

Evolution of apprenticeships and traineeships in Australia: an unfinished history

Brian Knight

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About the research

Evolution of apprenticeships and traineeships in Australia: an unfinished history

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This paper traces the evolution of Australia's apprenticeship and traineeship system since permanent European settlement in 1788. The system was imported from Great Britain; it has evolved and diverged in some areas but retains many of the features of the British model. Most major changes have occurred in the last 25 years.

The apprenticeship model – a combination of paid employment, on-the-job and institutional training – has always had particular appeal for meeting intergenerational skills transfer: it provides employers with a source of low-cost labour, the apprentice with paid employment, and an opportunity for government to subsidise employment for those needing help to establish themselves in the labour market. Indeed, the community, employees, unions, employers and government have come to regard apprenticeships as the system for training in the trades and have tolerated few alterations to the system, beyond those resulting from shifts in the occupational and industry mix in the Australian economy and changes in secondary schooling arrangements.

The first important reform to apprenticeships occurred in 1985 with the introduction of traineeships, which extended the model to a much wider range of occupations, generally at lower qualification levels. The second was in the mid-1990s when the Australian Government began paying incentives on a large scale to employers to help offset the costs of apprenticeships and traineeships and to encourage more commencements. This had a spectacular impact on traineeship numbers but much less effect on trades apprenticeships. Other significant changes were introduced in 1998; these allowed school students, existing workers and part-time workers to undertake apprenticeships and traineeships.

In short, since 1985 the system has moved from one dominated by young males undertaking apprenticeships in the trades to one that provides apprenticeships and traineeships to people of all ages and both sexes, and in a much wider range of occupations.

Key messages

- The apprentice and trainee system needs to address some major issues. Much of the training is at low qualification levels with little or no economic return. And it can be argued that it is neglecting the general education needs of young people
- The system needs greater capacity to adapt and respond quickly to changing labour market demands. Australia might look to the experience of countries that use an institutional training model for trade training, which may be much easier to ramp up quickly.
- By any standards the cost of Australia's current system places a hefty burden on the public purse, estimated at \$2.9 billion in 2008–09.

Tom Karmel
Managing Director, NCVET

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Introduction

Apprenticeships and traineeships in Australia

This occasional paper gives a chronological outline of the evolution of Australia's apprenticeship and traineeship system, including the various policies, social changes, and skill needs that have influenced how the system developed into what we see today. The history is important as it helps our understanding of the contemporary scene and possible future developments. A major theme is that the community, employers (including industry and employer associations), and employees (including trades unions), have mostly had a conservative approach to apprenticeships; they have tolerated only a few major changes to the system.

The sweep of this history encompasses the years since permanent European settlement of Australia in 1788, with a particular focus on the years since the Second World War. Some of the trends are well described by the relevant statistics; unfortunately, detailed statistics are generally only available for the last few decades (Knight & Cully 2007). The National Centre for Vocational Education Research (NCVER) has compiled a time series from 1963 onwards (NCVER 2010a).

It is important first to define apprenticeships and traineeships and to establish their scope. In contemporary Australia an apprenticeship or traineeship is defined by:

- the existence of a regulated, employment-based training arrangement, and a registered legal training agreement (originally called an 'indenture', and more recently a 'contract of training')
- a commitment by the employer, the apprentice or trainee, and a registered training organisation (RTO) to an agreed training program in a specified occupation, all of which are set out in the training agreement
- an occupational training program that consists of a concurrent combination of paid employment and on-the-job training, and formal (usually off-the-job) training that leads to a recognised qualification
- training that is provided at an agreed level in the Australian Qualifications Framework (AQF) and to standards set down in the Australian Quality Training Framework (AQTF).

Note that this definition applies in Australia and a number of northern European countries, whereas in the great majority of countries an apprenticeship usually begins with a period of institutional training, and may even be completely institution-based. In these countries also, apprenticeships are usually more closely and explicitly connected to the entry-level training arrangements for young people and to their transition to the workforce than in Australia.

Scope of apprenticeships

The definition of Australian apprenticeships and traineeships has an historical dimension, as their scope, in terms of occupations, industries, levels of training, and the characteristics of apprentices and trainees, all vary over time. However, there are some aspects that have not changed: an apprenticeship has always involved a form of indentured labour (terms and times vary) and the learning of a craft, skill or ability to carry out a specified job. Originally, the model applied exclusively to trade and craft occupations, which in current terms are mostly at certificate III level in the AQF, with some at certificate IV level. As discussed in more detail later, the introduction of traineeships in 1985 extended

the apprenticeship model to employment-based training programs at AQF certificate I and II levels. More recently, traineeships have been made available in technician and para-professional occupations – at AQF diploma and advanced diploma levels – but the uptake has been relatively limited.

In some occupations that were originally trades or crafts, with entry via an apprenticeship, the level of knowledge and skills required has steadily increased and training has moved to the higher education sector. Until the 1950s apprenticeships in surveying and pharmacy existed in Australia, and now require a university degree. Some major occupations have used what was effectively an apprenticeship model but did not call the employees ‘apprentices’ because other legal arrangements applied, such as the training of hospital nurses before this was moved to the university sector (Committee of Inquiry into Nurse Education and Training 1978).

It should also be recognised that the term ‘apprenticeship’ has a generic meaning (Ray 2001). These broader apprenticeships have many of the same characteristics: they consist of a combination of employment, on-the-job training, and formal training but do not have a registered legal agreement.

Cadetships, which originated in the armed forces, use what is essentially the apprenticeship model and until a generation ago were a feature of the entry-level training landscape. They usually combined on-the-job training with paid employment or a stipend, often with study at university, to provide entry-level training: articled clerks training to be lawyers, trainee government architects in some states, cadet journalists, and trainee accountants, provide just a few examples.

Except in highly specialised industries such as the Australian Defence Force, it is now rare to find the apprenticeship model applied in the professions. Training for the great majority of these occupations is now institution-based and this may account for the fact that apprenticeships and traineeships are predominantly associated with sub-professional occupations. In 2011, the term ‘cadetship’ has been revived with the introduction of ‘trade cadetships’ but refers to programs designed for school students (Australian Labor Party 2011).

Apprenticeships before 1788

Australia's apprenticeship system was imported from Great Britain with permanent European settlement in 1788. However, the apprenticeship mode of skills transfer can be traced back to early civilisation.¹ The practice has been found in many areas and for many hundreds of years. It is inconceivable that the great structures of ancient and medieval times, such as temples, cathedrals, viaducts and ships, could have been built without an effective system for intergenerational skills transfer. Apprenticeship is one of the few employment institutions from medieval times still recognisable today.

An indenture from New England in the 17th century reads:

Know all men that I Thomas Millard with the Consent of Henry Wolcott of Windsor unto whose custody and care at whose charge I was brought over out of England into New England doe bynd myself as an apprentice for eight yeeres to serve William Pynchon of Springfield his heirs and assigns in all manner of lawful employmt unto the full ext of eight yeeres beginninge the 29 day of Sept 1640. And the said William doth condition to find the said Thomas meat drinke & clothing fitting such an apprentice & at the end of this tyme one new sute of apparell and forty shillings in mony: subscribed this 28 October 1640.

<<http://www.realapprenticeship.com/mcat/mainweb/apprenticeshiphistory.htm>>,
viewed 19 August 2011.

