

Combining formal, non-formal and informal learning for workforce skill development



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The views and opinions expressed in this document are those of the author/project team and do not necessarily reflect the views of the Australian Government or state and territory governments

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ISBN 978 1 921412 61 5 web edition
TD/TNC 93.08

About the research



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Josie Misko, NCVER

This review of literature was prepared for the national Skilling the Existing Workforce project undertaken by the Australian Industry Group (AiGroup) as part of the Commonwealth–State Skills Shortage Initiative. The aim of the national AiGroup project was to investigate strategies and programs which increase the skills, knowledge and capabilities of individuals and groups in the workforce and those wishing to enter the workforce. This review was commissioned to augment the findings of the national AiGroup investigation by providing a greater focus on how formal, non-formal¹ and informal² learning and practical organisational strategies and initiatives are used and recognised in workforce development.

Combining formal, non-formal and informal learning for workforce development by Josie Misko shows how multiple variations and combinations of formal, informal and non-formal learning, accompanied by various government incentives, and organisational initiatives (including job redesign, cross-skilling, multi-skilling, diversified career pathways, action learning projects, quality assurance arrangements, job rotations, and mentoring programs) can be used to prepare workers to gain, maintain or progress through jobs.

Key messages

- Formal learning continues to be the main route to recognised qualifications, required for entry into jobs, especially regulated occupations. However, informal learning acquired through experience in work and life is the most frequently used of all the learning forms.
- Employers are mostly interested in the results of learning rather than the form of learning. What they want are essential technical skills and knowledge required for jobs and for compliance with legislative requirements. They are also keen to have problem-solving, team work and communication skills.
- Workers with higher levels of education and training continue to access greater amounts of learning (formal and non-formal) than others. If we are serious about extending the source of skills, we must invest in the learning of those with lower levels of education and training.
- Accelerated apprenticeship training which often relies on recognition of prior learning and self-paced gap training may be problematic for individuals who do not have the required literacy and numeracy skills for independent study.

This review provides examples of how different learning forms supported by government incentives and organisational practice operate in the skill development of new and existing workers. However, the concept of workforce development is even broader and includes other human resource aspects such as performance management, and recruitment and retention strategies. Such aspects should not be forgotten by governments and employers when developing policies to increase the skill levels of the workforce.

Tom Karmel
Managing Director, NCVER

Informing policy and practice in Australia's training system ...

¹ Non-formal learning refers to learning that occurs in structured programs but does not lead to accredited final qualifications.

² Informal learning refers to learning acquired through everyday work and life.

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Executive summary

This project is about combining formal, non-formal and informal³ learning to develop workplace skills. It is also concerned with how such combinations are used and recognised by industry, employers, training providers and individuals. It is particularly relevant today as governments and industry look for alternative sources of workers in an environment characterised by demographic ageing, declining cohorts of youth, and trade skills shortages.

Findings

- 1 There are multiple ways for combining formal, informal and non-formal learning to develop skills for today's workforce. Senior management commitment and in-kind support for workers to engage in learning (however it is acquired) and individual willingness to engage in learning are keys to successfully integrating learning with work.
- 2 The most common practice for entry-level workers (that is, apprentices, trainees, cadets and interns) is to combine (or alternate) learning acquired in formal off- and on-the-job training with informal learning acquired through everyday experience on the job. The key to the success of such programs is the extended on-the-job experience obtained in a supervised environment. Innovative approaches include 'fully-on-the-job' programs and 'learning bays' which locate both formal and informal learning at the worksite.
- 3 For existing workers the most popular strategy is to blend learning acquired in non-formal (often in-house or external training programs) with on-the-job practice and experience. Other strategies include action learning approaches which provide opportunities for workers to get together to share information and develop suitable action plans for quality improvement initiatives, business innovation, and self-help for users of newly introduced or critical technologies and products. They also include strategies which enable learners to practise skills in simulated environments before being expected to apply such skills in the real workplace. Such strategies are especially relevant to students aiming to acquire qualifications for industry sectors whose workers must comply with specific minimum age requirements (including child care workers), and specific security checks (including child care and aged care workers). Simulated environments are also used for development of business administration skills (including practice firms).
- 4 Organisations tend to provide formal and non-formal learning opportunities for permanent staff over casual staff (especially if it comes at a cost). Those who already have high levels of educational achievement are far more likely to participate in such programs.
- 5 Recognition of non-formal and informal learning for formal qualifications (also known as recognition of prior learning [RPL]) is currently being applied with experienced mature-age workers in occupations experiencing skill shortages. It is being used to accelerate the completion of apprenticeships and traineeships for these groups. Helping these mature-age workers to remain engaged in the self-paced learning programs (often a key feature of such accelerated programs) and providing them with language and literacy support, are continuing issues.

³ See page 10 for an explanation of these terms.

- 6 Recognition of prior learning can also be used to open up pathways to formal qualifications (including senior secondary school certificates). So far, uptake of these RPL processes across education and training sectors has been slow.
- 7 Learning which has been acquired through formal or non-formal programs can also be supported and complemented by voluntary (and sometimes mandatory) coaching and mentoring programs. Here individuals (including executives, regular employees, and individuals and students from disadvantaged backgrounds) are paired up with more experienced and expert colleagues, supervisors or external consultants. To be effective such arrangements require the development of trust, confidentiality and respect between the partners, adequate time for discussion, and mentors or coaches with relevant expertise.
- 8 Job redesign, job rotation and restructuring career pathways are also examples of how companies extend learning for employees and integrate it with work. Such approaches (also associated with concepts of cross-skilling and multi-skilling) have been introduced to add task variety and challenge for workers (including recruits in graduate programs). Nevertheless, prescriptive Taylorist and Fordist principles of work organisation continue to exist (especially in those organisations involved in large-batch production and manufacturing).
- 9 Advanced information and communication technologies (including internet, email and discussion forums) are increasingly being used (within and across industries) to provide workers with opportunities for e-learning and speedy access to large arrays of information resources and communication channels. They have also been widely used in compliance training, especially in industries like financial services and air transport to help demonstrate that employees remain compliant with current legislation. However, e-learning (if it is to be successful) requires considerable amounts of learner commitment, trainer support, monitoring and feedback.
- 10 Automated forms of production have also involved an increased need for workers to continually update their skills in the use of technology. Although such advances have generally increased challenge and complexity for product designers and executives, they have sometimes led to reduced complexity and challenge for workers at the front line (especially in the no-frills components of the retail industry).

Conclusions

Apart from adopting mandated learning combinations especially required for regulated programs (including apprenticeships and traineeships), businesses and individuals will make their own decisions about learning. Businesses will make them according to their business needs, while individuals will do so according to their particular work or life stages, their willingness to commit to learning, and formal requirements (by their managers) to undertake training.

Bearing in mind that casual workers represent a substantial and alternative source of skills, it is important that organisations increase investment in learning for these groups. It is also important to provide opportunities for formal and non-formal learning of workers with lower levels of prior training. This may also require such groups to acquire basic skills for learning (including language, literacy and numeracy skills, and skills in using information and communications technology). Such basic skills training or learning support will also need to be a priority for those involved in self-paced training provision for mature-age workers who may require extra assistance in completing gap training for accelerated apprenticeship programs.

Background

This project is about how formal, non-formal and informal learning can be combined to deliver workforce skills. It also looks at how such combinations are used and recognised by industry, employers, training providers and individuals. It is a Commonwealth–State Skills Shortage Initiative funded through the Strategic National Initiatives component of the 2005–08 Commonwealth–State Agreement for Skilling Australia’s Workforce.

Introduction

There is nothing new about using different forms of learning to develop required skills and knowledge both for novice and experienced learners in workplaces and training institutions. What is different today is the increasing need to renew approaches to workforce skills development to address current skill shortages in an environment of workforce ageing, declining cohorts of youth, and increased competition for workers with the right skills. As well, advances in technology and science and government demands for regulatory compliance (Department of Education, Science and Training 2006) have also increased at a rapid pace. These developments have meant, and will continue to mean, that companies must look for more effective ways to engage all existing workers in learning, and to look for alternative sources of skills. Innovative ways for recognising (and utilising) existing skills of older workers to keep them in the workforce will also be required. As organisations restructure and reduce staff to remain economically competitive, there are increased requirements for managers and supervisors to assume responsibilities that were once dealt with by organisation-wide functions—such as budgeting, scheduling, occupational health and safety, and staff and customer grievances (Martin & Healy 2008).

Current traditional trade skill shortages in Australia heighten the need to accelerate the completion of formal apprenticeship programs which, historically, have been based on a combination of formal off-the-job and on-the-job learning and informal and non-formal workplace learning (National Centre for Vocational Education Research 2006). These programs generally use recognition of prior learning (RPL) processes to recognise the skills and experience of mature-age workers with relevant industry skills. In addition, there is a need to deepen initial training for those industries such as mining, electro-technology and energy utilities which require higher level initial skills (Department of Education, Science and Training 2006). Providers of formal learning (including VET institutions) will also need to provide training that is sensitive to the needs of marginalised workers. Richardson & Teese (2008) note that the Australian workforce is becoming increasingly feminised as the pool of 25 to 49-year-old males is declining and as more women are being required to enter or re-enter the workforce.

In developing workforce skills, companies have applied a variety of work-based learning approaches to complement and supplement learning from initial formal studies. These include learning on the job, short in-house training sessions, short courses from external providers, job rotation, job redesign (including multi-skilling and cross-skilling), and coaching and mentoring programs. The application of new technologies to speed up or diversify the production of goods and services to meet the needs of different consumer markets has also improved the accessibility of information and knowledge used in learning and job/work completion.

Formal, non-formal and informal learning defined

To begin with it is important to understand exactly what we mean by formal, non-formal and informal learning. We start by clarifying each of these different forms.

- ✧ Formal learning refers to learning in courses or programs leading to nationally and internationally recognised qualifications.
- ✧ Non-formal learning refers to learning in structured programs for developing skills and knowledge required by workplaces, communities and individuals. These do not lead to nationally or internationally accredited formal qualifications.
- ✧ Informal learning refers to learning that is acquired through everyday work and life.

In this regard our distinctions are compatible with the definitions adopted by the Organisation for Economic Co-operation and Development (OECD) in its review of the *Role of qualifications in promoting life-long learning* (OECD 2005).⁴ In addition, information and communication technologies (internet, email, chat-rooms and discussion forums), and topic-specific software applications can be applied to all these forms of learning. Self-directed learning is also possible across the three forms of learning.

Supplementing work with access to formal, informal and non-formal learning

Most of the learning that individuals do once they leave school is of the informal (on-the-job training) and non-formal variety. Nevertheless some workers continue to engage in formal learning leading to job-relevant formal qualifications, or qualifications that are not related to their job.

Fuller & Unwin (2004) are of the view that enabling workers to engage in all these forms of education provides an 'expansive' rather than a 'restrictive' form of workforce skill development. An expansive approach they say leads to an 'enrichment' of the workers' 'learning territory'. This expansion then is of benefit to individuals because they acquire the social skills and formal qualifications which will make them more competitive in the labour market.

