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OCCASIONAL PAPER

Understanding the non-completion of apprentices

Alice Bednarz

NATIONAL CENTRE FOR
VOCATIONAL EDUCATION RESEARCH



Australian Government
Department of Industry



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About the research

Understanding the non-completion of apprentices

Alice Bednarz, National Centre for Vocational Education Research

Approximately half of all apprenticeship contracts in the trades are not completed. In this context, this review draws together existing research on why apprentices do not complete their training. The issue of non-completion is considered from multiple angles, including apprentices' self-reported reasons for non-completion, the impact of employer characteristics, and apprentices' and employers' satisfaction with the training provider. The report is based on findings from surveys undertaken by the National Centre for Vocational Education Research (NCVER) and other national surveys, industry studies and research papers.

Key messages

- Employment-related reasons are the most commonly cited reasons for not completing an apprenticeship. These include experiencing interpersonal difficulties with employers or colleagues, being made redundant, not liking the work and changing career. By contrast, issues with the off-the-job training are the least frequently cited reasons for not completing an apprenticeship.
- There is a large difference in completers' and non-completers' satisfaction with their employment experience overall. The majority of completers (80%) are satisfied with the employment experience overall, compared with just 42% of non-completers. This provides further evidence that the employment experience, rather than the off-the-job-training experience, carries greater weight in whether an apprentice stays or goes.
- There is conflicting evidence on the importance of wages. Most studies find that low wages are not the most common reason for non-completion, but they are nonetheless one of the top few factors. An increase in wages alone is unlikely to solve the problem of low completion rates, since multiple factors are often to blame.
- Apprentices generally leave their apprenticeship contract early on: 60% of those who leave do so within the first year.
- The influence of the employer cannot be overstated. Employers with the highest completion rates are generally larger, experienced employers with well-organised systems for managing and recruiting apprentices. Employers with lower completion rates tend to be smaller and have less experience.

These findings suggest a number of ideas for future policy developments, such as encouraging more rigorous recruitment practices; providing greater support for smaller, less-experienced employers; providing greater mentoring support for apprentices, particularly in the early stages of their apprenticeship; and considering alternative apprenticeship models, specifically those that reduce the pressure on employers.

Rod Camm
Managing Director, NCVER

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Introduction

The aim of this review is to collate the existing research on the reasons why apprentices do not complete their training. The focus is on understanding the non-completion of trade apprentices, as attrition in these areas is generally viewed with particular concern.

An apprenticeship involves a contract between the apprentice and their employer, together with an arrangement with a training provider. Apart from these core players, apprenticeships take place within a wider system that is influenced by government policies and incentives, industry bodies and community attitudes. With this in mind, an examination of why apprentices discontinue their training needs to be approached from several angles.

The first section presents a snapshot of the apprenticeship system and the current rates of completion. Approximately half of all apprenticeship contracts are not completed, with some variation across states and occupations. Several data issues complicate the measurement of completion rates, but even accounting for these, completion rates are low.

The following section presents apprentices' reasons for not completing, as reported by apprentices themselves. These are frequently related to the employment experience and include trouble with the boss or workmates, not liking the work and low pay. Additional common reasons are leaving to pursue other opportunities, such as a better job, and personal reasons, such as illness or transport problems.

Next, the employer's role is examined more closely, as issues with the employment experience are frequently cited by non-completers. The characteristics of employers with high and low completion rates are examined. Employers with the highest completion rates tend to be larger, experienced employers with well-organised systems for managing apprentices. Smaller, less experienced employers tend to have lower completion rates. Given this discrepancy, we pay particular attention to the types of strategies employed by firms with high apprentice completion rates. These include rigorous recruitment processes, formal work plans and mentoring support services.

The training provider and opportunities for improving the training experience are the focus of the next section. The main problems are inflexible delivery options, poor feedback about apprentice progress, and the literacy and numeracy difficulties of apprentices.

The penultimate section considers the value of completing – if completion does not offer sufficient reward, it may explain the low completion rates. Benefits are examined in terms of wage premiums and employment prospects, and whether qualifications are considered necessary to work as a tradesperson. One finding is that the premium attached to becoming a qualified tradesperson is significant, but is not always enough to offset the opportunity cost of undertaking training, particularly for adult apprentices.

Finally, we summarise the main findings and suggest opportunities for future policy developments. Given that apprentices often leave because they do not like the work or it didn't meet their expectations, more effort could be put into the selection process. Further, an employer accreditation process may help to ensure that only those employers with sufficient training capacity are permitted to take on apprentices; careful consideration of employer incentive payments may also help in this regard. There is also scope to consider alternative apprenticeship models, specifically those that reduce the pressure on employers.

Background

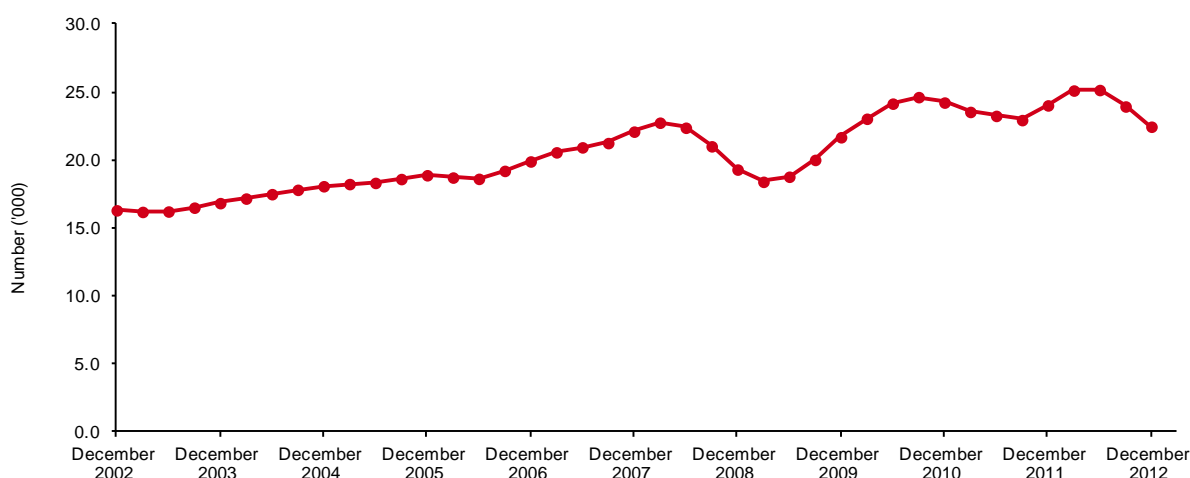
Apprenticeships are generally undertaken in the traditional trades and involve an occupational entry-level qualification at the certificate III/IV level (Commonwealth of Australia 2011). They are generally three to four years in duration. Traineeships, on the other hand, tend to be in service-oriented occupations, including business and retail, and are generally two years in duration. Apprentices and trainees can be either directly employed or employed through a group training organisation (GTO).¹

Throughout the report, the term ‘apprentice’ will be used to refer to those undertaking trade apprenticeships, while the term ‘trainee’ will be used to refer to those undertaking a traineeship. Although current terminology groups apprenticeships and traineeships under the umbrella term of ‘Australian Apprenticeships’,² this report distinguishes between the two, since the reasons for non-completion differ substantially between the two groups. The primary focus is on apprentices.

There were approximately 200 000 apprentices in training as at 31 December 2012 (NCVER 2013a). Apprentices represent about 12% of Australian workers in technical and trade occupations (NCVER 2012c).

Figure 1 shows the trend in apprentice commencements over the last ten years. Commencements have risen by 38% over the past ten years, from 16 300 at the end of 2002, to approximately 22 500 at the end of 2012.

Figure 1 Apprentice commencements, seasonally adjusted and smoothed, December 2002 – December 2012



Source: NCVER (2013b).

¹ An apprenticeship is a system of training regulated by law or custom, which combines on-the-job training and work experience while in paid employment with formal (usually off-the-job training). The apprentice enters into a contract of training or training agreement with an employer, which imposes mutual obligations on both parties. Traditionally, apprenticeships were in trade occupations (declared vocations) and were of four years duration, but the duration of contracts has been formally reduced in some trades.

A traineeship is a system of vocational training combining off-the-job training with an approved training provider with on-the-job training and practical work experience. Traineeships generally take one to two years and are now part of the Australian Apprenticeships system (NCVER VET Glossary, accessed January 2013, <www.ncver.edu.au/resources/glossary>).

² See <www.australianapprenticeships.gov.au>.

Completion rates

Each apprentice has a contract of training with their employer. To determine completion rates, contracts of training are monitored to track how many contracts that were commenced in a given time period are eventually completed. This gives us a ‘contract completion rate’.

There is an issue associated with tracking contracts of training: an apprentice might start a contract of training with one employer, but then later switch employers and begin a new contract of training. When only contracts of training are monitored, the original contract may be recorded as incomplete, even if the student goes on to finish their apprenticeship with the new employer. Approximately one-quarter of trade apprentices swap employers during their apprenticeship in this fashion (Karmel 2011). This leads us to consider ‘individual completion rates’. These give an estimate of the proportion of apprentices who started in a given year and who eventually completed their training in the same *occupation* in which they began, but not necessarily with the same *employer*.

Ideally, to calculate completion rates, we must wait for all apprentices who started at a given time to either complete or drop out of their training. Only when all contracts are accounted for will we know the true rate. However, a trade apprenticeship is generally four years in duration. To save having to wait for the full four years, an alternative is to track apprentices for a certain time period and then *estimate* the long-term behaviour.

Thus, for contract completion rates, NCVER uses two different methods. One method involves tracking a cohort of contracts for the full four years, with some adjustments made to account for reporting lags (Harvey 2010a). The other method, used to find the *projected* contract completion rates, involves tracking a cohort of contracts for one quarter and extrapolating the behaviour to *predict* the long-term trend (see Karmel & Mlotkowski 2010a for details). For individual completion rates, the contract completion rates are adjusted according to data on the number of apprentices who switch employers during their apprenticeship. See Karmel (2011) for details.

The latest completion rates for trade apprentices are shown in table 1. We can see that approximately half of apprenticeship contracts are not completed.³ The individual completion rate is slightly higher, at 55%.

