specialise in developing programs that are responsive to local needs, often acting as catalysts for learners to move on to higher levels of study when needed for employment. Australian community education providers excel at reaching the most vulnerable and disadvantaged people, including Indigenous Australians, regional and rural residents, people with disabilities, older workers and people from lower socio-economic backgrounds. Because of their autonomous governance and community base, they have the flexibility to act as innovators and incubators of new ideas and structures for growth and change. This presentation showcases examples of Australian community education providers that have developed unique programs to strengthen their communities, produce resilient and engaged workers, and increase local and regional capacity for economic growth, including:

- Driver education programs for rural NSW Aboriginal communities developed by ACE Community Colleges, which assist in disrupting cycles of poverty and unemployment through providing access to work and opportunity.
- Permaculture and sustainability programs developed by Bryon Community College that attract regional investment, provide career pathways and employment, and support local sustainable food sources.
- Social enterprises that meet local needs for skill development, employment and service delivery, especially for vulnerable young people.
- A network of unique regional and rural independent secondary schools that provides for the needs of disenfranchised young people, based on adult learning principles.
- Integration of mental health training and development programs.
- Supporting not-for-profit business incubators attuned to local and regional needs.

The presentation draws together the common threads of these case studies, showing how not-for-profit training providers can play important innovative roles.

The student as researcher: preparing people for a rapidly changing workforce

SKILL NEEDS

Dr Henry Pook, Holmesglen

Until recently scant attention has been paid to the nature and extent of student involvement in applied research projects within the vocational education sector. Not only has this discounted the contribution of vocational education students to the innovation economy, it has also contributed to a broader problem that limits the recognition of TAFE as a contributor to applied research.

This presentation challenges this commonly held view about the relative absence of student involvement in research in TAFE and establishes that student participation in applied research occurs across the vocational sector, and in varying ways. Working from a typology that categorises student approaches to applied research, I present a range of case studies, each drawing upon a particular type of applied research. These include: student/trainee experiences derived from a research based consultancy, e.g. a 'live-work' project; staff initiated projects that allow students to frame the parameters of research and present the outcomes at a conference or industry showcase; and research outcomes derived from work within an industry environment in order to learn about applied problems and ways to overcome them.

I then examine how each type contributes to student learning and research and (potentially) to industry outcomes.

These case studies of applied research are:

- in-class projects;
- 'live-work' projects in the trades;
- trialling of industry product or new work processes;
- projects with industry or community partners;
- 'capstone projects' ;
- project-based learning in diploma and advanced diploma level programmes;
- research-based units taken as part of a course of study, usually as a part of an applied degree programme;
- student entrepreneurship activities;
- work placements; and
- internships.

In drawing upon these case studies, I also review how such engagement with research enhances student awareness of industry and community, better prepares them to cope with the uncertainties of a rapidly changing work environment, and concomitantly strengthens the profile of applied research in TAFE.

Although progress has been made in developing student participation in applied research, there is still work to be done in fostering greater levels of involvement, particularly in the development of student research capabilities. There is also a need to review learning activities and assessments to facilitate the conduct of applied research. These activities could incorporate projects undertaken in partnership with industry; the formulation of inquiry-based activities and other student focussed activities such as project-based learning, and student-initiated research; work placements; and internships. Such activities would play a key role in the development of new knowledge and improvements to work techniques and facilitate knowledge transfer from vocational institutions to the community and to industry. The active involvement of students in applied research would also serve to enhance the profile of TAFE institutions in the conduct of applied research and strengthen its contribution to the future economy.

Harnessing existing skills and experience of recently arrived migrants and refugees. Implementation and assessment of a novel student support program which informs on VET pathways to training, education and employment

OTHER

Craig Poole & Christine Jolly, TAFE Queensland

Australia is a successful multicultural country welcoming people from many nations around the globe. Migrants represent a significant source of social capital possessing significant skills and experience as well as enthusiasm to contribute to their new community.

