How organisations are using
e-learning to support national
training initiatives

Final report

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This report was produced by Professor Victor Callan of the University of Queensland Business School.
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Executive summary

Aim
This project, funded by the national training system’s e-learning strategy, the Australian Flexible Learning Framework (Framework), has investigated how organisations are using e-learning in innovative ways that support national initiatives by providing more responsive, flexible and effective approaches to training, particularly in the areas of skills shortage. The key research question was: Is e-learning capability a key factor in an organisation’s ability to deliver these new approaches?

Methods
The primary methods for addressing the key question and related research questions involved the completion of:

- a review of national and international literature on current practice and future trends in relation to e-learning and innovation, with a special focus on its use for increasing the responsiveness, flexibility and quality of training, and initiatives that address skills shortages
- 21 interviews with key stakeholders from across Australia to build a picture of e-learning innovations that are addressing key national initiatives
- three case studies from across different states/territories that examine various e-learning solutions in the vocational education and training (VET) sector
- a final report that combines the insights gained from the literature review, interviews and case studies.


State/territory initiatives
The key findings from the interviews presented in this report cover developments at the state/territory level as well as across various industries. Western Australia provides an example of how a state is rethinking the nature of trade training with its Transforming Trade Training initiative that includes the stronger incorporation of workplace learning, with e-learning tools assisting these changes.

Industry initiatives
Industry developments are occurring within the bakery and pastry, and building and construction industries in particular. The bakery and pastry industry, especially through the Hunter Institute case study, highlights the benefits of designing learning using the technology that learners are exposed to every day. The Bakers Delight and Hunter Institute partnership illustrates the value of industry partnerships, the utility of pilot programs up-front and the advantages of using a variety of e-learning tools.

The building and construction industry shows how the application of e-learning tools is assisting small to medium-sized businesses to access more flexible training. This industry emerges as having the most developments in the use of e-learning strategies to

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1 http://www.tafe.wa.edu.au/BusinessAndIndustry/TransformingTradeTraining
2 This case study is one of three case studies in the supporting document: How organisations are using e-learning to support national training initiatives: case studies
How organisations are using e-learning to support national training initiatives

promote greater flexibility, higher rates of on-the-job training and opportunities for more accelerated completions of qualifications to assist the response to skills shortages.

Finally, the plumbing industry is exploring and gathering evidence about the best ways to transform training through the application of more blended forms of training. The plumbing industry stands as an exemplar of how to explore what is required and what is available regarding e-learning and other solutions to addressing skills shortages.

**RPL initiatives**

This report finds that the national priority area of RPL (recognition of prior learning) practice currently makes limited use of the new technologies. However, e-portfolio adoption is growing, and there are some examples of e-portfolio applications to support skills recognition. A common view expressed in the interviews is that organisations are still exploring when, where and how best to use e-portfolios.

**Benefits of e-learning**

The key benefits of more e-learning for businesses in the areas of skills shortage include greater flexibility, increased levels of on-the-job training, better quality in the training especially across multiple locations, more customisation of the training to suit business needs, and cost savings. The cost savings include reduced travel time or time off to complete the off-the-job components of the training.

Interviewees believe that one of the major enablers is the mind-set of the training organisation and of the teacher/trainer. The driving philosophy should be to ‘give it a go’. This mind-set includes being willing to collaborate and to share the e-learning resources being developed.

Other enablers include the value of setting up and maintaining an online community of fellow teachers/trainers and others who share the desire to use new technologies to connect with learners. Access to e-learning consultants is another key factor, especially those with considerable teaching experience who are able to contextualise the resources for teachers/trainers.

Other industries that are drivers for change include the stainless steel industry nationally, the gas industry, bakery franchises, and the building and construction industry which wants greater flexibility and more workplace training that better suits its small to medium-sized enterprises.

**Barriers to e-learning**

A major barrier to e-learning is the challenge of changing mind-sets that are still locked into the traditional models of training delivery. The majority of teaching/training staff are still adjusting to the reality that organisations want more flexible and engaging learning opportunities, packaged to suit their needs. Students expect training to use the technologies they are accustomed to and comfortable with. As interviewees observed, however, despite the funding and the projects supported by the Framework and other sources within training organisations, progress continues to be slow.

**Future directions**

In looking to the future use of e-learning as a response to skills shortage and national priority areas, it is expected that new technologies will provide more immersive forms of tasks. These tasks will better replicate the actual workplace environment, with all its complexity, in which the learning occurs. In particular, social networking tools will be central in providing greater support for learners as they complete more of their training away from the direct support of their teachers and fellow learners.
How organisations are using e-learning to support national training initiatives

Introduction

The aim of this project, funded by the national training system’s e-learning strategy, the Australian Flexible Learning Framework (Framework) was to investigate how organisations are using e-learning in innovative approaches that support national initiatives by providing more responsive, flexible and effective training, particularly in skills shortage areas and in areas of national priority (eg RPL).

The current research included:

- a review of national and international literature on current practice and future trends in relation to e-learning and innovation, with a special focus on its use for increasing the responsiveness, flexibility and quality of training, and initiatives that address skills shortages
- 21 interviews with key stakeholders from across Australia to build a picture of e-learning innovations that are addressing key national initiatives
- three case studies from across different states/territories that examine various e-learning solutions in the vocational education and training (VET) sector
- a final report that combines the insights gained from the literature review, interviews and case studies.

This research project was managed through the Framework’s Benchmarking and Research business activity. In completing this project, the relevant stakeholders were:

- VET training providers and provider organisations
- teaching, learning staff and support staff
- Framework staff
- Department of Education, Employment and Workplace Relations (DEEWR).

Research questions

The key research question addressed is: Is e-learning capability a key factor in an organisation’s ability to deliver these new approaches?

Related questions

- How is e-learning supporting the development of a more responsive approach to training?
- How is e-learning adding value to training for business and industry?
- How is e-learning improving the quality of the training process for (a) learners and (b) teachers/trainers?
- How effective are these innovations for key stakeholders?
- What are the enablers and barriers?

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3 The Framework conducts benchmarking activities to determine the use, impact and uptake of e-learning within different learner groups, states and territories, RTOs, business and industry; and research to inform the development of policy and new direction: [http://www.flexiblelearning.net.au/research](http://www.flexiblelearning.net.au/research)
The need for new and different training responses

Many Australian reports have commented on the changes that are occurring in the VET and related sectors. In Australia, continued organisational change is producing flatter, more flexible and responsive organisations with work cultures that support employees to be more autonomous, innovative and more customer-focused than in the past. Australian workers now require a wider range of capabilities, skills and technical know-how to operate in these new environments.

Training is now being incorporated into workplaces in ways that support this new type of worker. VET practitioners and their industry partners are being asked to respond better than in the past to the increasing levels of diversity in training contexts, clients’ needs and the range of training solutions that are possible. Younger learners in particular expect their teachers to be more digitally literate, know about e-learning software tools and delivery options, and be willing to include these new technologies into their on and off-the-job training.

As noted in the 2008-2011 Framework Strategy, it is in this context that e-learning is an integral part of the national training system. The 2008-2011 Framework Strategy is focused even more on supporting businesses and training organisations that demonstrate commitment to e-learning by supporting initiatives that allow learners more control of their learning. In particular, as noted in the strategy, this vision for the future centres on:

- more learning that is tailored to learners
- giving learners more control
- empowering teachers as effective managers of learning
- communicating better with businesses about the returns gained from a more flexible approach to how they invest in their workforce development
- providing sustainable e-learning infrastructure.

