NATIONAL VOCATIONAL EDUCATION
AND TRAINING RESEARCH PROGRAM

OCCASIONAL PAPER

Qualification utilisation: occupational outcomes – overview

Bridget Wibrow
NATIONAL CENTRE FOR
VOCATIONAL EDUCATION RESEARCH

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Additional information relating to this research is available in the support document, *Qualification utilisation: occupational outcomes — data tables*. It can be accessed from NCVER's website <http://www.ncver.edu.au/publications/2708.html>.

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About the research

Qualification utilisation: occupational outcomes – overview

Bridget Wibrow, NCVER

Australia's vocational education and training (VET) system is focused on providing students with the skills needed for work in various occupations and trades. The system is closely connected to industry, with VET training packages developed by industry skills councils. Because of this, it might be expected that the training will lead to jobs in specific areas. This overview looks at whether graduates of VET qualifications end up in the intended occupation of their qualification or whether they end up employed elsewhere. And if they are employed elsewhere, is their training still useful to their current job. It updates and builds upon work previously published by the National Centre for Vocational Education Research (NCVER; Karmel, Mlotkowski & Awodeyi 2008).

Data from the Student Outcomes Survey are used to correlate the intended occupation of training with the destination occupation of graduates. Furthermore, other factors are added to the analysis to determine their influence on the relationship between intended and destination occupations. These are qualification level, labour force status before training, age, the completion of a module only, and industry area. An accompanying support document contains the data tables.

Key messages

- Trades tend to have stronger matches between the intended occupation of the training and the jobs graduates get.
- On a similar note, highly regulated industries, such as the electrotechnology, communications and energy utilities industries, indicate a stronger match between intended and destination occupations than those that relate to a more generalist set of skills, for example, innovation and business.
- Certificates III and IV result in a higher overall match between intended and destination occupations than certificates I and II and diplomas and higher. Diploma and above graduates are also much more likely to be employed at a lower skill level than that of their intended occupation by comparison with graduates of other qualification levels.
- There is little difference in the overall match for existing workers, younger new entrants and older new entrants. However, there is some variation between occupation groups and industry areas. For example, older new entrants have a much higher match for the community services area than do the other categories.
- In most instances, completing a qualification results in a stronger match between intended and destination occupations. The exception is for the managers occupation group, where module completers have a higher match than graduates.
- Many VET graduates who do not end up employed in their intended occupation still find their training to be relevant to their current job and some also end up employed at a higher skill level than their intended occupation.

Rod Camm
Managing Director, NCVER

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Introduction

Vocational education and training (VET) is inherently linked to work, as it is designed to focus on acquiring the skills to be used at work. In this sense, it might be expected that studying a specific qualification will lead to work in a specific occupation. However, is this the case for most individuals who have completed VET qualifications? Or does their VET study result in employment in different occupations?

On the whole, around 78% of graduates and 75% of module completers[1] are employed following training (NCVER 2012). This overview further explores this outcome by looking at the match between the intended occupation of a qualification and the destination occupation of graduates to assess whether vocational education and training is actually providing individuals with vocational skills. For example, if someone is studying a qualification in beauty therapy, do they end up working in the beauty industry or do they work as a waiter in a restaurant?

The project builds on previous work by Karmel, Mlotkowski and Awodeyi (2008) by adding different 'layers' to their analysis of occupations. Here, we add qualification level, labour force status before training, and age into the mix, as well as looking at both module completers and graduates. Furthermore, to understand differences by industry area, we look at the matching for each industry skills council[2] and their associated training packages.

Karmel, Mlotkowski and Awodeyi (2008) found that the match between what people study and the jobs they get is high for the technicians and trades group of occupations, but relatively low for most other courses. They also found that graduates mostly report their training as relevant to their job, despite their not ending up in the 'matched' occupation. However, there is some skills wastage, where graduates report that their training is not relevant to the occupation they find themselves in. The two qualifications with the highest skills wastage are for arts and media professionals and sports and personal service workers.

Firstly, this overview updates the work of Karmel, Mlotkowski and Awodeyi (2008) with more recent Student Outcomes Survey data to see whether the trends have remained the same or whether there have been changes over time. We then apply the additional layers to the analysis in order to answer the following questions:

- Does completing a qualification result in a better match between intended and destination occupations than completing only a module?
- Do higher-level qualifications result in a better match between intended and destination occupations than lower-level qualifications?
- Does the degree of matching change when we take into consideration whether students are existing workers or new entrants to the workforce?
- Do some industry areas have stronger matches between intended and destination occupations than others?

[1] Module completer refers to students who successfully completed part of a qualification and then left the VET system.

[2] A set of 12 national bodies that provide advice to the Australian, state and territory governments on the training required by industry. Each council covers a different industry area.

- Do graduates and module completers still find their training useful even if it does not result in a strong occupational match?

The full results from the analysis are presented as a series of data tables in the accompanying support document, while the key findings are discussed in this overview.

Method

The Student Outcomes Survey provides information on the training a student completes as well as their occupation six months after training. Each training package qualification is assigned an Australian and New Zealand Standard Classification of Occupations (ANZSCO) code[3] and it is from this that we derive the *intended occupation*. The *destination occupation* is the ANZSCO occupation code that corresponds with the student's employment after training. From this we can match the intended occupation of the training activity with the destination occupation after training. In the tables we display the data at both the major group and sub-major group level. A *match at the major group* refers to equivalent codes when intended and destination occupations are compared at the single-digit occupational level, while a *match at the sub-major group* refers to equivalent codes when those occupations are matched at the two-digit level. In keeping with Karmel, Mlotkowski and Awodeyi (2008), we have focused our analysis primarily on sub-major group matches.

A range of issues need to be taken into account when considering the data. The first is that there is a limited period of time (six months) between a person finishing their study and undertaking the survey, which means there is only a small window of time for individuals to find a job related to their training. The second is that we have combined multiple years of survey data (2009, 2010, 2011 and 2012) to create a larger, more stable dataset, whereas the original report only used 2007 data. This means that caution should be used when comparing the current results with Karmel, Mlotkowski and Awodeyi (2008), although the results will be more robust. The data tell a similar story to the previous report but combining four years worth of data gives us a larger sample with which to explore the new breakdowns.