Formal training leading to formal qualifications

Formal learning, as its name implies, has a highly structured set of learning arrangements. That is, it is characterised by defined aims and objectives and a recognisable and espoused written curriculum structure. It is focused on delivering qualifications that are accredited by state, national and international education and training authorities (or their equivalents) and industry bodies. This type of learning is also associated with identifiable and recognisable educational sectors; that is, primary and secondary schooling, VET (including industry training), higher education, and adult and community education. Depending on the parent sector, formal training and learning programs are established to deliver a body of general, technical, vocational, or professional skills and knowledge. Successful learning (affirmed by successful performance in tests of knowledge and/or practical skill) may also lead to formal academic or industry qualifications, licences, or accreditations (or their

⁴ Formal learning refers to learning that takes place through a structured program of instruction which is generally recognised by the attainment of a formal qualification or award (for example, a certificate, diploma or degree). Non-formal learning refers to learning that takes place through a program of instruction but does not usually lead to the attainment of a formal qualification or award (for example, in-house professional development programs conducted in the workplace). Informal learning refers to learning that results from daily work-related, social, family, hobby or leisure activities (for example, the acquisition of personal skills developed through the experience of working as a sales representative).

equivalents). These outcomes may be used to help holders obtain a job, perform a job⁵, change jobs, or acquire a promotion. They can be used to help holders start or progress a business venture or enter further formal studies to acquire further qualifications.

A range of delivery options

Formal learning comprises a variety of diverse approaches and can be used with large groups, small groups and individuals. For example, it includes cases where instructors are in physical proximity to students and use lock-step methods of training⁶ in addition to cases where instructors guide or facilitate students through self-paced learning materials. It also includes instructors using a combination or a blend of these two approaches. When college mentors or instructors visit workplaces and sit down with individuals to work through self-paced learning modules, this can also come under face-to-face training. Formal training also refers to on-the-job training which is required for the completion of an apprenticeship or traineeship.

Face-to-face approaches may also include students working through programs using electronic technologies in a computer classroom with instructors present for the provision of advice and assistance. Also included is video-conferencing where instructors in one location deliver a training program to a group of individuals who are gathered in a video-conferencing classroom in another location or in multiple locations.

Distance education leading to formal qualifications is also an example of formal training. Here students may be provided with learning materials in hard copy or electronic form. These materials may also be based on the traditional lock-step methods of training. However, here the student works through the materials individually and instructors make themselves available to provide feedback and assistance as required. In the past, interaction between distance education instructors and students often happened via telephone or mail. Increased access to electronic equipment, both by teachers and students, and advances in technology, mean that teachers may communicate with students via email, bulletin boards and discussion forums and may do so in synchronous or asynchronous time⁷ (Misko et al. 2004).

Increasingly, and especially in the VET sector, some individuals may undertake and complete formal training (in short courses which, for others, are also used as components of qualifications) only for the knowledge and skill they are able to acquire from these courses. They may choose not to acquire a qualification.

Training to meet compliance and contractual obligations

Formal programs are also implemented to satisfy legislative requirements (for example, occupational health and safety laws, financial services regulations, and mandatory reporting of a variety of social issues related to minors⁸) and contractual obligations. Formal accredited training required for compliance with legislation and contractual obligations is the most preferred type of formal training in small- and medium-sized firms. Mawer & Jackson (2005) found that unless workers were required to have formal qualifications and licences for compliance reasons,

⁵ A training officer in a company may be required to attend formal training sessions to acquire specific accreditations to teach a certain set of skills which are part of a formal package. Quality assurance officers may also have to do the same to acquire formal quality assurance accreditations to undertake quality audits.

⁶ Here the teacher does not move on to a new skill or concept until he or she is satisfied that all or the majority of the class has grasped the current skill or concept. Arrangements are made for students who cannot keep up to get remedial attention from the instructor or from specialist tutors, either during class time (preferably when the others are working on their own on some particular task) or after class in specially structured remedial sessions.

⁷ Synchronous time refers to real time, while asynchronous time refers to situations where students access information (including written, video or computer-based learning resources) that have been prepared and posted at electronic addresses when it suits them.

⁸ For example, teachers in South Australia must attend mandatory reporting training if they are to keep their registration. Registered teachers who may not be in service must also attend mandatory reporting sessions if they are to maintain their registration status.

companies did not much care if workers did or did not have any formal qualifications. These attitudes were also shared by employees. What was often more important was the experience individuals brought to the job, their skills at working with others, their willingness to put in a good day's work and the types of references they brought with them from other employers.

Education and training leading to formal qualifications, accreditations, and licences is generally delivered externally by nationally or industry-accredited providers. However, companies who are registered to deliver their own qualifications (enterprise registered training organisations in the VET sector) may deliver this training on their own premises. In some programs (for example, apprenticeships and traineeships already discussed) such formal training can also happen at the workplace. Some companies in the study by Mawer & Jackson (2005) preferred that compliance training for required licences be delivered on-site. However, they were agreeable to specialised technical and theory-based training being delivered externally.

Responsibility for training costs

Typically employees who would like to acquire a formal qualification that may not be related to their particular occupations will undertake this training outside work hours. They will often be expected to pay for their own training. However, Fuller & Unwin (2004) provide an example of companies who also meet the costs of training in non-related fields. Those who can show that a desired formal qualification is relevant in some way to the work of the organisation may be given time to attend classes during work hours. Some companies may pay for the cost of the training up-front; others may reimburse the employee once they have completed and passed the particular course.

In the main, accreditations and licences required for the performance of licensed jobs, or the operation of specialised machinery and equipment, or delivery of specific training services, are paid for by the organisation and generally undertaken in work time. Although the main aim of this training is to make sure that the company has access to the required skills and knowledge for more effective operation and legislative compliance, this training also helps to prepare the individual for his or her job. Often accreditations and licences will travel with the individual. This means that in addition to providing organisations with a medium for transferring required skills and knowledge, the individual has also added to his or her toolkit of skills and licences. Such acquisitions will hold the individual in good stead should she or he wish to move into alternative employment.

Richardson (2004) found that a great deal of skill enhancement is provided by on-the-job learning, and that employers paid a considerably greater proportion towards workforce skill development than is usually estimated.

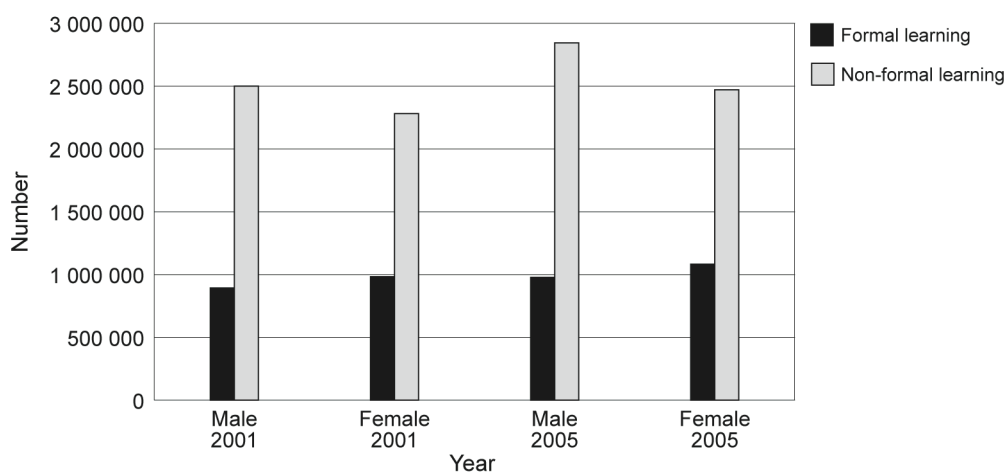
Non-formal workshops or classes

Non-formal learning is also highly structured with specific aims and objectives. Completion of non-formal learning programs may initiate individuals into the next stage of a desired life path. In industry, non-formal learning (often delivered away from the actual job or in industry training rooms or spaces) may be used to induct new employees into the culture of the company, develop the technical and inter-personal skills of experienced workers, and hone the skills of managers and supervisors.

For all workers, non-formal training (that is, in-house training or its equivalent) is the most common form of training after informal on-the-job training (Richardson 2004). This is also supported by Mawer & Jackson (2005) who found that the majority of small-to-medium sized companies in their study were involved in substantial amounts of unaccredited, structured and semi-structured workshops and seminars. Semi-structured training was often provided by product suppliers and equipment manufacturers conducted at the work site. This type of training was found to be especially valued, particularly for all workers below AQF III level, and for long-term casual staff. It was valued because it was immediately relevant and could be put into practice.

Typically workers will move off the job to attend workshops or classes either delivered externally by commercial training companies or internally by in-house trainers or external consultants. The aim of such sessions is to develop some knowledge or skill that is generally required for the performance of their job or for further development of attributes required for better interpersonal interaction (such as team work, management and supervisory training, conflict negotiation and resolution). Although workers may be involved in formal courses, their participation in non-formal learning occupies them most (figure 1).

Figure 1 Participation in formal learning and non-formal learning, 2001 and 2005



Source: Australian Bureau of Statistics (2005) *Survey of Education and Training*, cat.no.6278.0.

Informal learning

By contrast informal learning is not formally structured and generally, on its own, does not lead to a formal qualification. It is generally acquired through speaking with, listening to, or observing more knowledgeable or skilled individuals (including artists, musicians, actors) either at work or in the community. Special arrangements for informal learning can also be driven by organisations. Job-redesign and job rotation, coaching and mentoring, quality circles, and learning partnerships all enable individuals to engage in informal learning. Informal learning also refers to learning acquired independently through reading books, newspapers and journals, online articles or entries, trial and error strategies, and extended practice.

A renewed interest in informal workplace learning has been fuelled by a variety of changes in the way organisations have restructured and adapted to ‘shifting environments and ... advances in ... technology and global communication’ (Marsick 2006, p.51).

Although the aim of informal learning at the time it is being acquired is not to gain formal qualifications, it may be used to acquire full, or components of, formal qualifications in secondary, VET and higher education sectors. There are some cases, generally in the VET sector, where informal learning acquired throughout work and life in general has been recognised through formal recognition of prior learning (RPL) assessments to gain whole qualifications.

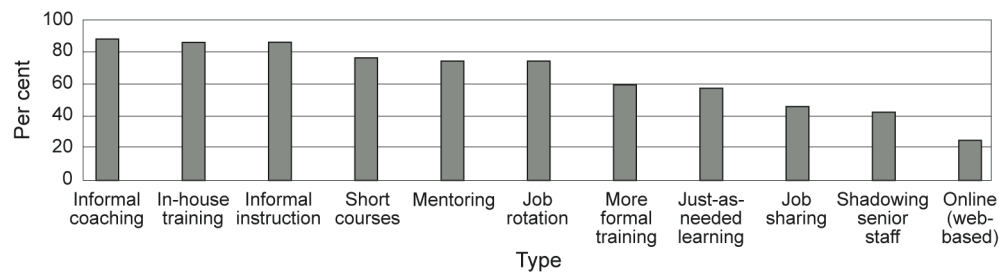
Of the three forms of learning it is informal learning which is the most prevalent⁹, especially for workers (Candy 2002, cited in Streumer & Kho 2006). This is because in one way or another almost all workers (including apprentices and trainees, as well as managers and supervisors) are involved in some type of informal training and learning.