Literature review: some highlights

What do we mean by e-learning?

The emerging literature tells us that e-learning is not about digital technologies any more than traditional classroom teaching is about chalkboards. E-learning is about people and technology being used to support social interactions. The e-learning context continues to change. The next generation of learning technologies and learning management systems will provide an even greater focus on the learning aspects of e-learning rather than on its delivery. Specifically, it is expected that the learner will continue to grow in status as a co-contributor to learning and not merely as an acquirer of knowledge. The transition from the teacher/trainer as instructor to the teacher/trainer as coach will also continue at some pace.

Within this context, the VET sector is adopting a broader interpretation of e-learning. The recent Framework report (2008, p 5) of the E-learning Benchmarking Project defines e-learning as follows:

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4 Callan, Mitchell, Clayton and Smith, 2007; Dickie, Eccles, FitzGerald & McDonald, 2004
6 Pittard, 2004
7 Gibbs and Gosper, 2006
‘E-learning uses electronic media to deliver flexible vocational education and training. It includes:

- access to, downloading and use of web, CD-ROM or computer-based learning resources in the classroom, workplace or home
- online access to and participation in course activities (eg online simulations, online group discussions)
- directed use of the internet, mobile and voice technologies for learning and research purposes
- structured learning-based email communication
- online assessment activities.

It does not include:

- email dissemination of course information
- email communication between a teacher/trainer and learner on a single learning issue
- online administration of learning activities.‘

The position adopted in the current report, and advocated by many others, is that e-learning should not be defined as an isolated factor in its own right. There is very little pure e-learning in education and training; rather, e-learning is most commonly used as part of a blended learning experience where it is embedded into teaching, training and learning. E-learning is at its best where it exists in contexts that encourage collaborative learning and interaction between many different groups of people (eg teachers/trainers, employers, apprentices) who accept the benefits of the integration of e-learning into other forms of delivery.

**Past research: summarising the benefits of e-learning**

The 2008 E-learning Benchmarking Survey\(^8\) identifies that the main stakeholders in e-learning in terms of its uptake, use and impact are:

- VET students
- training providers (public, private, industry, enterprise and community)
- business and industry (as clients of the VET system and providers of training to employees).

There are some well-defined outcomes desired by each of these stakeholders for the use of e-learning. These attributes include: greater flexibility; the enhancement of face-to-face contact; improvements in teacher-student communication; improved retention and attainment; greater employer interest; and higher levels of student satisfaction\(^9\).

A major attribute is the increased flexibility for learners, teachers/trainers and employers. Numerous reports reveal that e-learning provides enhanced outcomes for training that is more flexible with time, place and the delivery.\(^10\) For instance, learning can be delivered through problem-based learning activities, in virtual laboratories, or as self-paced learning. Content can be designed for re-use between groups, using blended learning delivery and adaptive learning. We know that access to e-learning is a major factor for students looking to undertake a significant part of their training online. The flexibility offered through e-learning is particularly important to students wanting to upgrade their skills, to continue to work, or for people wanting to re-enter the workforce.

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\(^8\) [http://www.flexiblelearning.net.au/e-learningindicators](http://www.flexiblelearning.net.au/e-learningindicators)

\(^9\) OECD, 2005

\(^10\) Elliott and Clayton, 2007
The key benefits Australian students identify for e-learning include flexibility, choice, and the capacity to balance home, life and work commitments. Learners expect more products and services to be customised, flexible and workplace-based, with teachers and trainers being ‘managers of learning’. At the same time they expect quality e-learning that provides easy accessibility, good usability, well-integrated tools and correctly working links, materials and media.

E-learning is a key enabler in allowing teachers and trainers to respond to changes in the expectations of employers and workers about the nature of training. Specifically, e-learning practices enable them to provide a more personalised approach to student learning. Studies show that it encourages them to have more interaction with students and to explore ways to make learning more interesting for their students. For teachers, quality e-learning makes it easier to teach, provides intuitive course management, is customisable and easy to update. In addition, the majority of Australian teachers and trainers report that they are supported in their use of e-learning in terms of their access to computers, the internet, e-learning resources and professional development.

The vision for the future for business and industry proposed in the 2008–2011 Framework Strategy involves businesses accepting that flexible learning can fit around their business priorities. Numerous case studies reveal that e-learning is providing cost-effective solutions for training for business and industry. Cost benefits include reduced travel and staff replacement costs and a reduction in time to organise and release staff for training. Training is more affordable for small business operators in particular who cannot afford to have their staff absent from the workplace for long periods of time. In short, industry studies show that e-learning provides timely, cost-effective and efficient training.

**Past research: summarising the barriers to e-learning**

Many reports show that there are trade-offs with any form of learning. With e-learning, many of these concern the higher demands for collaboration between all stakeholders. Once implemented, there is the need to monitor the impact of these new learning options, determining what training needs are best met through e-learning, face-to-face or other methods. There is the need to make a long-term commitment to allow the training program to work in meeting learner, provider and employer expectations. As the learning becomes more collaborative, contextual and connected, it is found that the onus of responsibility for learning falls more on the learner. If the e-learning system cannot be used easily and efficiently, learners have to spend too much time locating information and so become annoyed, frustrated and ‘turned-off’.

Collaborative learning requires new forms of interaction and assessment. The ongoing development of social networking tools continues to facilitate these developments, and it is widely agreed that opportunities for interaction will further increase. However, the gap between students’ perceptions of technology and teachers’ perceptions also is predicted to continue to widen. Contributing to this widening gap are the different perceptions and experiences of students and teachers regarding the new technologies, as well as the continued pace of emerging technologies. There are also issues with the level of support by training institutions for e-learning. Thompson and Lamshed (2006) argue that the

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11 I and J Management Services, 2008.
12 Kidney et al., 2007.
13 I and J Management Services, 2008
14 Emeleus, 2008; Mitchell, 2004; Peadon, 2008; Lang and Macpherson, 2008
15 Sims, 2008; Foreman, 2001
16 The New Media, 2008
growth of e-learning in Australia across the trades will rely on greater strategic support for e-learning initiatives. Their research shows evidence of little organisational support or a clear vision about the role of e-learning in many training institutions.

As the learner is more empowered, it is argued in numerous studies that the teacher or trainer will be more disempowered in these connected environments. There are concerns among teachers and trainers that they will become more isolated from the learning process in self-paced e-learning modes than in the face-to-face classroom. They are also concerned that their teaching skills will decline. There are well reported costs in time regarding e-learning. For example, instructors underestimate the time required to respond to the number of student communications and the time required to learn new technologies.

Central to ensuring the continued growth in e-learning innovations will be the need for continued dialogue between teachers/trainers and e-learning developers. There are numerous calls, for example, to investigate the most relevant professional development for teachers and trainers around new technologies, and the need for software designers to gain greater knowledge of the educational context.

Finally, on the down-side of e-learning, some businesses report that they are not receiving the return on their investment in training. The Framework’s An investigation of the enablers and barriers to industry uptake of e-learning: Small business report (2007) found that on-the-job informal training is predominant in the small business sector. Convenience, flexibility and accessibility are key factors driving the use of e-learning by small business. However, the key factors against the uptake of e-learning by small business are the time, cost, concerns about effectiveness and the perceived lack of relevance of the training for their business. Despite the time that e-learning has been around, and that many employers have considerable experience with e-learning, few businesses are masters of e-learning. For instance, only a fifth of respondents in some surveys rate their organisations as excellent in building e-learning capability.