[3] As some registered training organisations (RTOs) in Victoria and Western Australia fall under state regulators rather than the Australian Skills Quality Authority, there may be some inconsistencies in how states and territories align training packages to particular ANZSCO codes.

Findings

Comparison with previous report

The technicians and trades group has the highest match between intended and destination occupation, while managers have the lowest.

We find that the overall match at the sub-major group level is slightly higher than that identified by the previous report (42.1% compared with 36.6%). The technicians and trades occupation group still has the highest match between intended and destination occupations (66.0%) and the managers occupation group has the lowest (11.7%). However, while the technicians and trades occupation group has the highest match overall, there is some variability within the trades occupations. Looking at the two-digit level, construction trades workers have a match of 85.7% at the sub-major level, and engineering, ICT and science technicians have the lowest, at 22.1%, for the trades occupation group. Other occupational groups with high matches are cleaners and laundry workers (82.2%) (these fall under the labourers occupation group), carers and aides (70.7%) and health professionals (68.9%). Similar to Karmel, Mlotkowski and Awodeyi (2008), arts and media professionals have the lowest match of all of the occupations, at only 5.7%. There are some variations between the current project and the previous report. For example, the match for community and personal service workers is 8.9 percentage points higher than the figure in the previous report. The occupation group with the largest difference is road and rail drivers, with the match rising by 31.3 percentage points, to 63.6%. Even though we have combined four years worth of data, half the number of people are undertaking training in this area compared with 2007. There was also a new training package introduced in 2008, so it is possible that it may be providing more focused training, leading to a better match. (See table 1 in the support document.)

Undertaking study for employment-related reasons only slightly improves the level of matching, while being an apprentice or trainee substantially improves the match between intended and destination occupation.

Karmel, Mlotkowski and Awodeyi (2008) also explored two possible background factors to occupational matching: graduates who have indicated their main reason for study as employment-related and those who have undertaken an apprenticeship or traineeship. These tabulations have been replicated and the results are similar to those in the previous report. It is found that undertaking study for employment-related reasons only slightly increases the level of matching, from 42.1% to 44.7%, while being an apprentice or trainee substantially improves the match between intended and destination occupations (from 42.1% to 62.7%). Focusing on apprentices and trainees, the match for the technicians and trades occupation group is particularly high, at 83.4%, which is not surprising as this is where most traditional apprenticeships sit. Outside the trades, cleaners and laundry workers, carers and aides and road and rail drivers also have matches of over 70% (87.6%, 80.3% and 74.7% respectively). (See tables 2 and 3 in the support document.)

In addition to occupational matching, we look at changes in skill levels to determine whether graduates still end up employed at the same or a higher skill level after training, even if they are not employed in their intended occupation. To do this we compare the skill level of the intended occupation with the skill level of the graduate's occupation after training, based on the five levels of skill assigned to each four-digit ANZSCO occupation by the Australian Bureau of Statistics (ABS). Due to some changes in the way skill levels are coded, our results are not directly comparable with those of Karmel, Mlotkowski and Awodeyi (2008). ANZSCO codes with trailing zeroes have been permitted in

the Student Outcomes Survey since 2010; however, the ABS does not assign skill levels to these ANZSCO codes. To overcome this, we have assigned a skill level to these codes based on the ANZSCO level immediately above, whereas Karmel, Mlotkowski and Awodeyi coded these as 'employed at unknown skill level'. (See appendix for a list of occupations and their associated skill levels.) In their report, they found that the professionals occupation group had the most graduates employed at a lower skill level, followed by the managers occupation group. Using the new methodology, we find that the managers occupation group has the most graduates employed at a lower skill level after training (64.2%), followed by professionals (50.4%). All of the other occupation groups have fewer than 25% of their graduates employed at a lower skill level. As with the Karmel, Mlotkowski and Awodeyi analysis, sales workers do particularly well, with 94.8% either employed in their intended occupation or employed at the same or a higher skill level. (See table 4 in the support document.)

The managers occupation group has the most graduates employed at a lower skill level than their intended occupation following training.

A key aim of the Karmel, Mlotkowski and Awodeyi (2008) report was to assess whether VET training is specific or generic. To do this, the relevance of the skills acquired in training to the current job of a graduate is investigated. Generic preparation is evidenced by a high percentage reporting the training as relevant even if they do not end up in the intended occupation. If many report that the training is not relevant to their current job, then this can be seen as wastage[4] (as termed by Karmel, Mlotkowski & Awodeyi 2008). By looking at the results in this way, we see that, overall, 81.2% of graduates who completed a qualification found it useful (that is, were either employed in their intended occupation or found the training relevant), while 16.7% of graduates found that their qualification was wasted. The qualifications with the highest wastage were for the labourers (23.0%) and professionals (21.6%) occupation groups. These findings are different from those of Karmel, Mlotkowski and Awodeyi, who reported that, at the major-group level, community service workers (25.6%), machinery operators and drivers (24.7%) and professionals (24.4%) had the qualifications with highest wastage. The lowest wastage is still for technicians and trades workers, at 11.1%. It could be said that these wastage rates are rather low. However, if we look at the data at the sub-major group level, we see that some individual occupations have qualifications with high wastage rates. For example, the proportion of arts and media professionals reporting their training to be of little or no relevance to their job is high, at 64.1%, which is the same for Karmel, Mlotkowski and Awodeyi. (See table 5 in the support document.)

Four out of five graduates find their qualification useful to their current job.

Qualification level

We are interested to see whether higher-level qualifications result in stronger occupational matches than lower-level qualifications. We have based our analysis on the following groupings: certificate I and II, certificates III and IV, and diploma and above. By comparing the match for the different qualification levels we see that certificates III and IV have the highest overall match between intended and destination occupation. Certain occupations within the diploma and above category perform well; namely, sales workers and community and personal service workers. Certificates I and II perform relatively poorly in this exercise, with quite low matches, their highest match being 38.8% for sales workers. The only occupations with matches over 50% at the sub-major group level for certificate I

[4] It is noted that perhaps some of these people are undertaking training for later in their careers, which could be particularly relevant for the managers occupation group.

and II graduates are cleaners and laundry workers (72.0%), construction trades workers (70.7%) and electrotechnology and telecommunications trades workers (60.1%), although these are still lower than for certificate III and IV graduates. The highest matches for certificate III and IV graduates also occur mainly in the trade and labourer occupations, the exceptions being carer and aides (71.8%), road and rail drivers (66.6%) and protective services workers (57.2%). For the diploma and above qualifications, the highest matches occur outside the trade and labourer occupations. The highest matches are for carers and aides, health professionals, education professionals, protective service workers, personal assistants and secretaries, and sales representatives and agents. (See tables 6, 7 and 8 in the support document available at <http://www.ncver.edu.au/publications/2708.html>.)