⁹ The United States Department of Labor estimates that 70% of all learning for adults is acquired informally.

Participation in employer-sponsored informal, non-formal and formal learning

On-the-job learning is the main form of learning that applies to both males and females, and workers of all age groups and education and language backgrounds in Australian companies (Richardson 2004). This is supported by a survey reported in the AiGroup 'World Class Skills' report (The Allen Consulting Group 2006) which notes that the most prevalent types of learning opportunities provided for workers in Australian companies are informal learning experiences, followed by non-formal short courses and in-house training (figure 2).

Figure 2 Learning experiences for workers in Australian companies, 2005



Source: Noonan (2007), *Skilling the existing workforce: Background research report*, p.13.

Mawer & Jackson (2005) found that employees in small-sized firms needed to develop the skills, attributes and flexibility to cover for each other when required. This ability was perceived to be best developed through observation, information sharing, questioning, and supervised practice on the job, using the company's own plant and equipment, or through job rotation.

Nevertheless, access to on-the-job training is not uniformly available to all groups of workers. Richardson & Liu (2008) remind us that access to on-the-job training across industries is restricted for different groups of workers, namely casual workers.¹⁰ Noting that employment growth for 20 to 30-year-olds was mainly in casual work for men, and that earning rewards for formal and informal learning was strongest for men in these age groups, Richardson & Liu warn us about the risk of removing informal pathways to skill development especially for those who are marginalised by low skills and education. Nevertheless, Mawer & Jackson (2005) cite a limited number of cases where casual employees (generally employed on a long-term basis) had the same access to informal and product-related training as other permanent employees, especially if these came at no cost to employers. Employers generally did not spend money on formal structured training for casual staff. More details on how the provision of employer-sponsored training differs for different groups is provided by Richardson (2004) and elaborated on in appendix A.

Blurred boundaries

Although we have separately described the general characteristics of the three forms of learning, there is a blurring of the boundaries between formal, non-formal and informal processes of learning. For example, students can help each other to learn more about the best way to use computer applications (informal learning) so that they can put these to good use in preparing for assignments or examinations (formal learning). Informal learning can also include teaching oneself about any sort of thing through making a conscious decision to learn about a specific skill and then using a variety of strategies to acquire the required information and practising the required skill.

¹⁰ The total hours of employer-sponsored training decreased by 27% for casual workers in comparison with a 15% reduction for permanent employees.

This may include asking friends, family, work colleagues or other experts who already know how to apply a particular skill. The knowledge gained in these ways can then be used in assessments aimed at recognising prior learning which can lead to progression through formal courses of study.

Formal training and learning can also happen in spaces associated with informal learning. For example, workplace supervisors can take some time during work time to sit down with students to explain the theory behind a particular technique or process. Such explanations can also help students to complete assignments required for the completion of formal courses.

The skills acquired in non-formal programs can also be used in formal and informal learning. For example, the team work, problem-solving and leadership skills and attributes acquired in personal development programs (like senior levels of girl guides, air cadets, scouts, Duke of Edinburgh Awards) can be used in assessments for components of formal qualifications and informally to help work colleagues and family and friends solve relevant problems in difficult situations.

Although combining formal, non-formal and informal learning strategies makes sense in terms of providing a more coherent and holistic approach to workforce skills development, it is important to understand that the strategies that are most effective are those that fit the particular context of the organisation and the particular nature of the skill involved. At times it will make sense to keep these approaches quite separate from each other. For example, when employees are being introduced to a skill or innovation that they have not encountered before it may be better to provide a more structured format with some opportunities for practice in non-formal learning programs away from the job itself. At other times, especially when individuals are applying this to their job, it will make sense to focus on on-the-job (or informal) independent or supported learning. This may include using online interactive methods for learning about applications.

However skills and knowledge are acquired, they are of limited use if they cannot be used effectively later; that is, if they do not transfer easily to similar or different contexts. The characteristics of effective transfer emphasise the importance of context-specific information and experience, the effectiveness of initial learning, and the ability of individuals to apply what they have learnt to new contexts (a detailed treatment of transfer issues are reported in Misko 1995).

Structure of the report

In the following sections we provide examples of the different combinations of formal, non-formal and informal learning that we have found in the literature.

More specifically we discuss:

- ✧ traditional and accelerated programs of alternated off- and on-the-job training leading to formal qualifications used in formal apprenticeships and traineeships
- ✧ work-integrated learning programs used for trades and related workers, professionals and associate professionals including cadetships and internships, and a variety of strategies associated with action learning and formal recognition for advancement in formal training programs
- ✧ on-the-job training using mentoring and coaching programs (including programs for executives, graduates, general employees and disadvantaged groups)
- ✧ learning which is acquired and embedded in job redesign, job rotation, and career restructuring
- ✧ the use of technology in compliance and workplace training.

We end by drawing some major conclusions.

Alternating on- and off-the-job training

In the following sections we take time to talk about the more common methods for combining two or more of the three forms of learning. The more common case is to combine formal off-the-job and on-the-job learning with informal learning to meet requirements for formal qualifications and accreditations. In some cases learning acquired through non-formal situations may also be used to support claims for applications for necessary licences and entrance to certain jobs (for example, first aid certificates used to satisfy occupational health and safety legislation).

Historically, vocational training has included a period of formal studies alternating with a period of on-the-job training in companies. In Australia this is especially demonstrated in entry-level training for apprenticeship and traineeship programs. An environment of skill shortages (especially in the traditional trades and in the community health sector) has seen the implementation of recognition of prior learning processes to accelerate the completion of apprenticeships and traineeships in these areas.

Apprenticeships

In Australia apprentices in the traditional trades (including metal, electrical, electronics, automotive, food, construction and building, hairdressing, tailoring, watchmaking and locksmithing) follow the more or less conventional pathway to formal qualifications and trade certificates. The apprentices sign a contract of training with an employer in which the employer promises to respect responsibilities to provide appropriate training and work for the apprentice and the apprentice promises to undertake the training and work as expected.

The employer may also include a group training company that hires out the apprentice to one or more businesses (host employers) for a fee. In some cases employers may want to keep the apprentice for the whole of the duration of his or her apprenticeship; in other cases apprentices are rotated to different enterprises during their apprenticeship.

- ✧ Apprentices complete a program of training which blends formal learning (often acquired through formal training courses delivered by registered training organisations off the job, and on-the-job training delivered by workplace supervisors) and informal learning which happens as a result of experience in the job. In some cases learning which has occurred in non-formal learning programs can be used to contribute to formal qualifications or components of qualifications (for example, first aid certificate). The formal learning component helps apprentices acquire relevant knowledge and theory, as well as providing opportunities for practical skill development in simulated workplace settings (such as college automotive workshops or hospitality function rooms) as well as on the job.
- ✧ The informal learning component is also acquired through engagement in daily work processes and interaction with peers and more experienced work colleagues. It also helps apprentices apply their skills and knowledge to real work situations and processes.

This neat combination of alternating off- and on-the-job training applies to the bulk of apprentices, especially in the traditional trades. However, there are also programs in some trades which are defined as being fully on the job. It is in these programs (more often applying to trainees

than apprentices) that we will see more clearly the practical combination of off-the-job and on-the-job learning.

Fuller & Unwin (2004) believe that the need for apprentices (and all employees in general) to also attend off-the-job training (leading to formal qualifications) provides them an opportunity to meet others engaged in similar learning, reflect on their learning away from their jobs, and gain 'access to theoretical knowledge and conceptual knowledge that would be unlikely to be made available solely through experience on the job' (p.139). In addition, the qualifications gained can lead to further education and training pathways.

'Fully on-the-job' traineeships

'Fully on-the-job' traineeships are programs in which trainees will undertake all (or almost all) of their learning (formal, non-formal and informal) at the workplace. These programs provide definite benefits for employers and trainees in terms of customising the training to suit the needs of the workplace and having the trainee at the workplace for the entire (or almost entire) time. A review of traineeships in office administration and small business in South Australia (Department of Education, Training and Employment 1999)¹¹ found that employers valued these forms of training for trainees because they provided value for money and because the trainees were able to develop valuable occupational skills and knowledge. Trainees viewed them as useful pathways into employment. These 'fully on-the-job' programs fell into disrepute when reviews of programs in other places found that some employers were rorting the system to obtain the employer incentives. Nevertheless for those employers who were applying the concepts in the ways that were intended, the 'fully on-the-job' programs provided some needed training for those pockets of small business for which there had not been any formal training.

School-based apprenticeships and traineeships

Students in schools are also able to enter a contract of training with an employer (often a group training company) while they are completing their formal studies at school. Typically such programs will require apprentices and trainees to spend a specified amount of time in the workplace or in a simulated workplace (for example, a commercial kitchen or vineyard attached to the school) and some time in formal off-the-job training delivered by a registered training organisation. Time in the workplace will be spent on workplace tasks; time in off-the-job training will be spent on knowledge or theory components.

Combining informal, non-formal and formal learning for accelerated completion

A major way to combine learning that happens in informal, non-formal and formal contexts is through recognition pathways. That is, using the prior learning individuals gain through experience in work or in other daily activities (informal learning) or in work-based or community-based structured training programs (non-formal learning), to identify training or learning gaps that need to be addressed to acquire formal qualifications (formal learning).

Such approaches are currently being used in programs for addressing national skill shortages in the traditional trades and community services programs. These go under the umbrella term of accelerated apprenticeship or traineeship programs. Combining off-the-job learning with that gained by extended periods in work is also used by professional associations in continuing development programs aimed at increasing the post-graduate qualifications and accreditations of professionals.

¹¹ The Department of Education, Training and Employment subsumed components of the current Department of Further Education, Employment, Science and Technology (DFEEST).

Current skill shortages (especially in the traditional trades and community and health services areas and professions) have required industry to look for alternative sources of workers. Typically they have looked at upgrading the skills and knowledge of workers who have been working in the industry for a good number of years and used recognition of prior learning assessment concepts to accelerate them through apprenticeships and traineeships.

In addition, different jurisdictions are experimenting with re-negotiating and reducing the duration of training contracts in the traditional trades. In other cases formal training is being re-configured to include longer blocks of up-front and alternated off-the-job training, and facilitating pathways to higher level qualifications. Helping mature-age workers to commit to a program of training (which may include substantial amounts of self-paced learning), and providing them with language and literacy assistance to engage in this form of learning are issues that will need to be addressed by providers providing learning for accelerated programs.

In appendix B we report on a number of examples of these accelerated arrangements. This information was collected and reported on in a study prepared for the Western Australian Chamber of Minerals and Energy (National Centre for Vocational Education Research 2006).