Table 1 Latest completion rates for trade apprentices commencing in 2007

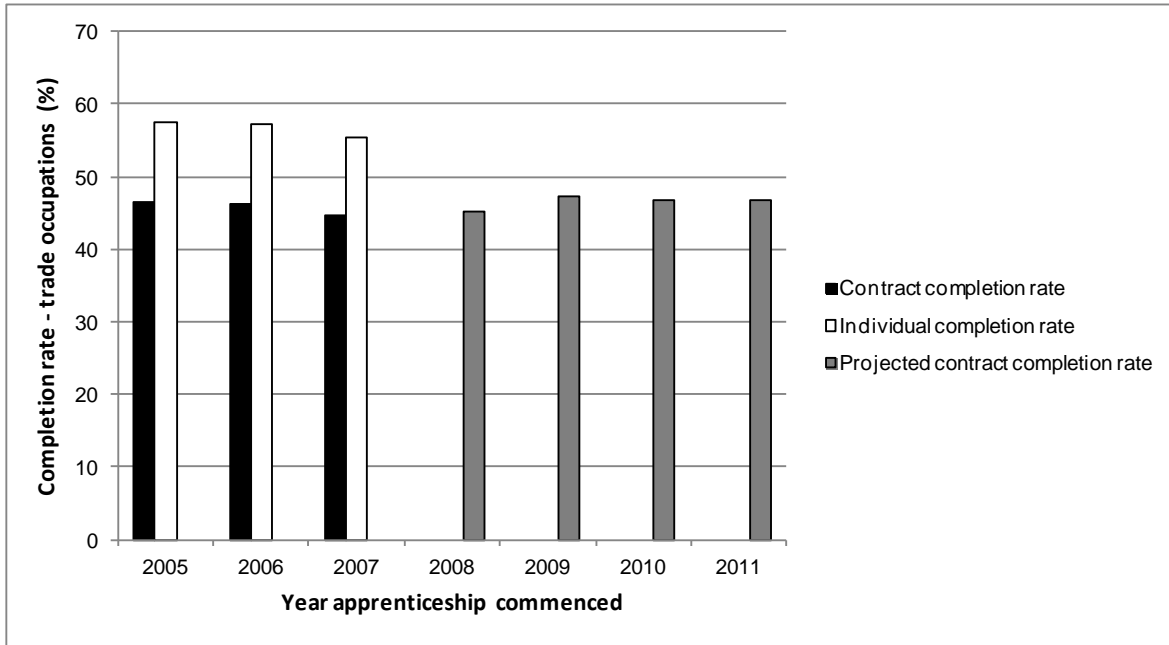
Completion rate	Completion rate (%)
Contract completion rate	45
Individual completion rate	55

Source: NCVER (2012a).

Completion rates have not changed much over the last few years, as shown in figure 2. Contract completion rates have hovered around the 45% mark and are projected to increase very slightly for the 2009, 2010 and 2011 cohorts of apprentices. Individual completion rates are higher than contract completion rates by about ten percentage points, since they account for employer switching.

³ An issue is that the sum of the contract completion rate and the contract attrition rate is not 100%, due to ‘expired’ contracts; these are discussed later.

Figure 2 Completion rates for trade apprentices over time



Source: NCVER (2010c, 2012a).

Note: Contract completion rates refer to individuals completing an apprenticeship contract with the employer they commenced with. Individual completion rates refer to individuals completing an apprenticeship contract with the employer they commenced with, or with a different employer in the same occupation.

Projected contract completion rates are projected rates based on a cross-sectional 'life tables' methodology (see Karmel and Mlotkowski 2010a). The projected rates are for contracts beginning in the December quarter of that year.

By occupation

Completion rates vary considerably by occupation, as shown in table 2. For example, individual completion rates range from roughly 40% for food trades workers, through to almost 70% for electrotechnology and telecommunications trades workers. Occupations with the highest adjustment factor, and hence the highest employee 'churn', are hairdressers, food trades workers and construction trades workers.

Table 2 Contract and individual completion rates, based on a recommencement factor, for trade occupations commencing in 2007

Occupation (ANZSCO) group	Average annual adjustment factor	Contract completion rate (%)	Individual completion rate (%)
Technicians and trades workers	1.24	45	55
31 Engineering, ICT and science technicians	1.03	59	61
32 Automotive and engineering trades workers	1.20	49	58
33 Construction trades workers	1.30	44	57
34 Electrotechnology and telecommunications trades workers	1.23	55	68
35 Food trades workers	1.40	28	39
36 Skilled animal and horticultural workers	1.09	45	49
39 Other technicians and trades workers	1.21	43	52
391 Hairdressers	1.43	39	55
392 Printing trades workers	1.06	58	62
393 Textile, clothing and footwear trades workers	1.11	45	50
394 Wood trades workers	1.21	40	48
399 Miscellaneous technicians and trades workers	1.03	57	59
Total trade occupations	1.24	45	55

Note: ANZSCO = Australian and New Zealand Standard Classification of Occupations.
Source: NCVER (2012a).

By jurisdiction

There is also considerable variation between states/territories, as seen in table 3, with individual completion rates varying from about 51% in Victoria to 67% in Tasmania.

Table 3 Individual completion rates, by state, for 2007 commencements

State/territory	Total trade occupations ¹
Tas.	66.7
WA	62.2
SA	59.0
QLD	55.8
NSW	55.3
NT	51.6
ACT	51.3
Vic.	50.7
Australia	55.0

Note: 1 Trade occupations are defined as major occupation group 3 – Technicians and trades workers (ANZSCO 1st edn, revision 1).

Source: NCVER (2012a, supporting data for apprentice and trainee completion rates).

Research by Knight (2008) examined whether apparent differences between states are ‘real’ or merely artefacts of the reporting practices in the different states. Through consultations with state training authorities, staff at the Department of Education, Employment and Workplace Relations, Australian Apprenticeship Centres and group training associations, Knight found that differences in the level of support provided to apprentices in each state appeared to be the key. For example, the number of field officers who conduct site visits and provide support to apprentices varies substantially among states. Tasmania in particular was found to have a strong culture of support for traditional apprenticeships. As well, Knight suggested that challenging youth labour markets in South Australia and Tasmania may partially explain the above-average completion rates in those states. In other words, if young people’s employment options are limited, they may be more inclined to stick with their apprenticeship.

Future research could examine the differences in completion rates between the states/territories in more detail. For example, one area for examination might be whether there is a variation between the states in the proportion of apprentices employed by small and medium enterprises, as this could affect completion rates, given that small businesses (those with fewer than 100 employees) tend to have lower completion rates.

Data issues in measuring and reporting completion rates

There are several issues which complicate the calculation of completion rates, such as time lags and inconsistencies in data-recording practices among the states and territories (Snell & Hart 2007, 2008; Knight 2008; MGET 2010).

In order to officially complete an apprenticeship two conditions must be met. First, the apprentice must complete both the off-the-job and on-the-job training requirements of their contract. Second, evidence of this must be provided to the appropriate state training authority (Ball & John 2005, p.8). Failure to complete the second step can result in ‘expired’ contracts, which may be either unreported completions or cancellations. Approximately 5% of the contracts in NCVER’s database are classified as

'expired', meaning that their outcome is unknown (NCVER 2012a, supporting data). There is also often a time lag involved in this reporting, sometimes up to two years (Harvey 2010a).

A further complication is that many states have some form of trade recognition, which allows people to become trade-qualified outside an apprenticeship arrangement (Walker & Powers 2009b). These pathways are not currently tracked and represent a gap in the official statistics.

Why apprentices do not complete

A great deal of research has been undertaken into the reasons for apprentices not completing their training. The five main reasons that recur throughout apprenticeship attrition research include: employment-related problems, primarily trouble with the boss or colleagues; not liking the work/not being suited to the work; low wages; a lack of support; and personal reasons, including family reasons and problems with transport.

Reasons for not completing

The Apprentice and Trainee Destination Survey (NCVER 2009, 2010a) surveyed apprentices and trainees across Australia approximately nine months after they had left their training. Both completers (those who finished their training) and non-completers (those who cancelled their training contract) were surveyed, across trades and non-trades. Here the focus is only on the responses of those doing a trade. The survey was conducted in 2008 and 2010. In 2008, approximately 600 trade completers and 400 trade non-completers were surveyed, while in 2010, about 1100 trade completers and 1100 trade non-completers were surveyed (NCVER 2009, 2010a).

Table 4 presents the main reasons for not completing an apprenticeship. The two survey years represent a buoyant labour market (2008) and one affected by the Global Financial Crisis (2010).

Table 4 Main reason for not completing an apprenticeship, 2008 and 2010, trade occupations

Main reason	2008	2010
	(n = 429) (%)	(n = 1154) (%)
Did not get on with boss or other people at work	16.2	10.2
Did not like the type of work	10.2	8.3
Other reasons	10.2	1.5*
Personal reasons ¹	10.0	15.7
Left job or changed career	9.4	12.5
Lost job or made redundant	8.9	26.8
The pay was too low	8.7	4.7
Was not happy with the on-the-job training	5.4*	1.9
Not happy with the job prospects in the industry	3.6*	4.2
Got offered a better job	3.3*	2.2
Apprenticeship/traineeship cancelled or discontinued	3.2*	3.8
Poor working conditions	3.1*	3.1
Changed to another apprenticeship/ traineeship	3.1*	1.1*
Left to study elsewhere	1.9*	0.8*
Found the study too difficult	1.4*	1.6
Was not happy with the off-the-job training	1.4*	1.6*
Total	100.0	100.0

Notes: * indicates that the estimate has a relative standard error greater than 25% and therefore should be used with caution.

The table is sorted by the main reason in 2008.

¹ 'Personal reasons' includes the following: family reasons, illness, lack of time, moved, problems with travelling/transport.

Source: Apprentice and Trainee Destinations Survey (NCVER 2010, p.10).

Note that low pay does not top the list as the main reason for not completing. Only 9% of trade apprentices in 2008 cited 'low pay' as their main reason for not completing, with this figure dropping

to 5% in 2010. Instead, reasons related to the workplace or the work itself were more common. In 2008, around 16% left because they didn't get on with their boss or colleagues, while a further 10% left because they did not like the type of work.