In terms of changes to skill levels, the results for diploma and above graduates are the most concerning, with only 53.2% of graduates either employed in their intended occupation or employed at the same or a higher skill level. Certificates I and II graduates fare best in this exercise, with 83.5% either employed in their intended occupation or employed at the same or a higher skill level, while 80.6% of certificate III and IV graduates are. It is difficult to interpret these results, as certificates I and II are typically aligned with occupations at the lowest skill levels and, because of this, these graduates can only move higher. Looking at the different occupation groups, managers and professionals have the most graduates employed at a lower skill level across all qualification levels, although the proportion of certificate III and IV graduates in the professionals group employed at a lower skill level is lower than for certificates I and II and diplomas and higher (44.1% compared with 70.3% and 61.9% respectively). Sales workers have particularly strong outcomes across all of the qualification levels, with at least 89% in all instances employed either in their intended occupation or at the same or a higher skill level. (See tables 9, 10 and 11 in the support document.)

Diplomas and above graduates have the most concerning results, with only approximately half employed either in their intended occupation or at the same or a higher skill level.

When looking at training relevance, we see that, overall, more certificate I and II graduates report that their training was of little or no relevance (29.1%) compared with certificate III and IV (14.0%) and diploma and above (17.2%) graduates. Professionals are more likely than the other occupation groups to say that their training was of little or no relevance in each of the qualification categories. Looking at the details at the sub-major group level, it would appear that it is mainly arts and media professionals who are driving up the results for professionals: 66.0% of certificate I and II, 69.7% of certificate III and IV, and 59.1% of diploma and above graduates found their training to be of little or no relevance. (See tables 12, 13 and 14 in the support document.)

Labour force status before training and age

We are curious to see what impact labour force status has on the match between intended and destination occupations. The three categories we explore are: existing workers (that is, those who were employed before training); younger new entrants (those who were not employed before training and are between 15 and 24 years old); and older new entrants (those who were not employed before training and are aged 25 years and older).

The match between intended and destination occupation is similar for existing workers, younger new entrants and older new entrants. They also have a similar proportion of graduates employed at a lower skill level than their intended occupation — around one in five.

There is little difference in the overall match between intended and destination occupation for existing workers (41.9%), younger new entrants (43.2%) and older new entrants (39.7%). Existing

workers most closely follow the trend for all graduates in terms of the ranking of the occupation groups from highest to lowest match. The technicians and trades workers group has a particularly high match for younger new entrants (71.2%) by comparison with existing workers (65.8%) and older new entrants (55.1%). On the other hand, the match for graduates of the community and personal service workers occupation group is high for older new entrants (60.1%) compared with existing workers (51.8%) and younger new entrants (41.9%). (See tables 15, 16 and 17 in the support document.)

When assessing the change in skill level, we find that the results are very similar for existing workers, younger new entrants and older new entrants, with around 22% of graduates employed at a lower skill level. Across the categories, graduates of the managers and professional occupational groups are the most likely to be employed at a lower skill level. By comparison with existing workers and younger new entrants, the proportion of older new entrants in the community and personal service workers occupation group is quite low, at 10.9%. (See tables 18, 19 and 20 in the support document.)

Existing workers are less likely to report that their training is of little or no relevance than younger new entrants and older new entrants (15.8% compared with 23.8% and 23.2% respectively). For existing workers, labourers are the most likely to report that their training is of little or no relevance (20.7%). Professionals are the most likely among younger new entrants (60.7%) and machinery operators and drivers are among older new entrants (44.8%).When we look at the sub-major group occupations, a large number of arts and media professionals who were either existing workers (64.3%) or younger new entrants (81.1%) find their training to be of little or no relevance. On the other hand, factory process workers were the most likely to find their training to be of little or no relevance among older new entrants (57.8%). (See tables 21, 22 and 23 in the support document.)

Existing workers are less likely to report that their training is of little or no relevance than both younger and older new entrants.

Module completers

The original report by Karmel, Mlotkowski and Awodeyi (2008) focused only on graduates, as they believed 'it would be unreasonable to conclude that the VET system is not providing relevant skills if the individual has not completed the full qualification. Some modules may equip an individual for a particular occupation, but the complete qualification could be expected to provide a better foundation' (p.9). We explore this reasoning by providing a brief comparison with module completers.

The match between intended and destination occupations for the managers occupation group is higher for module completers than for graduates.

As expected, the match between intended and destination occupations is much lower for module completers than for graduates (24.8% compared with 42.1% for graduates in table 1). It is interesting that the match for managers is higher for module completers than for graduates (18.0% compared with 11.7%). It is possible that certain modules within these qualifications are more readily aligned to specific jobs in this generalist occupation; however, the overall match for managers is still not particularly high. (See table 24 in the support document.)

The overall percentage of module completers employed at a lower skill level (25.5%) is similar to that for graduates (22.3%).Over 70% of all module completers are either employed in their intended occupation or are employed at the same or a higher skill level. Considering that they have not completed a full qualification, this is a promising result. It is also interesting to note that slightly more module completers from the managers and machinery operators and drivers occupation groups

are employed in their intended occupation or at the same or a higher skill level (38.0% and 79.8%) than graduates (34.1% and 74.7% respectively). (See table 25 in the support document.)

It is not surprising that more module completers believe their training has very little or no relevance to their current job (27.9%) than graduates (16.7%). When looking at the sub-major group level, arts and media professionals have the highest proportion reporting that their training is of little relevance to their current job compared with the other occupational groups (68.5%). This was the same for graduates. Cleaners and laundry workers appear to find the training most useful, with 92.6% either employed in their intended occupation or reporting that their training is relevant to their current job. (See table 26 in the support document.)