Learning bays

We can also learn more about innovative ways to combine formal learning with informal learning from the German learning bay model of training (Dehnbostel & Molzberger 2006). In two Daimler plants in Baden-Watenburg learning bays are spaces which are located in the middle of work processes for informal and formal learning. The production component (work resources, work tasks and machines) enable workers to engage in on-the-job learning. The learning facilities (for example, notice boards, and multi-media) enable workers to engage in formal learning activities. Trainers attached to the learning bay are generally skilled workers from relevant departments who act as facilitators for learning specific topics and skills. In doing so they provide a framework for teams of apprentices to work on tasks and also manage their own learning. The department hosting the learning bay is responsible for the cost of the bay. This makes sure that learning is integrated into work processes. The concept of the learning bay is also used for the technical skills training of existing workers. However, the duration of training for these workers lasts for about one or two days, whereas it lasts for about six weeks for initial training.

Decentralised learning arrangements

Other means for combining informal and formal learning for German apprentices (generally in the second year of training) has been called 'decentralised learning' (Dehnbostel & Molzberger 2006); that is, learning which is divided up to be undertaken by a number of small- and medium-sized companies, each specialising in a different area of training for an occupation. There may be a variety of ways that training is provided. First the learning is divided into work and learning tasks. In one model the apprentices learn all the processing steps for manufacturing a particular product in one company. In another model the apprentice will learn a set of these processes with different companies. In some cases this may mean that similar processes are repeated across companies. A third variant is for the apprentice to focus on a key process within each company.

Integrating work with learning

In integrating learning with work we shift the emphasis from the learner as student to the learner as worker. We also note that it often occurs in collaboration with work colleagues (Hager 1998).

Making learning an integral part of day-to-day work and finding ways to harness that learning and make sense of it is one of the most critical challenges that faces educators and managers in modern organizations. (Davis & Hase 2001, p.9)

Creating a culture for learning

Integrating formal, non-formal and informal learning into the everyday work lives of individuals is the main way to develop cultures of learning in organisations and contributes to successful learning (Dawe 2003). Marten (2007) notes that other main ingredients for promoting and nurturing a learning culture in organisations is commitment by:

- ✧ senior managers to promote learning through the allocation of sufficient resources for employees to engage in learning
- ✧ line managers to provide relevant on-the-job coaching and time and for employees to engage in required and desired learning
- ✧ individual learners to take responsibility for their own learning by seeking out and undertaking learning in formal, informal and non-formal environments, or a combination of these.

This means that senior managers must ‘walk the talk’ and be ‘tolerant of failure’ (Callan 2004, p.27).

Other means for integrating learning into the everyday work lives of employees is for organisations to ‘quarantine’ a time for learning, and to develop performance management policies which tie the performance appraisal system and associated rewards to desired changes in employee behaviours. Callan (2004) reports on how employees in the 3M company are encouraged to use 15% of their working week to work on projects of their own choice. They can apply for some start-up capital either from their own business manager or from the managers of other departments if their first request is denied. The company also has another source of funds—‘the genesis funds’—for which employees can apply when other applications for funds have failed.

Integrated work and learning programs

The concept of ‘work integrated learning’ is a variant of the ‘on-the-job training’ concept applied to apprenticeship and traineeship training (Murphy & Calway 2006). This is observed in formal programs for the initial acquisition of qualifications for the trades, associate professionals and professionals and the further development of skills after graduation.

Cadetships

Combinations of formal, non-formal and informal learning are observed in the operation of cadetships. Cadetships generally operate in trades, associate professional and professional occupations, and in the military where they signify entry-level military training leading onto more

advanced ranks. Cadetships often involve scholarships which pay for a component of the formal training and provide the required employment to give cadets on-the-job experience.

- ✧ The Smart Skills Initiative in Queensland has developed a new cadetship program. Designed to complement the traditional apprenticeship and traineeship system, this new learning pathway allows students to acquire higher level qualifications than through an apprenticeship, but still in a work-based setting. It combines the general and technical skills required to work as a para-professional in the targetted industries.
- ✧ The Australian Industry Group has recently implemented the Technology Cadetship to provide more efficient pathways for school leavers to enter technical occupations in modern manufacturing industries. It comprises a set of entry-level qualifications linked to on- and off-the-job training. The Cadetship arrangements are set out in a contract of training and employment like those used for traineeships and apprenticeships. The Technology Cadetship will initially be available at AQF certificate levels III and IV which will take approximately 12 months and two years respectively from start to finish. During this time, formal training will be undertaken through a registered training organisation, with the remaining time spent training on the job. These programs will result in a nationally recognised Certificate III or IV in Manufacturing Technology. Cadets have access to a range of pathways, with each pathway being sufficiently flexible to enable a customised package of skills to be developed which are available to meet the unique needs of individual businesses.¹² The Technology Cadetship will also be built upon in the future by expanding the coverage to a broader range of industry sectors and into schools.
- ✧ The Construction Industry Training and Employment Association (CITEA) in the Australian Capital Territory has also established cadetship programs in the areas of Contract Administration and Supervisor in Building Construction. Cadetships are also available for individuals who would like to go on to university. In their first year cadets will work in industry and attend training off-site for two days every three weeks. After 12 months they will move into their second year to gain their certificate IV qualification. In the third year they are able to do the diploma and the advanced diploma in construction management. This will enable them to get professional membership of a professional organisation, and move into a degree program, pay no higher education contribution scheme (HECS) fees, and be paid as they complete their education. There is also the opportunity for trade apprentices to undertake 12 months of the trade qualification and if they are selected, to move into the second year of the cadetship program (that is, into the certificate IV program). For those who wish to complete their four-year apprenticeship and get their trade qualifications, there is the opportunity for them to move into the cadetship program at the end of their training. If they are successful they can complete a trade, a diploma and an advanced diploma, and move into a degree program. They are able to acquire a residential building licence on completion of their trade and obtain a certificate IV qualification. They may acquire a commercial A class licence on completion of an advanced diploma.
- ✧ The former Department of Employment and Workplace Relations (DEWR) and participating agencies, including Customs, offer cadetship programs to Indigenous Australians to study at university and undertake work placements during holiday periods.

Internships

Commonly used for associate professional and professional occupations, such programs often (but not always) apply to individuals who have already commenced a program of formal study, and must support this theory and knowledge training with a period of supervised, practical work-based training. Although an internship is a mandatory component particularly intended for those

¹² The initial range of pathways are: CAD/Drafting, Manufacturing Operations, Laboratory Operations and Technical Officer. A new award, the Manufacturing and Associated Industries – Skills Development – Wages and Conditions Award 2004, has been ratified to cover employment conditions and pay rates for Technology Cadets. The Technology Cadetship will be expanded to certificate levels V and VI (diploma and advanced diploma), and may also articulate into Engineering Degree programs.

preparing to be medical practitioners, such programs may also be used by different businesses and organisations to recruit and develop required skills and knowledge. Typically such programs provide scholarships for completion of formal studies and employment.

✧ For example, the Citigroup NA and Salomon Smith Barney companies (belonging to the global Citigroup financial institution)¹³ have set up a fellowship program with the Hong Kong University of Science and Technology's School of Business and Management (HKUST). From the 2000–2001 academic year, 10 students from the undergraduate MBA program have been selected to join the Citigroup Young Fellows program. Here the Young Fellows are given opportunities to work in the Hong Kong offices of the two companies on work–study or summer internship arrangements¹⁴ <http://www.ust.hk/en/pa/e_pa001214-83.html>.

Continuing development for professionals

Work integrated learning for professionals is based on the concept that the individual who gains initial entrance into such an occupation is acknowledged to have gained the minimal standards of knowledge and skill required to practise in that profession. Murphy and Calway (2006) are of the view that professionals (especially in high-risk occupations) need to continually update their knowledge and skills to keep abreast of modern developments and to demonstrate that they have acquired higher level skills and knowledge. To this end they emphasise the combination of workplace experience (informal learning) with continuing education (formal learning) for the conferring of special professional status on individuals who can demonstrate compliance with the standards for technical skill and professional competency. In the main, there is a requirement for a minimum level of informal learning (generally, years of experience in the profession) and some extra studies in formal learning programs. Although these are distinct requirements they work in combination to acquire the desired status.

Action learning strategies

Action learning can be defined as a process in which a group of people come together more or less regularly to help each other to learn from their experiences (Revans 1980). The author's basic proposition is that we have two sources of learning. We learn from 'experts' and from thinking about our own (shared) experience. In this section we discuss a variety of ways that individuals can come together both to learn and to solve organisational problems.

'Communities of practice'

Wenger and Snyder's (2000) concept of communities of practice is useful in understanding how groups can come together to share information. Communities of practice are often self-selected and meet in informal spaces to discuss issues in which they have a passionate interest. For example, Wenger notes that they include 'a tribe learning to survive, a band of artists seeking new forms of expression, a group of engineers working on similar problems, a clique of pupils defining their identity in the school, a network of surgeons exploring novel techniques, a gathering of first-time managers helping each other cope. In a nutshell: 'communities of practice are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly' <<http://www.ewenger.com/theory/>>. Callan (2004) is of the view that such a concept can be harnessed to aid organisational innovation. He also believes that managers

¹³ Citigroup services 100 million consumers, corporations, governments and institutions in 100 companies with financial services and products, including consumer banking and credit, corporate investment banking, insurance, securities brokerage and asset management.

¹⁴ HKUST was established in 1991 and its full-time MBA program is the only Asian program to be ranked by the *Financial Times* as one of the top 75 business schools in the world. It also organises the largest international exchange program in Asia and has 60 participating business schools from Asia, Australia, Europe and North America.

interested in using the concept for organisational learning may need to identify the right people and to provide them with sufficient support.

Callan (2004) provides us with a variety of examples demonstrating how the communities of practice concept can be applied to enable VET practitioners to ‘share stories and learning and turn implicit understanding into more explicit knowledge which can be used to solve further problems’ (p.23).

Incubators

Similar to the communities of practice model but more formally structured is the ‘incubator’ concept of action learning. Here groups of employees will retreat to a specified space to concentrate on a specific topic both to learn more about new processes and to develop innovative ways for dealing with specific issues. Business incubators aim to help new businesses to start up and grow. The Australian Government funds the Building Entrepreneurship in Small Business Program to provide incubators with premises, advice services and support for a specified number of years, adequate for the business to be able to enter the wider business community.

Gold Coast Institute has established an incubator where teaching staff in clothing production meet regularly with representatives from clothing and surf-wear companies (including Billabong, Voodoo Dolls, Salty Tiger and Brothers Nielsen) to develop new ways to design and classify jobs to attract talented people and renew the viability of the clothing industry in Australia (Callan 2004).

Skills laboratories

The skills laboratory is another form of training that is used to develop the skills and knowledge of learners. This concept can be applied to the VET sector in terms of training workers for the community services industry (for example, personal care workers and enrolled nurses). One example of the skills laboratory concept currently being used for the training of existing staff and initial entrants is the Clinical Skills Laboratory of the Medical Education Program of the Queen Elizabeth Hospital (a major teaching hospital in Adelaide, South Australia)

<<http://www.tqeh.sa.gov.au/public/content/default.asp?xcid=141>>.