In 2010, due to the influence of the Global Financial Crisis, approximately one-quarter of trade apprentices left because they had lost their job or had been made redundant. Approximately 16% left because of personal reasons, another 13% left due to a career change, and 10% left because they did not get on with the boss or colleagues. An even smaller proportion than in 2008 left for pay-related reasons.

We can group the reasons for non-completion into a number of themes, based on the approach of Karmel and Mlotkowski (2010c). These are shown in table 5.

Table 5 Grouping the reasons for non-completion, 2008

Main reason	In a trade occupation
	%
Problems with the employment experience	33.4
Did not get on with boss or other people at work	16.2
Poor working conditions	3.1
The pay was too low	8.7
Was not happy with the on-the-job training	5.4
Didn't like the type of work or industry	16.9
Did not like the type of work	10.2
Not happy with the job prospects in the industry	3.6
Transferred to another apprenticeship/traineeship	3.1
Doing something different/better	14.6
Left job or changed career	9.4
Got offered a better job	3.3
Left to study elsewhere	1.9
Lost job/discontinued	12.1
Lost job or made redundant	8.9
Apprenticeship cancelled or discontinued	3.2
Off-the-job training problems	2.8
Was not happy with the off-the-job training	1.4
Found the study too difficult	1.4
Other reasons	20.2
Personal reasons	10.0
Other reasons	10.2
Total	100.0

Note: * indicates that the estimate has a relative standard error greater than 25% and therefore should be used with caution.

Source: NCVET (2009).

It is clear that reasons relating to the employment experience are the most common, being the main factor in 33% of cases. By contrast, only 3% of apprentices left primarily due to issues with off-the-job training. Not liking the industry or the type of work, or leaving to do something different or better were the next most common reasons. Arguably, these reasons are also employment-related, making employment-related reasons a factor in 65% of cases overall. Although personal reasons are the cause of a fairly large proportion of non-completions, these are not considered further, as they cannot easily be influenced by policy.

Another national study, by Cully and Curtain (2001), surveyed approximately 800 non-completers across Australia, including approximately 260 apprentices. Table 6 summarises the top five reasons apprentices gave for terminating their apprenticeship. Again, it can be seen that the reasons for leaving more commonly involve issues with the employer or not liking the industry, rather than anything related to the training.

Table 6 Top five reasons for stopping an apprenticeship, 2001

Main reason	%
	(n = 264)
No longer wanted to work in that job	14
Bad management/boss	13
Dismissed by the employer	10
Made redundant	10
To transfer to another apprenticeship	8

Source: Cully & Curtain (2001).

Patterson Market Research (2004) interviewed approximately 380 apprentices in the building industry in Western Australia, both current and discontinued. Approximately 20% of discontinued apprentices said that they had left because the apprenticeship was 'boring', wasn't what they thought it would be, or because they 'just wanted to do something else', while 17% indicated that some form of falling-out with their employer or poor working conditions were to blame. Approximately 14% cited low pay. Again, low pay is not the top reason, but it is one of the top reasons.

Looking within a particular occupation, discontinued electrotechnology apprentices gave the reasons listed in table 7 as their top five reasons for cancelling (Energy Skills Queensland 2009). The high proportion of employer-terminated contracts is likely to be a result of the global economic downturn. Aside from this, low pay, insufficient support in the workplace, another job offer and unmet expectations were equally common as the main reasons for leaving. As with the NCVET surveys, low pay is only cited by around 10% of apprentices as their main reason for leaving. However, it could be argued that 'Received a better job offer – more money' is also related to low pay, making low pay a factor for 21% of respondents overall.

Table 7 Top five reasons for cancellations identified by discontinued electrotechnology respondents

Main reason	%
	(n = 104)
Employer terminated	22
Low pay	11
Poor access to training and mentoring in the workplace	10
Received a better job offer – more money	10
Did not meet my expectations	8

Source: Energy Skills Queensland (2009).

Overall, issues with the employment experience, not liking the work and pursuing other opportunities appear to be the dominant reasons for leaving. The next chapter examines the employer's role more fully.

When do apprentices leave?

Recognising when cancellations occur can help to inform our understanding of why apprentices quit. For example, drop-out rates tend to be higher at the beginning of the contract. Approximately one-third of contracts are cancelled within the first year, and 20% within the first six months, as shown in table 8. Overall, five in ten contracts are cancelled (NCVER 2012a). In real terms, this means that 47 500 contracts commencing in 2006 were cancelled.

Table 8 Contract attrition rates by occupation and time of cancellation/withdrawal, for contracts commencing in 2006

Occupation (ANZSCO) group	Contract attrition rates (%), ¹ withdrawing within:							
	Same quarter	1 quarter	2 quarters	1 year	2 years	3 years	More than 3 years	Number of contracts ('000)
Total trade occupations ²	4.0	12.7	19.5	30.4	42.9	48.2	49.7	94.7

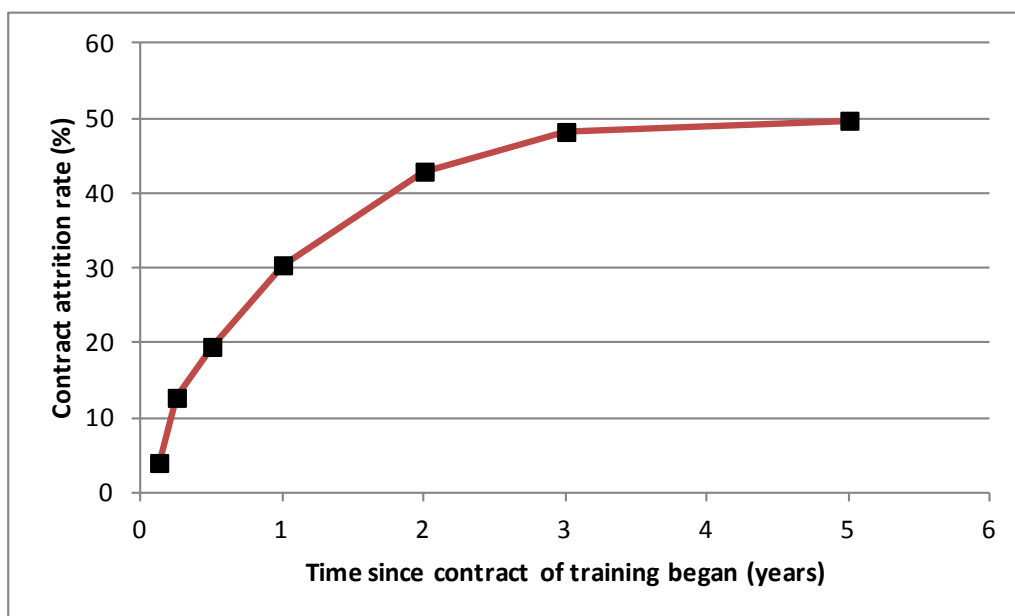
Notes: 1 Contract attrition rates are derived for contracts of training for apprentices and trainees. If an individual commenced two or more contracts in the same year, each is counted separately. Contract attrition rates do not take into account continuing contracts or expired contracts, where the outcome is unknown.

2 Trade occupations are defined as major occupation group 3 – Technicians and trades workers (ANZSCO 1st edn, revision 1).

Source: NCVER (2012a).

The pattern of attrition can be seen more clearly by plotting these proportions in a graph, as shown in figure 3. It is far more common to leave in the first two years of an apprenticeship than in the later years. We can see that two-fifths of the total cancellations occur within the first six months, while three-fifths, or 60%, occur within the first year, and 80% occur within the first two years.

Figure 3 Contract attrition rate¹ by time of cancellation/withdrawal, for contracts commencing in 2006 (trade occupations²)



Notes: 1 Contract attrition rates are derived for contracts of training for apprentices and trainees. If an individual commenced two or more contracts in the same year, each is counted separately. Contract attrition rates do not take into account continuing contracts or expired contracts, where the outcome is unknown.

2 Trade occupations are defined as major occupation group 3 – Technicians and trades workers (ANZSCO 1st edn, revision 1).

Source: NCVER (2012a).

These findings are broadly consistent with those from other studies. For example, Jones and Muthaya (2011), in their study of Tasmanian building and construction industry apprentices, find that the first year of training is the 'critical period' during which apprentices are most likely to leave their training contract. Approximately 52% of cancellations occurred in the first 12 months, while almost 80% of cancellations occurred within the first two years. Similarly, a survey of discontinued electrotechnology apprentices found that 40% of the sample had cancelled during the first year (Energy Skills Queensland 2009), while only 2% had cancelled during their fourth year.

Results relating to the timing of cancellations suggest that most attrition occurs in the first two years of the apprenticeship. As such, early completion policies, which allow apprentices to complete in a shorter time period (for example, two to three years rather than three to four years), are likely to have only a marginal effect on completion rates (Knight 2008).

Do the reasons for not completing change with duration?

Karmel and Mlotkowski (2010c) used data from the Apprentice and Trainee Destinations Survey (NCVER 2009; 2010a) to investigate whether the reasons for not completing change according to how far the individual was into their contract of training. They found that many, although not all, of the reasons increase or decrease in importance depending on duration.

One reason which maintained its importance irrespective of duration was the desire to do something different, such as being offered a better job or studying at university. This remained the top reason for leaving, regardless of duration. This suggests that apprentices are always on the lookout for other opportunities (Karmel & Mlotkowski 2010c), an idea we will return to later.

Investigating the other reasons, the authors found that those trade apprentices who leave early in their apprenticeship often do so because of poor working conditions or trouble with the boss, whereas those who leave after the two-year mark are more likely to do so for personal reasons. Given that workplace problems are among the top reasons cited amongst apprentices who withdraw early from their contract, the authors conclude that improving the matching of apprentices to workplaces may help to reduce early attrition (Karmel & Mlotkowski 2010c). More broadly, the results suggest that early attrition can be stemmed by directing more attention to improving apprentices' workplace experience.

What happens to those who quit?