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Significant to this individual and national success has been strategies supporting integration and personal and professional development of our migrants. The Adult Migrant English Program (AMEP) is a program funded by the Australian Department of Education and Training providing English tuition to migrants and humanitarian entrants and represents first steps in supporting community engagement and education (further English, vocational courses etc.) and employment pathways. The AMEP cohort is large (63000 participants nationally) and diverse with backgrounds including those with limited prior education to highly educated individuals with significant professional experience. AMEP participants are ambitious to pursue opportunities related to further study, employment and broader community engagement and adds newly arrived talent and capacity to the Australian workforce. The 2015 government-commissioned review of AMEP program notes that although primary aim of the program is to build English language proficiency, it suggests greater emphasis on supporting students to access pathways to further study and employment.

To support its AMEP students, TAFE Queensland (TQ) is implementing a multistage, targeted student support program across the full student lifecycle to assist students identify training and education opportunities related to their employment aspirations. Diversity within the group regarding prior education and experience represents a significant challenge for the program so emphasis is placed upon small group and individual support with direct engagement between students and educational and industry experts. Students are initially provided a broad overview of Australia's education and training system, modes (e.g. apprenticeship), levels of study, entry requirements and study-areas. Students identify areas of interest for subsequent study and project team facilitates direct engagement with nominated study areas including with teachers and exposure to education/training setting. Specific industry sessions provide students with exposure to vocations including employment opportunities. To support students with higher level qualifications and experience, engagement with HE professionals and professional bodies offer tailored support. Additionally, collaboration with career development practitioners via the Department's Higher Education Participation and Partnerships Program (HEPPP) supports skills workshops aligned to building aspiration and supporting students as independent information seekers. Development of the program has been informed principally by the successful pilot program implemented at TQ in late 2017 and limited similar programs.

Research examining similar AMEP-support programs is limited. This research project will examine the success of TQ's student support program via longitudinal study. Student participation in the support program reflecting initial student interest will be determined. Analysis of subsequent course enrolments (English, VET and pathways to uni) will be conducted using TQ's student management system and referenced to baseline data from previous AMEP cohorts. Suitability of these courses from student perspective will be assessed using student interviews and focus groups. These investigations will also inform continuous improvement.

Preliminary data from 2017 pilot study suggests providing general information followed by targeted sessions promotes student awareness and access to study as evidenced by increased subsequent enrolments, including into previously non-familiar courses. Early stages of 2018 support program shows 90% of students who attended general sessions have requested follow-up targeted sessions. A number of students with high-level overseas academic profiles have sought specific support regarding education and employment.

This research project runs in parallel with, and informs the establishment of a novel program which supports migrant and humanitarian-entrant students. By identifying, harnessing and building on existing skills, we can integrate, educate and prepare this workforce for individual and collective benefit.

The role of foundation-level VET in preparing young people for employment

EMPLOYABILITY & FOUNDATION SKILLS

Miss Adelaide Reid, Community Colleges New Zealand

This presentation is based on findings from the Youth Guarantee Pathways and Profiles (YGPP) project, which follows a group of early school leavers from their engagement with a vocationally oriented foundation level education programme in New Zealand (Youth Guarantee Fees Free) for 3 years after programme departure. The project aims to assess the value of this education programme to these young people in the short and longer-term, find out more about their education and employment transitions and what supports or hinders these. The experiences of these participants demonstrate how foundation level Vocational Education and Training (VET) can engage and support young people to develop the skills and flexibility they need to successfully navigate the changing employment landscape. In this presentation we will identify the skills gained through Youth Guarantee which supported participants in their employment, education and transitions, discuss other factors which had an ongoing positive impact, and how education providers engaged and supported participants to develop these skills. Finally, we will look at how systems and policy in the VET and wider education sector could better support young people in their transitions and prepare them for employment.

The YGPP project found that the skills and self-development participants gained through Youth Guarantee had a positive impact on their education, employment and transitions experiences. Communication, interpersonal and self-management skills, as well as increased self-confidence and capacity for self-development, enabled participants to maximise the value of their qualifications. The development of these skills was facilitated by the holistic support participants received from their education providers and the practical and flexible

learning style, which engaged these young people and helped them to see connections between their learning and 'real world' contexts. The programmes also gave participants the opportunity to learn more about different career options and assess the value and suitability of these.