In this and many other early examples of indentures, payment in kind (board, lodging and clothing) was the norm, the apprentice was clearly bonded to the apprentice master for a specified period, and the training to be provided was not specified but was determined by the master. By contrast, modern Australian 'indentures' are no longer a bond, apprentices are no longer restricted in what they can do or how they live when not at work, apprentice wages – albeit low – have replaced payment in kind, and the content of the training program is no longer determined solely by the employer.

In earlier times apprenticeships had a number of objectives, some of which would now be socially unacceptable. The most important was to ensure that the skills of master craftsmen were passed on from one generation to the next. Apprentices were also a source of cheap, unskilled labour for their employers. Frequently, employers were also responsible for the education, edification and personal development of the apprentice, who at the start was usually a male in his early teens, and may have remained an apprentice for ten years or more. The indenture functioned as a bond, which could be enforced if the apprentice absconded. Earnings were usually payments in kind only, and in some cases parents paid the employer to secure an apprenticeship for their son. For the apprentice, the economic returns came later, when he was fully qualified and accepted into the craft guild for his occupation; this is still the case today.

An important underlying assumption of the apprenticeship model is that there are benefits to both parties – employer and employee. For the employee there is the guarantee of employment for a period of time, as well as the acquisition of skills and the development of a long-term occupation. For the employer there is the benefit of low-cost labour and the capacity for training an apprentice to

¹ Four thousand years ago, the Babylonian Code of Hammurabi provided that artisans teach their crafts to youth. The records of Egypt, Greece, and Rome from earliest times reveal that skills were still being passed on in this fashion (<<http://www.lni.wa.gov/TradesLicensing/Apprenticeship/About/History/>>, viewed July 2011).

suit their business requirements. There is also the possibility that apprentices, if they have a progressive outlook, are better placed to acquire new skills or use new production techniques as economies change.

The existence of an indenture alone does not guarantee training under the apprenticeship model. Forced labour systems – using slave, convict or prison labour – which were much more common in centuries past than now, all involved an enforced ‘indenture’ but did not usually have training as their objective, and where they did, it was not necessarily in a trade or craft occupation. Fitzpatrick (1965) provided a reminder that indentured labour systems, such as the employment of Pacific island labourers in Australia’s sugar-cane industry in the 19th century, could be cruelly binding and exploitative. It should be noted that training under an internship arrangement, which has similarities to an apprenticeship, still exists in some occupations and industries, such as the hospital-based training of medical graduates as part of their professional development.

From 1788 to 1945

With European settlement in 1788 the system of indentured training of apprentices was imported from Great Britain to the colony of New South Wales, including the British laws covering masters and apprentices. This established a tradition in Australia – one that has endured – that indentured apprenticeship would be the major mode for training craftsmen and tradesmen. The period of indenture could last for seven years or even longer, and the program could include the apprentice's general education and personal development, particularly if he started in his early teens. Figure 1 provides an example of an 1826 indenture, made under the British Colonial Act 4, Geo. IV, in order to apprentice 12-year old John Prosser for seven years in the 'Art, Trade and Mystery of a Seaman'.

As the new colony grew and prospered the need for skilled tradesmen and craftsmen grew with it, in areas such as building, construction, farriery, shearing, butchery, shipping, beer making and distilling, to name just a few. Both free immigrants and convicts included many who would now be classified as skilled tradespersons or semi-skilled workers. Among the 780 convicts who arrived in 1788 on the First Fleet, there were two apprentices, 63 whose declared occupation was in a skilled trade, and 58 who appear to be semi-skilled (from analysis of First Fleet data available at <http://firstfleet.uow.edu.au/search.html>). Male convicts were more likely to be skilled or semi-skilled than female convicts; in the mid 19th century single women with skills were favoured as free immigrants. Similar patterns are found for the convicts transported after 1788 (for example, see Appendix 1, and <http://members.iinet.net.au/~perthdps/convicts/stories.html> and links for genealogists' findings). There is also evidence that more progressive landowners provided an apprenticeship style of training to the convict workers who were assigned to them, and landowners and other employers petitioned the government in Westminster for larger numbers of healthy, skilled convict workers of good character (Crowley 1949).

Nicholas's quantitative analysis of convict records suggests that a majority of the convicts transported to the Australian colonies were not hardened criminals – they were transported because they had committed petty crimes but they were young and healthy, had an occupation or skills, or were literate or semi-literate (1988). For example:

John Miller, No 39131 9, and indent No 51, age 21, Baptist, single, reads and writes, born Herefordshire, occupation blacksmith, offence picking pockets, tried Central Criminal Court (Old Bailey) on 20th August 1838, sentence 10 years, former conviction 6 months, height 5ft 6in, complexion fair, ruddy and a little freckled, hair brown, eyes hazel.

From indents of the convict ship, *John Barry*, arrived New South Wales 22 March 1839, cited at <http://members.iinet.net.au/~perthdps/convicts/con197.htm>, viewed 19 August 2011.

Probably the most famous educated and skilled convict was the prominent architect Francis Greenway, who was convicted of forging a cheque and who arrived in 1814.

The contribution that apprenticeships made to the skill needs of the early Australian colonies is difficult to establish because the total number of apprentice commencements each year is unknown. Many employers looked abroad for skilled workers rather than training them locally, a tendency that persists to this day. It is more likely that the main value of apprentices was as a source of cheap labour, with the training of young boys a secondary motive. Many of the boys in the colonies were orphans or separated from their parents so an apprenticeship was a means of moving them out of orphanages and boys' homes and into the care of an adult, as was the case with Thomas Prosser cited earlier.

Figure 1 An 1826 indenture for a 12-year-old apprentice seaman

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N^o. 21

This Indenture,

made the *Twenty seventh* Day of *October* in the Year of Our Lord One thousand eight hundred and *Twenty six* between the Trustees of the Clergy and School Lands in New South Wales, and *Richard Jones* *Esq* of the firm of *Jones and Walker* of *Sydney*, *Merchant*

WITNESSETH, that the said Trustees have placed *John Proffer* aged *Twelve* Years, or thereabouts, received into the *Male* Orphan School on the *Twenty fourth* Day of *November* with him to dwell and serve *Seven* Years from the Date of these Presents, until the *27th of October* *Eighteen hundred and thirty three* During all which Term the said Apprentice *John Proffer* faithfully shall serve, in all lawful Business, according to *his* Power, and Ability; and honestly, orderly, and obediently, in all Things, behave *him* self towards *his* said *Master* and towards all other Persons having lawful Charge of said Apprentice, during the said Term.

And the said *Richard Jones* for *him* self doth covenant with the said Trustees, and their Successors for the Time-being, by these Presents, that *he* the said *John Proffer* the said Apprentice, in the Art, Trade, and Mystery of *a seaman* shall and will teach, and cause to be taught in the best Way and Manner, and shall allow competent and sufficient Meat, Drink, Apparel, Lodging, Washing, and all other Things necessary and fit for an Apprentice, that *he* be not any Way a Charge to the said Trustees, during the said Term, and that the said *Richard Jones* and all Persons who shall have lawful Charge of the said Apprentice, shall observe and conform to all such Rules, Orders, Bye Laws, and Regulations as the said Trustees shall make from Time to Time, pursuant to the Colonial Act, 4 Geo. IV.

