Applied Education & Future Skills in the Digital Era

#VPET2020
#futureoflearning
“To be truly successful in new roles, workers need unique “combinatorial skill sets” at the intersection of innately human skills, functional skills, know-how and experience, and technology skills. Leaders should underpin all skill-building efforts by fostering the right mindset elements, such as curiosity and openness to growth. This will best prepare workers for the future.”
EXPERTISE VS SOCIAL COMPETENCIES (SOFT SKILLS)

Skills needed to do tasks

EXPERTISE
FUNCTIONAL + DIGITAL SKILLS

SOCIAL
EMOTIONAL + ENTREPRENEURIAL SKILLS

Skills needed to work with people and understand humans

Combinatorial skillset
Skills for the future of work

Thinking about the combinatorial skillset, would you value relatively more on expertise (skills needed to do tasks) than social competencies (skills needed to work with people and understand humans) or vice versa?

a) Expertise is relatively more important than social competencies

b) Expertise is relatively less important than social competencies

c) Expertise and social competencies are equally important
IMPACT OF A.I. IN NEXT 5 YEARS

Compiled by MIT Technology Review Insights based on data provided by Faethm, 2019.
Level 3 Learning: Creating value by solving unforeseen challenges & emergent opportunities

Level 2 Learning: Collaborative, entrepreneurial, emotional skills applied to complex problems

Level 1 Learning: Knowledge and expertise used to perform known problems and work
SWINBURNE INDUSTRY 4.0 PROGRAM – “HIGHER APPRENTICES”

- Leverage industry partnerships
- Change the purpose of learning
- Work side-by-side with industry helping create new value through co-creating new technologies and work practices
- Graduates acting as change agents
During the cleaning process two pneumatic lances enter the disperser to spray water.

As these lances move up and down the scraper oscillates in a predefined safe area to avoid collision.

**THE PROBLEM**

- A rare system fault occurs where the scraper collides with the lance, shearing the lance and rendering it inoperable.
MODEL & DIGITAL TWIN

- CAD Modelling
- 3D Printing
- CNC Laser Cutting
- Pneumatics
- Proximity Sensors
Value creation

• Context: in a cyber-physical environment

• Combinatorial skillset:

  advanced technical skills (industry 4.0 expertise)
  +
  their uniquely human skills (curiosity, investigative, collaborative, narrative)

• Purpose: to solve an unforeseen challenge
Higher apprentices

- Flagship program
- Case studies
- Informs curriculum with what works:
  - Problem solving
  - Mastery of technology
  - Social competencies
  - Curiosity & Risk-taking
EXPERTISE VS SOCIAL COMPETENCIES FOR THE FUTURE OF WORK, BY GENERATION

- Skills needed to do tasks
- Skills needed to work with people and understand humans

[Graph showing trends for Baby Boomers, Gen X, and Millennials for expertise and social skills]
DIGITISATION LEVELS NON-GOVERNMENT SECTORS OF THE AUSTRALIAN ECONOMY

*Based on McKinsey modelling

**Area of each sector suggests approximate proportion of the economy
EXPERTISE VS SOCIAL COMPETENCIES FOR THE FUTURE OF WORK, BY SECTOR OF THE ECONOMY

Skills needed to do tasks

Skills needed to work with people and understand humans