A major finding of the project was the mismatch between young people's experience of transition and skill-development and the linear view of youth transitions and skills on which policy is based. Although many participants intended to follow a linear pathway through education or employment, very few did so. They experienced transition as an iterative process which was influenced by a variety of factors including their needs, interests, skills, future plans, and access to support and opportunities. Skill development followed a similar process; the opportunity to apply and develop skills in a variety of contexts increased participants' confidence and capacity for ongoing development. The experiences of these participants indicate that foundation level VET can play an important role in preparing young people for employment, in terms of shaping ideas and developing skills and attributes. However, for this to have a sustained impact there needs to be more emphasis on on-going skill development to ensure that young people have the capacity to continue this outside of their education programme. This may require more flexible policy and programme design which is responsive to the needs of young people and employers.

Demystifying the international VET training market

INTERNATIONAL

Mr Marc Ruediger, NCVET

International education is Australia's largest service export and an important source of domestic economic growth. Over the coming two decades international education is predicted to be among the fastest growing sectors globally. With a more informed understanding of international VET students, education providers are better positioned to capitalise on this ever growing market.

According to NCVET's total VET activity (TVA) report, 167 900 international students received training from an Australian VET provider in 2016.

TVA captures both onshore and offshore activity delivered by public and private training providers, with an estimated 178 900 program enrolments undertaken in Australia, while 36 200 were at overseas locations.

NCVET has developed a new data visualisation tool for the release of TVA 2017, allowing for simple filtering of time series data by international versus domestic student enrolments and completions by demographic and training activity data.

This presentation will demonstrate this new tool and present some key insights into the international VET training market.

How do Australian youth find careers information?

YOUNG PEOPLE

Dr Peta Skujins, Apprenticeship and Traineeship Information Service

Good quality information about careers underpins all careers education and advice. Young people are the major recipients of careers advice and education, but careers information is accessed by the influencers of young people as well. This research investigated the platforms and mechanisms used by young Australians and their influences to access careers information, and the benefits, risks and barriers encountered by young people in accessing this information.

Surveys of young Australians (15-24 year's old) and their influencers (including parents, career advisers, teachers, and others working with youth) examined a range of online and printed platforms and mechanisms used to access careers information and which were considered useful. Influencers were additionally asked for their opinion on what youth do use and should use. Focus groups with both youth and influencers further examined how useful various platforms are, and the problems or advantages of accessing careers information in different ways. The youth focus groups in particular allowed us to gain a deeper understanding of how and why young people use various information sources themselves, and what they use when requested to by an influencer.

Results from the surveys indicate differences in platforms and mechanisms used by youth and influencers to access careers information, and differences between what youth report using and what influencers believe they use. Additionally, influencers believe that youth should be using most platforms more than they think youth are, however many youth report that these platforms are not useful for them.

Focus group discussions highlighted the problems that young Australians face when trying to find good quality careers information. All focus group participants were unaware of the full range of information available, and most were unaware of the platforms that could be used to access this. Contrary to what influencers reported, many youth prefer careers information presented in printed format, although as expected they all accessed and like accessing information online. Social media was not considered useful for careers information for multiple reasons, including that most people use it only socially (i.e. not for information), that most information is in the form of advertising,

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and awareness of the issue of 'fake news' or poor-quality information.

Both youth and influencers reported additional barriers to careers information, especially for people with poor English language and literacy abilities including early school leavers and migrants, access to the internet, and having someone to help direct youth to information.

Overall this research demonstrates the popular platforms and mechanisms for accessing careers information, as well as benefits and problems with accessing information. The findings can be used by information providers to improve the way they provide careers information to both young Australians and their influencers. We will present examples of the ways we have identified improving access to careers information by the Australian Apprenticeships and Traineeships Information Service.

Cutting through the noise: defining the future skill needs for Queenslanders

SKILL NEEDS

Dr Caroline Smith, Jobs Queensland

Jobs Queensland is a statutory entity set up by the Queensland Government in 2016 providing independent advice to the government on skills demand, future workforce development and traineeships and apprenticeships.

