28th National Vocational Education and Training Research Conference - No Frills

Rethinking the link between study and jobs
We wish to acknowledge the Kulin Nation, Traditional Custodians of the land on which ESA’s offices are located, and pay our respects to Elders past, present and future.

We also acknowledge the Traditional Owners of the lands across Australia, their Elders, Ancestors, cultures and heritage.
About the presenters

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Emma-Jane is the Program Director for Careers, Marketing and Communications at Education Services Australia (ESA), working across the Career, Vocational Education and Higher Education programs. She is a qualified project and change manager, with extensive experience managing the development and delivery of online education programs and services.

Dr Lizzie Knight

Lizzie is the Strategy and Research Manager in the Careers Services program at Education Services Australia and has worked on myfuture.edu.au since 2015. Concurrently she is a Research Fellow at Faculty of Education, Monash University researching different provider types and the impact on equity and student choice. She is a Professional CDAA member and on the Victorian CDAA Division Committee.
Introduction
myfuture.edu.au is the National Career Information Service. It supports individuals and those who assist others to make career decisions, plan career pathways, and manage work transitions.

myfuture is managed by Education Services Australia.
myfuture is interactive...

- **358** occupations
- **15,000** courses
- **370** occupation videos
- **19** industries
- **9** *My career profile* activities
Data security and privacy are key components of myfuture, underpinned by Education Services Australia’s stringent data-management certifications.

Data is not used for commercial purposes and is never passed to third parties.
myfuture Insights
Insight papers

Drawing on professional research and theory, we build an evidence base to inform the development of myfuture.
2019 Insight papers

**Term 1:** Rethinking the link between study and the world of work  
**Term 2:** myfuture’s My career profile  
**Term 3:** Vocational capabilities  
**Term 4:** Resilience and lifelong career development
Term 1 – Career pathways

To explain the data behind myfuture, this Insights paper summarises a research project that we undertook to establish matches between fields of education and occupational groupings.
Term 2 – Career discovery

This Insights paper explains how My career profile facilitates career discovery and makes occupational suggestions to users.
Job match clusters project
Jobs match clusters project

Drawing on current research, ESA has undertaken research to inform the link between courses and occupations on myfuture based on Australian data.
work is changing
Career ladders and clusters

‘Career ladders and career clusters offer a useful ... route map ... to make the labour market more transparent which facilitates supply and demand matching.’

Froy and Giguère (2010), p. 37
NZ industry career clusters

The New Zealand approach to career clusters is built around the main national qualification for secondary school students, the National Certificate of Educational Achievement (NCEA).

Vocational Pathways Youth Guarantee
FYA clusters

Foundation of Young Australians (2016), New Work Mindset 21
Sainsbury’s 15 routes

The UK’s Post-16 Skills Plan (2017) defines a framework of 15 routes which will encompass all technical education at levels 2-5.
Yu et al. clusters

‘Taken across 9 years ... [t]he research found a degree of stasis within clusters (1-digit ANZSCO – major groups) even though movement between occupations very common.’

1. Professionals
2. Labourers
3. Machinery operators
4. Technician/ trades workers
5. Clerical/ administrative workers
6. Higher education study professional
7. Sales workers
8. Community/ personal services workers
9. Managers
10. Not in the labour force

Yu et al. (2012)
Structure of myfuture

Career development content
Career insight, Case studies & Profiles
Australian national data sources
• Australian and New Zealand Standard Classification of Occupations (ANZSCO).

• The Australian Bureau of Statistics’ skill-based classification used to classify all occupations and jobs in the Australian and New Zealand labour markets.
ANZSCO

The structure of ANZSCO has five hierarchical levels:

• Major group
  • Sub-major group
  • Minor group
    • Unit group
    • Occupation
ANZSCO structure

- **Major Groups**:
  - Add 6-digit code to identify occupation.
  - Distinguish from other occupations in the same major group on the basis of the levels of skill level and skill specialization.

- **Sub-Major Groups**:
  - Add 7-digit code to identify occupation.
  - Distinguish from other occupations in the same sub-major group on the basis of the levels of skill level and skill specialization.

- **Minor Groups**:
  - Add 8-digit code to identify occupation.
  - Distinguish from other occupations in the same minor group on the basis of a finer application of skill specialization and, where necessary, skill level.

- **Unit Groups**:
  - Add 9-digit code to identify occupation.
  - Distinguish from other occupations in the same unit group on the basis of a detailed skill specialization.

- **Occupations**:
  - Add 10-digit code to identify occupation.
  - Distinguish from other occupations in the same occupation on the basis of detailed skill specialization and the sets of jobs which involve the performance of a common set of tasks.
ANZSCO unit groups

Unit Groups are:
- subdivisions of the minor groups
- denoted by 4-digit codes (the relevant minor group code plus an additional digit)
- distinguished from other unit groups in the same minor group on the basis of a finer application of skill specialisation and, where necessary, skill level

There are 358 Unit Groups
The Australian Standard Classification of Education (ASCED) includes:

- Level of education (from early years to Doctorate)
- Field of education (discipline area)
Field of education (Discipline areas):

- Broad Field
  - Narrow Field
    - Detailed Field
ASCED structure

myfuture displays fields of education at the Narrow Field level.
ASCED structure

Narrow fields are:
- subdivisions of the broad fields;
- denoted by 4-digit codes — the relevant broad field code plus two additional digits; and
- distinguished from other narrow fields in the same broad field on the basis of the objects of interest, and the purpose for which the study is undertaken.