Industry skills councils

This section explores whether particular industry areas, as represented by industry skills councils, produce stronger occupational outcomes than other industries. The same arithmetic is used as in the previous sections, but rather than examining ANZSCO areas we look at individual industry skills councils and their related training packages; that is, it is the same data but presented in a different way. Not surprisingly, we see that it is the licensed and regulated industries, such as the trades, that display high matches between intended and destination occupations. Industry groupings of a more general nature, such as innovation and business, have much lower matches between intended and destination occupations. The industry skills council with the highest overall match is ElectroComms and Energy Utilities, at 75.5%, while the highest match for an individual training package is 89.3% for Aeroskills, which falls under the Manufacturing Industry Skills Council. The lowest matches were for Visual Arts, Crafts and Design (3.1%) and Screen and Media (5.3%), both within Innovation and Business Skills Australia. (See table 27 in the support document.)

Industries which are highly regulated or have licensing requirements have the highest matches between intended and destination occupations.

For all industry skills councils besides SkillsDMC, certificates III and IV result in a higher match between intended and destination occupations than the other qualification levels. Diplomas and higher resulted in a stronger match than certificates III and IV for SkillsDMC (45.9% compared with 40.8%, although this figure should be used with caution as it has a relative standard error above 25%). For Government Skills Australia, the match for certificates I and II was only slightly less than for certificates III and IV (37.6% compared with 38.8%). Looking at the training package detail, certificates I and II have the strongest match for Public Safety (85.2%). Certificate III and IV graduates have the highest matches for Transmission, Distribution and Rail (98.9%) and Aeroskills (95.5%), while diploma and higher graduates have the strongest matches for Maritime (70.6%) and Health (69.2%). (See tables 30, 31 and 32 in the support document.)

For all industries besides those represented by SkillsDMC, certificates III and IV result in a higher match between intended and destination occupations than other qualification levels.

Across most industry areas existing workers have a higher match between intended and destination occupations than new entrants. Exceptions are automotive skills, manufacturing and community services and health.

Generally, when comparing the results for individual industry skill councils, existing workers have a higher match between intended and destination occupations than new entrants. They may already be working in the industry and are using these qualifications to formalise their skills. Exceptions are Auto Skills Australia and Manufacturing Skills Australia, where younger new entrants have the highest match, and the Community Services and Health Industry Skills Council, where older new entrants have the highest match. There are a couple of

industries with similar matches for all categories of workers; these are ElectroComms and Energy Utilities and Innovation and Business. When looking at the individual training packages, there are some strong matches which are unique to the different categories. Aeroskills results in a particularly strong match for existing workers (90.3%); food processing (84.2%) and Australian meat (82.3%) industries show a strong match for younger new entrants; and animal care and management shows a high match for older new entrants (71.7%). (See tables 33, 34 and 35 in the support document.)

Tables 36 to 42 in the support document look at changes in skill level for graduates who are not employed in their intended occupation, by industry skill councils. As the results reflect the distribution of occupations across the skills councils, we have not gone into detail about the results in this overview.

Very few graduates from ElectroComms and Energy Utilities, Government and Auto Skills found their training to be of little or no relevance (5.3%, 7.5% and 8.3% respectively). On the other hand, the results were higher for Service (21.9%), AgriFood Skills Australia (20.7%) and Innovation and Business (20.3%). When looking at the individual training package detail, Screen and Media, Music, and Visual Arts, Craft and Design have poor outcomes, with large proportions of students finding the training to be of little relevance to their current job (64.7%, 63.4% and 65.5% respectively). (See table 43 in the support document.)

Very few graduates in the industries represented by ElectroComms and Energy Utilities, Government Skills and Auto Skills found their training to be of little or no relevance.

Overall, higher levels of certificate I and II graduates report that their training is of little or no relevance to their current job (29.3%) compared with certificate III and IV (14.1%) and diploma and above graduates (16.7%). However, some industry groupings do have a substantial proportion of graduates in the certificate III and IV and diploma and above groupings who find their training to be of little or no relevance. For certificates III and IV, these include Innovation and Business (19.7%) and Service (18.5%), and for diplomas and higher, they are Manufacturing (30.2%) and Service (29.4%). Once again, when looking at the training package detail, Screen and Media, Music, and Visual Arts, Craft and Design graduates at all qualification levels report that their training is of little or no relevance to their current job (over 50% in most instances). Furthermore, 67.8% of certificate I and II graduates from the Seafood Industry and 59.5% of diploma and higher graduates from the Furnishing training packages find their training to be of little or no relevance to their current job. (See tables 44, 45 and 46 in the support document.)

Generally, existing workers are the least likely to find their training to be of little or no relevance to their current job (15.7%) compared with both younger (24.1%) and older new entrants (23.3%), although there is some variability when looking at industry areas, as represented by individual skills councils. For example, only 5.1% of graduates who are existing workers in ElectroComms and Energy Utilities report that their training is of little or no relevance compared with 21.0% of Service graduates. The same story appears for the Screen and Media, Music, and Visual Arts, Craft and Design training packages, with high numbers of graduates in all of the labour force status categories reporting that their training is of little relevance. In addition, around 57% of younger new entrants found their training in Financial Services and Beauty of little relevance to their current job. (See tables 47, 48 and 49 in the support document.)

While there is some variability by industry area, existing workers are less likely than new entrants to report that their training is of little or no relevance to their current job.

Conclusion

The results of the analysis have been determined by the nature of occupations and the purpose of training. The variance between occupations on the match between intended and destination occupations should not be unexpected. Occupations with strict licensing requirements (such as the trades) or regulations (such as carers and education professionals) demonstrate the strongest matches. This is not surprising, as in these occupations a worker must possess the mandated qualifications in order to work, meaning that the training in these areas is designed for a specific purpose. The same is true for apprentices and trainees, who have a contract of training with an employer — they tend to have a much higher match between intended and destination occupations than other VET graduates (see tables 3 and 29 in the support document). This reflects their highly integrated employment and training arrangements. On the other hand, in areas such as managers and professionals, training is more general and designed to lead to a range of occupations. Therefore, these areas tend to have a lower match between intended and destination occupations. However, the majority of graduates who are not employed in their intended occupation still find their training to be relevant to their current job, meaning that their training is still useful.