In Witness whereof, these Presents have been duly executed by the said Parties, the Day and Year first above-written,

Signed, sealed, and delivered,
 by the said Trustees
 and *Richard Jones*,
 in the Presence of
Charles Cooper

W. W. Whitrat
Samuel Marsden
William Bowyer
Richard Hill
Richard Jones

Source: <http://www.records.nsw.gov.au/state-archives/images/documents-1/4_390_no21.jpg/view>, viewed July 2011 (reproduced with permission from State Records NSW).

Increasing government regulation paved the way for the much stronger and more formal training arrangements for apprentices that emerged in the 20th century. After the colony of New South Wales became self-governing in 1855, legislation covering apprenticeships was enacted, with other Australian colonies following suit. These arrangements entrenched the regulatory aspects in the state apprenticeship systems; for example, it set lower and upper age limits, the nominal and maximum duration, and caps on working hours.

By the early 20th century apprentices, who were mostly juniors, and their employers were heavily regulated by state legislation and regulations on the one hand, and state or national industrial awards on the other. Following Australia's Federation in 1901, provisions relating to apprentices and qualified tradespersons and their employers were included in the developing state and national industrial relations systems and awards. This brought apprenticeships into the ambit of the industrial relations systems and traditions, which had a powerful controlling influence on Australia's labour market throughout the 20th century.

The industrial awards that covered apprenticeable occupations specified the occupations where apprenticeship was compulsory and the working conditions of apprentices; this included the minimum wage in each year of the apprenticeship, which increased as the apprentice became more productive. In the first half of the 20th century the minimum wages of apprentices were determined on the basis of living costs and needs, the work value of 'juniors', protection of adults' jobs (apprentices could not be used as a source of cheap labour to oust adults), and employers' capacity to pay.

Although these changes were implemented by governments and subsequently regulated, the environment surrounding any apprenticeship system is actually very broad, as it includes culture and traditions, which are often very strong and can exert a major influence. The development of the apprenticeship system in conjunction with the industrial award system helped make the apprenticeship tradition even stronger and embed it in the culture of work.

The protection of 'tradesmen's rights' was a recurring theme. Suggestions that adult 'improvers' should be allowed to undertake trade training were usually resisted and such restrictions were only relaxed during the Second World War, when specific arrangements were made to cover the skill shortages created when large numbers of apprentices and qualified tradespersons entered the armed forces. Partial trade training was provided to workers, many of them women, to work as 'dilutees', who could provide some but not all of the skilled services of qualified tradespersons. After the war the 1946 *Tradesmen's Rights Regulation Act* was passed to ensure that tradespersons and apprentices leaving the armed forces were not displaced by dilutees. Other government regulations reinforced the protection provided to tradespersons and apprentices in industrial awards. Some occupations were restricted to licensed, qualified tradespersons, although the list of licensed occupations varied by state.

In the decades before and after the Second World War the formal training component of apprenticeships was progressively strengthened and institutionalised. Apprentices typically spent a day a week at a technical college; a block-release alternative, where apprentices spend a more extended period of time at 'tech', was introduced later. In either case, apprentices usually spent 80% of their time learning on the job and 20% undertaking formal training at a technical college. These arrangements sought to ensure that an apprenticeship program covered all aspects of the trade and not just the part that is present in each workplace. Since most apprentices started their training after a limited number of years at secondary school, the curriculum for the formal training also included a significant amount of general education.

The strengthening of the formal training component of apprenticeships also provided a fillip for the expansion of the state technical education and training systems, which grew out of the technical colleges and mechanics institutes that were established around Australia in the 19th century (Goozee 2001). For example, in Queensland the South Brisbane Technical College was established in 1893, absorbing the Mechanics Institute; by 1900 there were five technical colleges in Brisbane and 18 in regional centres (<http://www.tafe.qld.gov.au/about_tafe/overview/history.html>, viewed November 2011).

One of the major effects of developments in the first half of the 20th century was the establishment of a strong and enduring tradition of government regulation and protection of all aspects of trades employment and training. This was reinforced by the provisions incorporated into industrial awards and strongly supported by organised labour. At the start of the 20th century the standard duration for most apprenticeships was seven years; in the years between the First and Second World Wars this was progressively reduced to five years, perhaps reflecting the fact that by 1939 most states had made schooling compulsory until 15 years of age (National Office of Overseas Skills Recognition 2000); a young person who wanted to leave school before age 15 to undertake an apprenticeship needed to obtain formal permission from their state education authority and parents or guardian.

From 1945 to 1972

In the three decades following the Second World War the apprenticeship system in Australia continued to be state-based, with considerable fragmentation. Under the *Commonwealth of Australia Constitution Act* formally passed by the Government of the United Kingdom in 1900, the authority for education and training rests with the states. While this is still the case, increasing Australian Government involvement in policy development and funding from the 1970s led to a much more coherent and nationally consistent system (see below). Before this the apprenticeship system remained under the control of the state governments, with little Australian Government involvement. State technical education and training systems were the providers of practically all off-the-job training for apprentices. Although the list of apprenticeable trades could vary by state, along with the content and standards for each training program, there is little evidence that this was a major concern for employers.

The 1950s and 1960s were a period of growth and prosperity for Australia's economy, which generated a need for increasing numbers of tradespeople. The need was met by training apprentices, supplemented by the immigration of skilled workers from abroad, whose qualifications and skills were assessed by the National Office of Overseas Skills Recognition or its predecessors. From a governance standpoint there is an apparent anomaly here as the apprenticeship system was still state-based, whereas immigration policy and regulation are the responsibility of the Australian Government. The gradual development of 'cooperative federalism', particularly since the 1970s, has provided mechanisms for dealing with such anomalies.

The period from 1945 until the introduction of the National Apprenticeship Assistance Scheme (NAAS) in 1973 is also characterised by much questioning of the efficacy of Australia's apprenticeship system but relatively minor changes. The major concerns, particularly among employers, were the inflexibility of the system and its capacity to meet changing labour market needs or to adapt quickly. Numerous official inquiries confirmed these concerns, at the same time confirming the benefits of apprenticeships. While new approaches were suggested, few reforms resulted (Ray 2001), demonstrating that fundamental changes in apprenticeships are difficult to achieve because of strong support for the status quo among employers, unions, governments, and the community.

Some of the changes in this period followed broader social trends and brought apprenticeships within the ambit of anti-discrimination and equal-opportunity legislation. Preferment on the grounds of sex was abolished. Minimum and maximum ages were increased and a maximum age was eventually abolished, making it easier to complete Year 11 or even Year 12 before starting an apprenticeship. The time-based approach to apprenticeships continued, but the standard duration was reduced further, from five years to four, on the basis that the necessary knowledge and skills could be acquired in less time. This reduced the opportunity cost – that is, time spent on low wages – to apprentices.

In a 1966 committee report, the Secretary of the Commonwealth Department of Labour and National Service, Sir Henry Bland, argued that apprenticeships were not changing or expanding as quickly as they needed to (Department of Labour and National Service 1966). He called for an inquiry to consider how to attract more lads (*sic*) to apprenticeships, the working of the shorter-term apprenticeship, and the need for employer levies, as introduced in the United Kingdom. He also called for further research on why apprenticeships are not attractive to many young men; numbers had grown but only at much the same rate as population increase in the cohort of teenage boys.