The NCVER Apprentice and Trainee Destinations Surveys followed non-completing apprentices nine months after leaving their training. Approximately 75% of non-completers were employed, with 60% employed full-time and 15% part-time. In a similar study, Cully and Curtain (2001) found that 80% of non-completers were employed, mostly full-time. Only a small proportion of apprentices go on to further study. About 17% of non-completers were studying at TAFE (technical and further education) or another training provider, while 2% were studying at university (NCVER 2009).

Although a large proportion of non-completers are employed, only 25% are employed in the same occupation as their apprenticeship (NCVER 2009). This is compared with 77% of completers. This suggests that the fit between the occupation and the apprentices may have been poor. More importantly, just 7% of non-completers are employed with the same employer as their apprenticeship, compared with 50% of completers. This suggests that non-completers had a less favourable relationship with their employer than completers.

It appears that many of those who quit do not give up on the idea of an apprenticeship altogether. The NCVET survey found that approximately 22% of non-completing apprentices in a trade occupation had commenced another apprenticeship (NCVER 2009). Cully and Curtain (2001) also found that 44% of non-completing apprentices had recommenced their apprenticeship with a different employer. Two-thirds of those who recommenced did so in the same occupational area as their apprenticeship or traineeship.

Even for those who do not recommence an apprenticeship, there is evidence that some cancelled apprentices remain in the industry. For example, Patterson Market Research (2004) reported that approximately 25% of the cancelled building and construction apprentices in their sample stayed in the trade without completing their apprenticeship. This issue about the perceived value of a qualification will be addressed when we consider the value of completion.

The impact of wages

There is conflicting evidence on the importance of wages. Most studies find that apprentice wages are not the most common reason for non-completion, although low wages are nevertheless amongst the most frequently cited factors. Snell and Hart (2008) argue that a wage increase can only go part of the way to improving training outcomes, since there are often multiple contributing factors related to the employment experience to blame.

Although low wages did not rank particularly highly in the NCVET surveys, Dickie, McDonald and Pedic (2011) found that poor pay is one of the top two reasons given by discontinued apprentices for terminating their apprenticeship. Similarly, a study by Huntly Consulting Group (2008) found that wages and the cost of living were the two biggest concerns amongst interviewed apprentices. Apprentices were concerned about the cost of travel to and from the various sites assigned to them by their employer. In addition, wages were considered the single largest disincentive to taking up or completing an apprenticeship.

By contrast, Karmel and Mlotkowski (2011) found that in the trades it was the premium associated with becoming a tradesperson which mattered, rather than training wages. Indeed, more than 85% of apprentices in the Dickie, McDonald and Pedic (2011) study believed that the apprenticeship was a 'ticket to a well-paid job', which suggests that apprentices are aware of the premium attached to completing.

Some apprentices saw the low wages as a fair trade-off for receiving training, while others did not (see Cully & Curtain 2001). One employer in the Cully and Curtain (2001) study commented on the low-pay-in-return-for-training pay-off, saying that 'the kids also want more money in the job, but I am training them. If you are going to school or to university you don't get paid anything' (Cully & Curtain 2001, p.12).

Although wages are not always cited by apprentices as their top reason for leaving, they do appear to play a role in *retaining* apprentices, as companies with high retention rates often pay their apprentices above the required rates. This is discussed in more detail when the retention strategies used by employers with high apprentice retention rates are examined.

Some employers felt that apprentice wages were so low as to make other options (such as becoming a labourer or gaining alternative employment) more attractive: 'You can earn \$32 000 as a sales assistant at Bunnings, why take \$14 000 to do an apprenticeship?' (TNS Social Research 2007, p.41). We consider the opportunity cost of undertaking an apprenticeship in more detail in the section on the value of completing.

Fairness and respect

Apprentices and trainees often cited a lack of respect, being treated as ‘cheap labour’ and feeling like an inferior worker as contributing factors in their decision to leave (Snell & Hart 2008; Cully & Curtain 2001; Manufacturing Industry Skills Advisory Council 2009). For example, half of the non-completing apprentices and trainees in the Cully and Curtain (2001) survey agreed that ‘being treated as cheap labour’ was a factor in their discontinuing their training.

Some may argue that apprentices go into their training with unrealistic expectations. However, there is evidence that apprentices are largely aware of what the apprenticeship will involve. For example, approximately 75% of apprentices in the Dickie, McDonald and Pedic (2011) study said that they knew the apprenticeship would involve ‘hard work, low pay and bad conditions’.

Similarly, Smith, Walker and Brennan Kemmis (2011) explored the ‘psychological contract’ that exists between employers and apprentices; in other words, what each party expects of the other. They find that there is a high level of agreement between employers and apprentices over each party’s obligations. Therefore a mismatch in expectations is not the problem.

Dickie, McDonald and Pedic (2011) suggest that fairness, in the sense of the apprenticeship being seen as ‘a fair deal’, is the tipping point for apprentices in terms of whether they stay or go. In particular, fairness with regards to the employment experience is seen as the key. For the deal to be considered fair, apprentices expect varied work; good supervision, with on-the-job training provided by a skilled tradesperson with coaching and mentoring skills; a good boss; and a safe, contemporary workplace free from bullying (Dickie, McDonald & Pedic 2011). The authors propose that if an apprentice does not feel they are receiving a fair deal, other factors start to matter more:

Apprentices will put up with a lot, including low wages, if what they get in return is fair ... If they don’t get a fair deal, then any aspect of the apprenticeship – like pay, repetitive work or a lack of workmates – can become a source of dissatisfaction and restlessness and impact on their commitment and likelihood of completion. (Dickie, McDonald & Pedic 2011, p.13)

In other words, apprentices are willing to ‘wear’ the low pay if the training and experience they receive in return is deemed to be a fair trade-off.

Lack of support

Snell and Hart (2008) found that many apprentices felt ‘left on their own’, and didn’t know where to turn to for assistance. A case study given in the *Apprenticeships for the 21st century report* explains that an apprentice has to talk to an unnecessarily complicated web of people and organisations to gain information (Apprenticeships for the 21st Century Expert Panel 2011). Given that many apprentices drop out in their first year, it could be argued that if they had received more support, or known who to call for assistance, some may have stayed.

Characteristics of successful apprentices

Individual characteristics are also correlated with completing apprenticeships. Ball and John (2005) found that those apprentices in the ‘under 19’ and 20 to 24-year age groups are least likely to complete, while those 45 years and over are most likely to complete. As well, the probability of completion increases with higher levels of schooling.

Location also plays a role. Apprentices and trainees in rural areas were more likely to complete than those in capital cities; however, this could be because apprentices in rural areas have fewer options than those in the city (Ball & John 2005; Snell & Hart 2008).

The recent national study of 1200 trade apprentices in New South Wales by Dickie, McDonald and Pedic (2011) classified apprentices into three groups, based on their answer to the following question: ‘How likely are you to finish your apprenticeship?’ Those who answered eight or more were classified as ‘committed apprentices’; those who answered seven or fewer were classified as ‘ambivalent’; and the remaining group had already discontinued their apprenticeship at the time of the survey. Overall, 62% of the sample were classified as ‘committed’, 12% as ‘ambivalent’ and 26% as discontinued.

Committed apprentices tended to have the following characteristics:

- have a strong interest in the trade, and often have family or friends in the trades
- want to work with their hands, out of doors
- believe in the long-term gain of completing their apprenticeship
- expect hard work, low pay and bad conditions and see them as part of the deal
- consider the apprenticeship contract as fair, given the rewards they get at the end.

By contrast, those who said that they ‘fell into’ an apprenticeship were more likely to be ambivalent or have discontinued than those who had always wanted to learn the trade. Dickie, McDonald and Pedic (2011) suggest the screening of would-be apprentices based on the above criteria.

Bardon (2010) also classified apprentices into several ‘tiers’, which align closely with those of Dickie, McDonald and Pedic (2011). Tier 1 apprentices are ‘aspirational apprentices’, who are committed and motivated. Often these apprentices have a social network that includes other trade workers and a passion or aptitude for the trade. Tier 3 apprentices, on the other hand, tend to be disengaged and have little association with a trade culture.

The influence of social background is also highlighted by Karmel and Roberts (2012). They show that apprentices who live in areas with a high concentration of trade employment have completion rates that are about five percentage points higher than those who live in areas with a low concentration of trade employment.

Occupation has an impact as well, with discontented apprentices more likely to be working in automotive, hairdressing and hospitality, industries which are known to have low success rates and high rates of staff and apprentice turnover (Dickie, McDonald & Pedic 2011).

Satisfaction with apprenticeship: completers versus non-completers

Satisfaction results from the Apprentice and Trainee Destinations Survey (NCVER 2009), presented in table 9, offer further insight into why apprentices do not complete.

In particular, there is a large difference in completers’ and non-completers’ satisfaction with their employment overall. The majority of completers (80%) were satisfied with the employment experience overall, compared with just 42% of non-completers. Non-completers’ satisfaction with every aspect of the employment experience, including working conditions, supervision, relationship with co-workers and training provided by the employer, was about 20–30 percentage points lower across the board.

Table 9 Satisfaction with the apprenticeship for completers and non-completers in a trade occupation, 2008

Satisfaction	Completers	Non-completers	Difference
	Satisfied (%)	Satisfied (%)	(% points)
Overall	83	45	38
Quality of off-the-job training	77	62	15
Frequency of training	75	57	18
Relevance of skills to workplace	78	62	16
Fairness of the assessments	85	73	12
Relevance of the assessment tasks	76	64	12
Quality of the training facilities and equipment	70	65	5
Employment overall	80	42	38
Training provided by employer	77	49	28
Relationship with co-workers	89	63	26
Working conditions	79	53	26
Skills learnt on the job	86	60	26
Type of work	82	58	24
Supervision	76	53	23
Hours of work	79	60	19
Pay	47	31	16

Source: NCVER (2009), selected results.

Although there is some difference in completers' and non-completers' satisfaction with the quality of the off-the-job training (77% of completers were satisfied versus 62% of non-completers), this is nowhere near as large as the difference in satisfaction with the employment overall. This provides further evidence that the employment experience, rather than the off-the-job-training experience, carries greater weight in determining whether an apprentice stays or goes.