The analysis of qualification levels found that certificates III and IV result in a higher overall match between intended and destination occupations than certificates I and II and diplomas and above. This may be because many trade qualifications are delivered at the certificate III and IV level and, as discussed above, because of regulatory requirements, they have stronger matches. Other occupational groups, such as carers and aides and education professionals, have particularly strong matches at the diploma and higher level. Once again, this could be due to the regulations associated with these occupations, such as mandated minimum qualifications. Across both sets of analyses — ANZSCO and Industry Skills Councils — certificates I and II have the lowest matches.

When looking at labour force status before training, the match between intended and destination occupations for existing workers is the most similar to the overall trend. Younger new entrants have particularly high matches for trade occupations. This is not surprising, as many of these younger graduates may fall into the apprentice or trainee category. The match for older new entrants is slightly lower than for the other categories, except for the community and personal service workers occupation group and the Community Services and Health Industry Skills Council, which have the highest match of all the categories.

The analysis by skill level shows that diploma and above graduates are much more likely to be employed at a lower skill level than that of their intended occupation by comparison with other graduates. This finding is of some concern. Karmel (2008) has previously argued that diploma graduates are being displaced by bachelor graduates for jobs, so it is possible that there are few jobs at the diploma level and thus they are working at a lower skill level. Furthermore, Mavromaras and colleagues (2012) point to the long-term wage penalty of working at a lower level than that of the intended occupation. However, it is impossible to determine from the data whether an individual is undergoing a career change or improving their skills for promotions in the future. This may explain why some graduates, particularly within the managers occupation group, are employed at a lower skill level than their intended occupation.

Another trend from the data is the poorer outcomes of Screen and Media, Music, and Visual Arts, Craft and Design graduates. Over 50% of graduates at all qualification levels and within each of the labour force status groupings reported that their training was of little or no relevance to their current job.

This was by far the highest of any of the training packages. Even when the results are filtered for only those who undertook training for employment-related reasons, fewer than 13% of Screen and Media, Music, and Visual Arts, Craft and Design graduates are employed in their intended occupation. (See table 28 in the support document.) This most likely reflects a lack of jobs in the labour market in these occupations, which means that graduates end up being employed in an unrelated area.

Overall, even if VET graduates do not end up in the intended occupation of their training, their qualifications still result in positive outcomes. Most of these graduates find their training to be relevant to their current job and some also end up employed at a higher skill level than their intended occupation. In this context, the occupational outcomes are on the whole positive.

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Appendix

Table A1 Skill level by ANZSCO

ANZSCO 4-digit	Description	Skill level
1000	MANAGERS	2
1100	Chief Executives, General Managers and Legislators	1
1110	Chief Executives, General Managers and Legislators	1
1111	Chief Executives and Managing Directors	1
1112	General Managers	1
1113	Legislators	1
1200	Farmers and Farm Managers	1
1210	Farmers and Farm Managers	1
1211	Aquaculture Farmers	1
1212	Crop Farmers	1
1213	Livestock Farmers	1
1214	Mixed Crop and Livestock Farmers	1
1300	Specialist Managers	1
1310	Advertising and Sales Managers	1
1311	Advertising and Sales Managers	1
1320	Business Administration Managers	1
1321	Corporate Services Managers	1
1322	Finance Managers	1
1323	Human Resource Managers	1
1324	Policy and Planning Managers	1
1325	Research and Development Managers	1
1330	Construction, Distribution and Production Managers	1
1331	Construction Managers	1
1332	Engineering Managers	1
1333	Importers, Exporters and Wholesalers	1
1334	Manufacturers	1
1335	Production Managers	1
1336	Supply and Distribution Managers	1
1340	Education, Health and Welfare Services Managers	1
1341	Child Care Centre Managers	1
1342	Health and Welfare Services Managers	1
1343	School Principals	1
1344	Other Education Managers	1
1350	ICT Managers	1
1351	ICT Managers	1
1390	Miscellaneous Specialist Managers	1
1391	Commissioned Officers (Management)	1
1392	Senior Non-commissioned Defence Force Members	1
1399	Other Specialist Managers	1
1400	Hospitality, Retail and Service Managers	2
1410	Accommodation and Hospitality Managers	2
1411	Cafe and Restaurant Managers	2
1412	Caravan Park and Camping Ground Managers	2
1413	Hotel and Motel Managers	2
1414	Licensed Club Managers	2
1419	Other Accommodation and Hospitality Managers	2
1420	Retail Managers	2

ANZSCO 4-digit	Description	Skill level
1421	Retail Managers	2
1490	Miscellaneous Hospitality, Retail and Service Managers	2
1491	Amusement, Fitness and Sports Centre Managers	2
1492	Call or Contact Centre and Customer Service Managers	2
1493	Conference and Event Organisers	2
1494	Transport Services Managers	2
1499	Other Hospitality, Retail and Service Managers	2
2000	PROFESSIONALS	2
2100	Arts and Media Professionals	1
2110	Arts Professionals	1
2111	Actors, Dancers and Other Entertainers	1
2112	Music Professionals	1
2113	Photographers	1
2114	Visual Arts and Crafts Professionals	1
2120	Media Professionals	1
2121	Artistic Directors, and Media Producers and Presenters	1
2122	Authors, and Book and Script Editors	1
2123	Film, Television, Radio and Stage Directors	1
2124	Journalists and Other Writers	1
2200	Business, Human Resource and Marketing Professionals	1
2210	Accountants, Auditors and Company Secretaries	1
2211	Accountants	1
2212	Auditors, Company Secretaries and Corporate Treasurers	1
2220	Financial Brokers and Dealers, and Investment Advisers	1
2221	Financial Brokers	2
2222	Financial Dealers	1
2223	Financial Investment Advisers and Managers	1
2230	Human Resource and Training Professionals	1
2231	Human Resource Professionals	1
2232	ICT Trainers	1
2233	Training and Development Professionals	1
2240	Information and Organisation Professionals	1
2241	Actuaries, Mathematicians and Statisticians	1
2242	Archivists, Curators and Records Managers	1
2243	Economists	1
2244	Intelligence and Policy Analysts	1
2245	Land Economists and Valuers	1
2246	Librarians	1
2247	Management and Organisation Analysts	1
2249	Other Information and Organisation Professionals	1
2250	Sales, Marketing and Public Relations Professionals	1
2251	Advertising and Marketing Professionals	1
2252	ICT Sales Professionals	1
2253	Public Relations Professionals	1
2254	Technical Sales Representatives	1
2300	Design, Engineering, Science and Transport Professionals	1
2310	Air and Marine Transport Professionals	1
2311	Air Transport Professionals	1
2312	Marine Transport Professionals	1
2320	Architects, Designers, Planners and Surveyors	1
2321	Architects and Landscape Architects	1
2322	Cartographers and Surveyors	1