In 1968 an important review by the Industrial Commission of New South Wales, chaired by Justice Beattie, exhaustively analysed and made recommendations in all major aspects of apprenticeships. The review examined issues such as how to get more young men into apprenticeships to avoid dead-end jobs, how the cost of apprenticeships to employers could be reduced, how the funding of the apprenticeship system could be improved, and what criteria should be applied to determine which occupations required an apprenticeship as a compulsory condition of entry. The resultant report was very influential and had a considerable impact on later state and national policy development regarding apprenticeships (Ray 2001).

Paraphrasing Ray, the main points emerging from the period from the end of Second World War to 1972 are:

- numerous official inquiries confirming the benefits of the apprenticeship model but also criticising its inflexibility
- a few grassroots changes occurring, such as day attendance at technical colleges and the introduction of pre-apprenticeship programs
- most of the options for effective, systemic change to apprenticeships – some adopted decades later – already known in the 1950s
- inquiries and reports concerning apprenticeships lacking urgency and insufficient grassroots' support for change
- a lack of action and fundamental reform, illustrating how difficult it is to change the apprenticeship system, particularly in convincing employer and union representatives on the boards and committees controlling the state systems.

An era of debate and change: 1973 to 2011

At the beginning of this era the Kangan report defined the importance of the training system and made a series of recommendations, particularly relating to funding (Australian Committee on Technical and Further Education 1974). Australia's training system became known nationally as 'technical and further education' (TAFE). A name change is part of the history as it reflects the involvement of adults in post-initial learning programs, although at this stage very few apprentices were more than 24 years of age. The acronym TAFE replaced earlier terms such as technical training and technical education, and government technical colleges were increasingly called TAFE colleges or TAFE institutes. While the earliest citation for TAFE in the *Australian National Dictionary* is from 1973, the new terminology appears to have begun two years earlier when the Technical Teachers Association of Australia changed its name to the Technical and Further Education Teachers Association of Australia (information supplied by the Noel Butlin Archive Centre, Australian National University, Canberra). The term TAFE has since been replaced by vocational education and training (VET), but is still much more widely known than VET.

The period from 1973 onward covers some of the most significant changes in Australia's apprenticeship system. These comprise:

- formal adoption of competency-based training and assessment, and later incorporation of this approach in national training packages
- extension of the apprenticeship model to shorter traineeships as a result of the 1985 Committee of Inquiry into Labour Market Programs (the Kirby report)
- the introduction of government incentive payments to employers and increased levels of government financial support for apprentices and trainees
- options for part-time, existing-worker, and school-based apprenticeships and traineeships, as part of the New Apprenticeship arrangements introduced in 1998
- the entry of non-government providers into the training market, which gave employers and their apprentices and trainees an alternative to government providers
- substantive action by the Council of Australian Governments to eliminate state variation in licensing, and in formally recognising interstate trade qualifications in the same occupation
- the establishment of the Australian Apprentices Taskforce in 2009 and its 2010 review of apprenticeships and traineeships, with final reforms yet to be announced
- the announcement by the Australian Government that the National Trade Cadetship would be available from 2012, to facilitate transition from secondary school to a post-school trade apprenticeship, and funding for support programs to improve completion rates.

Increased government funding

Introduced in 1973, the National Apprenticeship Assistance Scheme (NAAS) marks the start of large-scale Australian Government payments to apprentices and their employers. This scheme became a major component of Australian Government spending on labour market programs (the latter reached

\$849 million by 1984–85). The Australian Government became considerably more active in labour market policy and programs, which had the effect of spurring the states into action, both defensively and in terms of policy development. The state TAFE systems also benefited from the increased expenditures.

A precedent for National Apprenticeship Assistance Scheme and the later payment of incentives to employers of apprentices and trainees from the early 1990s can be found in the Special Youth Employment Training Program (SYETP, facetiously dubbed ‘sweetpea’) and Extended SYETP, which operated in the 1970s and 1980s in response to increased youth unemployment. These programs paid subsidies to employers to provide a paid job and on-the-job training to long-term unemployed youth. However, there was no formal training component, so neither of these programs was strictly a ‘traineeship’ in the current sense. It is arguable that they generated a stronger expectation among employers that government, particularly the Australian Government, could and should subsidise training or even employment. Some labour market economists and policy advisers questioned the value of these subsidies (for example, Smith 1984).

As far as NCVER can ascertain, Australia is the only country to pay incentives on a large scale to employers of apprentices and trainees. Furthermore, many employers are eligible for payroll tax exemptions and other state government incentives. The economic rationale for the incentives is that they will offset wage and other costs and encourage employers to make more training places available. However, there is considerable evidence to challenge this assumption (NCVER 2010e). Nechvoglod, Karmel & Saunders (2009) show that the incentives offset only a very small proportion of the cost of an apprenticeship in a trade and therefore it is only in low-wage traineeships that the incentives are likely to have any impact. It is significant that traineeships were slow to take off until the injection of significant Australian Government incentive payments to employers in the mid-1990s, particularly in the retailing and service sectors. Note that incentive payments are also structured to encourage successful completion of apprenticeships and traineeships at certificate III level and above, but there is little evidence to suggest that this has a major impact on completions.

At various times the state and Australian governments have also provided personal benefit payments or concessions to apprentices and trainees to help offset the effects of low wages during training. These include the Living Away from Home Allowance; the Commonwealth Rebate for Apprentice Full-time Training; the Tools for Your Trade Allowance; public transport and car registration concessions; travel and accommodation allowances when the provider of the formal training is located some distance from home; and capping of the student fees payable to the training provider.

For training Indigenous Australians, people with a disability, and those who are significantly disadvantaged, both the Australian and state governments have special payments for both employers and apprentices and trainees. There is also a long-standing practice that the cost of providing the off-the-job training to apprentices and trainees will be met from government funds, even when this training is delivered by a non-TAFE training organisation. Some incentives, such as that paid to employers for training women in traditional trades, had limited success and were discontinued.

For much of the 20th century government instrumentalities – such as water, gas and electricity utilities; road, rail and transport authorities; defence; and broadcasting and telecommunications bodies – were large employers of apprentices in traditional trades. However, in the last quarter of the 20th century government instrumentalities as a source of training for apprentices increasingly withdrew from this role. There are a variety of reasons for this, including privatisation of many

government bodies, increased outsourcing, greater use of outside contractors, rationalisation of services, and the general push towards making government employers more efficient.

Competency-based training and national training packages

In the 1980s a number of industry groups, starting initially with the metals and engineering industries, adopted the competency-based training (CBT) model. This approach dispensed with an educational curriculum – which typically specified aims and objectives, course content, teaching and methodology, and assessment – in favour of one that specified the desired outputs and standards only (Harris et al. 1995; Guthrie 2009). This was subsequently extended to practically all recognised training. Though criticised, particularly by educationists, competency-based training has continued as a cornerstone of the training system in Australia, including apprenticeships and traineeships. A specific implication of pure competency-based training is that competency determines completion; a requirement to remain an apprentice or trainee for a specified period of time has a limited role.

From 1999 onwards national training packages, which incorporate the competency-based approach, progressively replaced the course and module curricula developed by the states as the specifications for the content and outcomes needed for recognised VET programs, including apprenticeships and traineeships. Schofield and Macdonald (2004) subsequently recommended refinements to improve the conceptualisation, development and implementation of training packages. This changed the role that training organisations have in developing training programs and increased the role of industry skills councils and employers. More recently, a tendency towards excessive proliferation of units of competency and qualifications has been controlled, and the underpinning knowledge and generic skills that are needed have been embedded more fully in unit of competency standards.