Change in young people's expectations

The literature on non-completion often makes mention of the characteristics of today's generation of young people, typically referred to as 'Generation Y'⁴ (for example, Dickie, McDonald & Pedic 2011; Huntly Consulting 2008; Smith, Walker & Brennan Kemmis 2011). For instance, in their interviews with industry stakeholders, Huntly Consulting (2008) noted that almost every stakeholder was of the view that the apprenticeship system was 'out of touch' with young people. As shown in table 10, the majority of commencing apprentices (64%) are under 25 years of age.

Table 10 Age profile of commencing trade¹ apprentices, 2012

Age group	(%)
19 years and under	47
20–24 years	17
25–44 years	26
45 years and over	10
Total	100

Note: 1 Trade occupations are defined as major occupation group 3 – Technicians and trades workers (ANZSCO 1st edn, revision 1).

Source: NCVER Apprentice and Trainee Collection, March 2013 estimates.

⁴ The market group born between 1981 and 1997 (Ai Group 2007).

According to demographer Bernard Salt (2007), members of Generation Y are optimistic, fearless of the future and feel that they have plenty of options. Dickie, McDonald and Pedic (2011) suggest that these characteristics mean that they will always be on the lookout for better opportunities, will not hesitate to quit unrewarding work and will be optimistic about finding another job. Young people expect to have several careers over their working life and apprenticeships must compete with a host of other options (Dickie, McDonald & Pedic 2011). In short, Generation Y constitutes a highly mobile workforce. Indeed, Karmel and Mlotkowski (2010c) found that leaving to do something different or better remained the most common reason for cancelling, irrespective of how long an apprentice had been in training. The traits of Generation Y present particular challenges for employers. Several of these are discussed in the next section.

Other studies confirm that it is opportunity, rather than money, that motivates Generation Y when looking for work (McCrindle 2006). Money is not one of the top five factors this generation looks for when applying for jobs, with aspects such as work–life balance and workplace culture being considered more important (McCrindle 2006). This suggests that increasing the training wage would not automatically improve completion rates.

It is worth noting that completion rates changed little during the economic downturn, despite an increase in apprentice redundancies. Research by Karmel and Mlotkowski (2011) found that the economic downturn significantly increased the attractiveness of undertaking an apprenticeship relative to alternative employment. This suggests that, when other opportunities are less readily available, individuals are more inclined to stick with their apprenticeship.

Employer influences

In the previous section we saw that issues related to the employment experience are the most common reasons for not completing an apprenticeship. In this section we consider the employer's influence more closely. There is evidence that completion rates are highest with larger employers, those who employ many apprentices, and lowest for those employers with only one apprentice. Part of the reason that larger employers enjoy better completion rates is that they are more likely to have a human resources (HR) department, are more likely to have modern workplace practices and are better able to provide apprentices with structured training, mentoring support and a social network at work. These factors are considered in more detail below.

Employer size and type

As noted, a consistent finding is that larger employers have higher completion rates. For example, Karmel and Roberts (2012) found that employers with at least 25 apprentices have higher apprenticeship completion rates than smaller employers. As shown in table 11, employers with more than ten apprentices have completion rates that are up to 14 percentage points higher than those with ten or fewer apprentices. Companies with between 26 and 100 apprentices enjoy the highest completion rates, of around 60%.

Table 11 Estimated completion rates by selected employer characteristics and number of contracts in category

		Complete (%)	N
Employer type	Private	49.1	160 270
	Group training	52.0	28 417
	Government (excl. defence)	77.6	5625
	Government (incl. defence)	80.3	7925
Employer size (number of apprentices)	1	46.8	50 253
	2–10	48.1	83 142
	11–25	56.9	12 973
	26–50	61.4	6825
	51–100	60.5	5089
	100 +	56.2	38 330
Total		50.4	196 612

Source: Karmel & Roberts (2012).

Although larger employers experience higher completion rates, most apprentice employers are not large. Karmel and Roberts (2012) found that 63% of employers have only one apprentice; 20% had two apprentices, and just 17% had three or more apprentices. Further, employers with one apprentice accounted for 25% of all apprentices, and employers with up to three apprentices accounted for 50% of apprentices. So if small employers were discouraged from taking on apprentices, potentially half of the apprenticeship places would be lost.

The findings of Karmel and Roberts (2012) are supported by other studies. Cully and Curtain (2001) revealed that 90% of non-completing apprentices surveyed worked for organisations with fewer than 100 employees. Similarly, in their study of Tasmanian building and construction apprentices, Jones

and Muthaya (2011) found that only 15% of non-completing apprentices had been employed by businesses with over 100 employees.

Little difference is found between the completion rates of apprentices with group training organisations and of those in direct employment. Approximately 10% of commencing apprentices are employed with group training organisations, while the majority (86%) are employed in the private sector, as shown in table 12. Karmel and Roberts (2012) found that group training organisations have slightly higher completion rates than private employers, as shown in table 10, but the difference is marginal. The most notable difference between types of employers is between government employers and ‘everyone else’. The completion rates with government employers are about 25–30 percentage points higher than those with private employers or group training organisations.

Table 12 Commencing apprenticeship contracts by employer type, 2012

Employer type	Proportion of commencing apprenticeship contracts ¹
	(%)
Government	4.4
Private sector	85.5
Group training scheme	10.1
Total	100

Notes: 1 Includes trade occupations only, which are defined as major occupation group 3 – Technicians and trades workers (ANZSCO First edition, revision 1).

Source: NCVET Apprentice and Trainee Collection, March 2013 estimates.

It is perhaps surprising that the completion rates with group training organisations are only fractionally higher than those with private employers, given that group training organisations possess many of the characteristics associated with higher completion rates. These characteristics are discussed in more detail in the following sections and include rigorous recruitment practices, structured programs, the provision of varied work and support and mentoring. Future research could investigate why group training organisations do not seem to experience higher completion rates than private employers, despite possessing many of these characteristics.

Other employer characteristics

Dickie, McDonald and Pedic’s (2011) extensive NSW study interviewed 500 employers of apprentices. The focus was on industries with skills shortages, including building and construction, engineering, electrical, automotive and cookery. In addition to business size, the authors identified several other employer factors influencing apprenticeship outcomes, categorising employers into three distinct groups.

Employers with the lowest retention rates (50% or less) tended to employ between one and 15 people and to have been in operation for under five years; they usually also only employed one apprentice at a time. These employers did not have a human resources department, and the business was not influenced by industry associations. Financial incentives mattered to them. Employer views on financial incentives are discussed in more detail later.

Employers with medium retention rates (50–69%) tended to have more structure and management than those with the lowest retention rates. Of note was that they tended to have someone who assisted with human resources matters and to employ two to three apprentices at a time, rather than only one.

Employers with the highest retention rates (70–90%+) tended to be larger businesses, employing 50 or more employees. However, the exception was small experienced employers who had been in operation for over ten years, who also enjoyed high completion rates. Financial incentives were seen as less important for the employers with medium and high retention rates. The characteristics of the three groups of employers are summarised in table 13.

Table 13 Summary of the characteristics of employers with low, medium and high retention rates

	Completion rate		
	Low (<50%)	Medium (50–69%)	High (70%+)
Business characteristics	Generally have 1–15 employees In operation for under 5 years No HR department Financial incentives are seen as important Usually employ one apprentice at a time Tend not to be influenced by industry bodies and do not seek outside advice	Generally have 1–15 employees Have someone to help out with HR matters Financial incentives are seen as less important Usually employ 2–3 apprentices at one time More likely to be influenced by industry bodies and outside advice	Generally have 50+ employees In operation for 10 years or more Have a HR department Financial incentives are seen as less important Usually employ several apprentices at one time More likely to be influenced by industry bodies and outside advice

Source: Dickie, McDonald & Pedic (2011).

Overall, Dickie, McDonald and Pedic (2011) identified three distinct segments among employers: (i) highly experienced and adept at managing apprentices; (ii) less experienced and requiring assistance to manage apprentices; (iii) unable to provide either appropriate training or an appropriate work environment. In a similar vein, Bardon (2010) classifies employers into ‘tiers’. Tier 1 employers are large employers who support their apprentices well with wages and other benefits, while tier 3 employers tend to be start-up businesses, who may be motivated to take on apprentices because of their lower wages and the attraction of government incentives.

In addition, Dickie, McDonald and Pedic (2011) found that committed apprentices (those who rated their likelihood of completing at eight out of ten or more) generally had a favourable workplace experience, and:

- had a very good boss
- were treated fairly
- had a social network at work
- were trusted and given responsibility.

We now examine the impact of employers’ views of financial incentives and management practices in more detail.

Views on financial incentives

An interesting finding to emerge from the Dickie, McDonald and Pedic (2011) study is that employers with high retention rates are *less* likely to say that financial incentives are important to them, compared with employers with low retention rates. Those employers with the lowest retention rates

said that the money mattered to them, and called for employer incentives to be increased. In addition, they wanted wage subsidies for unprofitable apprentices and compensation for the cost of their time in training them.

The Chamber of Commerce and Industry, Queensland (as cited in Apprenticeships for the 21st Century Expert Panel 2011, p.26) warns against increasing incentives for employers, as it shifts the responsibility for training onto the government:

Increasing incentives for employers may add to a culture in which the development of skills is a national responsibility to be exercised by governments (and funded by the taxpayer), much more than the enterprises that employ skilled workers and rely on them for their continuity and profitability.

For the current apprenticeship system to be successful, it could be argued that employers need to be *intrinsically* motivated to take on apprentices, rather than motivated by external monetary rewards. Perhaps one way of ensuring that only employers with adequate training capacity take on apprentices is to cease the incentive payments, since these seem to attract those employers who are least able to support an apprentice. We return to this idea in the final chapter.

Management practices

Dickie, McDonald and Pedic (2011) found that employers with good retention rates tend to have someone taking responsibility for human resources matters. Given that most businesses that employ apprentices are small, many do not have a dedicated human resources department; normally the boss *is* the HR department. This is a problem, because if apprentices need to discuss a grievance with someone, 'it's the boss or no one' (Dickie, McDonald & Pedic 2011, p.40). As well, larger businesses are more likely to take advice and are the most likely to say they've been influenced by their industry body, which may partly explain their higher completion rates.