ANZSCO 4-digit	Description	Skill level
2323	Fashion, Industrial and Jewellery Designers	1
2324	Graphic and Web Designers, and Illustrators	1
2325	Interior Designers	1
2326	Urban and Regional Planners	1
2330	Engineering Professionals	1
2331	Chemical and Materials Engineers	1
2332	Civil Engineering Professionals	1
2333	Electrical Engineers	1
2334	Electronics Engineers	1
2335	Industrial, Mechanical and Production Engineers	1
2336	Mining Engineers	1
2339	Other Engineering Professionals	1
2340	Natural and Physical Science Professionals	1
2341	Agricultural and Forestry Scientists	1
2342	Chemists, and Food and Wine Scientists	1
2343	Environmental Scientists	1
2344	Geologists and Geophysicists	1
2345	Life Scientists	1
2346	Medical Laboratory Scientists	1
2347	Veterinarians	1
2349	Other Natural and Physical Science Professionals	1
2400	Education Professionals	1
2410	School Teachers	1
2411	Early Childhood (Pre-primary School) Teachers	1
2412	Primary School Teachers	1
2413	Middle School Teachers (Aus) / Intermediate School Teachers (NZ)	1
2414	Secondary School Teachers	1
2415	Special Education Teachers	1
2420	Tertiary Education Teachers	1
2421	University Lecturers and Tutors	1
2422	Vocational Education Teachers (Aus) / Polytechnic Teachers (NZ)	1
2490	Miscellaneous Education Professionals	1
2491	Education Advisers and Reviewers	1
2492	Private Tutors and Teachers	1
2493	Teachers of English to Speakers of Other Languages	1
2500	Health Professionals	1
2510	Health Diagnostic and Promotion Professionals	1
2511	Dieticians	1
2512	Medical Imaging Professionals	1
2513	Occupational and Environmental Health Professionals	1
2514	Optometrists and Orthoptists	1
2515	Pharmacists	1
2519	Other Health Diagnostic and Promotion Professionals	1
2520	Health Therapy Professionals	1
2521	Chiropractors and Osteopaths	1
2522	Complementary Health Therapists	1
2523	Dental Practitioners	1
2524	Occupational Therapists	1
2525	Physiotherapists	1
2526	Podiatrists	1
2527	Speech Professionals and Audiologists	1
2530	Medical Practitioners	1

ANZSCO 4-digit	Description	Skill level
2531	Generalist Medical Practitioners	1
2532	Anaesthetists	1
2533	Internal Medicine Specialists	1
2534	Psychiatrists	1
2535	Surgeons	1
2539	Other Medical Practitioners	1
2540	Midwifery and Nursing Professionals	1
2541	Midwives	1
2542	Nurse Educators and Researchers	1
2543	Nurse Managers	1
2544	Registered Nurses	1
2600	ICT Professionals	1
2610	Business and Systems Analysts, and Programmers	1
2611	ICT Business and Systems Analysts	1
2612	Multimedia Specialists and Web Developers	1
2613	Software and Applications Programmers	1
2620	Database and Systems Administrators, and ICT Security Specialists	1
2621	Database and Systems Administrators, and ICT Security Specialists	1
2630	ICT Network and Support Professionals	1
2631	Computer Network Professionals	1
2632	ICT Support and Test Engineers	1
2633	Telecommunications Engineering Professionals	1
2700	Legal, Social and Welfare Professionals	1
2710	Legal Professionals	1
2711	Barristers	1
2712	Judicial and Other Legal Professionals	1
2713	Solicitors	1
2720	Social and Welfare Professionals	1
2721	Counsellors	1
2722	Ministers of Religion	1
2723	Psychologists	1
2724	Social Professionals	1
2725	Social Workers	1
2726	Welfare, Recreation and Community Arts Workers	1
3000	TECHNICIANS AND TRADES WORKERS	3
3100	Engineering, ICT and Science Technicians	2
3110	Agricultural, Medical and Science Technicians	2
3111	Agricultural Technicians	2
3112	Medical Technicians	2
3113	Primary Products Inspectors	2
3114	Science Technicians	2
3120	Building and Engineering Technicians	2
3121	Architectural, Building and Surveying Technicians	2
3122	Civil Engineering Draftspersons and Technicians	2
3123	Electrical Engineering Draftspersons and Technicians	2
3124	Electronic Engineering Draftspersons and Technicians	2
3125	Mechanical Engineering Draftspersons and Technicians	2
3126	Safety Inspectors	2
3129	Other Building and Engineering Technicians	2
3130	ICT and Telecommunications Technicians	2
3131	ICT Support Technicians	2
3132	Telecommunications Technical Specialists	2