This literature review (the full version is available separately from the research section of the Framework website) points to some important messages about the benefits and costs experienced from e-learning by learners, providers of training and employers. This report builds on these messages by examining the findings from interviews with individuals highly experienced in the design and delivery of e-learning, including its application in responding to skills shortages in the trade areas, and in areas of national priority such as RPL.

Rethinking the traditional apprenticeship

The Australian apprenticeship system continues to evolve. Changes include the introduction of competency-based training and training packages that have played a major role in influencing the design and delivery of training for nationally agreed competencies and national qualifications. We have seen the opening up of apprenticeships to older age groups. Training organisations are more open to reviewing and to challenging the ‘what’ and the ‘how’ of learning, especially in the removal of what industry sees as duplication and redundancy. A key focus is on strategies that allow more flexibility. These efforts include introducing more workplace learning and workplace assessment, supported by frequent visits by teachers, with the establishment of more trusting relationships with the employers, and more flexibility and innovation in the scheduling of and approach to training.

17 Newton and Ellis, 2007
18 White and Myers, 2001; Park and Wentling, 2007
19 Gibbs and Gosper, 2006
20 Bersin, 2008
There is also evidence that the traditional apprenticeship is under pressure. There are high non-completion rates in many trade areas and difficulties in attracting and retaining apprentices in many areas of skills shortage. Many have challenged the ability of the traditional model of apprenticeship training to respond to changing industry needs, especially with regard to getting the balance right with the delivery of knowledge off-the-job and the development of skills in the workplace. Employers clearly want more work-based training, less time off the job for learners, shorter completion times for apprenticeships and better partnerships. At the same time, we know little about the strategies that are being used Australia-wide by our public and private training organisations to change apprenticeship training to being more flexible, work-based and more accelerated.

At the risk of over-simplifying the nature of the current apprenticeship model, it is a fact that traditional apprenticeship training involves a number of tasks over a number of stages. At the up-front preparation stage, there is the checking of the assumptions held by apprentices, employers and teachers/trainers about the nature and demands of an apprenticeship, the signing of the training contract, the development of a negotiated training plan and, possibly, the application of RPL. Next, over three or four years, there is the delivery of the core training. Increasingly, this training is preceded by intensive pre-apprenticeship training to make apprentices more job-ready. Then the apprentice moves into a long phase of on-the-job and off-the-job training delivery and assessment to complete the AQTF (Australian Quality Training Framework) requirements of the desired qualification.

What is examined in the current report is the application of e-learning across these various tasks and stages. The application of RPL in particular faces a number of well-known challenges. Various reports note that the future success of apprenticeship and traineeship training will require the more widespread acceptance and use of RPL. However, there are associated challenges. Teachers and trainers need to be more knowledgeable and skilled in their recognition of prior learning, and employers need to be more supportive about its use. In particular, it is the use of more electronic forms of RPL that are investigated here as one set of strategies to improve the responses in skills shortage areas.

In recent times we are also seeing more up-front intensive training, either as a pre-apprenticeship or built into the early stage of the apprenticeship. What we do not fully understand is how much e-learning is being applied at this stage, especially with delivering the theory and underpinning knowledge. Significantly, up-front training meets employers’ needs for apprentices who are more immediately useful in the workplace. A number of pilots of accelerated models in particular, and reports around e-learning, do show how training organisations are making clever use of e-learning technologies to cover various aspects of underpinning knowledge up-front either at this stage or within the apprenticeship. The current report examines these and related applications more fully than in the past.

Finally, the current report investigates how e-learning is being used to improve the flexibility and quality of training in the core areas of the on and off-the-job training and assessment, especially in trade and other areas of skills shortage. In particular, attention was given to sampling the experiences of individuals across states, industries and locations in how they are applying e-learning tools to incorporate in greater depth than in the past, workplace learning experiences as evidence of competence.

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21 Australian Industry Group 2005; Callan, 2008
22 Australian Industry Group 2005; Callan, 2008
23 Callan, 2008
How organisations are using e-learning to support national training initiatives

Method

Interview sample

A series of 21 telephone and face-to-face interviews were conducted between October and December 2008. All interviews were completed by the author, and were recorded. On average, interviews were completed in 45 minutes to one hour. In addition, three of the interviews also formed the basis of the case studies that are available separately. Those interviewed were:

- Barb McPherson, Managing Director, River Murray Training
- Brad Beach, Manager Innovation, GippsTAFE, Victoria
- Clint Smith, Director, LearnWorks, Victoria
- Fred Baltesch, Head of School, The Gordon Institute of TAFE, Victoria
- Gary Sewell, R/Faculty Director, Tourism and Hospitality, Hunter Institute of TAFE, NSW
- Glyn Milhench, Lecturer, Building and Construction, TAFESA
- Kirsty Sharp, Manager, Learning Centres and DELTA, TAFE Tasmania
- Mike Bezaud, Project Manager, Transforming Trade Training, Swan TAFE, Western Australia
- Naomi Thomas, Program Support Officer, Manufacturing, Engineering and Transport, TAFE SA
- Dr Nicole Stenlake, Director, Fyshwick Trade Skills Centre, Canberra Institute of Technology
- Richard Matheson, Executive Director, Australian Stainless Steel Development Association, Queensland
- Robby Weatherley, Director, Workforce Development TAFE NSW Sydney Institute, with her staff Julie Collareda, Stephan Ridgway, Gaby Gubbay, Gerard Kell, Paulis Cheung and Paula Williams
- Rodger Carroll, Department Manager, Building and Furniture, Chisholm Institute, Victoria
- Sandra Lawrence, Manager Product Innovation, Department of Education, Training and the Arts, Queensland
- Simon Brown, Stonemasonry teacher, SkillsTech, Queensland
- Sue Mandley, E-learning Support, The Gordon Institute of TAFE, Victoria
- Tassia Knack, Director Learning Development and Technology, SkillsTech Australia, Queensland
- Tim Harris, Director, Blue Dog Training
- Tim Jones, Program Manager, Manufacturing, Engineering and Transport, TAFE SA
- Tim Oliver, Carpentry and Joiner Lecturer, Swan TAFE, Western Australia
- Wendy Perry, Managing Director, Workforce Blueprint, South Australia
Interview questions
Appendix A provides a summary of the main questions asked in each interview. Each interview was in three parts: understanding their context and challenges; e-learning use; and future directions.

Findings
E-learning and more responsive approaches to training in skills shortages areas and areas of national priority

State-wide initiatives in areas of skills shortages
A good and recent example of how a state is rethinking the nature of trade training is Western Australia. Transforming Trade Training is a TAFE WA project aimed at improving the relevance and flexibility of apprenticeships. At the core of this initiative is a greater recognition than in the past of workplace learning so that apprenticeships can be accelerated. The flexibility exists at various levels, including more flexibility with the mix of how much learning occurs in the workplace and how much occurs in the training organisation towards obtaining the trades qualification. For instance, one employer in the same trade area could choose to keep their apprentice in the traditional system, with all delivery and assessment occurring in the training organisation, whereas another employer could opt for all the learning to occur in the workplace, with their apprentice attending the training organisation for assessments only.