- ✧ The laboratory enables medical students and staff to learn and practise hands-on simulated procedures in a supported learning environment before they perform the same procedures in the real workplace. They are given feedback on performance and are given opportunities to reflect on their practice. The laboratory enables learners to practise on both real and simulated patients in learning situations. Simulated patients are volunteers who are part of the SPACE (simulated patients advancing clinical education) program and become important learning partners in medical education. They engage in interview role-plays acting out scripts to enable learners to interview patients or collect a health history. They may also allow learners to perform physical examinations, measure blood pressure recordings, or practise chest drain removal techniques. SPACE volunteers also engage in acting workshops which help them to perform in a manner which is consistent with others who are also performing a similar role.
- ✧ Similar to the skills laboratory is the hairdressing salon concept provided by many public and private hairdressing schools. Here the learners practise their skills of cutting, styling and colouring hair on real customers who pay a discounted price (compared with that charged by commercial businesses) for hairdressing services.

Quality circles

The ‘quality circle’ is another example of how groups of workers from across the company can come together to solve organisational problems and enhance learning. It became more popular when the quality movement of the 1980s caught the imagination of large corporations and they organised their staff to attend in-house training programs to prepare them for their roles in the quality process. Quality circles were one mechanism by which workers could have their say about how to improve work processes, products and services. Issues that exercised quality circle members

covered the gamut of organisational functions ranging from administrative processes for staff recruitment, selection and payroll services, through to product development, sales and marketing, distribution and customer services.

Recognising skills acquired through informal and non-formal learning

The formal recognition of skills and knowledge gained through informal and non-formal learning can help individuals enter, progress through and complete formal studies, obtain jobs and promotions, acquire formal professional status conferred by professional associations for specific occupations and, for migrants, acquire a skilled migration visa. Uptake of formal RPL processes continues to be low. Although we cannot discount the role of student preferences for learning things from scratch, researchers have noted the role played by overly bureaucratic systems presenting evidence to support claims for RPL.

- ✧ Various programs have been implemented to help those who have not completed their formal schooling to have their skills and knowledge assessed via RPL. For example the 'Life experience counts' program comprises a 17-hour flexible delivery course which uses a combination of formal structured training and more informal sessions to help participants identify their skills and experiences and prepare a portfolio they can use to show assessors for RPL assessments. They can then use the results of these assessments, if successful, to move on to further formal training.
- ✧ The Queensland Government's 'Skills First' (RPL) Program has implemented the Skilling Solutions Initiative to enable individuals to have their skills and experience recognised for full or partial qualifications. Here trained assessors (generally teachers from the technical and further education [TAFE] sector) sit down with individuals to develop customised plans for employment and skills recognition. They then refer these individuals to registered training organisations to have their skills formally recognised and to enrol in training to address any identified skills gaps. A \$200 voucher is given to applicants to pay for the RPL assessment.
- ✧ In 2002 the Senior Secondary Assessment Board of South Australia (SSABSA) implemented a Recognition of Community Learning Policy (SSABSA 2006). This is aimed at recognising learning that has occurred in community-devised accredited programs or personal learning programs which do not follow an organised program of study, and count towards the South Australian Certificate of Education (SACE). Students must complete the necessary application form and provide evidence of awards received and learning undertaken. Evidence of personal learning can be provided in personal learning interviews, portfolios and witness statements. Students are responsible for collecting the evidence to support their claim; however, they may obtain help from a teacher or mentor. The student will also attend a meeting with SSABSA assessors in which they will have to demonstrate knowledge, application, reflection and critical thinking.¹⁵

¹⁵ Personal learning includes the following activities: acting as the prime carer for an elderly person; learning from an elder about Indigenous cultural activities; planning and coordinating a series of community events; managing the family household; officiating at a series of sporting events; volunteering (Meals on Wheels, caregivers, mentoring, peer support, SA Country Service, Royal Life Saving Society Australia, St John Ambulance Cadets); community development (support—refugees); environmental (Trees for Life); activism (Amnesty International, Youth Parliament); community arts (cultural learning); self-development (Scouts Australia, Guides Australia, Duke of Edinburgh Awards, Australian Airforce Cadets, personal skills); independent living (community access skills); performance (Trinity College London, Australian Music Examinations Board, drama performance, dance performance, music performance, public speaking); sports skills and management (sports coaching, sports umpiring, sports performance, sports management); recreation skills and management (recreational pursuits; for example, chess, personal enrichment); event management; work skills and career development (learning in part-time work, workplace skills, workplace knowledge, workplace responsibility, career skill development, career planning).

Coaching and mentoring

There is general agreement that where workplace off-the-job training falls down is the lack of on-the-job support for practice of skills and knowledge learnt in formal or non-formal learning programs. Coaching and mentoring by supervisors, managers or more experienced work colleagues, are increasingly being adopted in organisations to support the learning acquired in more formal contexts.

Sometimes these terms are used interchangeably. For example, Billett, McCann and Scott (1998) define a mentor as someone 'who guides, supports and coaches in the workplace'. Whatever the definition used, both concepts are concerned with the provision of guidance and support to less experienced or knowledgeable others. Both are based on using the learning acquired in formal studies and non-formal training to help improve informal learning and performance on the job, and career development.

Coaching for career development

Coaching can be described as 'an ongoing process of helping people achieve results' (Development Dimensions International 1987). It can be used with ordinary employees as well as with executives.

- ✧ The Daimler Chrysler Corporation has implemented a Career Partnership program where talented university students, within two years of completing their courses, sign an agreement with Daimler Chrysler to become junior members with the company. In return the company promises them a job with the company after graduation and a personalised career development program. A Daimler Chrysler executive is appointed as a career coach and acts as a personal mentor identifying specific learning opportunities including training in communication and presentation skills and conflict management and negotiation. A personal development score card is kept by the career coach to monitor the individual's progress. A Career Day is also organised where junior members have the opportunity to meet with top executives in the program. Once the junior member has completed the internship he enters senior membership phase where the career of the individual is further supported by access to regular feedback on performance and special training.
- ✧ Coaching for executives (also known as professional coaching) also applies the coaching concepts used with ordinary employees. However, professional executive coaches are generally external to the organisation, and are employed directly by the executive seeking the coaching. Less often they are employed by the organisations to provide a set of coaching services and support for executives. This external locus of professional coaching provides executives with relative freedom to discuss issues that concern them about their own companies, and helps to develop an environment built on openness, confidentiality and trust. There is generally no reporting back to management about the work done in coaching sessions (Abbott et al. 2006). A South Australian variant of professional coaching is observed to some extent in the services provided by the CEO (Chief Executive Officer) Institute, which provides a combination of non-formal and informal training for managers and executives of South Australian businesses <<http://www.ceo.com.au/188.html>>.

Mentoring

Mentoring is often associated with the act of providing guidance, assistance and informal support to less experienced work colleagues and new employees. Support for this notion of mentorship is supported by Spencer (1999, cited in Rolfe-Flette 2002) who distinguishes the mentor relationship from other forms by noting that it is based on encouragement, constructive comments, openness, mutual trust, respect and a willingness to learn and share. Billet, McCann & Scott (1998) call this form of learning 'guided learning'. Although an individual may provide such support to a group of individuals, typically it is a 'one-on-one' arrangement.

- ✧ There are many ways that companies decide to implement such formal mentorship programs. Typically a formal program (often voluntary) is established at corporate or departmental level and a request is made for willing and more experienced staff to become part of the program. Less experienced employees are also asked to join the program and are matched to one of the staff who have the skills, knowledge and attributes that they seek. Once the relationship is set up it is up to the participating pairs to conduct regular meetings. Such arrangements have varying levels of success and partners must apply considerable effort and time to keeping the partnership alive. Details on a mandatory mentorship program for beginner teachers in the State of New York and a specific mentoring program for women in the information technology industry are provided in appendix C.
- ✧ Graduate programs aimed to attract and retain talented individuals (often graduates just out of university) represent a different variant of formal mentorship programs. For example, AXA Australia <http://www.axa.com.au/axa/axa.nsf/Content/AboutAXA_RecGrad> has a three-year graduate program and rotates graduates through different parts of the business every six months (12 months for those training to be actuaries). Training plans that are customised to the individuals aim to help graduates progress through the organisation. Fortnightly meetings with leaders across the business are set up to help graduates improve business skills and insights and share in their experiences.

Although mentorship is especially used in workplaces, it is also used to achieve social justice in terms of breaking cycles of disadvantage organisations by providing individuals from disadvantaged groups with support, guidance and assistance.

- ✧ The 'Big Sister' and 'Big Brother' mentoring programs aim to re-dress social disadvantage among young people in the United States. Key to the success of any such mentorship program is the development of relationships based on trust, confidentiality and respect (Volkoff & Perry 1995).
- ✧ In Australia mentorship programs have also been used with students in secondary schools and especially with those from disadvantaged areas. Choi et al. (2001) report on a mentorship program involving the DHL worldwide express company and secondary school students from a high school in a low socio-economic and high non-English speaking background area in Sydney. The company sponsors two mentoring programs: a 10-week program for Year 10s (the 10-UP program) and a nine-week program for Year 9s (the 9-UP program). It matches students to mentors from the DHL company on the basis of an application completed by students. The aim of the program is for students to learn about different career directions and for mentors to share their particular expertise and knowledge. The program has been successful with students developing skills for using different computer packages and gaining vocational placements with organisations of their choice.

Benefits and concerns

There are learning and social benefits for all participants in coaching or mentorship relationships whether the relationships have been engineered at the corporate level or have evolved informally. The coach and mentor acquire intrinsic rewards from being able to provide advice and support to more inexperienced and often younger workers. They develop skills in communication and leadership. The individual being coached or mentored develops required job skills and knowledge

and extends personal networks and support systems. This in turn helps to increase confidence, self-esteem and personal growth.

Despite these benefits there are also some concerns in coaching and mentoring arrangements that do not have in-built special arrangements to support the relationships. They can fail if the type of guidance and strategies used do not meet the workplace requirements, both parties have not been adequately prepared for their roles, and enough time is not devoted to the relationship (Freedman & Baker 1995; Billett, McCann & Scott 1998) They can also fail if there is no identified individual (a coordinator) charged with preparing coaches and mentors and ensuring and monitoring program progress. Such up-front preparation and ongoing support for coaches and mentors can take the form of self-help groups where mentors share experiences and discuss successful solutions to shared problems. Coaching or mentorship programs between organisations and schools may need such a coordinator to broker mentorship relationships and to ensure that partners show up to meetings.

Keys to success

The success of any coaching intervention is also dependent on the personal attributes and professional expertise of the coach. These have been identified by Chapman, Best and Casteron (2003, cited in Abbott et al. 2006). These include skills in self-management, communication and interpersonal relations, technical expertise and breadth of experience.

The characteristics of effective workplace mentors are also similar. In their in-depth study of six organisations Billett, McCann & Scott (1998) note that effective mentors require:

- ✧ expertise and credibility in the specific work area (that is, they must possess valued knowledge to pass on)
- ✧ understanding of what is required for successful performance
- ✧ valuing the activity of mentoring and what it can deliver for mentees
- ✧ willingness to share knowledge with the learner
- ✧ acting as a guide rather than a teacher (that is, they should let the learner do the thinking and the acting).