ANZSCO 4-digit	Description	Skill level
3200	Automotive and Engineering Trades Workers	3
3210	Automotive Electricians and Mechanics	3
3211	Automotive Electricians	3
3212	Motor Mechanics	3
3220	Fabrication Engineering Trades Workers	3
3221	Metal Casting, Forging and Finishing Trades Workers	3
3222	Sheetmetal Trades Workers	3
3223	Structural Steel and Welding Trades Workers	3
3230	Mechanical Engineering Trades Workers	3
3231	Aircraft Maintenance Engineers	3
3232	Metal Fitters and Machinists	3
3233	Precision Metal Trades Workers	3
3234	Toolmakers and Engineering Patternmakers	3
3240	Panelbeaters, and Vehicle Body Builders, Trimmers and Painters	3
3241	Panelbeaters	3
3242	Vehicle Body Builders and Trimmers	3
3243	Vehicle Painters	3
3300	Construction Trades Workers	3
3310	Bricklayers, and Carpenters and Joiners	3
3311	Bricklayers and Stonemasons	3
3312	Carpenters and Joiners	3
3320	Floor Finishers and Painting Trades Workers	3
3321	Floor Finishers	3
3322	Painting Trades Workers	3
3330	Glaziers, Plasterers and Tilers	3
3331	Glaziers	3
3332	Plasterers	3
3333	Roof Tilers	3
3334	Wall and Floor Tilers	3
3340	Plumbers	3
3341	Plumbers	3
3400	Electrotechnology and Telecommunications Trades Workers	3
3410	Electricians	3
3411	Electricians	3
3420	Electronics and Telecommunications Trades Workers	3
3421	Airconditioning and Refrigeration Mechanics	3
3422	Electrical Distribution Trades Workers	3
3423	Electronics Trades Workers	3
3424	Telecommunications Trades Workers	3
3500	Food Trades Workers	3
3510	Food Trades Workers	3
3511	Bakers and Pastrycooks	3
3512	Butchers and Smallgoods Makers	3
3513	Chefs	2
3514	Cooks	3
3600	Skilled Animal and Horticultural Workers	3
3610	Animal Attendants and Trainers, and Shearers	3
3611	Animal Attendants and Trainers	3
3612	Shearers	3
3613	Veterinary Nurses	3
3620	Horticultural Trades Workers	3
3621	Florists	3

ANZSCO 4-digit	Description	Skill level
3622	Gardeners	3
3623	Greenkeepers	3
3624	Nurserypersons	3
3900	Other Technicians and Trades Workers	3
3910	Hairdressers	3
3911	Hairdressers	3
3920	Printing Trades Workers	3
3921	Binders, Finishers and Screen Printers	3
3922	Graphic Pre-press Trades Workers	3
3923	Printers	3
3930	Textile, Clothing and Footwear Trades Workers	3
3931	Canvas and Leather Goods Makers	3
3932	Clothing Trades Workers	3
3933	Upholsterers	3
3940	Wood Trades Workers	3
3941	Cabinetmakers	3
3942	Wood Machinists and Other Wood Trades Workers	3
3990	Miscellaneous Technicians and Trades Workers	3
3991	Boat Builders and Shipwrights	3
3992	Chemical, Gas, Petroleum and Power Generation Plant Operators	3
3993	Gallery, Library and Museum Technicians	2
3994	Jewellers	3
3995	Performing Arts Technicians	3
3996	Signwriters	3
3999	Other Miscellaneous Technicians and Trades Workers	3
4000	COMMUNITY AND PERSONAL SERVICE WORKERS	5
4100	Health and Welfare Support Workers	2
4110	Health and Welfare Support Workers	2
4111	Ambulance Officers and Paramedics	2
4112	Dental Hygienists, Technicians and Therapists	2
4113	Diversional Therapists	3
4114	Enrolled and Mothercraft Nurses	2
4115	Indigenous Health Workers	2
4116	Massage Therapists	2
4117	Welfare Support Workers	2
4200	Carers and Aides	4
4210	Child Carers	4
4211	Child Carers	4
4220	Education Aides	4
4221	Education Aides	4
4230	Personal Carers and Assistants	4
4231	Aged and Disabled Carers	4
4232	Dental Assistants	4
4233	Nursing Support and Personal Care Workers	4
4234	Special Care Workers	4
4300	Hospitality Workers	4
4310	Hospitality Workers	4
4311	Bar Attendants and Baristas	4
4312	Cafe Workers	5
4313	Gaming Workers	4
4314	Hotel Service Managers	3
4315	Waiters	4

ANZSCO 4-digit	Description	Skill level
4319	Other Hospitality Workers	5
4400	Protective Service Workers	3
4410	Defence Force Members, Fire Fighters and Police	3
4411	Defence Force Members - Other Ranks	3
4412	Fire and Emergency Workers	3
4413	Police	2
4420	Prison and Security Officers	4
4421	Prison Officers	4
4422	Security Officers and Guards	5
4500	Sports and Personal Service Workers	4
4510	Personal Service and Travel Workers	4
4511	Beauty Therapists	4
4512	Driving Instructors	3
4513	Funeral Workers	2
4514	Gallery, Museum and Tour Guides	4
4515	Personal Care Consultants	4
4516	Tourism and Travel Advisers	4
4517	Travel Attendants	3
4518	Other Personal Service Workers	5
4520	Sports and Fitness Workers	4
4521	Fitness Instructors	4
4522	Outdoor Adventure Guides	4
4523	Sports Coaches, Instructors and Officials	3
4524	Sportspersons	3
5000	CLERICAL AND ADMINISTRATIVE WORKERS	5
5100	Office Managers and Program Administrators	2
5110	Contract, Program and Project Administrators	2
5111	Contract, Program and Project Administrators	2
5120	Office and Practice Managers	2
5121	Office Managers	2
5122	Practice Managers	2
5200	Personal Assistants and Secretaries	3
5210	Personal Assistants and Secretaries	3
5211	Personal Assistants	3
5212	Secretaries	3
5300	General Clerical Workers	4
5310	General Clerks	4
5311	General Clerks	4
5320	Keyboard Operators	4
5321	Keyboard Operators	4
5400	Inquiry Clerks and Receptionists	4
5410	Call or Contact Centre Information Clerks	4
5411	Call or Contact Centre Workers	4
5412	Inquiry Clerks	4
5420	Receptionists	4
5421	Receptionists	4
5500	Numerical Clerks	4
5510	Accounting Clerks and Bookkeepers	4
5511	Accounting Clerks	4
5512	Bookkeepers	4
5513	Payroll Clerks	4
5520	Financial and Insurance Clerks	4