In short, this new approach will have a number of benefits for the apprentice, employer and training organisation. Apprenticeship qualifications that will have pilots of this new model include Certificate III in Automotive Mechanical Technology, Certificate III in Carpentry and Joinery, and Certificate III in Hospitality (Commercial Cookery). The model is designed to engage the employer and apprentice with a training organisation within four weeks of sign-up through the use of a rolling-intake approach, by recognising learning that occurs in the workplace and by providing more flexibility by having just-in-time delivery and assessment as required by the employer. The model consists of five main components: an employer profile; a foundation program; a trade specific induction program; a number of work tasks that may be used either in the workplace or at the training organisation; and an individual learning plan.

It is in the three-day generic foundation program that students are introduced to the e-learning components, including the development of an e-learning portfolio that they are required to update and maintain. Significantly, the students are from all trade areas in this foundation program, which introduces them to information about the roles and responsibilities of an apprentice, employability and work-readiness skills, accesses literacy and numeracy and provides basic induction in occupational health and safety. The e-learning portfolio is a delivery concept based on the completion of an individual learning plan. Central to this plan is the apprentice completing evidence for work tasks that consist of one or more units of competency from the qualification in which they are enrolled.

Lessons learned to date include that while most students are up to speed with the technology, a key problem is access to computers in the workplace in small businesses. In response to the volume of information being generated by students in their e-portfolios, teachers are learning to define better with their students the nature of the information they require. In addition, teachers are learning ways to manage better the competition among some students about the size and production qualities of their digital stories and e-portfolios.
Skills shortages of bakery apprentices

The bakery and pastry industry is an excellent example of an industry where employees have difficulty accessing traditional methods of training using block release. The vast majority of employers are small to medium-sized enterprises. Many employees are casual, working hours are highly variable, businesses are located in small towns and regional locations, and travel costs can be high. Again, small businesses find that their productivity is markedly affected when staff are absent because of training.

Hunter Institute in NSW has moved to providing training for students beyond the traditional forms of block release to more flexible options across its various campuses. This institute has made considerable progress with new forms of more blended delivery. One champion of this initiative, Gary Sewell, and his team continue to grow his well-known e-learning program to train bakers for a number of top baking franchises across the country, including Bakers Delight and Tip Top. His most recent project is about fast tracking the Certificate III course into one year.

A major part of these developments is allowing regional students to use their on-the-job experience to reduce the time spent away from their business, as well as to reduce their travel time. The success of these industry-focused training programs is leading to expressions of interest from other major players in the bakery industry. The partnership with Bakers Delight has also lead to other training, including a course for their national sales staff. Following the apprenticeship model, this training is delivered in the workplace using tools such as chat, PhotoStory, email, SMS and traditional self-paced packages.

These bakery industry initiatives are also examples of how an industry can be sold on an idea that it sees as useful in other industries. The Hunter Institute story in part has its origins from an earlier partnership between Hunter Institute and the chocolate maker Callebaut. Callebaut permitted access to its training resources, which were used by Hunter Institute to create a website for more flexible training. Partnering with Callebaut, students were able to access high quality materials and detailed industry knowledge, receiving their learning content online by email, SMS and other means.

In summary, the Hunter Institute case highlights the benefits of learning designed to use the technology that learners use every day and are most comfortable with. The Bakers Delight and Hunter Institute partnership shows the value of using pilot training programs up-front and in allowing apprentices access to materials they can manage at their own pace. It also illustrates the virtues of using a mix of tools. These include movies, video games, photo stories, blogs for use with assessments, and text to explain the processes behind bread making, all accessed through computers, laptops, personal digital assistants (PDAs) or mobile phones. Evidence of workplace activities and learning is recorded using mobile phone or PDAs before being posted onto blogs. This design includes the strong use of regular forums and chat room sessions with teachers and students to back up the learning.
Skills shortages in the building and construction trades

The building and construction industry is dominated by small to medium-sized businesses, with many being small regional players. A number of training providers in Queensland, Western Australia, Victoria and South Australia are addressing the issue of how to deliver more flexible training to the building and construction trades.

The Blue Dog Training company in Queensland has designed apprenticeship training to integrate training into the workplace in a way that suits day-to-day operations. Blue Dog Training has developed generic learning and assessment methodologies that can be contextualised or customised to suit the individual’s learning style and working environment as well as the needs of the employer. E-learning tools allow more self-paced and self-directed learning, while each learner is assigned a course trainer who supports the practical and theoretical components of the course.

As with the Transforming the Trades initiative in Western Australia and its use of work tasks concepts, at the core of this flexibility at Blue Dog is a new way of thinking about learning content. Blue Dog view the training process in terms of learning objects that are much smaller chunks of learning than units or modules. These interactive objects typically require the apprentice to work online, at their own pace, for between 10 and 30 minutes. Each of these self-contained chunks of knowledge is stored in an online database that can be accessed at any time. The results are tracked and feedback is immediate. The resources require the students to be actively engaged, either by viewing, listening or interacting in some way with the visually exciting content. The assessment process is built into this training model. As a self-paced model, it is up to the learner to decide when they are ready to be assessed, but on average, the suggested timeframe is to have completed the learning and the assessment within a six month period. The assessment process also incorporates RPL processes.

Providers in Western Australia are experimenting with ways to combine face-to-face delivery and e-learning. Tim Oliver at Swan TAFE is using the opportunity and funding provided by the Transforming Trade Training initiative to incorporate the greater use of digital storytelling into carpentry apprenticeships. This tool has proved to motivate students, making their contributions more creative and engaging them more in the learning process.

At Chisholm Institute of TAFE in Victoria, teachers in the building and construction programs need to respond to increased student numbers for training in various skills shortage areas. Their focus is on more innovative ways to combine workplace and off-the-job training and assessment so that learners are more engaged and teachers are using their knowledge and skills in the best possible ways. For Rodger Carroll and his team at Chisholm Institute, a partnership with the University of Melbourne has encouraged the examination of mobile technology for delivery and assessment. The software Lifeblog allows mobile phones to provide a mobile diary or a mobile blog. This development has also opened up opportunities for the use of e-portfolios.

A related project focused on learners engaged in offsite construction in shop fitting and aluminium fabrication. Traditional methods of training for this group involved recording site visits, completing question and answer sheets, and using written employer or supervisor reports as third party evidence. Reports were often not completed or their quality was poor. One solution was the use of mobile phones to support onsite delivery and the recording of assessment. Such tools are accessible by learners, teachers and employers and also overcome problems that some learners have with accessing computers at home or in the workplace.

As the Lifeblog software is not applicable to all mobile phones, Rodger and his team of teachers decided to use a Moblog, which is similar to a blog or journal but accessible via mobile devices as well as computers. At the core of the Moblog is the capacity for learners, teachers and employers to communicate and to post via their mobiles, aspects
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of the training. They can post pictures and comments, as well as add in discussion and reflection about the learning materials and the learning. The Textamerica platform allows for picture postings, video postings, digital sound files and short text postings, as well as a comment platform where the learners and facilitators can respond to or add comments to a posting. The Textamerica platform also provides for the inclusion of third party evidence gained via the employer/supervisor videoing the student carrying out a task. In addition, they can add in audio commentary, negating the need for written reports. Validation is addressed via the visual image of the actual student doing the actual work. Auditors have expressed their support for these forms of evidence captured by e-portfolios.