Diversifying jobs and career pathways

Regularly altering the structure of jobs and rotating individuals through different jobs has been found to be a major way for organisations to develop innovation and to extend the learning of their employees (Denhardt & Denhardt 2002, cited in Callan 2004). This is because people who move around the organisation are more likely to bring a different perspective to the way that things are traditionally done. However, organisations also deploy a variety of non-learning solutions for ensuring they have adequate skills to perform required work processes. These include hiring temporary workers to fill a skills gap or vacancy, hiring contractors (particularly used for information technology functions) or workers from labour hire companies.

Job redesign

Redesigning the structure of jobs by expanding the number, variety and complexity of tasks is another way of promoting learning in the workplace (Van der Klirnk & Streumer 2006). However, redesigning the structure of jobs to decrease variety and complexity (often associated with the introduction of automated equipment and machinery) may actually reduce learning and employee motivation (Bernhardt 1999).

Efficiency, enrichment, human relations and continuous improvement

A history of the evolution of what has been and is currently considered to be good job redesign practice is provided by Bratton (1999). It is useful here for showing us that many tried methods for organising work continue to be important for some work processes today.

- ✧ Beginning with the concept of the appropriate division of labour which materialised in the factories of the industrial revolution in Britain in the 18th century, Bratton also traces for us the emergence of Frederick Taylor's scientific management approach to job design (based on the efficiency of job fragmentation) through to Ford's adaptation of these principles in the assembly line, common in car manufacturing companies of the 20th century.
- ✧ Concern for improving the human aspect of work was to gather momentum in the 1960s and 1970s and focused on ensuring that jobs provided workers with challenge, responsibility, task variety, self-regulation (especially with regard to speed), and cooperation and social interaction among workers.
- ✧ The 1980s saw a focus on total quality control and team approaches characterised by Japanese approaches to work organisation. Here the work team assumed responsibility for all processes related to a certain job and each worker or operator in the team was individually and jointly responsible for the quality of the product. During this period there was a focus on developing 'just-in-time' technology to minimise stock levels.
- ✧ In the 1990s the focus was to ensure that companies were able to respond to constantly changing technological and economic environments. They did this by giving core employees responsibility for creating value for customers which translates into profits for employers.

Each of these movements brought a different emphasis to the role of workplace learning. Where the design of the job did not require any extra thinking or responsibility on the part of the worker, then the importance of further learning to perform the job was of less importance. Where the

worker was required to have added responsibility for monitoring the quality of his products and services then the role of workplace learning for developing suitable skills and attributes becomes more important.

The problem with this neat depiction of how the approach to job redesign has evolved over the centuries and recent years is that approaches which are commonly thought to have died out long ago continue to thrive in today's workplaces. Bratton is of the view that 'with some modifications, Taylorism and Fordism still seem to be the predominant approaches to job design in most establishments, particularly in large-batch production industries' (p.489).

✧ Welders in a Japanese firm have collaborated to develop Taylorist-type procedures to avoid re-work and meet deadlines. Although this may be considered to lead to a de-skilling of individual workers because it has structured the job so that no errors are made, it can also be considered an example of workplace learning where welders looked for a solution to a work process which was interfering with the successful implementation of just-in-time practices (Conti & Warner 1997).

Cross-skilling and multi-skilling

Job redesign resulting in the 'creation of environments which allow for substantial horizontal, cross-boundary activity, dialogue and problem-solving' is crucial to workforce development (Fuller & Unwin 2004, p.136). It is based on a 'broader multi-dimensional view of expertise' which does not locate knowledge and skill solely in the hands of experts but promotes a view of learning based on the sharing of information between different functions and levels. Fuller & Unwin's model is a more broad-based approach to skill development which also provides us with examples of how to go about upgrading skills through cross-skilling and multi-skilling.

✧ A Swedish steel trading company with some 80 employees invested in management development and customer service training for its employees. To extend the specialist product knowledge of sales staff the company decided to rearrange the way work was organised. Sales staff were now expected not only to sell a few specialist products but sell all lines of company products. To enable them to learn all the features of the new products their jobs were redesigned, and work stations rearranged in circles to enable easy sharing of information between employees. Interviews with these staff found that although they had initially been a bit anxious about losing their expert status they had extended their knowledge and speciality through collaborative problem-solving.

There is also a downside to job redesign strategies especially if they result in less rather than more learning. Bernhardt (1999) examines how the introduction of just-in-time concepts for production and recording in the retail industry (enabled by the automation of machinery and advances in information technology) has simultaneously expanded the complexity of jobs of employees charged with development of these processes, and decreased the complexity of jobs for those who are in the front-line of providing customer services; that is, sales assistants in no-frills retail outlets and fast food stores. However, she acknowledges that not all retail sales jobs have suffered in a similar way. Job redesign has actually expanded the complexity of jobs for sales assistants in up-market fashion stores. Here the introduction of new and immediate information transmission processes are used to individualise services for high paying customers, in terms of letting them know when suitable products have arrived.

Job rotation

Job rotation is used for exposing new employees to the various branches of the organisation. It is especially valued in small companies who need to make sure that employees can provide the range of services required (Mawer & Jackson 2005). Although also used with regular employees, such approaches are especially engineered in programs which are aimed at recruiting and retaining

talented graduates. For example, many organisations that establish graduate programs want to vary experience and intensify the graduate's understanding of the different aspects and work processes of the organisation. Typically they will recruit graduates and rotate them (say for periods of six-months or more) through the different branches. When they are in these branches they are expected to integrate into the branch by assuming the specific work roles undertaken by other members of the branch. Once their rotation periods are complete graduates will have extended their understanding of the different organisational processes and take up more permanent positions in selected branches <<http://www.ausaid.gov.au/recruit/graduate.cfm>>.

Diversifying career pathways

In many organisations employees who want, and are selected for, advancement move into generalist senior management positions. In big bureaucracies career public servants may move into top positions whether or not they have had extended experience in the particular department that is involved. In such departments one will see managers move from departments dealing with the health of the nation to departments dealing with correctional services or education.

Callan (2004) reports on how the 3M company has diversified career pathways to provide equal advancement opportunities for those who want to remain in technical positions and those who want to move into more generalist management positions.

Using new technologies in compliance and workplace training

The introduction of advanced technologies and science including information and communications technologies, just-in-time technology, bio-technologies, medical imaging and other scanning technologies has affected the way work gets done in a majority of new and traditional industries (table 1). Advances in information and communication technologies has also expanded the sharing of information within organisations and externally, and has promoted the use of e-business as a way for governments and corporations to interact with customers.

These advances have increased the need for workers, especially those whose everyday work requires high-level interaction with these technologies, to keep abreast of changes, and to add to and update their pool of skills and knowledge. Especially important is ‘continual retraining in new technology and related products’ and skills in ‘developing online relationships with customers and other businesses’ (Department of Education, Science and Training 2006). Increasingly these technologies are also being used for learning in all its forms and especially in e-learning programs.

Table 1 Technological changes in different industry sectors

Agrifood	Inventory and stock control, online distribution of products, online betting in the racing industry, website advertising
Community services and health	E-business services, for example, via Healthconnect
Construction and property	Changes to materials (concrete, metal precasting, alternative wood products), management methods (subcontracting, prefabrication and project management tools), innovations (robotics, computer aided design and electronically linked international project teams)
Electro-technology and energy utilities	Increased demand for entertainment products and energy. Immediate transmission of information via Smart Billing Processes
Infrastructure	Increased use of advanced computer graphics and computerised programs for administering personnel functions and contracts
Innovation and business	Digital technologies, online transactions, e-business
Manufacturing	New inventory control systems, quality control systems, computer aided design, ongoing automation
Resources	Increased automation of handling and processing, new exploration and drilling technologies and changed work practices
Services	Global communication networks and supply chains, online ordering and purchasing of goods and services (including flights, tours and accommodation), scanning technologies, just-in-time transmission of information on stocks and cash flows
Transport	E-business applications being used across commercial transactions, business and supply chain management and in service delivery

Source: Department of Education, Science and Training (2006).

Increased automation

In table 1 we see that that the automation of manual processes has been pervasive across most industries (especially the retail industry) and has speeded up formerly labour-intensive tasks or processes. It has also increased the skill levels and knowledge required for workers in research and development, marketing and management. In the retail industry major corporations have focussed

on the development of the management skills of trainee managers. To this end they have also established specific training organisations to deliver nationally accredited formal training.

However, increased automation (including scanning technologies enabled by the development of product bar-codes) has not made the work of sales assistants (especially in supermarkets and no-frills retailers and fast-food outlets) any more rewarding or challenging, and may have made 'an already monotonous job even more so' (Bernhardt 1999, p.27).

E-learning

Expansion of information and communication technologies (including the internet and company-specific variations of this application) has enabled organisations to combine formal, non-formal and informal learning approaches in new ways. It has also opened up channels of communication (including email, chat-rooms, discussion forums, and interactive websites) between different departments and levels of employees. Providing opportunities for all employees to make use of such channels of communication (either to share information among each other or with management) can also help in the development of innovative practice and workplace learning for both individuals and the organisation. The open sharing of information between employees and senior managers is especially evident in the 'speak-up culture' promoted in the Virgin group of companies (Callan 2004).

Case studies of organisations providing e-learning for their staff (including for compliance training) conducted in 2004 by Misko et al. (2004) found that the availability of online technologies has made it possible for workers to undertake learning (formal, informal and non-formal) at times and at locations that suit their work obligations and social commitments. This means that workers can engage in learning at their workstation during work time or work breaks, and at home. It has allowed organisations to deliver non-formal company training to customise their delivery to the learning needs of individuals. Moreover, it has enabled companies operating in highly regulated environments (like the financial and airlines industry) to use e-learning as a key means for ensuring that all employees who provide relevant services remain compliant with the legislation. Nevertheless it is important to note that e-learning on its own is rarely used and that organisations ensure that independent online learning is often preceded by a suitable period of non-formal learning in induction sessions.

✧ QANTAS College Online is the training arm of QANTAS Airways. It enables staff to develop technical and interpersonal skills and knowledge required for legislative compliance, job performance and relating with work colleagues and customers. Staff may engage in self-paced, online short courses and more traditional classroom-based courses supported by internal and external tutors. Key to the success of the online approach is its ability to reach great numbers of workers who need to remain compliant with specific standards. Major drawbacks of the self-paced online approach for the organisation relates to the cost of giving all employees ready access to a computer, and ensuring that course content remains current and relevant and the display engages learners. For individuals it is maintaining the motivation to complete the course, and having adequate levels of language and literacy to participate in training.

Whether e-learning is stand-alone or blended with other forms of learning, it requires:

- ✧ easy access to computers, the internet and email and technical support personnel
- ✧ minimal time in firing up computers and downloading information
- ✧ timely feedback from trainers, and
- ✧ adequate language and literacy skills to participate in learning.

Conclusions

In this review we have been basically interested in the different ways that formal, non-formal and informal learning are and can be combined to provide effective skill development. This is particularly relevant today in societies like ours affected by workforce ageing and declining cohorts of young workers. Current skill shortages in the traditional trades and also in health professions provide us with a reason for developing and accessing alternative sources of skills. One response is to explore how the different forms of learning can be combined to accelerate the completion of training and required qualifications and licences.