Our workforce planning framework provides an overlay and incorporates key elements from multiple workforce planning approaches and economic modelling. Furthermore, a place-based model has provision for additional layers to be added as the need arises to capture knowledge and industry intelligence from various sources in a multitude of ways.

Work undertaken for the Tourism and Advancing Manufacturing Workforce projects indicates that the skills needed in these workforces are changing as a result of multiple drivers, including digital disruption, changing economic conditions and global pressures. Place-based projects in Fraser Coast and Ipswich have highlighted the impact that regions in transition can have on future work and skills at the local level. Research into structural adjustment has highlighted a similar theme around industries that have undergone or are currently in transition. The use of scenarios to model future changes in industries, occupations and regions informs evidence-based policy advice around future skills and training needs.

Evidence gathered from these projects has highlighted that the world of work in Queensland is changing.

There is a lot of 'noise' around the extent, drivers and outcomes that are shaping the future of work. Drivers include the rise of the gig economy; the seemingly rapid growth and adoption of digital technologies across industries; automation and robotics.

Nuanced conversations are difficult to find. Much of the published research focuses on the global and national impacts of disruption on the future of work with little published research specific to Queensland.

Our research aims to cut through the 'noise' and investigate what 'work' will look like for Queenslanders and what skills and knowledge they will need to participate successfully and productively in this new 'world of work'. The first phase of the project is a literature review and analysis of existing academic and grey literature to identify how work is changing and the impact this will have on workforce development and occupational change within the workforce and training and skills development policy. Key themes / drivers of change within the literature will be identified along with emerging training, skills and workforce development policy initiatives. This material will then be examined for its relevance and applicability to Queensland and its industries, regions and workforce.

Findings from the literature review and analysis will be used to develop recommendations for future research and evidence-based policy advice.

This presentation will focus on Jobs Queensland's learnings from multiple place-based and state-wide workforce development projects as well as initial findings from the literature review and consideration of the implications for training and skills policy and the VET sector.

Enterprise Registered Training Organisations: training and learning practices

INDUSTRY

Professor Erica Smith, Federation University Australia

Enterprise Registered Training Organisations (RTOs) are companies and other organisations which deliver nationally recognised training and award qualifications and statements of attainment to their own workers. They are recognised as major players in the Australian vocational education and training (VET) system. But there has been little large-scale research into how enterprise RTOs work, and the teaching/training and learning that takes place.

As the need for skills in the economy intensifies, and as companies and workers alike increasingly operate across national borders, enterprise RTOs provide a valuable source of qualification-based training that can be tailored both to company needs but also to national

qualification systems. If the role of these RTOs is to be expanded it is essential to understand how training and learning takes place.

This paper uses findings from two major projects, both funded by the Australian Research Council's Linkage program, to provide insights into training and learning practices into enterprise RTOs. A project entirely focused on enterprise RTOs was undertaken from 2012-2015: 'How do qualifications delivered by enterprises contribute to improved skill levels and other benefits for companies, workers and the nation?' A more recent project, from 2015-2017, about VET teachers/trainers and their qualifications, included enterprise RTO trainers in a major survey of VET teachers and trainers.

In 2013 a 'No Frills' conference paper reported on early findings from the 2012-2015 project. This new paper focus on findings from that project about training practices and learners' experiences, drawn from nine case studies of enterprise RTOs (ERTOs) and surveys of 160 ERTO learners. These findings have not previously been publicly presented. In the latter project about VET teachers/trainers, 44 ERTO trainers, from 12 enterprise RTOs, responded to a national survey, providing information about their training approaches, including detailed qualitative comments about how they approached a range of aspects of VET teaching and training. Their responses, compared with the full sample of 550 teachers and trainers from a range of Registered Training organisations, indicated some differences between RTO trainers and the VET workforce as a whole.