Management style was also found to affect apprentices' experiences at work. Dickie, McDonald and Pedic (2011) suggested that if employers had a positive attitude towards their apprentices, they were more likely to retain them, noting that Generation Y apprentices preferred a mentor-style boss to an authoritarian-style boss.

Employer challenges

Employers of apprentices experience a number of challenges. These chiefly concern the recruitment of suitable apprentices, the ability to offer apprentices a variety of work, and supervision requirements.

National studies of employers of plumbing and bricklaying apprentices (Walker & Powers 2008, 2009a) highlighted that finding the right apprentice can be a challenge: there is no shortage of apprentices, but there is a shortage of suitable apprentices. As one respondent explained, 'Finding an apprentice is easy. Finding a good apprentice is very difficult' (Walker & Powers 2008, p.63).

When employers were asked about the greatest challenges in *keeping* an apprentice for the duration of their training, the following issues emerged (Walker & Powers 2008; 2009a):

- Generating the variety of work needed in order to cover everything the apprentice learns at trade school was sometimes a problem.
- While employers acknowledged that apprentices' wages were low, some felt that apprentices needed more assistance with budgeting.

- Providing training and supervision was often difficult to organise. Employers running a small business found it challenging to juggle the day-to-day running of the business with overseeing the apprentice.
- Keeping apprentices motivated in the midst of other distractions was often hard. As one employer explained:

Keeping the kids on track for the entire 4-year term is the hardest challenge we find. It seems difficult for many of them to keep up the effort and attitude required to get them through all the site and school training. (Walker & Powers 2008, p.64)

In another study, employers commented on apprentices' literacy and numeracy standards and were clearly frustrated by what they saw as falling standards: 'I've just finished interviewing and the numbers that were down on numeracy and literacy [are] still quite appalling ... It's a national disgrace' (Mitchell & Dobbs 2008, p.25).

Some employers also commented on the need for supervisor training. One employee observed that the majority of apprentice supervisors are tradespeople and that, while they may be accomplished tradespeople, it doesn't necessarily mean that they will be excellent teachers and communicators, especially if they haven't received any training (TNS Social Research 2007).

Group training schemes can alleviate some of these challenges, such as providing varied work and recruiting suitable apprentices. Group training organisations take responsibility for selection, administration and some supervision and pastoral care. However, employers may still prefer to employ apprentices directly, since this affords them greater control (Nechvoglod, Karmel & Saunders 2009).

Retention strategies used by 'best practice' employers

Mitchell and Dobbs (2008) interviewed 25 'best practice' employers of apprentices to identify the strategies they had in place to encourage apprentice retention. In most cases the employers were recommended by the state or territory chamber of commerce and industry. Almost all of the employers interviewed had retained over 80% of their apprentices (Mitchell & Dobbs 2008).

The employers represented a range of industries (automotive, electrical engineering, marine, mining, defence, healthcare, construction, manufacturing). They included both large and small businesses from every state in Australia, across metropolitan, regional and remote areas, that employed from one to 200 apprentices per annum.

In this section we highlight the features common to many of these best practice employers. For interested readers, three detailed case studies of employers and individual trades with high completion rates are provided in the appendix.

Rigorous recruitment practices

The best practice employers believed that recruiting appropriate apprentices to begin with was a prime factor behind their high retention rates. They preferred to select people who had done work experience with them, undertaken a prevocational program or were currently working as a trade assistant. Employers believed that, having had a 'taste of the trade', these people were more likely to be aware of what they were getting themselves into, compared with someone with no experience. Hiring an apprentice who had had no exposure to the trade was seen as risky. These employers often had strong links with schools and were actively involved in work placement programs with schools.

A 'good apprentice' was defined as someone who was mature and reliable, with an interest in the trade, a mechanical aptitude, a positive attitude and a desire to learn. Employers believed that apprentices with these attributes were easier to retain (Mitchell & Dobbs 2008). Note that these attributes align closely with the attributes of committed apprentices identified by Dickie, McDonald and Pedic (2011), described earlier.

Mature-age apprentices were seen as particularly desirable, with one employer describing them as 'absolutely [our] standout apprentices ... They complete early [and] they're extremely low maintenance' (Mitchell & Dobbs 2008, p.12). Likewise, Huntly Consulting Group (2008) noted that many industry stakeholders wanted to see a greater uptake of mature-age apprentices, as they were considered to be less likely to leave their apprenticeship and were able to be productive sooner. However, low apprentice wages are a barrier for mature-age apprentices, as we will see when we consider the opportunity cost of undertaking an apprenticeship. Those apprentices in the 18 to 24-year age group were seen as the hardest to retain, because 'that 18 to 24-year bracket tends to have a lot of distractions out there' (Mitchell & Dobbs 2008, p.12).

Well-organised training structures

Many of the best practice employers had formal structured approaches to organising and monitoring the apprentice's work. Several used roster systems to record and rotate apprentices through a number of areas of the business to ensure they were exposed to all of the skills required. One business had monthly assessment tasks to track how well apprentices were performing. Another explained that they had defined the roles and responsibilities of supervisors, leading hands, shed managers and the management team, so that 'everyone is clear on what they should be doing in supporting the apprentices' (Mitchell & Dobbs 2008, p.28).

Most employers used a logbook to document the apprentice's work program and on-the-job learning. These employers were eager to ensure that apprentices were receiving exposure to a wide range of skills and not just being left to 'sweep up' or do one simple job *ad nauseam* (Mitchell & Dobbs 2008).

Generous wages and other benefits

Many of the best practice employers indicated that they paid apprentices above what was required. One employer explained:

We pay them well; we pay above the award rate, plus 25% on top of that and 26% more later. By the end of the first year they are operating as a tradesperson. (Mitchell & Dobbs 2008, p.12)

Often other benefits were provided in addition to higher wages, with one employer noting that:

If we've got them spare we give them the Ute while they're saving up for their own car ... They get uniforms, tools ... So we generally don't lose them. We've got less than a 7% cancellation rate. (Mitchell & Dobbs 2008, p.11)

So even though low wages did not emerge as the main reason for not completing, the fact that many employers with high completion rates pay above-award wages suggests that low wages are a factor in apprentice retention.

More broadly, there is evidence that paying above-award rates is not unusual. A study by Oliver (2012) found that, contrary to popular belief, over-award payments for apprentices are common, particularly in the electrotechnology, automotive and engineering trades. His analysis of data from the 2009 Australian Bureau of Statistics (ABS) Survey of Education and Training found that most apprentices already receive more than the minimum wage set by the relevant award. However Oliver (2012)

points out that award wages for first year apprentices are often very low (for example, 37.5% of the applicable tradesperson rate), so it is not surprising that employers often pay above this rate in the first year.

Very recently, the Fair Work Commission (2013) announced pay rises for first and second year apprentices. Under the new scheme, first year apprentices who have completed Year 12 will receive a 30% pay rise (otherwise 19%), while second year apprentices who have completed Year 12 will receive an 18% pay rise (otherwise 9%). The pay increases will only apply to newly commencing apprentices and will be phased in over 2014 and 2015. In addition, pay rates for adult apprentices will increase, in recognition of the growing proportion of apprentices who are aged over 21 years (Fair Work Commission 2013).

Support mechanisms

Mentoring, buddy systems and other support mechanisms were almost universal across the 'best practice' firms (Mitchell & Dobbs 2008). One employer explained that they have a buddy system whereby all new apprentices are paired up with someone who can mentor them for the first six months. Some companies had several layers of support staff: buddy, mentor, counsellor, supervisor, training coordinator. For example, one employer described their system as follows:

You've got the mentor on the job, you've got the site supervisor, then we have the workplace health and safety officer. And then we have the apprentice development coordinator. And also we have here a high school teacher who also provides them with any literacy numeracy support that they need. (Mitchell & Dobbs 2008, p.34)

Some employers provided extra training and 'life skills' sessions as well, such as leadership training, teamwork training, positive thinking and drug and alcohol awareness. One employer took apprentices on a tour of a hospital intensive care unit to raise awareness of the dangers of drink driving. However, it is likely that such programs would only be viable for businesses with a large group of apprentices. So again, the issue of business size is important.

Implications

When considering all of the retention strategies described above, one factor stands out: they are much easier to provide if the employer is a larger, well-established company with formal systems in place than if the employer is a small start-up company. This fact was acknowledged by several of the 'best practice' companies themselves, who called for more guidance for smaller employers who take on apprentices:

It's ok for companies like ourselves that are relatively large. We can afford to do it. It's the mum and dad or the father and son type businesses who are looking at taking on apprentices who are struggling. And they're the ones that need the guidance ... they're the forgotten lot, really. And they're the ones that need the help. (Mitchell & Dobbs 2008, p.22)

Another employer noted that their well-developed training program was a direct result of their having a large apprentice intake:

We're lucky in that we have a training department that actually coordinates our apprentices because we've got so many apprentices. So as a result we've got a bit of an induction program. (Mitchell & Dobbs 2008, p.21)

In the final chapter we consider how these observations may inform future policy considerations.

Cost to the employer

Taking on an apprentice requires a substantial financial commitment from the employer. It is generally agreed that an apprentice is a direct cost for the first two years (Walker & Powers 2009a; Nechvoglod, Karmel & Saunders 2009; TNS Social Research 2007). Nechvoglod, Karmel and Saunders (2009) found that the most significant cost to the employer is related to apprentice supervision and tends to be highest early on in the apprenticeship and decreases over time. Wages are found to be approximately equal to the apprentice's productivity and so are not considered a cost. More importantly, the authors found that government incentive payments offset the supervision costs to only a minor degree (Nechvoglod, Karmel & Saunders 2009).

Indeed, a 2007 study in the building and construction industry (TNS Social Research 2007) found that the expense of an apprentice was too great for many small businesses and subcontractors. The most substantial difficulty was the large amount of supervisory resources required. One employer explained that training an apprentice 'takes too many resources and it's hard to get staff to look after them' (TNS Social Research 2007, p.38).