However, it is also important to note that it is not various combinations of formal, non-formal and informal learning that will always ensure that appropriate learning takes place. Rather it is the alignment of form to function and the opportunity for learners to put any learning into practice.

Key findings

Our review of the literature indicates that formal, non-formal and informal learning tend to be used both separately and in various combinations¹⁶ to provide organisations and new and existing workers with required and desired skills and knowledge. Bearing in mind that informal learning (that which happens on the job) is the most common of the three forms of learning, organisations typically use non-formal learning provided by in-house trainers or external consultants to introduce new ways of working or improve knowledge and skill. In addition, increased access to internet and information and communication technologies has accelerated the speed of communication between learners and trainers within and between organisations. It has also generally provided easy access to a vast array of learning resources.

Combinations of off-the-job and on-the-job learning arrangements

The most popular form of combining formal and informal (and at times non-formal) learning is observed in apprenticeships and traineeships, now also available to secondary school students in Australia. Here learners will supplement the theory and practice provided in formal off-the-job and on-the-job training with knowledge, skill and experience acquired in work. In some cases learning acquired through non-formal situations may also be used to support claims for applications for necessary licences and entrance to certain jobs (for example, first aid certificates used to satisfy occupational health and safety legislation).

✧ In some programs apprentices and trainees may access both knowledge and theory (usually provided off-site in training institutions) and learning on the job without having to leave the work site. These ‘fully on-the-job’ programs provide good examples of how formal and informal learning can be combined to lead to the same outcomes. Nevertheless there have been a number of critics of the ‘fully on-the-job’ concept in terms of it limiting access to a wider range of skills and knowledge and interaction with peers from other organisations.

¹⁶ More common for regular workers is the combination of non-formal learning with on-the-job practice. For apprentices and trainees it is the combination of formal and informal learning that is most common.

- ✧ A key approach to workforce skills development to meet current skills shortages in the traditional trades (but also in the community services sector) is to accelerate the completion of training and qualifications. Typically this involves the recognition of skills of existing workers through formal RPL mechanisms and to provide formal training to address any skill gaps. Intensive up-front formal training followed or alternated with blocks of on-the-job experience is also used for acceleration, as is renegotiation of the duration of contracts.
- ✧ An innovative approach used for apprenticeship training in Germany has been the learning bay. Here a space for learning is created next to a specific function area. This space is equipped for on-the-job and off-the-job learning.

Work integrated learning

Much has also been written about the need for organisations to develop a culture of learning often exemplified by integrating opportunity for learning in the everyday life of workers. We have noted that such a culture of learning can only be possible if senior managers and line managers provide support in terms of resources and time for learning, and individuals themselves take up the opportunities provided. The integration of ‘doing’ with ‘learning’ happens in a variety of learning arrangements.

Cadetships and internships

Combination of formal, non-formal and informal learning is observed in the operation of cadetships and internships, often used for learners preparing for occupations in the trades, professions and associate professions. Such programs (especially in business and industry but also in the military) are also often used to recruit employees (often talented university students who have already completed part of their training or graduates). Organisations will typically pay for a component of formal training and provide the required employment to give learners on-the-job experience. An internship is a mandatory component for those preparing to be medical practitioners. Key to the success of such programs is the extended on-the-job experience that cadets and interns obtain in a supervised environment.

Action learning

Our review has highlighted the variety of ways that organisations integrate learning into the work life of individuals. Approaches which are associated with the concept of action learning are common. Here individuals come together in groups to discuss organisational issues and develop recommendations for action. They can be organised around quality improvement initiatives, or established to provide support and encouragement for users of particular technologies and products. Such groups are identified in our review as:

- ✧ communities of practice, often characterised by a common passion for a particular issue
- ✧ quality circles, aimed at improving the quality of products and processes
- ✧ incubators, where learners get together to come up with innovative products or services
- ✧ skills laboratories, which allow learners to practise skills in simulated environments before being expected to apply such skills in the real workplace.

Formal recognition practices

Formal recognition of learning that happens in informal and non-formal contexts (RPL) can be used to open up pathways to qualifications, and especially to accelerate apprenticeships in areas of trade skill shortages. In some cases (especially in the VET sector) these can be used to gain full qualifications. RPL has also been used with a number of student and community groups. Nevertheless uptake of formal RPL processes continues to be low. Although we cannot discount the role of student preferences for learning things from scratch, researchers have noted the role played by overly bureaucratic systems presenting evidence to support claims for RPL.

Coaching and mentoring

Although these terms are sometimes used interchangeably they generally relate to providing guidance for workers who need or desire to develop required skills and knowledge. The lack of such guidance is often used to explain why a lot of learning that happens in non-formal and informal concepts is not transferred to the job. Such forms can be formally structured arrangements or informal relationships between individuals. The coaching relationship is typified in the training of elite sportspeople and teams. In organisations it is used for the purposes of skill development and career advancement for regular employees and executives. It is also used to help re-dress economic and social disadvantage by helping such groups to make best use of opportunities and personal skills. Key to its success is the sharing of mutual goals, and the effort and time applied by both partners to making it work.

Mentoring is typically a voluntary relationship between the mentor and the individual being mentored. Nevertheless we have also documented a mandatory mentorship program aimed at improving the skills and knowledge of beginner teachers in the state of New York. Although mentorship is used in workplaces or across industries it can also be used in the community and in schools to address social disadvantage.

Successful coaching and mentorship programs are based on the development of trust, confidentiality and respect. The time spent in mentorship meetings and the skills and expertise of the mentor are especially important. Bearing this in mind it is also important to involve would-be coaches and mentors in professional development programs to enable them to acquire the skills to undertake their roles.

Diversifying jobs and career pathways

Our review has also found that organisations may diversify jobs and career pathways to develop innovation, extend learning and reward employees. The typical approaches are to:

- ✧ redesign jobs to enable employees to experience different organisational functions
- ✧ rotate individuals between jobs to enable them to get a full understanding of the mission, roles and responsibilities of each branch (typical in graduate programs)
- ✧ cross-skill or multi-skill workers so that they are able to perform a range of activities within the same job or across jobs (typically used in small business where people have to cover for each other).

Organisations may also restructure career pathways so that workers can advance in careers without having to follow the typical path to senior management. Instead they may be promoted in pathways which enable them to keep their specialist capacities.

Using technology for compliance and workplace training

We have also highlighted the increased use of information and communication technologies in all forms of learning and across industry. Online learning has been found to be especially useful for compliance training, namely because it helps to demonstrate that organisations have provided necessary information for employees. Nevertheless it is important that trainers make sure that individuals have actually logged onto the site to undertake the compliance training required and to update content to ensure currency with changes to legislation. The use of the internet has also been especially useful for providing learners with a vast array of resources, and with a speedy communication channel to trainers and other learners. Although there are courses which are delivered fully online there is an increasing trend to use online learning in combination with other forms of learning. Whether e-learning is used independently or in combination with other forms of learning its success depends on users having easy access to the technology, and to technical and learning support and feedback.

Concluding remarks

It is clear that companies use a range of strategies for developing the skills of their workers. This includes using formal, non-formal and informal as stand-alone approaches or in various combinations. However, in the long run businesses will make their choices according to their own evaluations of what will suit their particular companies or strategic directions at the time that learning is required, and the extent to which they can release workers to engage in learning (shown to be far more difficult for small business). Unless required or mandated to undertake learning individuals will make their own decisions about whether or not they do so. They will also suit themselves about the types of learning they choose.

Keeping in mind that organisations tend to provide learning opportunities for permanent staff over casual staff (and especially if it comes at a cost) it is important to find alternative ways to provide casual workers with opportunities for learning. It is also clear that workers who already have high levels of education are far more likely to participate in formal learning than those with limited education, while those with limited education participate far more in informal or on-the-job learning. Why those with lower levels of education continue to participate at much lower rates in non-formal and formal learning may be explained by their lack of language, or numeracy and literacy skills. Providing workers with access to these basic skills seems to be critical to workforce skill development in an environment where the main aim is to broaden the pool of suitable workers.

The recognition of prior learning has recently been used to address current skill shortages. However, it is also clear that having the practical skills and knowledge to perform a job may not always be accompanied by the ability or commitment to the self-paced learning often required to fast-track the completion of theory components. Helping individuals deal with issues will also need to be a priority for providers interested in delivering training and assessment for accelerated apprenticeships.

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Appendix A:

Evidence on workplace training

In analysing responses to the 1997 Survey of Education and Training in which employees provided information on the type of workplace training they had undertaken Richardson (2004) found that workers:

- ✧ with higher qualifications were the most likely to engage in non-formal and formal training
- ✧ who did not complete secondary school had only a one-quarter likelihood of participating in external training sponsored by employers than do those who already have degrees
- ✧ who do not complete secondary school are far more likely to engage in on-the-job training than those with degrees
- ✧ in the public sector receive more hours of training than do those in the private sector
- ✧ aged 25 years and under were far more likely to receive on-the-job training, than those aged 60 years and over (80% and 45% respectively)
- ✧ from higher occupational skill levels (professionals and associate professionals, followed by managers and administrators) spent more hours in training.

In terms of industry differences Richardson also notes that:

- ✧ Finance and construction have a high rate of general training for new workers but much less for experienced workers.
- ✧ Agriculture offers very low levels of both general and firm-specific training.
- ✧ Recreation and communications offer low levels of general training to new workers but quite high levels of firm-specific training.
- ✧ Public administration offers average levels of general and firm-specific training.

Appendix B: Examples of accelerated apprenticeships

In this appendix we report on a number of examples of accelerated apprenticeship arrangements. This information was collected and reported on in a report to the Western Australian Chamber of Minerals and Energy (NCVER 2006).