These two sources of information have been combined for this paper to provide a clear picture of a wide variety of training and learning practices in ERTOS, which indicate that a common perception that ERTOS primarily deliver training on the job only are incorrect. However, the data also show some problems and shortcomings, providing information which could assist enterprise RTOs or companies considering becoming enterprise RTOs, in planning their training. The findings will also help plan public policy around the role of ERTOS in the Australian VET system, with implications for other countries that have similar arrangements or are considering them.

Preparing young people for the global future of work

YOUNG PEOPLE

Mr Alex Snow, The Foundation for Young Australians

The World Economic Forum has argued that in many industries and countries, the most in-demand occupations or specialities did not exist 10 years ago. Today's young people will need to innovate in business, communities, government and the global realm to solve emerging challenges and create a fairer society.

Yet a very linear and traditional picture of careers continues to dominate mainstream thinking about work, with people often still viewing careers as a climb up the ranks of job seniority, starting in the trainee cubicle and aiming for the executive offices.

So how do we prepare our young people for this future? And what role does Vocational Education and Training (VET) have in this future?

Through the New Work Order report series, FYA has shown that young people are expected to make 17 changes in employers across 5 different careers. To navigate this challenge FYA's research identified a core set of transferable enterprise skills that employers are already expecting young people to have. Skills such as digital literacy, financial literacy, communication, collaboration, resilience, teamwork, creativity and problem-solving allow people to work across various jobs and industries and are as powerful a predictor of long-term jobs success as technical skills.

To tackle the challenge of providing accurate information about where future jobs will exist and the skills that will be needed, the New Work Mindset analysed 2.7 million job advertisements. This revealed 7 new job clusters in the Australian economy where the required skills are closely related and more portable than previously thought. On average, when an individual trains or works in one job, they acquire skills for 13 other jobs. This is because, for many jobs, employers demand very similar skills and most people are skilled for more jobs than they, or potential employers, actually realise.

A rapidly reshaping economy and work presents a challenge for the vocational education sector to train workers so they are adaptable in a range of work settings, with the current training system very granular and narrowly defined in terms of tasks and job roles. The importance of the VET system is highlighted by the fact that more than 1.2 million workers are represented in the technical and trade sector, which represents more than 13 percent of the entire Australian workforce.

FYA was successful in a joint application to the Victorian Government's Workforce Training Innovation Fund (WTIF) for a collaborative project with South West Institute of TAFE (SW TAFE) and Lyndoch Living, Western District Health Services (WDHS) and Eventide Homes (the Consortium).

FYA's New Work Mindset report will be used to inform, develop, test and trial new career development and management processes and tools for South West TAFE students and Consortium employees. This will demonstrate and showcase a new learning model and develop a series of tools that can be used across industry and vocational education to provide evidence for training package design and delivery focused on helping students develop a portfolio of transferable skills, rather than the current practise of narrow, job specific training.

A reflexive model of vocational practice: its potential for students in vocational education and training

PRACTITIONER

Mr Behnam Soltani, and Mr James Harrison Otago Polytechnic

To address the demands of the changing world of work, tertiary institutes are developing new qualifications that enhance the employability of graduates. This paper draws on Stephenson & Yorke's (2013) conceptualization of capability, which emphasizes the ability of the individuals to perform effectively both in new and different contexts. The paper presents findings using a narrative methodology and interviews to arrive at a contemporary model of vocational practice in a tertiary vocational programme. The paper argues that a reflexive model of practice, by means of which the individual engages with other social actors in a mutually interpretive process to build his/her capabilities in the landscapes of practice, could be beneficial for vocational education. This process would enable the training providers to help students to personally sustainably grow long after their formal academic studies and initial career preparation. Furthermore, the paper proposes possible components that would be essential to the formation of the model.

The findings described here arise from two parallel areas of research. First, it is what current employers are identifying as key skills and capabilities. Second, it is how those key skills and capabilities may be acquired and continue to be developed by the individuals over a lifetime of practice within rapidly changing environments.

The findings further show that self-referential and iterative processes, including experiential learning, problem solving and research, are important mechanisms for transferring the application of existing capabilities to new contexts. Furthermore, the paper demonstrates that if students are aware that these processes form an integrated part of their reflexive models of practice, they can continue to develop independently throughout their whole lives.