In the early stages the introduction of competency-based training was by no means smooth, even though employers and unions were generally supportive. Educationists were often critical because, it was argued, the importance of generic skills, prior knowledge, and time on task were being downplayed. Some states were reluctant to implement competency-based approach in their TAFE systems without first developing a supporting, and sometimes costly, curriculum. Criticism of the quality of learning outcomes being delivered by the ‘pure’ competency-based model also emerged as a major issue. The 2004 review of national training packages by Schofield and Macdonald addressed these concerns, and those that have been developed (or redeveloped) since have been more readily accepted.

Traineeships and other structural changes

In 1985 the report of the Committee of Inquiry into Labour Market Programs, known as the Kirby review, recommended the introduction of traineeships, essentially as a labour market program aimed at disadvantaged early school leavers (Committee of Inquiry into Labour Market Programs 1985). The recommendation was accepted by state and national ministers. This extended the apprenticeship model to a much wider range of occupations, mostly non-trade, and industries. However, traineeships were slow to take off, until the injection of significant Australian Government incentive payments to employers in the mid-1990s (table 1).

Table 1 Apprenticeship and traineeship statistics, selected financial years 1963–2009

Category	1963	1978	1988	1998	2009
In-training in trade occupations	50 900	126 900	147 100	122 100	203 500
In training in non-trade occupations	-	-	9 200	70 900	221 800
Total in-training	50 900	126 900	156 300	193 000	425 300
Commencements in trade occupations	22 600	45 300	55 000	45 000	76 300
Commencements in non-trade occupations	-	-	9 200	81 200	192 800
Total commencements	22 600	45 300	* 64 200	126 100	269 100

Notes: Breaks in series in 1971, 1975, 1987 and 1994.

* Estimated figure, derived on the assumption that all in-training in non-trade occupations at 30 June 1998 commenced in the previous 12 months.

Source: NCVET (2010a, tables 1, 4 & 5).

The 1990s are often viewed as an era of training reform. This period includes the establishment of the Australian National Training Authority (ANTA, abolished in 2005), the Mayer review proposals for key competencies, the Australian Vocational Training System, NETTFORCE traineeships, and the Australian Quality Training Framework. Opening up the training market via contestable funding arrangements enabled increasing numbers of non-TAFE training organisations to deliver government-funded training, including formal training to apprentices and trainees.

These varied responses to high levels of unemployment, and the associated government funding, helped establish traineeships as an additional option for young people seeking entry to the workforce via employment-based training. The disadvantage is that this pathway does not lead to a trade qualification and earnings in traineeship occupations are often lower than in the trades. Quality concerns also emerged as traineeship numbers took off. The responses increased the pressure for more flexible apprenticeships, which now grew much more slowly than traineeships (table 2).

Governments also allowed group training organisations (GTOs) to be the primary employer of apprentices and trainees. Under this arrangement apprentices and trainees can be placed with one or more employers to undertake their on-the-job training. This was designed to assist with the management of the risks associated with recruiting and employing apprentices and trainees, and to facilitate small-business involvement. Government funding was also provided to group training organisations but has since been reduced or withdrawn and their operations are now largely funded from fees paid by the employers.

Further changes were implemented in 1998. As a result of ministerial agreements, New Apprenticeships (later called Australian Apprenticeships) were introduced and eliminated much of the inconsistency and variation among the states. Ostensibly, this also eliminated the distinction between apprenticeships and traineeships by placing them under the single New Apprenticeship umbrella; in reality, the community, most employers, and the state governments continued to distinguish between traditional four-year apprenticeships in the trades and the new, shorter traineeships in non-trade occupations, which were typically one or two years in duration.

Other aspects of the 1998 changes had a much greater impact. These included provisions for existing-worker and part-time apprentices and trainees. This reinforced the shift from an apprenticeship and traineeship system almost exclusively for young people who have recently left school – in earlier times this was usually part-way through secondary schooling – to one that covers people of all ages (table 3). User choice was also introduced, which allowed the employer and employee to choose the training organisation for the formal part of the training program. As a result many non-TAFE training organisations became providers of the formal training to apprentices and trainees, although TAFE

institutes continued as the major provider in trades where the setup and capital costs are high, and in 'thin' markets.

School-based apprenticeships and traineeships were also introduced, initially in 1996 and then as part of the 1998 New Apprenticeship package of reforms, complementing the arrangements for nationally recognised vocational education and training in schools. This allowed a young person to start a part-time apprenticeship or traineeship while still attending secondary school. Initial funding issues arising from a system that straddled two sectors of education were resolved later by allowing government user choice funding to apply (Ministerial Council on Education, Employment, Training and Youth Affairs 2003). After a slow start, numbers increased, from 6100 in 2002 to 20 700 in 2008, but declined to 16 500 in 2009 and 19 000 in 2010 (NCVER 2011b). For mainstream schools the logistics of school-based apprenticeships and traineeships are difficult, and the phasing-out of Australian Technical Colleges as an alternative to the final two years of schooling in a conventional high school may have contributed to the decline in commencements in 2009, as did the economic downturn following the global financial crisis. Most uptake is now at AQF certificate III level and by students in Year 11 (Knight 2008).

Collectively, these changes greatly increased national coherence and consistency in apprenticeship and traineeship arrangements, although the school-based option is not a uniform system across Australia. The changes also increased criticism, particularly among employers, of the residual areas of inconsistency among the states, such as inconsistent licensing requirements and the costs involved in dealing with multiple jurisdictions.

Table 2 Apprentice and trainee commencements by age and sex, selected financial years to 30 June 2010

Category	Earlier years ^(a)	1995	2000	2005	2010
Age to 19 years, trade commencements	Most	34 000	38 700	48 300	50 900
Age to 19 years, non-trade commencements	n/a	11 900	46 900	59 400	58 800
Age to 19 years, total commencements	Most	45 900	85 600	107 700	109 600
Age 20 years up, trade commencements	Few	9 400	16 300	23 900	38 500
Age 20 years up, non-trade commencements	n/a	4 700	99 700	129 300	144 800
Age 20 years up, total commencements	Few	14 100	116 000	153 200	183 300
Males, trade commencements	Most	37 000	46 700	61 700	75 700
Males, non-trade commencements	n/a	8 400	75 000	92 700	91 700
Males, total commencements	Most	45 300	121 600	154 400	167 400
Females, trade commencements	Few	6 400	8 300	10 500	13 700
Females, non-trade commencements	n/a	8 200	71 700	95 900	111 800
Females, total commencements	Few	14 700	80 000	106 400	125 500
Total commencements, all categories		60 000	201 600	260 800	292 900
Existing-worker commencements	n/a			67 700	95 300
Part-time commencements	n/a			67 700	86 100
School-based commencements	n/a			15 200	17 300
Certificate I & II level commencements	n/a			50 400	36 000
Diploma/advanced diploma commencements	n/a			800	8 200

Note: (a): actual figures generally not available.

Source: NCVER 2010a (tables 4, 5, 11 & 12); 2011b.

Apprenticeships and traineeships and employers

Employers are central to the effectiveness of Australia's apprenticeship and traineeship system. The quality of the learning outcomes depends to a large extent on the instruction, experience and supervision provided in the workplace as part of the on-the-job component of the training. Employers also determine the number of apprentices and trainees who commence, since each contract of training depends on an employer making a paid job available for an apprenticeship or traineeship.