There are 71 narrow fields.

Narrow Field 0401
Architecture and Urban Environment

Narrow Field 0403
Building
ANZSCO in the Census

The ABS’s quinquennial census asks about the type of occupation to assign respondents an ANZSCO code.
ASCED in the Census

The ABS’s quinquennial census asks about the level and field of education to assign respondents ASCED level and field code.
Research project
Matching qualifications to jobs

The matching will be informed by data on current labour market outcomes, rather than intended occupations.
Research project methodology

• ABS Census Table Builder
• 4.4 million Australian Census records
• Controlled for age
• Analysed the instances of matches
  o ANZSCO Unit Group
  o ASCED Field of Education
Research project findings
The rapid advancement of digital technology is transforming the Australian labour market; jobs for life are no longer the norm and for the first time, young people starting out can expect to change roles multiple times across the course of their working lives.

Due to growing complexity of the labour market, providing effective careers information to young people has never been more important. With fewer direct links between specific courses and occupations, it’s becoming essential for students to understand the changing world of work, and their role in it.

In the past, there has been a tendency to think about a definite career outcome when selecting a field of study. However, with the nature of jobs changing, students should now consider that the course they choose may be a pathway to a group of jobs which share similar skills, rather than a single occupation.

Myfuture recently examined potential new approaches to link study and job pathways, taking into consideration the current and emerging labour market patterns. Using data from the Australian Census, we researched patterns between vocational and higher education qualifications and current job roles. The findings provide valuable information for anyone thinking about their future career and have informed the development of myfuture.

The big data approach has been combined with our existing knowledge of how Australians seek and use career information to enhance the myfuture platform. We have adapted our presentation of job matching based on the research findings. With the updated myfuture website, students can explore pathways between potential study options and careers in a number of ways:

- exploring courses by discipline area, and seeing which occupations are matched to a particular course;
- exploring occupations, and seeing which courses and discipline areas are matched to a particular occupation and others in that occupational group;
- matching one of 33 learning areas to occupation groups;
- exploring a particular industry and exploring which occupations feature prominently in that industry;
- completing a MyCareer profile to match occupations to interests, level of intended education, skills, and work condition preferences.

There is also additional labour market information on each occupation, such as average income, employment growth, unemployment rate, and seasonal growth in employment, based on data collated by other agencies (e.g. Department of Jobs and Small Business).

What the data tells us
We looked at 4.4 million Australian Census records and derived over 400,000 matches between qualifications and occupational groups across the broad spectrum of jobs and education. Through analysis of Australian data, we found that the strength of match between education and jobs varied considerably. In some areas, matches were strong but not as long ago as the qualification, whereas other educational areas led to more diverse career outcomes. Image 1 shows the range in matches.

Our research showed that a Bachelor’s degree in optical science is the qualification and discipline area for which occupational outcome can be most accurately predicted. Unsurprisingly, the top ranked occupation group (2040 Optometric and Orthoptical) accounted for 5% of graduates of this degree. At the other end of the scale, a Bachelor’s degree in studies in human society (which includes history, sociology, and gender studies) major was the most unpredictable for graduate outcomes and led to the greatest range of occupations. The top ranked occupation (2044 Secondary School Teacher) only made up 4% of respondents, and the top five most popular occupations only 16% combined.

Although some courses, such as optical science and some trade-based vocational qualifications, are strong predictors of career outcomes, our research shows that the majority of occupations are much harder to predict and the majority of discipline areas have no clear occupational outcome. Because the research wasn’t provided data informed by Australian Census data as opposed to matched occupations, it allows us to guide our users in a more accurate and sophisticated way, drawing on big data.
Integration into myfuture
Open data sources

- Australian and New Zealand Standard Classification of Occupations (ANZSCO)
- Australian Bureau of Statistics
- Australian Government Department of Jobs and Small Business
Occupational descriptions

• 358 occupational descriptions derived from the Unit Group level in ANZSCO, including:
  • Occupation title, description, task list, skill level statement, list of lower level occupation titles, including their alternative titles and specialisations.
Labour market information

- Labour market information sourced from the Australian Bureau of Statistics and Australian Government Department of Jobs and Small Business, including:
  - Average annual salary; Average weekly hours; Job openings over the next five years; full time weekly earnings; historical, current, and projected employment levels.
- Data is updated annually.
Higher education courses

• Course list sourced from HEIMS (Higher Education Information Management System). An electronic information system that provides students and higher education providers with a range of relevant information, such as the availability and usage of Commonwealth assistance by students and information on program management reporting.

• Approximately 13,300 higher education courses.

• Updated twice yearly.
Vocational education and training (VET) courses

- Course list sourced from MySkills. MySkills data is obtained from the national register of VET, training.gov.au.
- Approx. 1,500 VET courses.
- Updated monthly.
Matching courses to occupations
Matching courses to occupations

- Certificate IV in Programming
- Computer science

- Software and application programmers

Computer science

- relatedMatch

Software and application programmers

Coding
- narrower

Computer programming

Software
- altLabel

Computer programs

Visual programming

Computer games
Enhancing search

This shows the many relationships between life scientists (4-digit), their 6-digit narrower concepts, and broader concepts.
Things to consider

- Challenges of using real data with young people
- Palatability of data
- Cultural capital involved in career aspiration
- Further research
Thank you!

Questions?