The paper concludes that these processes form natural parts of current vocational education or training programmes and that their use and assessment reinforce their accommodation and application.

Vocational educators and programme designers, trainers, practitioners, and anyone who is interested in producing learners who can build capacities to develop their capabilities would be interested in attending this presentation.

Women in trades: how women have succeeded in trades where they are traditionally under-represented

APPRENTICES & TRAINEES

Ms Kylie Taffard, BCITO Lead Organisation in Women in Trades Research Consortia (co-authored by Mr Mark Williams, Insight and Innovation of BCITO)

Our goal is the increased participation and success of women in construction and engineering related trades where they are traditionally under-represented.

Collaboration is at the core of our project consortia's strength and our belief that together we can make a difference. The project is supported by funding from Ako Aotearoa and the Ministry for Women. Our core members include five Industry Training Organisations, the Building and Construction Industry Training Organisation, The Skills Org, Motor Industry Training Organisation, Connexis and Competenz, collectively representing 97 industry sectors, two Auckland based Maori Pasifika Trades Training consortia and Manukau Institute of Technology. Behind them are 18 associated industry and educational organisations and 19 linked secondary schools.

The research programme is being undertaken over three years through three interrelated focus areas:

1. Working directly with pre-trade and in trade women (Supply)
2. Working with trade employers (Demand)
3. Working with data to establish benchmarks and measure change (Data)

In this presentation we report on the outcomes of the Successful Women in Trade's project, a supply segment project seeking to put front and centre the voice of women in the trades. The Successful Women in Trade's project sought to investigate the research question: "what are the influencers, enablers and barriers experienced by successful women in the trades?". This project focuses on the characteristics of an effective learning journey for women entering the trades and the factors that allowed them to

remain in their trade. The project interviewed 34 successful women in trades, the transcripts were analysed using thematic analysis and the findings were then presented in three ways. The core report with observations and recommendations, seven category descriptors with barriers, enablers and quotes and seven personas with aggregated attributes, representative demographic, scenarios, barriers and enablers.

The research programme is continuing this year with two main projects:

1. The investigation of employer characteristics and perceptions focusing on two cohorts - those that do or have employed women in trade roles and those that haven't; and
2. The investigation of training provider and facilitator approaches and perceptions - with the sample including polytechnics, industry training organisations and private training providers.

Creativity in VET

Professor, PhD Lene Tanggaard, Aalborg University



Keynote address

Creativity is considered one of the necessary competences for the future. Robots will increasingly take over existing human jobs. What will be left to us humans is the ability to think creatively about the human condition, to handle complex situations without clear vantage points and goals in mind, and to collaborate across lines of responsibilities in our organisations. This developing situation should attract the attention of those involved in VET.

This keynote presentation will link crafts, vocational education and training and creativity which have a lot in common. In this, the pragmatist idea of an epistemology of the hand will stand out as a central concept, inspired by Dewey and present-day pragmatists, and by empirical studies of vocational education and training. Dewey argued that people know different things, and that everything we know – if it is to deserve the term knowledge – must have some connection with practical action. We should count something as knowledge only if it enables us to make a fruitful difference to human experience. This links with an understanding of creative actions as those actions that make an impact in and on the world.

A practical implication of this would be that VET must teach its students to act creatively, to judge and handle complex problems in the real world and to make an impact on it.

The buried N in LLN: the challenge of numeracy and maths, crucial foundation skills for a global future

EMPLOYABILITY & FOUNDATION SKILLS

Mr Dave Tout, Australian Council for Educational Research (ACER)

This presentation will highlight several issues and lessons related to the role and place of mathematics and numeracy skills in VET and in workplaces, and how mathematics and numeracy are crucial, underpinning skills required in the 21st century. However, research shows that the performance of Australian (and New Zealand) young people and adults in numeracy and mathematics is less than desired, and that there are significant challenges that need to be faced and addressed in this area as we move forward into the global future.