Karmel and Rice (2011) argued that the high up-front costs of taking on an apprentice mean that the cost of non-completion to an employer is very high, because employers generally do not incur any benefits until the later years of the apprenticeship. In the context of these high costs, Nechvoglod, Karmel and Saunders (2009) proposed an alternative apprenticeship model, one which comprises two years of institution-based training before a period of on-the-job training. This way, apprentices require less supervision and are more productive in the workplace due to their increased training time, making them less of a burden to employers. However, it is important to point out that this model would not reduce overall costs. Rather, it would transfer costs from employers to the government and individual apprentices (Nechvoglod, Karmel & Saunders 2009).

Off-the-job training experience

Results from the Apprentice and Trainee Destination Survey (NCVER 2009; 2010a) and other studies (Cully & Curtain 2001) suggest that the off-the-job training experience is not the main cause of non-completion. That said, there are a number of areas where apprentices, employers and training providers experience frustration, and addressing some of these concerns has the potential to improve completion rates.

Apprentice and employer satisfaction

Apprentices are reasonably satisfied with the quality of the off-the-job training, with an overall satisfaction level of 77% for completers and 62% for non-completers (NCVER 2009). However, in a national study of plumbing apprentices (Walker & Powers 2008), apprentices suggested a number of improvements. These related to the availability of sessions, planning of timetables, and availability of up-to-date tools and supplies. In particular, there was a call for greater flexibility with regards to training delivery, such as options for days to make up lessons if a day was missed for an acceptable reason (Walker & Powers 2008). Note that the frequency of the off-the-job training was one of the aspects that non-completers were least satisfied with in the NCVER survey (see table 9).

Studies suggest that employers are decidedly less satisfied with their training provider than apprentices. For example, when employers of plumbing apprentices were asked to rate their relationship with their registered training organisation, 45% felt the relationship was good or very good, 35% felt it was average, while 20% felt it was poor or very poor (Walker & Powers 2008).

Providers were often viewed as inflexible with regard to training times, hard to contact, disorganised, and having slow administration processes (Mitchell & Dobbs 2008; Walker & Powers 2008). Although frustrating, these issues are unlikely to directly impact on completion rates. However, one issue which is more strongly related to completion rates is the need for more feedback on apprentice progress, and is discussed below.

Feedback on apprentice progress

Employers expressed a desire for more frequent and detailed feedback on apprentice progress. Approximately one-third of the employers surveyed in the bricklaying industry and half of the employers in the plumbing industry felt that they did not receive enough information from training providers about their apprentices (Walker & Powers 2008, 2009a). One employer commented that they would like to 'receive information earlier and have it provided proactively rather than having to chase it on occasions' (Walker & Powers 2008, p.58). Employers were keen to receive detailed feedback so that they could provide the apprentice with extra help in areas where he/she was struggling (Walker & Powers 2008). It could be argued that more detailed feedback could help to provide the early warning signs for apprentices who are at risk of dropping out, offering the employer a chance to intervene.

Challenges for trainers

Two of the biggest challenges identified by vocational education and training (VET) teachers in the bricklaying and plumbing trades were accommodating employer needs by offering more flexible delivery times and the literacy and numeracy difficulties of students (Walker & Powers 2008; 2009a).

Since the first of these is unlikely to directly influence completion rates, as apprentices rarely cite off-the-job training problems as their main reason for not completing, we focus on the literacy and numeracy challenges.

Literacy and numeracy difficulties

VET teachers commented that apprentices lacked fundamental skills such as Year 9 level mathematics and English. One respondent emphasised the need for an aptitude test to ensure that applicants had the language and mathematics skills required to complete their training (Walker & Powers 2009a). Some providers need to offer supplementary bridging courses to bring apprentices up to the required standard (Huntly Consulting Group 2008).

VET teachers noted that some apprentices did not realise that they needed to understand mathematics, physics and chemistry in order to cope with the theory sections of the course (Walker & Powers 2009a). One respondent called for parents to be made more aware of the requirements of learning a trade, feeling that the general perception was that the trades did not require high-level skills:

Parents and/or guardians will push their child towards a plumbing trade due to them not being capable to continue at their school and onto university etc. and don't understand the true nature of training levels required to make it as a plumbing apprentice. (Walker & Powers 2008, p.67)

Teachers of plumbing apprentices often find that apprentices are surprised by the amount of theory involved, having expected only practical work (Walker & Powers 2008). Perhaps more detail about the training should be given up front to those considering certain apprenticeships, so that they understand the large volume of theory required and the need for proficiency in literacy and numeracy.

Implications

The comments in this section suggest that a greater understanding between employers and training providers could alleviate some of the frustrations identified. As suggested by Mitchell and Dobbs (2008), it may be that the relationship between the training provider and the employer needs to be reconsidered so that the training provider plays the role of a service provider meeting a client's needs.

Meanwhile, the language, literacy and numeracy issues with apprentices point to a problem with the school sector as a whole, rather than being unique to the apprenticeship system. In the same way that university courses have prerequisites, perhaps consideration could be given to apprenticeships having as prerequisites specific levels of literacy and numeracy. Some apprenticeships do provide guidance on the types of skills required for entry, but these tend to be recommendations rather than strict requirements. Numeracy skills are sometimes assessed as part of the application process. For example, the first round of the recruitment process for one employer of electrical apprentices requires candidates to complete an online numeracy assessment (Essential Energy 2013).

The value of completing

The implicit assumption behind wanting to raise completion rates is that completing an apprenticeship is beneficial. How true is this assumption? Some questions worth asking (Laporte & Mueller 2011) include:

- Is there a wage premium attached to completing?
- Is the probability of employment enhanced by completion?

If not, there may be little incentive to complete. We consider these issues and others in this section.

Is not completing always a bad thing?

As part of their national study into bricklaying apprenticeships, Walker and Powers (2009a) spoke to group training organisations, unions, association members and employers about apprentice attrition rates. Some of those interviewed felt that there was too much concern about attrition and that some attrition was actually a *good* thing. One participant explained:

We shouldn't get too hooked up on attrition rates. Some attrition is good as it's weeding out the kids who aren't suited. (Walker & Powers 2009a, p.27)

However, attrition still represents wasted time and resources, and this comment suggests that more effort could be put into the recruitment phase.

Other stakeholders in the Walker and Powers (2009a) study commented that today's young people are a highly mobile workforce, and that some attrition is inevitable:

We need to remember that this is Gen Y we're dealing with. This group is very mobile and are quite happy to try a number of different jobs. (Walker & Powers 2009a, p.27)

The majority of apprentices are young adults who are searching for work, study and career opportunities that maximise their own potential, and in this context at least some of the non-completions are normal and to be expected (Cully & Curtain 2001). Also, even if apprentices do not complete, they may still experience benefits from completing the training. For example, Cully and Curtain (2001) note that non-completers still acquire work-related skills even if no qualification is obtained.

Monetary rewards

For those studying a trade, the monetary reward of completing an apprenticeship is substantial, with the average annual income for trade apprentices in 2010 jumping from \$36 600 during the last week of their apprenticeship to \$52 500 upon completion (NCVER 2010a). Non-completers working full-time, on the other hand, earn an average of \$39 000, around \$13 000 less than completers (NCVER 2010a). Looking at individual occupations within the trades, all enjoy substantial pay increases on completion, except for hairdressers. The pay rise ranges from only \$630 for hairdressers, up to \$23 000 for electrotechnology and telecommunications (Karmel & Mlotkowski 2010b). These findings show that not everyone who completes an apprenticeship will be rewarded with a higher income (Karmel & Mlotkowski 2010b).

One point that is clear from the above and also highlighted by Karmel and Rice (2011) is that the benefits of completing an apprenticeship vary greatly by occupation, and hence it is misleading to estimate the benefits on an aggregate basis. Using data from the 2005 ABS Income and Housing Costs Survey, Karmel and Rice (2011) found that the value of a certificate III/IV varies by occupation.

Nechvoglod, Karmel and Saunders (2009) considered the opportunity cost associated with undertaking an apprenticeship. They determined the pay-back period, based on the premium a skilled tradesperson earns relative to an unskilled worker in the same occupation. They found that for some trades there will be a pay-back within one or two years, but for others, the pay-back will not be realised until 20 years down the track. For adult apprentices, the pay-back period can be over 50 years! Of the three trades investigated (electrical, plumbing and refrigeration), the authors found that electrical trades had the shortest pay-back period – roughly two years for a youth apprentice and roughly five years for an adult apprentice. By contrast, refrigeration and plumbing had pay-back periods of approximately 20 years for youth apprentices and in excess of 50 years for adult apprentices. The length of the pay-back period is strongly influenced by the wage of a qualified tradesperson in the occupation, and how this compares with wages in alternative employment. Although this work was based on a limited range of occupations and involved only six case studies, it nonetheless highlights that the time taken to realise the monetary rewards of undertaking an apprenticeship can be substantial.

Employment prospects

What about the value of completion in terms of future employment? The Apprentice and Trainee Destinations Survey (NCVER 2010) found that completers were more likely to be in full-time employment than non-completers. In 2008, approximately 85% of completers were employed full-time nine months after finishing their trade apprenticeship, compared with only 60% of non-completers.

While approximately 80% of completers were employed in the same occupation as their apprenticeship nine months after finishing their training, the same could only be said for about 25% of non-completers (NCVER 2010). This suggests that the non-completers either did not like the occupation they were training in or had found a better job in a different occupation.

Karmel and Rice (2011) looked at the employment benefits for three groups associated with labour market disadvantage: Indigenous people, people with a disability, and rural and remote Australians. Using data from NCVER's Student Outcomes Survey, they found that those who completed their apprenticeship had better employment outcomes relative to those who did not complete. For example, of those with a disability, eight out of ten individuals who completed their apprenticeship were employed after training, compared with only five out of ten non-completers. More importantly, for those with a disability who were not employed before training, 46% of completers were employed after training, compared with just 20% of non-completers with a disability.

Summary

Returning to the questions at the start of this section, we can conclude that the wage premium attached to completion is significant for most, but not all, trade apprenticeships. In addition, the probability of being in full-time employment is enhanced by completion.

Final comments

This section summarises the main findings and considers how they may inform future policy directions.