As a result of this series of projects in the use of e-learning tools, the building and construction teachers believe that they are now better allocated to activities that make the best use of their time and skills. Learners and employers are also benefiting, including some fast tracking in apprenticeship completions. Better partnerships are emerging between learners, teachers and employers. In addition, learners are more engaged, and completion rates are higher especially in VET in Schools programs.

In South Australia, Glyn Milhench reports on significant developments that have occurred relatively quickly at TAFE SA. In particular, these initiatives involve the use of Moodle with pre-vocational Certificate I training, as well as with the Certificate III carpentry apprentices. Students in the carpentry trades are able to record and edit their own videos and podcasts, and use websites such as YouTube and Google Video to upload and share information with other students. Using flash drives provided to students, they are able to download material and add in movies and digital photographs from building sites or other locations. Many apprentices are now using the online material from home and work, lessening their time at college. They spend more time learning skills onsite, which has cost savings for employers while increasing the interest of employers in employing more apprentices. The view among teachers at TAFE SA is that students have responded well to the opportunities provided by Moodle. There is increased access and participation, and students are adding in more information and are more able to keep a better record of what they are doing and learning.

Stonemasonry and social networking

Simon Brown has used a range of e-learning technologies at Skills Tech Australia in the only training program in Queensland for stonemasons. The skill shortage has not been the primary driver for the incorporation of more e-learning in this trade area; rather this story, already told in a previous Framework case study, is about enhancing the ‘learning by doing’ experience for students. It is also driven by a desire to assist students during the time between the off-the-job training sessions to socialise and network with each other.

Like many others interviewed, Simon’s position is to ‘get assistance where you can, but above all, to just give it a go’, and to start e-learning with numerous small projects. When interviewed previously as a case study for the Framework, Simon had progressed through a range of tools to evolve the delivery of training, and first employed Microsoft’s MSN Messenger as a new way to engage students with the delivery of the theory components of stonemasonry. He used Hotmail and MSN Groups to maintain contact with his students, as well as to promote the sharing of ideas. Over time, he has demonstrated the value of continuing to explore new tools with the aims of making the learning more engaging, more flexible and in keeping students in contact with teachers and with each other.

As an update on his progress at Skills Tech Australia in Queensland, his use and choices with online learning and communications technologies are still about responding better to the needs of learners. Stonemasonry training is still delivered mostly face-to-face in the training workshop, but with a range of electronic media to enhance learners’ experiences. Taking the view that his students learn best by doing, his team has created a series of
media streams stored in Videolinq’s Mediasite server. Students view Videolinq audiovisual media streams wherever they have a network connection, whether in class, at work or at home. Free Web tools (Ning, Wikispaces, Flickr, YouTube) together with the Videolinq media streaming service are demonstrating an ability to engage students irrespective of their learning style. The online tools provide a platform for re-focusing text-based learning resources into image-rich interactive learning experiences. YouTube has proved to be an effective tool for sharing knowledge, with one video clip of the students carrying out a concreting exercise being viewed over 11,000 times.

**The plumbing industry’s response to skills shortages**

This industry is exploring and gathering evidence about innovative ways to transform its training. The construction boom has placed increased pressure on training organisations to produce more apprentice graduates. Greater specialisation within the plumbing industry is causing difficulties in delivering the *Certificate III in Plumbing* which requires apprentices to have greater exposure to a wider range of industry experiences.

Among the wide range of options being explored is the application of more blended forms of training that include the incorporation of e-learning tools for the training of apprentice plumbers and gas fitters. The industry is an exemplar of how to explore what is required and what is available, as shown through two recent reports. One report is its 2008 review *Plumbing apprenticeships: Drivers and impediments*\(^{24}\). This report shows a willingness to investigate, within and outside Australia, new ways to deliver training to plumbers in order to respond better to skills shortages and industry needs. Fred Baltesch at the Gordon Institute of TAFE in Victoria, who was part of the Steering Committee that produced this report, described how this review focused on the experiences and perceptions of current plumbing apprentices. Disturbingly, about a third reported that they had seriously considered dropping out of the apprenticeship, with low training wages dominating their concerns. While apprentices were satisfied with their current training organisation, they wanted more flexibility and access to better workshops and a quicker course pace.

The findings of a second 2008 report, *National best practice for plumbing industry training*\(^{25}\), were also highlighted in the interview with Fred Baltesch. The review is impressive. The industry is looking across Australia and New Zealand for best practice, as well as across industries for ideas that might be used in the plumbing industry. A Framework project is cited that is being developed by TAFE Tasmania and TAFE NSW with the QTImPlayer\(^{26}\) as a practical tool to assist with workplace assessment. The player allows users to access content, to assess students, to provide feedback and to upload evidence to support an assessment. TAFE Tasmania has examined the use of a hands-free video device that puts a new perspective on assessment and teaching resources. These are standard safety glasses with a camera attached to the bridge of the glasses. Similar video glasses are being used in other training rooms. In NSW, the video glasses are used in the automotive sector for assessment and to provide views under the automobile. In TAFE Tasmania, the Metals Fabrication, Automotive and C&J teams are using the video glasses for the development of assessment tasks and the development of learning resources by teaching staff.

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\(^{26}\) The QTImPlayer allows the VET system to create assessing instruments for teachers and trainers to test students anywhere and anytime using mobile devices: [http://www.flexiblelearning.net.au/qti2007](http://www.flexiblelearning.net.au/qti2007)
Stainless steel industry and responses to skills shortages

Australian Stainless Steel Development Association is an industry body that is dealing with skills shortages within the larger response of workforce development. In this strategy, e-learning exists as one component. E-learning is an innovative response by this industry to the challenges of regionalisation, skills shortages and inconsistent training. It also offers time-efficient training with immediate application in the workplace.

Richard Matheson, its Executive Director, views e-learning as an innovative response that suits a workforce that has skills shortages and wants more on-the-job training not only for apprentices but also training for up-skilling existing employees. The industry, in partnership with Skills Tech Australia in Queensland, has introduced a module course for the stainless steel industry, with half of the modules available through e-learning.

A key advantage of e-learning is this trade area is the ability to witness the process and the desired outcomes through the eyes of the trainer. The learner is taken through the use of safe practices, equipment set up, welding techniques and good and poor weld identification. Using suitable technology that combines text, audio, images, animation and video, the weld pool is revealed in the same way that the trainee needs to see it to complete the weld. The benefits include reducing the amount of time required to undertake the learning, with estimates of savings in some forms of face-to-face training by about one working day. In the longer term, this industry wants to develop clearer learning development pathways for the stainless steel industry. One focus will be on providing e-learning solutions as appropriate alternatives to traditional training methods.

The use of RPL and e-portfolios

Overall, progress with RPL continues to be seen as slow by those interviewed. RPL practice currently is seen to have limited use of the new technologies. Many factors are cited behind the slow take-up of RPL generally. Systemic barriers exist to the implementation of RPL, while many argue for the need for more support for RPL assessment in training organisations. Assessments for RPL are seen to be burdensome and the terminology is regarded as complex and cumbersome. In addition, the interviews revealed differences in RPL processes and systems across states/territories. It is widely accepted, however, that using smart tools can free up resources and accelerate the process considerably.