Employers, particularly those who need qualified tradespeople, have a strong interest in the apprenticeship and traineeship system and have been active in the debates around change over a long period of time. Some employers meet their need for qualified tradespeople by employing apprentices, but many cannot. A few large specialist employers, such as Qantas and the Australian Defence Force, have addressed this issue by establishing their own registered training organisations or having their own training package. However, Australia's governments make a substantial contribution in apprenticeships and traineeships: the total in 2008–09, taking account of all expenditures, is estimated at \$28 324 for a four-year apprenticeship in a trade and \$7081 for a typical one-year traineeship (NCVER 2010d). In other countries many of these costs would be met by employers or individuals, but recent suggestions that employers should meet more of these costs or contribute via a levy have been resisted strongly by employer representatives, and the Australian Government has accepted this view (Evans 2011).

Changes in the apprenticeship and traineeship system that began in 1973 have generally been supported by employers and their representatives. The national metals and engineering industry was one of the first to develop competency standards and embrace competency-based training, and employers in other industries have mostly been very supportive of this development. Employers also have significant input into the development of national training packages, which are now the responsibility of national industry skills councils and include the formal qualifications completed by apprentices and trainees. The push for national uniformity in many areas has also been supported by employers, particularly those who operate in more than one state; this includes uniform licensing arrangements, a single national quality framework (the AQTF), and a national VET regulator. In keeping with the pluralism which underpins much policy development in Australia, the governance arrangements for the apprenticeship and traineeship system include extensive employer representation at both national and state levels (Knight & Mlotkowski 2009; Cully et al. 2009).

The economic boom from 2000 to 2008 stretched the capacity of the apprenticeship system to supply the numbers of qualified tradespeople needed by employers in key industries such as mining, and building and construction, even though apprenticeship and traineeship commencements increased. This prompted debate about whether skill shortages are inevitable during economic booms, or whether governments could do more to ameliorate the problem (Richardson 2007). It also prompted the Council of Australian Governments to accelerate reforms such as moving from time-based to competency-based completion of apprenticeships.

Long-term trends

Evolving philosophy and rationale

As the apprenticeship and traineeship system has evolved over the long-term, the underpinning philosophy and rationale have shifted. The major shifts, which are discussed in more detail below, have been:

- in contrast to many other countries, the separation of apprenticeship and traineeship training from the general education and personal development of the individual, which are now seen as responsibilities of the school system and of parents
- the removal of age restrictions, reflecting the contemporary focus on lifelong learning and the reality that there are insufficient young people available to sustain age-based training regimes
- the accommodation of access and equity provisions that disallow discrimination on the basis of age, sex and other characteristics, and require more proactive arrangements for people with special needs, such as Indigenous Australians and people with a disability
- a focus on ensuring that wage rates and supplementary support are sufficient to meet the living needs of the apprentice or trainee
- a sustained, and possibly increasing, focus on ensuring that the apprenticeship and traineeship system can meet national skill needs in the occupations that it covers (this priority has assumed greater importance with more rapid labour market change)
- recognition by governments that the apprenticeship and traineeship system needs to become more flexible and responsive if it is to maintain an important place in Australia's systems for meeting national skill needs
- acceptance that high-quality training provision, assessment and outcomes do not occur automatically in response to front-end specifications, but need monitoring and quality assurance arrangements, such as those in the Australian Quality Training Framework
- acceptance and implementation of alternative approaches to apprentice and trainee training, such as competency-based rather than time-based arrangements, national training packages, and part-time and school-based provisions.

Although the philosophy and rationale have evolved, Australia has not to date implemented arrangements that move away from the present employment-based model of concurrent formal and on-the-job training. Where changes have occurred, this has usually resulted from increasing skill requirements that necessitate moving the occupation into the higher education sector, as in the areas of surveying, pharmacy, journalism and nursing. The apprenticeship tradition remains strong, and has been extended to traineeships, even though the main pathway to the majority of skilled and professional occupations is institutional training, followed by employment and on-the-job training.

Changes in the occupational mix

Over time there have been major interrelated changes in Australia's economy, including what is produced and how, globalisation, the removal of tariff protection, and the increasing average age of the population. The associated structural changes include the growth of the services sector, the relative decline of manufacturing, the boom in extractive industries (mining, natural gas), the

expansion of the health and personal care sectors, and the use of more productive technologies in practically all economic sectors. These have affected the relative numbers of apprentices and trainees in various occupations. In the future, climate change and the strategies adopted to ameliorate its effects are likely to have a significant impact.

Most apprenticeships in Australia are associated with skilled trade and craft occupations, but the scope has evolved over time. Many of the occupations have become almost redundant as a result of technological change (for example, printers, typesetters, automotive bodybuilders, and signwriters) or no longer exist in Australia (for example, trades specific to heavy shipbuilding and repair). Others have declined because the products they are associated with have declined in importance (for example, watchmakers, jewellers, farriers, saddlers, bespoke tailors, and stonemasons) and there will undoubtedly be further evolution.

Contemporary traineeships can be viewed as adaptations of apprenticeships that allow the contract of training model to be applied in occupations and industries not covered by traditional apprenticeships. With traineeships, the skill level is generally lower and the duration shorter than apprenticeships, although small and increasing numbers of traineeships at diploma level are emerging in some occupations and industries. In 2010 there were 15 900 commencements at AQF diploma or advanced diploma level, in contrast to 600 in 2002. Commencements at AQF certificate IV level also increased substantially, from 20 400 in 2002 to 58 900 in 2010 (NCVER 2011a, p.8).

Licensing requirements also have an impact on the occupations in which apprenticeships and traineeships are found. Among the traditional trades, occupations that require a formally recognised qualification and a licence to practise include electricians, plumbers, builders, pressure-vessel welders, and specialist trades in the aviation industry. Among non-trade occupations, many in child care and aged care require a formal qualification and a licence. Equivalent requirements apply to skilled migrants in licensed occupations. While large numbers of employers require a formal qualification, it must be recognised that many of the occupations that are covered by an apprenticeship or traineeship can be practised without a formal qualification, such as chefs and motor mechanics. It should also be noted that the growth of traineeships in many lower-level occupations in the retailing and service sectors is relatively recent and appears to coincide with the introduction of employer incentives in the mid-1990s.