- ✧ The Job Network agency is used to identify NSW mature-age workers, including migrants, who have demonstrated experience and skills related to the engineering trades of engineering mechanical and engineering fabrication. Participants are given RPL assessments to identify competencies already acquired and any gaps that need to be addressed. They are then placed in a 16-week up-front training program where intensive gap training occurs. This comprises their first year of the apprenticeship training program. They are then placed with employers for the second and third years and can then be signed off after the third year if they have completed the required competencies.
- ✧ The TradesStart at TAFE initiative includes new entrants, who commence in a pre-apprenticeship program and undertake 16 weeks of full-time up-front training accompanied with work placements in industry. Credit is negotiated centrally with industry representatives. Those who complete the pre-apprenticeship program receive agreed credit up to 12 months off the nominal term of apprenticeship training and the equivalent of Stage 1 of the relevant AQF trade qualification. In this way they complete Stage 1 of the apprenticeship in their trade (credit arrangements range from four months in the case of electrical apprentices or 12 months in the case of engineering apprentices—see <<http://apprenticeship.det.nsw.edu.au/html/advins/ats04010.htm>>).
- ✧ There is also another variant of the project being delivered for the building industry and targeted at disadvantaged youth (especially Indigenous youth) at South Western Sydney, Miller campus. In this program the NSW Department of Housing has contracted the school to build housing commission homes. Although students in these programs are not apprentices, they will work under supervision on the building of the homes. Once they finish this they can enter the apprenticeship at the second year. They will then be able to complete the apprenticeship in three years.
- ✧ The Xstrata company has two apprenticeship streams which are customised for its business needs. These are for the training of its electrical and mechanical apprentices. The mechanical apprentices are divided into two streams and will train to become plant mechanics and Xstrata mechanical tradesmen. The Xstrata mechanical tradesmen will be trained to undertake mechanical operations in underground workshops and environments. The Xstrata mechanical tradesperson will spend one day at TAFE and four days at the Hunter Valley Training Company for their technical and off-the-job training. Apprentices will go to the mine site during their holiday breaks to get experience in the mine workshops. In their second and third years the apprentices will rotate from their home sites to different sites to get a broad range of experience. This includes open-cut and underground mine sites (except for coal preparation which has no apprentices). During this time apprentices will also undertake work placements with external suppliers (including WESTRAC and Original Equipment Manufacturing). In their fourth year they will remain at the home site. The value for Xstrata is that they will end up with a mechanical tradesperson who has specialised in fitting and machining, fluid mechanics, hydraulics and fabrication.
- ✧ The Individual Pathways Group was initiated in 2004 at TAFE NSW Sydney Institute's Petersham campus and two local councils (Leichhardt and Marrickville) to explore the viability of accelerated training for child care workers with experience. It was based on the application of

RPL. The acceleration was applied by having many of the modules required for the diploma being assessed only in the workplace. Some modules required self-paced learning using flexible learning materials and combining this learning with workplace assessment. There were other modules that required students to attend classroom training.

- ✧ Automotive apprentices with Commercial Motor Vehicles (CMV) in Victoria sign a four-year contract with their CMV employer. A typical program will bring the apprentices in for an eight-week induction course with one week spent on occupational health and safety training and the rest of the time spent on units of competence that have been selected in conjunction with Kangan Batman TAFE. These units of competence are especially relevant to the manufacturer and the CMV training centre will deliver these on TAFE's behalf. These will include units dealing with transmission, engines and electrics, electronic drive management and semi-automatic gear box. After the first eight weeks the apprentices will go to dealerships with which they will remain for the next three years (unless there is an exceptional circumstance and the arrangement needs to be changed). They will then return every six weeks to the training centre for one-week blocks of training throughout the three years. When apprentices have completed the three-year program and they are judged to be competent to industry standards, application for early sign-off is made. By June 2006 most of the apprentices in the program will be on target to be signed off after the three years.
- ✧ The Queensland Government's Smart Skills Initiative includes accelerated apprenticeships and a new cadetship system. Under the accelerated apprenticeships program about 19 projects are being implemented to trial the delivery of qualifications in shorter than nominal durations. Among these are pilot programs in building and construction, mining, manufacturing, and engineering. The aim is to fund 182 apprenticeship places each year over three years. A variety of models are applied; however, the main strategies used are:
 - ◆ intensive up-front training
 - ◆ expansion of traditional pre-vocational training to deliver the off-the-job components prior to work placement to enable would-be apprentices to be work-ready once they move into industry, and
 - ◆ RPL and associated gap training for existing workers so that they can move into advanced stages of the apprenticeship.
- ✧ The fast-track approach in Western Australia gives mature-aged people with industry experience the opportunity to have their current skills formally recognised through an approved apprenticeship program. Swan TAFE at Thornlie campus has employed a specialist workplace assessor (a boilermaker who has owned his own business for 20 years) to undertake RPL assessments for their engineering programs (including that for boilermakers, fitting mechanics, electricians, fitting machinists, welders etc.). Once an existing employee has been identified for the 'fast-track apprenticeship program' the assessor will go out and assess the apprentice on the job for the purpose of allocating some RPL credits. To obtain RPL for workplace competencies apprentices must provide evidence to substantiate the claims for RPL. This can be done by having a nominated person in the workplace take photos of the apprentice doing his job, or by providing references or testimonials from employers, work samples, videos or photographs of work, on-the-job assessments, written assignments, reports, relevant course certificates, letters of support from previous employers, performance management records, and pay slips or other records of employment. The training provider assessor will question the apprentice about how they have approached a certain task. The assessor will also observe how the apprentice goes about completing a task and using different forms of equipment. Once the apprentice has been assessed and any RPL credits awarded, the apprentice is placed into a Stage 1, Stage 2 or Stage 3 class of apprentices. From then on he or she is treated like any other apprentice.
- ✧ In South Australia the Commercial Motor Industries (CMI) Toyota fast-track apprenticeship started off in 2003 with the opening of its Technical Training Centre. Apprentices in this program sign on for a nominal duration term of four years. They will undertake 12 months of up-front training in the Technical Training Centre and TAFE. The Technical Training Centre is dedicated to the training of apprentices in the standards required to meet occupational health and safety conditions, workshop practice, Toyota-specific skills and knowledge, and personal presentation. The Technical Training Centre also supports, with supplementary information and

practice, the training that apprentices undertake at the TAFE college. During the first year the apprentices will complete the core modules which represent the first and second years of off-the-job training. During the first 12 months apprentices will spend six weeks with a Toyota dealer that is closest to their home. During their second year they will complete the third year off-the-job program and will work full-time with a dealer. They will also attend the Technical Training Centre to supplement their TAFE training, and Toyota to undertake the Toyota Recognition program. During their program the competencies of apprentices are checked off in their competency-based training log book. For example, the signing off of competencies achieved will include feedback from the:

- ◆ workshop leading hand, to confirm that the apprentice did not require assistance in demonstrating the competence
- ◆ workshop controller, to confirm that the apprentice has written up the job card appropriately
- ◆ customs relations officer, to confirm that no complaints were reported about the apprentice's work, and
- ◆ technical training manager, to indicate that the apprentice has met all the audit requirements.

Once the apprentice has shown that all the competencies have been met to industry-level standards of a tradesperson then his apprenticeship will be signed off early. To date there has been one apprentice who has been signed off after 2 years 7 months and 12 days, another after 2 years 9 months, another after 3 years, and the remainder will be signed off when they become ready.

✧ Apprentices in the construction industry (carpentry, wall and floor tiling, plastering, painting and decorating, brick and block laying, and plumbing) in the Australian Capital Territory sign a four-year contract, which can also be accelerated. On commencement carpentry apprentices employed by the Construction Industry Training and Employment Association (CITEA) group training company will be involved in eight weeks up-front training. During this time they will undertake the necessary preliminary knowledge-based units in a simulated environment, and 80 hours of life skills training.¹⁷ They will also get their Senior First Aid Certificate and the occupational health and safety competencies required to get their blue card for permission to work in the industry. At the end of this period they are sent out to host employers, and then brought back to the training centre in one-week blocks over the remainder of the first year. During this time they will have completed the units of competency normally completed in Year 1 and Year 2 of the apprenticeship. In the second year apprentices will complete the units of competency usually done in Year 3 of the apprenticeship. They will come to the training centre for blocks of eight weeks during this second year. This training will include building complete houses, stairs or other things in groups. In between blocks of training apprentices will go back to their employers to consolidate their learning. A field officer will visit apprentices to sign them off (if they have achieved all the competencies). A typical apprentice who has achieved their competencies in this way can be signed off after three years.

✧ The Master Builders Association Group Training Scheme in the Australian Capital Territory also implements the competency-based training approach to training to sign off apprentices once they have achieved all the required competencies. Their program for bricklaying apprentices comprises up-front intensive training in theory and practical skills for the first three months. By this time they are able to lay 150 to 200 bricks a day. They will then go out into industry for six to seven months and will then come into the training centre to complete a one-week block of modules, after which they will go out into industry for another six months. They will return to the training centre for a final block of six to eight weeks. At the end of this time (between 20 and 24 months) they can be signed off if they have met their competency requirements. This program is a trial program. If this works then the company will be looking to apply similar strategies for plastering, tiling and painting apprenticeships.

¹⁷ This life skills component also makes use of psychologists who help trainees develop skills to face times when they feel overwhelmed by issues in the workplace or in life. Each field officer and trainer with the CITEA has undertaken suicide awareness programs, and all officers have been taught how to identify any potential problems as they make their regular visits. CITEA has implemented this program in conjunction with OzHelp Foundation.

Appendix C: Examples of mentoring programs

- ✧ The WITEM (Women in IT Executive Mentoring) program brings together different organisations to address issues that impede the advancement of women in the technology sector, including lack of management experience, exclusion from informal networks and stereotypes of women's roles and abilities. The program also aims to accelerate the development of leadership skills in senior female technology specialists and professionals. Chief Information Officers, Chief Technical Officers, or IT General Managers are involved in mentoring female technology professionals who have been carefully selected for their experience, commitment and drive for progression from organisations including Centrelink, Deloitte, Department of Finance and Administration, Ernst & Young, NSW Department of Education and Training, Westpac and Woolworths. The program is coordinated by a specialist consultancy firm in mentoring and coaching services, the Orijen Group <<http://www.orijen.com.au/women-in-it-embark-on-phase.aspx>> (accessed 27 August 2007).
- ✧ A mandatory formal mentoring program has been established by the New York Department of Education to comply with changes to legislative requirements for those aspiring to become a teacher in the state of New York. This program aims to help improve the teaching skills of beginner teachers (that is, teachers with less than one year's teaching experience), and help reduce attrition rates. High performing teachers and educators are released from the classroom to work full-time as mentors with novice teachers.¹⁸ An evaluation of the program implementation in New York City region found that having mentors attached to the region rather than the school was the key to its effectiveness. It helped preserve confidentiality for individual teachers, kept the mentor quarantined from the politics of the school, and allowed the mentor to focus on the primary role of guidance and skill development. Also highly regarded was the professional development program undertaken by mentors before and throughout the program. However, mentors were frustrated when they were allocated to more than four schools as it reduced the amount of time mentors spent in working with the teachers (a key to effectiveness). Mentors also found that they needed to be able to develop good relationships with school principals and vice-principals while at the same time keeping confidential their work with teachers in these schools. In launching the new policy the Mayor of New York City said "We've worked hard to recruit the best and brightest teachers for our schools, and now we want to provide them with the wisdom and guidance they need to adjust to and succeed in their new careers" (New Teacher Center, p.6).¹⁹

¹⁸ This action is supported with evidence from empirical research which indicates that 'high quality' teachers achieve far higher levels of attainment in students, than do 'ineffective teachers', and that it takes about five years or so for teachers to develop high levels of effectiveness.

¹⁹ In 2004–05 the program in New York City selected 309 mentors (out of an applicant pool of 1600). Mentors were selected for their previous performance, advanced personal skills and ability to identify, articulate and develop high quality instruction, and understand diverse student populations' (New Teacher Center 2006, p.5). Each mentor is paired with 17 new teachers and must ideally meet with each one for at least 1.5 hours every six school days. Thirty retired teachers are also hired on a part-time basis to help out as required. Mentors are also required to undergo ongoing professional development to better understand and implement their roles and responsibilities in guidance and apply standards-based assessment. It also aims to help mentors better understand and reflect on what it is about their own practice that is effective, and to convey these understandings to new teachers.



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