RENOVATE OR REBUILD?
EXPLORING THE ARCHITECTURE OF VET

PROGRAM & ABSTRACT BOOK

18 – 20 April 2017
William Angliss Institute of TAFE – Melbourne
Making the links explicit between a vocational course and future career skills in a disrupted world
Research focus

UNITEC Bachelor of Applied Technology students and graduates

Question: Do the courses in the Bachelor of Technology course at UNITEC NZ prepare students for future work skills?
Gao, Kaas, Mohr and Wee (2016)

The automotive industry is ripe for disruption.
A key aim is:
“to ensure that the tertiary education system performs well, not just as its own system...”

And that

“...the system can adapt more quickly to change, including changing technologies and changing patterns of demand.”
Choudaha, R. (2008)

Need for ‘integrative competence’

“This urgent demand for an interdisciplinary focus on education and research for the service economy is a reflection of the rapidly changing nature of knowledge, work and the critical role played by professional higher education in preparing talent for the future.”

Competency based Curriculum for a Masters based Program in Service Science, Management and Engineering.”
Frey and Osborne (2013)

47 percent of total US employment is at risk from automation.

Legal writing and truck driving will soon be automated, while persuading, for instance, will not.
Stormer, Patscha, Prendergrast, Rhisiart, Glover and Beck (2014)

“Work in the future will be more and more interconnected. Employees (and employers) will require the competencies to work across different disciplines, to collaborate virtually, and to demonstrate cultural sensitivity.”
Frey and Osborne: *How susceptible are automotive jobs to computerisation?*

*Predictions: Mechanical technicians will be replaced. Mechanical engineers will not.*

*Compare with:*

*Conveyancing can be done by robots; defence of a client in court cannot*
Do the courses in the Bachelor of Technology (automotive) prepare students for future work skills?

Rough answers:

Students: yes and no
Graduates: Yes and no
Brochures: Yes and Yes
Reading on the subject: Not always, and often, not as well as they might
Student respondents

- Want less time on soft skills such as communication
- Presentation skills a waste of time
- More emphasis on practical skills/ more practical and less theory
- More on future technologies such as electric vehicles and driverless cars
- More industry work experience
- Need more management or business options built in
- Research boring
- Course aims need to be clearer
- Sustainability etc. is boring
- Is this a petrol head lens?
Graduate respondents

- Soft skills and communication skills learnt had been invaluable in their jobs
- Research skills useful
- The BAT didn’t necessarily enhance mechanical skills
- Embarrassed some BAT students didn’t know basic mechanical skills such as carrying out diagnostics, changing a cambelt
- Lack of work experience component demotivating
Employers

Good communication skills
Punctuality
Reliability
Honesty
Can do attitude
IFTF: 6 key drivers of change

Our increasing longevity
The rise of smart machines and systems
Computational world
New media ecology
Superstructured organisations
Globally connected world
IFTF key future skills identified by IFTF

- Sense making
- Transdisciplinarity
- Novel and adaptive thinking
- Social intelligence
- New media literacy
- Computational thinking
- Design mind-set
- Cognitive load management
- Cross-cultural competency
- Virtual collaboration
“Tasks that require true (not programmed) empathy or critical thinking and problem-solving are the ones you’ll probably still want humans for.” Letheren and Glavas (QUT)

“What are humans good at? What is our comparative advantage? And what is our place alongside these machines? We will have to rethink the content of our work and our work processes in response.” Davies, Fidler, Gorbis: (IFTF)

The effect of autonomous vehicles and systems will see future generations choosing to buy their mobility as a service, rather than own vehicles like most of us today...” (Driverless cars and no traffic lights)
• Plenty of gaps
• Some gaps hard to predict
• Some predictable gaps are not being bridged due to cost factors – e.g. electric vehicles, driverless vehicles and road design;
• Not enough on sustainability/eco-friendly solutions and future proofing;
• Greater emphasis needed on IFTF highlighted skills such as new media mindset, social intelligence, sense making, transdisciplinarity, cross-cultural competency needed.
• Lack of a holistic approach to eco matters/technology in the wider sense (it’s not just about cars)
Conclusions

Need for stronger links with industry;
Work experience component desirable;
Need to clarify importance of future work skills competencies;
Need for students to be mindful of the currents of disruption and uncertainty;
Need for clearer communication about what the course is preparing students for, and what it is not;
Need to re-design in order to better align with predicted demands of future workplaces.