Based mainly around a 2016/17 review undertaken by ACER for the OECD on the numeracy framework and assessment content in the Programme in Assessment of Adult Competencies (PIAAC), this presentation will share insights from this review into numeracy and mathematics skills, trends and research in the 21st century. The presentation will reflect on this research in relation to what current data and reports exist about our numeracy skills and abilities. Often the issue of N in LLN in VET is forgotten and overlooked, especially in comparison to literacy and language, but evidence exists to show that the N should be made a priority, and that it is vital to build the foundational numeracy and mathematics skills that work and life in the 21st century requires.

Analytics and insight: developing a tool to support building and construction apprentices' completion

APPRENTICES & TRAINEES

Dr Karen Vaughan, NZ Council for Educational Research

Supporting apprentices' success, and minimising their non-completion of apprenticeships, is a challenging issue faced by employers, education organisations, and Governments around the world. In New Zealand, the Building and Construction Industry Training

ABSTRACTS

Organisation (BCITO) is working with the New Zealand Council for Educational Research (NZCER) to develop a tool to better support its 11,000 learners, especially those at risk of non-completion.

The NZCER-developed tool will calculate the likelihood of a learner completing their qualification and provide a “health profile” to describe how they are doing and any learning support needs arising. The tool will be a guide to action, rather than the action itself. It will supplement the work of the BCITO’s field team (Training Advisors) which oversee apprenticeships and provide learner support.

In this presentation, we share the development journey so far, after almost a year. We show how factors involved in non-completion have been identified from existing research and our first and second phase instruments. We present preliminary findings from in-depth interviews with apprentices, employers and BCITO Training Advisors, designed to deepen understanding about how to interpret and use the tool’s profile information. We also discuss the ethical considerations of using predictive analytics to help support learners.

Work, innovation and learning in small medium enterprises (SMEs)

INDUSTRY

Dr Silin Yang, Institute for Adult Learning, Skillsfuture Singapore

Innovation forms the backbone of organisations, especially within small-medium enterprises (SMEs) as an insufficient amount of engagement in innovation endangers their survival in an increasingly competitive economy. Research suggests that those who competently adopt innovation as a core business approach experience increased productivity, growth potential and the probability of survival (Cefis and Marsili, 2006; Heunks, 1998).

Operating in an era of rapid industrial and technological change, SMEs in Singapore continue to face challenges in the areas of manpower constraints, rising business costs, poor human resource practices and increasing competition (WDA, 2015). To survive and prosper, local SMEs are being encouraged to foster greater capacity for innovation through engaging in new methods of collaboration with external companies, transforming business practices, and tapping into governmental resources.

However, recent studies reveal that only about half or less of Singaporean SMEs are engaged in some form of innovative activities (Singapore Chinese Chamber of Commerce and Industry, 2016; SME Development Survey 2016, 2016). A recent study ‘Programme for the International Assessment of Adult Competencies (PIAAC) survey’ has also shown that Singapore ranked below OECD average in work organisation practices that promote environments in which workers want to learn and innovate more (OECD, 2016).

This paper draws data from a work-in-progress research project “Innovative learning culture in SMEs” conducted by Institute for adult learning, Skillsfuture Singapore. In this study, the aim is to understand how SMEs in the advanced manufacturing and healthcare industries afford learning opportunities that promote innovation, and what it means to have a culture that supports innovation and learning.

This project considers innovative learning culture as an environment or set of practices that encourage and promote learning and innovation. In this way, it is one in which the norms, forms and practices of the culture are directed towards reproduction and the further development of its participations. Innovation is understood as: (1) generation and implementation of new processes, products, or ideas in the organisation; (2) remaking of everyday work practices and job enactment and social processes in the organisation; and (3) everyday work-related thinking and acting leading to the remaking of practices: the tendency to think about new and better ways of doing things and to try them out in practice in the organisation. Evidence was gathered by a variety of quantitative and qualitative methods in seven organisations to provide a holistic picture of how SMEs develop an innovative learning culture by surveying, work shadowing, observing, listening and interviewing them (multiple times) and relevant others and following how workers interact with artefacts that may be the result of innovations or contribute to innovative practices. This project employed a practice-oriented theory-method toolkit approach (Nicolini, 2012) where the unit of analysis is the work practices of the workers in the organisations. As this study is work-in-progress at the time submission, the author will present the findings of the study in the full paper.