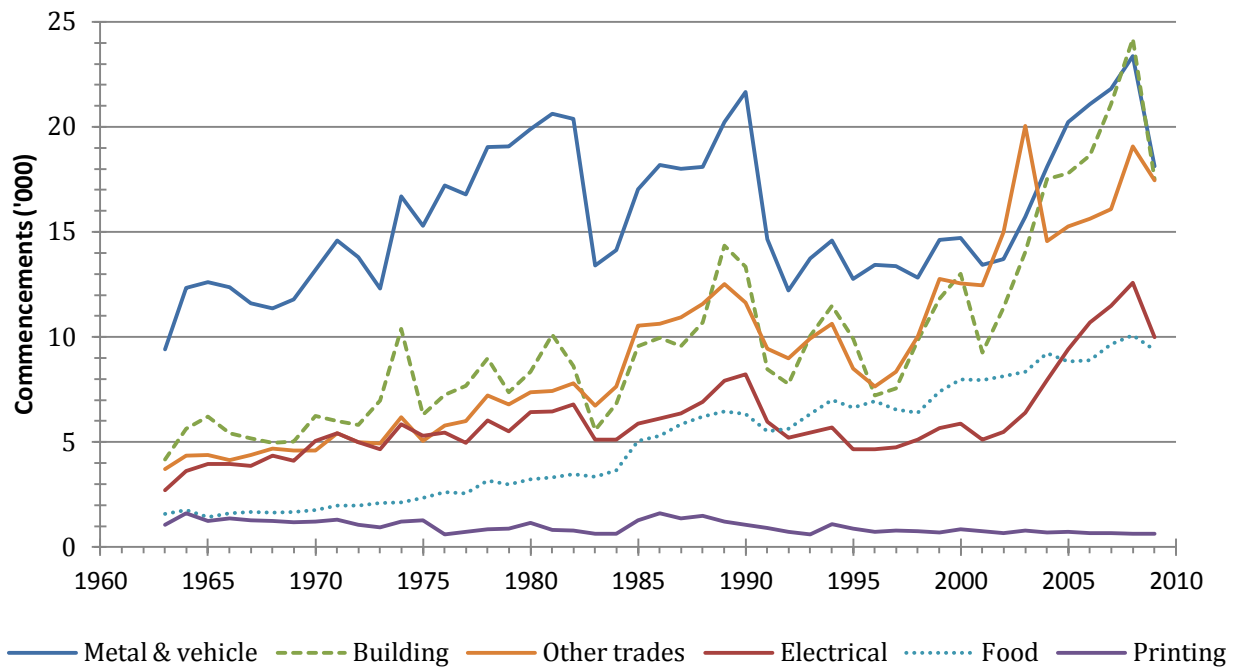
In the years from 1963 to 2010 the number in training in trade occupations increased from 50 900 to 203 500. The number in training in non-trade occupations increased from zero in 1985 to 221 800 in 2009. In 2009, 48% of apprentices and trainees in training were in trade occupations (table 2).

Annual commencement figures for the trades align with the in-training trend. Much of this has been driven by population increase but there have been major changes in the occupational mix (figure 2):

- In 1963, 42% of commencements were in metal and vehicle trades. By 2009, although the number had almost doubled, from 9400 to 18 200, this now represented 24% of trade commencements.
- A fourfold increase in building trade commencements took place, from 4200 in 1963 to 17 500 in 2009. Building trades now represent 23% of trade commencements.
- The 'other trades' category, which includes hairdressers and others, has also grown (3700 to 20 700) and now has much the same weight as building trade commencements.
- Food trade commencements have grown by a factor of six (1600 to 9300) and represent 12% of commencements in 2009.

- The printing trades are the only major occupation where there has been both a relative and absolute decline, from 1100 in 1963 to 600 in 2009, or 5% of commencements in 1963 to less than 1% of trade commencements now.

Figure 2 Financial-year commencements in trade occupations, 1963–2009



Note: Breaks in series in 1971, 1975, 1987 and 1994.
 Source: NCVER (2010a, table 5).

The change in the occupational mix for commencements in the trades is also reflected in completions (NCVER 2010a, table 7). Annual apprenticeship completions in trades have fluctuated. From 1963 to 1986 the number grew steadily, from 14 000 to 38 200. Trades completions then declined and fluctuated for a decade, reaching a low of 22 100 in 1996. Since then completions have more than doubled, to 48 900 in 2010, but only reached the 1986 peak again in 1993 and 2008. These trends were a major concern for governments because the economic boom before the 2008 global financial crisis generated strong demand for skilled workers in the trades. In 2011 the Australian Government allocated funding to provide mentoring and support services to apprentices with a view to increasing completion rates and the numbers completing.

Changes in the age and sex composition of apprentices and trainees

In the last 50 years there have been major changes in the size and composition of the apprenticeship and traineeship population. There has been a shift from a system that was almost exclusively for young people who had recently left school (in earlier times this was usually part-way through secondary schooling) to one that covers people of all ages.

This is a fundamental shift; the apprenticeship system has moved from one that was intended to provide entry-level training and paid employment to young males in the trades, to one that provides both entry-level and continuing training, and paid employment, to people of all ages and both sexes (table 3):

- Half a century ago practically all commencing apprentices were aged 19 years or younger and all but a few, for example, women's hairdressers, were male.
- In 2009 by contrast, 41% of the commencements in trade occupations, and 70% in non-trade occupations, were adults aged 20 years or older.
- Also in 2009, 16% of the commencements in trade occupations, and 54% in non-trade occupations, were females.

These shifts are largely due to the introduction of traineeships in the mid-1980s and the increased uptake that occurred in the 1990s.

General education and apprenticeships and traineeships

Where an apprentice or trainee is a young person undertaking entry-level training, there are important connections with their general education and major implications for meeting the goals of schooling. Although the proportion has fallen, it is still the case that a majority of the commencements in apprenticeships and traineeships in trade occupations are young people aged 19 years or younger (for example, 59% in 2009, NCVET 2010a).

Several other factors must be taken into account when considering how general education goals have interacted with apprenticeship training in Australia:

- the introduction of compulsory schooling to a mandated minimum age, originally corresponding to the end of primary school and increasing over time to about Year 10 of secondary schooling
- the recent introduction in most states of an 'earning or learning' requirement to the age of 16 or 17 years
- the increase over time in the proportion of young people who complete 12 years of schooling (in recent decades the Year 12 retention rate has peaked during periods of adverse youth labour market conditions and fallen when it has improved)

A vignette

The change in the age profile of apprentices is no better illustrated than by a newspaper story about a 71-year old apprentice baker in country Victoria

(<<http://www.news.com.au/business/apprentice-71-loves-the-early-rise/story-e6frfm1i-226054426978>>, viewed 12 August 2011).

At 31 March 2011 there were 13 apprentices and trainees over 70 years of age in training in trade and technician occupations; the oldest was 77 years (NCVER unpublished statistics).

- the rising levels of underpinning knowledge needed by apprentices and higher-level trainees in many occupations, in curriculum areas such as numeracy, scientific and technical knowledge, information technology, communication skills, and literacy.

In the earlier era, when a young teenage boy was indentured to a master craftsman, the employer took responsibility for his apprentice's general education and personal development. As the apprenticeship system became more regulated and formalised, the curricula that were developed for the off-the-job part of the training program included significant general education content. This occurred because the majority of apprentices attended secondary school for just a few years, or to the end of Year 10, before leaving to take up an apprenticeship. The present situation, where around 35% of young apprentices complete 12 years of schooling before commencement, and around 50% of trainees, is a comparatively recent development (table 3).

It can be argued that the system that has evolved does not adequately address the general education needs of young people if they leave school early to start an apprenticeship or traineeship (Sweet 2009). This occurs because the national training packages that now specify the standards and outcomes required for the formal component of the training program include very little general education content, and providers are not usually funded to provide general education if it is not part of the qualification. Sweet (2010) concluded that unlike many other Organisation for Economic Co-operation and Development (OECD) countries, 'broad general education requirements are almost entirely absent from post-compulsory vocational education programmes [in Australia]'. Countries such as Germany, Singapore, China and many others design their entry-level apprenticeship programs to ensure that general education continues. The extent to which this difference matters cannot be answered from the evidence currently available.