There is evidence of significant professional development activity occurring in many states with RPL and the application of online assessment tools, including most notably efforts in 2007-2008 in Western Australia, Queensland and Victoria. The greater uptake of RPL is seen in these states as a direct outcome of increased efforts at professional development, especially among teachers. Western Australia is changing its focus to assessing competencies in clusters rather than at the unit of competency level, and is searching for the most appropriate software package. The Fast Track RPL process in NSW and the RPL assessment through the Skills Stores in Victoria are supported by the Competency Navigator tool. This tool enables individuals to identify their competencies and qualification pathways through an assessment process or interview. These competencies are aligned to the competencies as stated in the national training packages. Competency Navigator currently has 23,000 competency standards, 72 training packages and over 1,700 qualifications in its data set.

In Victoria there are volume targets for RPL that would prove very difficult to achieve without the existence of the Skills Store shop fronts that allow clients access to online tools to assist RPL. Some Skills Stores in Victoria also operate as a mobile facility going to clients in their workplaces to hold meetings and to complete the RPL assessment. Despite this initiative, however, the RPL process is facing real challenges with the provision of evidence, which is seen to be a major burden on clients. In addition, there are associated challenges with keeping in contact with clients and in motivating them to come back to providers after the initial report.
Another challenge is that Skills Stores or similarly named initiatives, at this stage in their development, have attracted the support of only a minority of teachers in a narrow range of qualifications. Swinburne University in Victoria is using Recognition Access Point (RAP) individuals in key departments to manage and coordinate the RPL requests generated through the Skills Store. This initiative is proving to be of great benefit, and has been adopted by other Institutes such as Chisholm and Central Gippsland.

Wendy Perry of Workforce Blueprint delivers professional development workshops for RPL. She emphasises that recognition is not just something that occurs at the coalface, but can be a strategic and business driver for a training organisation. A good example of this is the way some Victorian training organisations have approached the use of RPL. Providers are targeting new markets that include people working in various trade areas with considerable work experience but with little or no formal qualifications. There are new markets in Grey Army individuals (eg Jim’s Lawn Mowing, Jim’s Cleaning). Other opportunities exist in identifying those people seeking qualifications for their work experience in business, aged care and community services. The major qualifications being sought are Certificates II and III, including the demand for a new level of qualifications created by changes in legislation in skills shortage areas in children’s services and aged care.

The application of RPL during the process of closing the Mitsubishi automotive plant in South Australia involved RPL assessment. During 2008, this involved the use of online assessment of competency, together with a competency conversation, to assist existing blue collar employees to identify qualifications that they could take to other jobs after the plant closure. The process was completed as a partnership between TAFE SA and Workforce Blueprint. This collaboration involved the design of an appropriate model and process, RPL facilitation and professional development for the coaches and assessors provided through TAFE SA. Most employees gained two qualifications through the process. Positive lessons from this process are that online assessments can be very efficient, a competency conversation in particular can assist in highlighting ‘naturally occurring evidence in their workplace or in documentation’, and the process proved to be highly respectful of the needs and past work experiences of employees.

E-portfolio adoption is growing, and there are some examples of e-portfolio applications to support skills recognition. However, the overall view across the interviews is that organisations are still exploring when, where and how best to use e-portfolios. Many believe that the best opportunities involve students using the portfolios to assemble evidence using videos taken by mobiles, cameras or special glasses or other tools, as well as by emails, e-documents and other forms of evidence. Staff at GippsTAFE are doing some RPL interviews online with Competency Navigator. Like others, they see the potential application for e-portfolios but note difficulties with managing the considerable forms of other evidence that are not electronic. Currently, only a few students have provided e-portfolios as a significant part of the RPL process. GippsTAFE is trialing the use of Elluminate (a webconferencing tool) to assist in collecting evidence through the virtual classroom. Students share access to documents and use packages as the online RPL assessors watch them open, use and close applications.

An RPL project at Chisholm Institute that includes the building and furniture teaching staff is trialing the use of an online unit that introduces new students to WebCT and RPL. Once completed, students have a better understanding of tools and examples that are used to set up their e-portfolios, the records of evidence based on previous work experiences, as well as in building evidence about new competencies. While the hard copy approach to RPL is still being used, there are opportunities to build greater links between RPL and the application of e-learning tools to gather evidence within such e-portfolios. Another outcome being targeted by Chisholm Institute is the increased use of RPL with e-learning to fast track completions skills shortage areas in the building and construction industries.
**E-learning and quality**

Many interviewees spoke of the benefits of e-learning to assist businesses in keeping the skills of their staff in line with changes to industry standards. Many industries face considerable demands for continued training to maintain licensing requirements or to maintain industry currency. The challenge is to provide quality and consistent training across multiple locations, and here many respondents talked about the use of e-learning to improve the quality and consistency of training. TAFE Tasmania and GippsTAFE are offering e-learning modules to meet mandatory requirements in industries that include persons working in health care, ambulance services, housing, mental health, custodial roles and children’s services. These forms of e-training meet industry needs for flexibility and cost effectiveness (eg reducing travel costs, changes to rosters, gaining access to training from regional and remote sites). E-training also supports efficiency in the keeping of training records, including updates in training to meet industry requirements. Skills Tech Australia is successful in running online various aspects of plumbing licensing. They are now moving to the use of self-correcting quizzes for the final assessments in electrical trades.

The introduction of e-portfolios is proving to be another enabler for improving quality. Swan TAFE’s E-Portfolio for the Trades project has found that with the support of teachers, the e-portfolio is providing an efficient and effective method for the collection of evidence of workplace skills acquisition, as well as a way of improving the quality of this evidence. Apprentices find the maintenance of an e-portfolio easier and actually more rewarding than the traditional hard copy form of a training record book. There are professional development issues among the teaching staff, however, if the e-portfolios are to be maintained as part of the formal trade training. Many teachers have little or no knowledge of web technologies and their potential for capturing evidence of workplace learning.

Swan TAFE is finding that once teachers acquire these skills and apply them in their delivery, there is increased engagement by apprentices in their collection of evidence compared to the more traditional methods. Significantly, the use of e-portfolios is allowing employers to increase their participation in the training process of their apprentices. Each e-portfolio is available for the employer to review and to provide comments. E-portfolios also assist in supporting good practice in apprenticeship training by promoting more effective communication between the employer, apprentice and the training organisation on a more regular basis than through traditional face to face meetings.

**How e-learning is adding value to training for businesses**

According to those interviewed in the current project, a wide range of benefits are cited by businesses. While it is always difficult to prove a direct relationship between training and returns on investment at an enterprise level, Callebaut chocolates report a 300% increase in their sales in the Hunter region, showing that the partnership with Hunter Institute has resulted in increased market awareness and sales. A frequent comment from the interviews is that training organisations need to be better at promoting to businesses how training is an investment decision. Significantly, they need to work with businesses to show how the greater use of e-learning can maximise their investment returns. As mentioned in the interviews, this message to business needs to be about more flexibility, increased levels of on-the-job training, more customisation of the training to suit their business needs and the cost savings through reduced travel and time away.

A common theme in the interviews is how more flexible training gives businesses in regional and more remote areas better access to training. Distance from services is one of the biggest disadvantages of living in the remote areas of Australia. Blue Dog Training, for example, reports that increased access to broadband services is allowing their employers and apprentices the opportunity to experience alternative training delivery methods, especially among the small to medium businesses that are the mainstays of
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the construction industry. Traditional block release is still a difficulty for the smaller employer, particularly as the apprentice can be absent at busy periods. Blue Dog Training also notes that there is a ripple effect in country communities when key members of sporting and social groups are absent. About 40% of all Blue Dog Training apprentices are living and working outside South East Queensland, and the online delivery provided by this firm is central to encouraging these smaller businesses to invest in training.