Key findings

The key findings to emerge from this literature review include the following:

- Employment-related reasons are the most common reasons for not completing. These include interpersonal difficulties with employers and colleagues, not liking the work, being made redundant and low wages. By contrast, issues with the off-the-job training are among the least frequently cited reasons for not completing.
- Apprentices generally leave their apprenticeship early in the contract: 60% of those who leave do so within the first year. This suggests that advice and support for apprentices and employers is needed in the early stages of the apprenticeship.
- Apprentices with a passion for the trade tend to have higher completion rates than those who ‘fell into an apprenticeship’ or were ambivalent about their decision to begin one.
- Employers with the highest completion rates are generally larger, experienced employers with well-organised systems for managing apprentices. Employers with lower completion rates tend to be smaller and have less experience.
- The best completion outcomes are achieved by employers with high training capacity, who can offer variety, mentoring support, formal and structured programs, good working conditions and generous wages. These tend to be larger employers, although there is evidence that smaller experienced companies also achieve good outcomes. In particular, government employers achieve completion rates that are up to 30 percentage points higher than the completion rates of private sector employers and group training organisations.
- Employers with high completion rates also tend to have very rigorous recruitment practices, sometimes involving several rounds of interviews.
- VET teachers commented that apprentices lacked fundamental skills such as Year 9 level mathematics and English.
- The completion of an apprenticeship is associated with better employment outcomes and higher wages relative to non-completion.

Future directions for policy and practice

Bearing in mind the results from the literature, we propose four ideas for consideration, along with recent policy initiatives related to them.

Assess apprentice suitability

The findings suggest that spending more time assessing whether would-be apprentices are suited to an apprenticeship will reduce wastage in the system. Encouraging more rigorous recruitment strategies on the part of the employer is one way to achieve this. Part of the selection process could be to ensure that some agreed minimum standards of literacy and numeracy are met, in response to VET teachers’ concerns about the low literacy and numeracy levels among apprentices. In addition, more

information should be provided up front to those considering an apprenticeship, via career counsellors or Australian Apprenticeship Centres, so that they can be well informed about what the apprenticeship will entail.

To this end, the government has recently announced an Australian Apprenticeships Advisers Program. The program targets school leavers who are considering a career in a skilled occupation and who would like to know more about an apprenticeship (Australian Government 2013a).

Assess employer suitability

One of the findings to emerge quite strongly from this literature review is the importance of the employer having the *capacity* to provide training. Training capacity is largely a function of employer size. Larger employers are more likely to have well-organised training departments and well-established support systems, and in turn achieve higher completion rates.

Employer size per se is not something that can be influenced by policy. However, given what we know about the reasons larger employers do better, there are a number of options available. One option is to screen employers before they are permitted to take on apprentices. For example, Dickie, McDonald and Pedic (2011) recommended that employers be required to meet a series of prerequisites before they can employ apprentices. Cully and Curtain (2001) made a similar recommendation for improving completion rates. Formalising this idea, the Apprenticeships for the 21st Century Expert Panel (2011) recommended that employers be accredited before they are allowed to take on an apprentice. Higher regulatory cost would of course need to be balanced against the potential benefits of such an approach.

It must also be acknowledged that a reduction in the number of employers may result in fewer completions overall (since there would be fewer apprenticeship places available), even though the completion *rate* would likely improve. Hence, alternative apprenticeship models may warrant consideration.

Provide greater assistance for employers and apprentices

The findings suggest that smaller and less-experienced employers are generally less adept at managing apprentices and require greater support. For example, employers may not know which recruitment strategies to use in order to obtain the most suitable applicants. Perhaps a 'recruitment kit' could be developed, which could be distributed to all businesses who wish to take on apprentices. The development of such a kit may require further research into the most successful recruitment strategies. For example, the kit could be based on what is done at the best practice employers in the Mitchell and Dobbs (2008) study and others.

Another difference between small and large businesses is the extent of the mentoring support provided. More resources should be directed towards improving the mentoring services for apprentices and ensuring that all apprentices have equal access to support. Larger businesses normally provide the mentoring services 'in-house', but for smaller companies they may need to be outsourced. Providing professional development programs for all apprentice supervisors may also help to close the completion rates divide between larger and smaller businesses.

With regards to mentoring, the government has recently announced funding for an Australian Apprenticeships Mentoring Program with the aim of improving the mentoring services available to apprentices (Australian Government 2013b). The program provides approximately \$80 million in funding from 2011 to 2015 to support the targeted mentoring of apprentices. The program relies on

industry bodies to lead individual projects. As of May 2013, 33 mentoring projects had received funding (Australian Government 2013b). An evaluation of the impact these projects have had on completion rates, if any, should be carried out at a later date.

Since 2011 the Apprenticeship Support Officer program has been in place in Victoria (Department of Education and Early Childhood Development 2013). A Victorian Government initiative, its aim is to provide targeted support to apprentices in their first year, since they are the group who are most at risk of withdrawing. Support officers are intended specifically for apprentices aged 15–24 years who are in the first year of their apprenticeship. Victoria also has an Apprenticeship Field Officer program (Department of Education and Early Childhood Development 2013). Apprenticeship field officers are responsible for giving regulatory advice and support to apprentices and trainees and their employers, such as investigating disputes and providing counselling (Department of Education and Early Childhood Development 2013).

Consider alternative apprenticeship models

The results from the literature review suggest that the current system displays weaknesses that cannot easily be addressed, such as the prevalence of small employers, and that perhaps alternative models should be considered.

It could be argued that the best practice employers are similar to a training provider in many respects, in that they have several apprentices employed at once and offer formal and organised training programs. Given that most employers do not have the capacity to provide training at this level, a logical step could be to outsource more of the training to providers, easing the pressure on employers. The alternative model suggested by Nechvoglod, Karmel and Saunders (2009), which includes two years of off-the-job training followed by two years of on-the-job training, appears worthy of consideration. Future research could assess the feasibility of such a model and the potential for the development of a trial program.

Another advantage of Nechvoglod, Karmel and Saunders's (2009) alternative training model is that employer incentive payments may no longer be required. Research found that apprentices are typically a direct cost to employers for the first two years and become more profitable in the final two years of their apprenticeship. If the two-year 'direct cost' period was avoided altogether, employers may be more willing to take on apprentices without requiring any added sweeteners. Instead, the funds currently used for incentive payments could be put towards funding the expanded off-the-job training component.

Very recently, in the 2013–14 Budget, the government announced its 'Alternative Pathways to the Trades' project, which aims to trial alternative approaches to traditional apprenticeships (Australian Government 2013c). Speeding up the process via which skilled tradespeople become qualified is the rationale behind the scheme. If some of the alternative approaches trialled are deemed successful, this project may lead to alternative apprenticeship models.

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Appendix: Case studies

This appendix presents several examples of trades or businesses with high completion rates and looks at the possible reasons behind these high rates.

Case study 1: Fire Protection apprenticeships

Fire protection, which involves the installation and maintenance of automatic sprinkler systems in buildings, has an apprenticeship completion rate of 85% (Jane Clancy Consulting 2008). Several characteristics of this apprenticeship are believed to be behind its high completion rate. These are detailed below. However, the relative importance of each factor is unknown.

- Fire protection is a registered/licensed trade, and the link between completing the registration and obtaining the qualification is strong. One interviewee noted:

The link between completing the qualification and registration is clear – if you do not complete the apprenticeship you do not get registered therefore you do not work. There is no option to become a ‘half sprinkler fitter’.

(Jane Clancy Consulting 2008, p.10)
- Mentoring is provided by the Victorian Trade Advisory Group (VTAG). If an apprentice is at risk of leaving the industry, a representative from the Victorian Trade Advisory Group provides counselling. This involves finding out why an apprentice is not performing on or off the job.
- Apprentice wages are generous by comparison with other trades. First year apprentice wages are set at 50% of the trade rate (vs 36% for plumber and 35% for carpenters). As a second-year fire protection apprentice explained, ‘I am given a car and a phone and am earning more than \$60K a year’ (Jane Clancy Consulting, p.11).
- Working conditions are good, and the industry is dominated by a small group of larger employers. There is the potential to stay in the career for life, as employees can work as installers while young and fit and then take on service and testing roles as they become older. This is in contrast to other trades such as bricklaying, where there is no readily available option down the track that is less physically demanding.
- Demand outstrips supply, and there is currently a waiting list of apprentices for first year training places. The training is delivered in a competency-based format. Students can achieve the simulated work tasks at their own pace. The course is tightly structured and incorporates rigorous assessment. Students must pass an exam at the end of the third year to obtain their registration.

Case study 2: West Orange Motors

West Orange Motors, a motor dealer in New South Wales, has achieved a completion rate of 84% over a ten-year period. Key features of the business’s approach to apprentices include:

- very strict recruitment practices, which comprise three interviews, including one at which the apprentice’s parents are present
- a formal roster system to rotate apprentices through different sections of the business, combined with monthly assessments and six-monthly reviews of progress
- a mentor, who is typically a newly qualified tradesperson, for each apprentice

- formal induction processes
- an internal apprenticeships awards scheme, which recognises outstanding apprentices.

Another factor that might explain the high completion rate is that the company has approximately 30 apprentices employed at one time, noting that Karmel and Roberts (2012) found that businesses with more than 25 apprentices had higher completion rates than those with fewer than 25 apprentices.

Case study 3: Fairbrother Group

The Fairbrother Group, a Tasmanian building and construction company, has implemented an 'Apprentice Mentor Program', which has achieved an apprentice completion rate of 98% (Jones & Muthaya 2011). As part of the program, regular coaching and mentoring are provided for all apprentices. Mentors are responsible for making sure that apprentices receive adequate training and supervision and are regularly rotated and experience a variety of tasks, and for regularly 'checking in' with the apprentice to see how they are going.

Another feature is that the company provides training for its supervisors – all apprentice mentors undertake the 'Supervisor and Mentor Skills Training Program', delivered by the OzHelp Tasmania Foundation. Finally, free counselling for all of the Fairbrother Group's apprentices is available from the OzHelp Tasmania Foundation.

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For further information about the program go to the NCVER website <<http://www.ncver.edu.au>>.



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