Table 3 Apprentice and trainee commencements by schooling, 12 months ending 31 December, 1995–2009

Type of occupation	Age at commencement	Highest school level completed ^(b)	1995 ^(a)	2002	2009
Trades	Up to 19 years	Year 9 or less	1 300	2 300	3 300
		Year 10 or 11	17 500	20 900	24 600
		Year 12	12 200	14 100	16 600
	Over 19 years	Year 9 or less	400	1 400	1 900
		Year 10 or 11	4 100	10 500	14 400
		Year 12	4 000	10 600	16 900
Non-trades	Up to 19 years	Year 9 or less	700	4 400	7 000
		Year 10 or 11	5 700	24 900	24 800
		Year 12	6 900	30 400	23 900
	Over 19 years	Year 9 or less	800	13 200	8 900
		Year 10 or 11	3 500	66 000	56 500
		Year 12	3 800	61 000	70 500
All occupations	Up to 19 years		43.1%	45.9%	40.5%
	Over 19 years	Proportion with Year 12 (pro rated)	47.0%	44.0%	51.7%
	All ages		44.2%	44.7%	47.5%

Notes: (a) Comparable statistics are not available for years before 1995.

(b) Excludes a small number of commencements where highest school level completed is unknown.

Source: NCVER unpublished statistics, using September 2011 estimates.

Concluding comments

In the 223 years of European settlement of Australia there has been a slow evolution in the apprenticeship system originally imported from Great Britain. The period of greatest change has been the last 25 years, with the expansion of the model to school students (Ministerial Council on Education, Employment, Training and Youth Affairs 2001, 2003), part-time workers, existing workers and older workers, and to non-trade occupations at low and middle skill levels. Some of the changes have followed more general shifts in the labour market and society, but many appear to have resulted from government policies and funding.

The attraction of the apprenticeship model is understandable. The linking of formal training with employment is an appealing package: for the apprentices and trainees there is an immediate income – unlike the standard institutional training model – and they get the benefit of practising their training on the job. For the employer, there is the prospect of moulding the individual to the requirements of the firm, as well as immediate access to labour at lower starting wages. For governments, there is the opportunity to subsidise particular groups of workers who need assistance in gaining a foothold in the labour market.

It is not surprising that Australia's apprenticeship and traineeship system is highly regarded in many quarters (for example, Hoeckel et al. 2008), not least because of the unusually high training rates that it entails, particularly among 15 to 24-year old technicians and trades workers (table 4). Training rates increased over the first decade of the 21st century, especially in the trades (from 9.5% to 12.1%) and among 15 to 19-year olds (from 13.4% to 16.6%; NCVER 2011a, table 10).

These figures are undoubtedly impressive, but for a variety of reasons it can be argued that the system is at a crossroads and important issues need to be addressed.

Table 4 Apprentice and trainee training rates, by occupation and age group, 12 months to 31 December, 2010 (%)

Occupation (ANZSCO) group	15–19 years	20–24 years	24–44 years	45 years and above	All age groups
Managers	16.0	5.9	1.3	0.5	
Professionals	1.2	0.2	0.1	0.1	
Technicians and trades workers	71.1	30.3	5.2	1.8	
Community and personal service workers	13.4	6.3	3.6	2.6	
Clerical and administrative workers	16.2	7.3	4.2	2.2	
Sales workers	6.9	5.0	3.2	1.6	
Machinery operators and drivers	6.9	5.6	5.1	3.2	
Labourers	2.8	2.2	2.3	1.6	
All occupations	17.5	9.5	2.7	1.4	3.8

Source: NCVER (2010a, table 17, 2011a, table 11).

Australia's governments believe that the number of people undertaking training programs, particularly apprenticeships in traditional trades and courses at higher AQF levels, needs to increase to meet future skill needs and to raise productivity. However, in the apprenticeship and traineeship system the uptake at diploma and advanced diploma levels has been relatively limited (5.1% of commencements in 2010, in contrast to 64.9% for AQF certificate III; NCVER 2011a).

The economics of the system that has evolved is an issue. By any standards it is costly for government (\$2.9 billion in 2008–09; NCVET 2010a). Could this expenditure be targeted more effectively or used in better ways? Completion rates are generally quite poor, particularly from an employer's perspective: a little over 50% with major variation across occupations. In some occupations the premium from completion is non-existent, suggesting that skills acquisition in these is very limited (NCVET 2010e, 2011e). Can the fine balance between the investment of individuals through low training wages and the desire to be paid a 'living wage' be maintained, especially as fewer apprentices and trainees live in the parental home? Higher wage rates would undoubtedly make the model less attractive to employers.

Structural change is a major feature of modern advanced economies; is the apprenticeship model sufficiently adaptive to meet the challenges this creates? Economies also fluctuate; is the model sufficiently robust in economic downturns, noting that its success is contingent on employers offering jobs for apprenticeships or traineeships (Karmel & Misko 2009)? Similarly, in boom times will employers offer sufficient new apprenticeships and traineeships or would an institution-based model be easier to ramp up quickly? The most recent historical developments have created a system with seemingly confused objectives, as it confounds skills acquisition with labour market equity subsidies.

Education is at least as important as training because of the fundamental role of generic skills. Does Australia's current apprenticeship and traineeship system embody sufficient general education, including basic language, literacy and numeracy skills, noting that the one thing that is certain is that tomorrow's labour market will differ from today's? Some educationists argue that apprenticeships and traineeships are one of the mechanisms for promoting the vocationalisation of learning at the expense of general education (see for example, Meyer 2009, on Switzerland).

While the long-standing resistance to promoting alternative training models within the trades persists, it needs to be noted that there is a long-term trend toward institution-based training. It is not so long ago that nurses were essentially trained within hospitals in a type of apprenticeship, while lawyers were articled clerks within law firms. In the longer term the role of apprenticeships and traineeships in skills acquisition is likely to diminish, despite their outward appeal. In the meantime, the challenge is for governments to get the best return from their investment, making sure that they are purchasing real skills on one the hand and meeting equity objectives on the other.

In essence, the evolution of apprenticeships and traineeships in Australia is very much an unfinished history.

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Appendix 1

Recorded occupation of a sample of skilled convicts transported to Australia, 1788–1868

Recorded occupation	Number in database	Recorded occupation	Number in database
Apprentice (occupation not given)	102	Gunsmith	15
Architect	5	Hosier	11
Baker	366	Ivory turner/cutter	8
Barber or haircutter	42	Jeweller	42
Blacksmith	798	Joiner	111
Bookkeeper	6	Mantua maker	5
Bootmaker	42	Miller	89
Brewer	44	Milliner/hat maker	10
Brickmaker	246	Nailer	27
Builder	14	Nurse	48
Butcher	441	Saddle/harness maker	12
Cabinetmaker	48	Sail maker	15
Carpenter	(a)	Shearer	5
Clerk	352	Shipwright	18
Cook	537	Shoemaker	1173
Coppersmith	6	Stonemaker	81
Cordwainer	14	Tailor	1118
Cutler	52	Teacher	14
Engraver	18	Tinsmith	14
Farrier	44	Watch/watchcase maker	39
Gilder	14	Weaver	650

Note: (a) the number of carpenters is difficult to count as many convicts had the surname 'Carpenter'.

Source: These counts are taken from the arrival records of 48 000+ convicts in the *Australian Convict Index, 1788–1868* online database (Reakes 2001). Numbers shown should be treated as lower-bound figures only as the database only covers about 30% of convict arrivals and many did not have an occupation recorded.



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