A related benefit cited by business is saving time. For the numerous forms of business that use welding technology, the Australian Stainless Steel Development Association notes the considerable time savings in training hours. Access to e-learning is being promoted by the association as an attractor for encouraging businesses to invest in more training. Many interviewees pointed to the time savings and enhanced flexibility to training for businesses through the online delivery of the theory components. Across various industries facing skills shortages, up-front training in workplace health and safety and environmental waste management modules is proving to be very suitable for forms of e-learning. TAFE Tasmania, is using the pre-employment stage at schools as an opportunity to attract students into trades, including into skills shortage areas such as refrigeration. They are using e-learning for the delivery of the theory components, as well as for some formative assessments.

A major benefit mentioned frequently by respondents is the standardisation of training across different sites. Industry is attracted by the use of standard sets of quality resources that are already AQTF certified to provide more consistent and customised training across multiple sites. Hunter Institute gets such feedback from its industry partners in its various projects in the bakery trades (eg Woolworths, Bakers Delight, Goodman Fielder, Fresh Start). A related benefit for industry is the use and frequent updating over time of their in-house materials.

Companies also appreciate being able to use their existing technology to assist students’ learning. In the Fyshwick Trade Skills Centre programs of the Canberra Institute of Technology, industries that are better equipped by their nature to access online learning are taking full advantage of such opportunities. Apprentices in panel beating companies, for example, make regular use of their readily available digital photography equipment to record damage and insurance repair work. These higher-tech industries are more interested in technical solutions to training problems. In the automotive area, the use of video glasses as a training tool is one example.

A more minor benefit, but still significant to some businesses, is the value of putting online the workbooks completed by learners. TAFE Tasmania is adapting material in the bakery training areas to an electronic format, allowing incorporation in this student resource book of videos, photographs and other evidence of competency completion. The completion and quality of recordings by apprentices, teachers and employers have improved. GippsTAFE is trialing with plumbing apprentices new ways online to keep track of the large number of subjects completed by students in traditional apprenticeships. Rather than the workbook, they are using a system that marks work, provides an up-to-date database on what students have completed or not, and assists considerably in managing the complexity of recording progress through various course offerings.

The enablers and barriers

Many enablers are cited, some of which are attitudinal while others are about access to expertise, tools and industries motivated to try new things. Interviewees believe that one of the major enablers is the mind-set of the training organisation and of the teacher. The driving philosophy should be to ‘give it a go’, being careful not to be too focused on what the end product might be.
As Glyn Milhench at TAFE SA describes the process, they are not so much looking at the end product as they are at adding and adapting, seeing what they can use, and not limiting their searches to a well-defined end product. They find materials like instructional videos that are relevant, and add them in where best to meet the learning they are trying to achieve. This approach allows the materials that students can use to be ‘well beyond what you ever imagined’ at the outset of the project. Glyn also takes the position that it is all about collaboration and sharing of the e-learning resources that are being developed. When the resources are shared, obviously the choices and the flexibility increase.

Access to others is a key enabler. Simon Brown at Skills Tech Australia talks about the importance of ‘learning in a learning community’. He believes in the value of setting up and maintaining an online community that, in his case, is supported by accessing his personal network of people who share his passion for using new technologies to connect with students. This continued learning about social networking tools is proving useful for educational purposes, and in building the skills and confidence to operate them more effectively.

Many of those interviewed talked about models for e-learning delivery that use e-learning consultants employed full-time to work with teachers. This person or persons is most often described as being an ex-teacher with considerable experience, so they can contextualise the resources for teachers. They need to have discipline knowledge, skills in teaching and online skills. These people can also help in decisions about what tools to use.

Many interviewees spoke about the importance of helping teachers to select the best tools. Across various locations, including through the assistance of the Framework, considerable attention is being given to developing access to the best tools. All agreed that the focus should be on quality products, interactivity, integration, and tools that engage the learner. Across interviews, people spoke of the role of having access to e-learning experts and the advice of others who are exploring the use of online tools. At best, individual teachers might have access to one e-learning adviser who is typically an internal appointment. On a few occasions, there is access to the expertise of an external e-learning consultant.

Three institutes stand out with their use of a solid group of internal advisers to assist teachers with e-learning initiatives. Sydney Institute is a large metropolitan public training provider with some 75,000 enrolments, and it delivers training in the traditional trade areas. There is a core commitment to becoming a leader in the field of online learning. Evidence of this commitment includes the considerable expenditure on e-learning infrastructure, a commitment to the use of open source solutions, the establishment of ‘connected classrooms’ with video conferencing and video whiteboard, and the availability of a guiding e-learning framework and associated suites of tools. A major enabler is the group of e-learning experts who are positioned across the various campuses. An e-learning mentoring program has successfully linked teachers with other teachers and technical experts. This group is successful in getting teachers to explore the use of e-learning for better workforce training solutions that are more responsive, flexible and customised. They have seen recently, for example, a 60% increase in the use of wiki spaces by their teachers.

In terms of trade training in particular, at Sydney Institute the needs of industry for more flexibility and customisation of their training rather than specific responses to skills shortages is the main driver for the introduction of more online options. The institute is now seeing the use of the learning management systems to offer the delivery of refrigeration training in real time to local and international students. New e-learning initiatives will include the delivery of training for locksmiths, while hairdressing training will be moved into the domain of virtual worlds in 2009.

The second example is at the other end of the scale in terms of its size and location. GippsTAFE has only 4,000 enrolments and is a regional campus, but almost half of its
students study online and full qualifications can be completed online. Towards 40% of their e-learning is trade related. The organisation is making significant investments in supporting the equivalent of ten full-time staff to their e-learning support area. Through the e-learning support area, teachers are given access to ongoing support, an e-mentor who is often a well respected former teacher, and training support. This support area does not operate as a cost centre; rather, it generates profits that are re-allocated to the departments concerned. This level of e-learning support, as well as this business model for profit sharing arrangements, has promoted significant and continued investment and commitment to e-learning at this regional training organisation. In particular, their role is critical in working with teachers to move into the demands of more facilitated online environments where teachers need to learn more about how to manage, facilitate and interact successfully with students.

A third example is Chisholm Institute. Teaching staff in building and construction report very favourably on the value of being able to access the Educational Development Services group. This team of teachers has introduced the Moblogs, e-portfolios, fast tracking of apprenticeships and fully online qualifications. The Educational Development Services group assists the teachers to design and implement new teaching and learning strategies. A decision was made by Chisholm Institute not to make this group dependent on external or commercial funding so they could devote their time more fully to teachers’ needs. They also provide professional development programs for online delivery, the use of mobile technologies and new ways to enhance training delivery. Chisholm Institute has recently committed a large expenditure on setting up wireless communications on campus that can also be accessed by teachers and students using mobile devices.

As some of this earlier discussion implies, a major barrier listed by almost all interviewees is the challenge of changing the mind-sets of many teachers still locked into a teacher-centric approach to training delivery. It is widely accepted that the majority of teaching staff are still learning to accept that organisations expect to have access to fast, flexible, engaging learning opportunities, packaged to suit their individual needs. Students expect much freer and more student-directed learning. As many of those interviewed pointed out, students expect to see the use of training models that use modern technologies and that allow more training to occur flexibly; however, as several of those interviewed stated, despite the funding and the projects supported by the Framework and other sources, progress continues to be slow.