The findings of the study will (1) provide a conceptual framework of work, innovation and learning, and (2) provide insights into how to develop an innovative learning culture in SMEs.

Australian multi-industry pilot programs support better apprenticeship completion rates and employer engagement

POSTER

Mr Gary Workman, Apprenticeship Employment Network

Australian multi-industry pilot programs support better apprenticeship completion rates and employer engagement

Summary: Australian apprenticeship participation has been declining over the past 4-5 years, with completion rates hovering around 50% in most industry sectors. Our experience has shown that young people “sign-up” to a 4-year apprenticeship without having a strong

understanding of the trade, their long-term career goals or the employer's expectations. Group Training Organisations (GTO) were established in Australia in the 1980's to support individuals and employers, and this sector have recently been piloting a new multi-industry program which assists with overcoming many of the traditional reasons for non-completion.

The high attrition rate and reducing number of apprenticeship enrolments in Australia are challenges which continue to cause concern with industry, employer groups and government.

Left unchecked the continuing decline in qualified trades people will leave the nation with skills shortages across a range of services. It is essential that there are sufficient numbers of skilled workers to sustain services in traditional and emerging industries, and to maintain living standards for the future.

Research in Australia has indicated that one of the main reasons that apprenticeship completion rates are hovering around 50% is that young people don't have the opportunity to research, trial and experience a range of vocational options before having to commit to a 3-4 year qualification before they start. Many young people have limited opportunities to experience working life within a range of different occupations, and rely on school, family or friends for initial career direction.

While traditional pre-apprenticeship programs in Australia provide an introduction to a particular trade before commencing the full apprenticeship, they do not provide an opportunity to trial a range of vocations, nor do they provide the opportunity for young people to develop skills, knowledge and capabilities to make informed career decisions. These are some of the key principles identified as part of the process of career development and yet are not provided to people at the stage of vocational career selection.

The research available to date in Australia, indicates that there are many factors involved in a person not choosing to undertake an apprenticeship or not completing the apprenticeship they commenced. When attempting to influence the decision-making process, there is rarely a single answer, which will affect the desired outcome. All influences need to be reviewed and where possible altered in the attempt to bring about improved results.

(Pre-apprenticeships and their impact on apprenticeship completion and satisfaction, By Tom Karmel, Damian Oliver, NCVET Research report 2011)

Main reasons for apprenticeship non-completion include

- Problems with employment 33.4%
- Didn't like the industry/ work 16.9%
- Doing something different 14.6%

(Understanding the non-completion of apprentices, Alice Bednarz NCVET Occasional paper 2014)

We believe the opportunity to undertake a range of work experiences to gain a better understanding of the sector, employer expectations and to research various industry pathways and requirements may provide the platform to develop skills, knowledge and capabilities leading to making an informed career choice for young people.

Slicing the data differently: tropical seasonality and evidence-based policy

APPRENTICES & TRAINEES

Dr Don Zoellner, Charles Darwin University

This paper describes the process and results associated with asking different, cross-disciplinary questions of vocational education and training data. Utilising the entire National Apprentice and Trainee Collection, commencement and completion data was geographically categorised into north and south Australia.

Statistical analyses identified a clear difference between the two regions in the timing of cancellations and withdrawals from training contracts in the trade occupations as well as an unexpectedly strong distinction in the annual pattern of nontrade commencements in training. Regionally specific climate variables are briefly examined to determine if there is prima facie support for a climatic explanation for the non-completion of trade apprenticeships and seasonal nontrade commencement patterns that are unique to northern Australia. The statistical detection of previously unidentified contributors to apprenticeship non-completions and traineeship commencements supports the possibility that other factors are residing in existing statistics but are yet to be exposed.

These undiscovered influences can limit the effectiveness of existing policy responses originating from inside the training system. These findings also demonstrate the potential for other novel uses of the valuable and comprehensive VET data collections to better understand the sector and to enhance research in other fields.