ANZSCO 4-digit	Description	Skill level
5521	Bank Workers	4
5522	Credit and Loans Officers	4
5523	Insurance, Money Market and Statistical Clerks	4
5600	Clerical and Office Support Workers	5
5610	Clerical and Office Support Workers	5
5611	Betting Clerks	5
5612	Couriers and Postal Deliverers	5
5613	Filing and Registry Clerks	5
5614	Mail Sorters	5
5615	Survey Interviewers	5
5616	Switchboard Operators	5
5619	Other Clerical and Office Support Workers	5
5900	Other Clerical and Administrative Workers	4
5910	Logistics Clerks	4
5911	Purchasing and Supply Logistics Clerks	4
5912	Transport and Despatch Clerks	4
5990	Miscellaneous Clerical and Administrative Workers	4
5991	Conveyancers and Legal Executives	2
5992	Court and Legal Clerks	3
5993	Debt Collectors	4
5994	Human Resource Clerks	4
5995	Inspectors and Regulatory Officers	4
5996	Insurance Investigators, Loss Adjusters and Risk Surveyors	3
5997	Library Assistants	4
5999	Other Miscellaneous Clerical and Administrative Workers	4
6000	SALES WORKERS	5
6100	Sales Representatives and Agents	3
6110	Insurance Agents and Sales Representatives	3
6111	Auctioneers, and Stock and Station Agents	3
6112	Insurance Agents	3
6113	Sales Representatives	4
6120	Real Estate Sales Agents	3
6121	Real Estate Sales Agents	3
6200	Sales Assistants and Salespersons	5
6210	Sales Assistants and Salespersons	5
6211	Sales Assistants (General)	5
6212	ICT Sales Assistants	5
6213	Motor Vehicle and Vehicle Parts Salespersons	4
6214	Pharmacy Sales Assistants	5
6215	Retail Supervisors	4
6216	Service Station Attendants	5
6217	Street Vendors and Related Salespersons	5
6219	Other Sales Assistants and Salespersons	5
6300	Sales Support Workers	5
6310	Checkout Operators and Office Cashiers	5
6311	Checkout Operators and Office Cashiers	5
6390	Miscellaneous Sales Support Workers	5
6391	Models and Sales Demonstrators	5
6392	Retail and Wool Buyers	3
6393	Telemarketers	5
6394	Ticket Salespersons	5
6395	Visual Merchandisers	4

ANZSCO 4-digit	Description	Skill level
6399	Other Sales Support Workers	5
7000	MACHINERY OPERATORS AND DRIVERS	4
7100	Machine and Stationary Plant Operators	4
7110	Machine Operators	4
7111	Clay, Concrete, Glass and Stone Processing Machine Operators	4
7112	Industrial Spraypainters	4
7113	Paper and Wood Processing Machine Operators	4
7114	Photographic Developers and Printers	4
7115	Plastics and Rubber Production Machine Operators	4
7116	Sewing Machinists	4
7117	Textile and Footwear Production Machine Operators	4
7119	Other Machine Operators	4
7120	Stationary Plant Operators	4
7121	Crane, Hoist and Lift Operators	4
7122	Drillers, Miners and Shot Firers	4
7123	Engineering Production Systems Workers	4
7129	Other Stationary Plant Operators	4
7200	Mobile Plant Operators	4
7210	Mobile Plant Operators	4
7211	Agricultural, Forestry and Horticultural Plant Operators	4
7212	Earthmoving Plant Operators	4
7213	Forklift Drivers	4
7219	Other Mobile Plant Operators	4
7300	Road and Rail Drivers	4
7310	Automobile, Bus and Rail Drivers	4
7311	Automobile Drivers	4
7312	Bus and Coach Drivers	4
7313	Train and Tram Drivers	4
7320	Delivery Drivers	4
7321	Delivery Drivers	4
7330	Truck Drivers	4
7331	Truck Drivers	4
7400	Storepersons	4
7410	Storepersons	4
7411	Storepersons	4
8000	LABOURERS	5
8100	Cleaners and Laundry Workers	5
8110	Cleaners and Laundry Workers	5
8111	Car Detailers	5
8112	Commercial Cleaners	5
8113	Domestic Cleaners	5
8114	Housekeepers	5
8115	Laundry Workers	5
8116	Other Cleaners	5
8200	Construction and Mining Labourers	5
8210	Construction and Mining Labourers	5
8211	Building and Plumbing Labourers	5
8212	Concreters	5
8213	Fencers	4
8214	Insulation and Home Improvement Installers	4
8215	Paving and Surfacing Labourers	5
8216	Railway Track Workers	4

ANZSCO 4-digit	Description	Skill level
8217	Structural Steel Construction Workers	4
8219	Other Construction and Mining Labourers	5
8300	Factory Process Workers	5
8310	Food Process Workers	5
8311	Food and Drink Factory Workers	5
8312	Meat Boners and Slicers, and Slaughterers	4
8313	Meat, Poultry and Seafood Process Workers	5
8320	Packers and Product Assemblers	5
8321	Packers	5
8322	Product Assemblers	5
8390	Miscellaneous Factory Process Workers	5
8391	Metal Engineering Process Workers	5
8392	Plastics and Rubber Factory Workers	5
8393	Product Quality Controllers	4
8394	Timber and Wood Process Workers	5
8399	Other Factory Process Workers	5
8400	Farm, Forestry and Garden Workers	5
8410	Farm, Forestry and Garden Workers	5
8411	Aquaculture Workers	5
8412	Crop Farm Workers	5
8413	Forestry and Logging Workers	4
8414	Garden and Nursery Labourers	5
8415	Livestock Farm Workers	5
8416	Mixed Crop and Livestock Farm Workers	5
8419	Other Farm, Forestry and Garden Workers	5
8500	Food Preparation Assistants	5
8510	Food Preparation Assistants	5
8511	Fast Food Cooks	5
8512	Food Trades Assistants	5
8513	Kitchenhands	5
8900	Other Labourers	5
8910	Freight Handlers and Shelf Fillers	5
8911	Freight and Furniture Handlers	5
8912	Shelf Fillers	5
8990	Miscellaneous Labourers	5
8991	Caretakers	5
8992	Deck and Fishing Hands	4
8993	Handypersons	5
8994	Motor Vehicle Parts and Accessories Fitters	4
8995	Printing Assistants and Table Workers	4
8996	Recycling and Rubbish Collectors	5
8997	Vending Machine Attendants	5
8999	Other Miscellaneous Labourers	5

Note: Skill levels are assigned from 1 (the highest) to 5 (the lowest).

Support document details

Additional information relating to this research is available in *Qualification utilisation: occupational outcomes — data tables*. It can be accessed from NCVER's website <http://www.ncver.edu.au/publications/2708.html>.

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