The lack of understanding of e-learning by employers and the lack of support given to learners are seen to be substantial barriers for uptake and sustainability. Support is broader than materials and resources. It needs to include time to assist students to feel comfortable with the technology, to establish and run group online meetings and individual phone support, as well as ensuring that employers are supported and are supportive of the process.

Many ideas were offered in the interviews for accelerating progress. A major barrier is the inability or slowness of some training organisations to embrace the virtues of less traditional forms of training. Strategies to resolve this include a report card approach where, nationally, training organisations report on their progress on meeting agreed e-learning indicators. Other national initiatives include better designed and marketed professional development opportunities for teachers. Less punitive approaches include the need to promote better the business case for e-learning to training organisations and employers. The growing acceptance of e-learning in more blended approaches is seen as positive, removing the misconception that e-learning replaces more traditional forms of delivery.

At the level of the VET professional, there are numerous good news stories from the interviewees about how more teachers are ‘falling in love’ with technologically friendly tools, especially the use of Moodle. There is substantial evidence of the increased take-up of various e-learning tools after appropriate professional development workshops and
with improved access for teachers to technical specialists and experienced fellow teachers.

Another suggestion is that training organisations need to be clearer about what teachers and trainers need to know as they grow as VET professionals. Any answer to this question needs to accept that there is a progression of capability over time and with experience, feedback, reflection and further instruction. This progression is not necessarily linear, but there are recognisable stages that teachers do move through. Two key stages are from the new teacher to professional competence. A major challenge for the new teacher who is often ‘industry rich but teaching skills poor’ is moving across these two stages and gaining the breadth of capabilities required. A related challenge is to design the most appropriate training for them.

In summary, those interviewed expect that the pace will continue to quicken for more workplace training. The future is about more non-classroom-based and more work-integrated programs; that is, more ‘learning in the context’, where industry gets more training designed in ways that suit their settings, and more ‘just for me’ training where VET clients are able to develop skills in ways and at locations that suit them. The drivers for more e-learning include the need for more flexibility rather than a primary concern for the acceleration of apprenticeships in response to skills shortages. In addition, equipment costs and space constraints will further highlight the benefits of more workplace delivery, while the shortage of trained and skilled teaching staff in some trade areas will drive the design of more online forms of delivery for the trades.

Concluding comments

This project aimed to investigate how public and private training organisations across Australia are using e-learning in innovative approaches to support national initiatives by providing more responsive, flexible and effective training, particularly in skills shortage areas. The guiding research question was whether e-learning capability is a key factor in the ability of these organisations to deliver these new approaches. The answer is ‘yes’, but with a number of qualifiers.

First, as to be expected, e-learning is finding its niche in particular stages or aspects of training, and in particular trade qualification areas that are encountering skills shortages. E-learning is proving to be an excellent tool for the delivery of underpinning knowledge and theory in many trade qualifications, for example, as well as in the delivery of modules that are required for licensing and up-skilling in specific qualification areas.

In terms of trade qualifications, these online self-paced modules cover issues such as occupational health and safety, the delivery of underpinning knowledge in required foundation skills (e.g. calculations) and assessments of literacy and numeracy skills. With skills up-grading or for meeting licensing requirements, this style of e-learning is typically unsupported. The e-learning modules assist organisations to keep their staff up to date with changes to industry standards, and allow flexible delivery across multiple locations so that staff are trained in the same information and tools across multiple sites in a cost-effective way.

A second observation is how different trade qualification areas are responding to the use of e-learning to provide more flexible and effective training. At least from this project, it is clear that trade teachers in the areas of building and construction and bakery in particular, are leading the way. The plumbing industry is still examining its options for more innovative ways to deliver training. However, it stands as an exemplar in how to explore what is required and what is available with e-learning and other solutions to meeting its skills shortages. Major drivers in each of these industries are the need for more flexibility and the desire for these industries to have more workplace training and assessment. While the benefits that might flow in terms of the acceleration of trade training to meet skills shortages is important, it is a secondary consideration.
Trades are using a wide range of e-learning tools up-front at the pre-apprenticeship stage or at the initial stages of the apprenticeship training. They are exploring innovative ways to assess competency for tasks completed on-the-job. E-learning is integral to redesigning training so that less time is spent at the training provider and more time, or even all of the time, is allocated to on-the-job skills development. For the smaller to medium-sized employers who dominate many of the trade areas, e-learning is providing more flexibility and productivity benefits as apprentices and trainees are away less often doing off-the-job training.

Progress with RPL continues to be regarded as slow. RPL practice currently has limited use of online technology, but most states are ramping up their professional development programs to expose more teaching staff to the benefits and processes of RPL. E-portfolio adoption is growing slowly. There are some examples of e-portfolio applications to support skills recognition, but the overall view across the interviews is that organisations are still exploring how best to use e-portfolios to aid assessment or to facilitate RPL. Examples of the use of e-portfolios built by students using evidence captured through photographs or videos taken by mobiles, cameras or video glasses are emerging.

In looking at the future of e-learning, the key words used by interviewees are about more partnerships, increased collaboration for meeting the training needs of industry, and more immersion in the learning tasks. E-learning is seen at its best where it exists in contexts that encourage collaborative learning and interaction. There is a need for continued efforts at engaging learners, their teachers and their employers as joint collaborators in the learning experience. The development of social networking tools will assist here. In addition, most see huge potential for the use of virtual environments for training in the trades and related areas. These tools will assist in allowing better designed learning tasks to assist learners to conceptualise their practical experiences.

It is expected that technologies of the future will provide more 3D, more immersive forms of tasks, and more use of animation. New technologies will allow better replication of the actual workplace environment in which the learning occurs, with all of its interrelated and multiple demands. Finally, the interviews revealed the advantages of social networking tools for creating more support for learners in many of the trade areas. The use of social networking technologies will grow to manage the risks associated with having more socially isolated learners as more training organisations reduce the time apprentices and trainees spend in block or day release. Importantly, the increased use of these tools is expected to create better communication and more sharing among learners, their employers and their teachers and trainers.
How organisations are using e-learning to support national training initiatives

References


Callan, V.J. (2008) Accelerated apprenticeships: Apprentice, employer and teaching staff perception, Adelaide: NCVER.


Appendix A: Interview questions

Part 1. Understanding the context and challenges

• Please describe the nature of your organisation, including the key businesses that it is involved in. What is your role?
• What is your interest in areas of e-learning, skill shortages areas, or areas of national priority (e.g., RPL)?
• Describe the levels of commitment being shown by your organisation for e-learning. For example, investments in new infrastructure, training of teaching staff, how embedded e-learning is currently in the delivery and assessment activities of the organisation.
• Is there anything else you would like to add to help me understand the context that you are operating within?

Part 2. E-learning use

• How is e-learning supporting the development of more responsive or flexible approaches to training in skills shortages areas and other areas of national priority? What examples are there of such initiatives?
• How is e-learning enabling new approaches (to responding to skill shortages areas or areas of national priority, e.g., RPL) that would not have been possible before?
• Who are the main stakeholders for these initiatives with e-learning?
• How is e-learning adding value to this training for the businesses and industries concerned?
• How is e-learning improving the quality of the training in such areas for the learners, the teachers, the employers, and others?
• What are the learners (and their employers) seeing as the benefits of the e-learning initiative? What is causing difficulty? What is being done to rectify this?
• What are the teachers seeing as the benefits of the e-learning initiative? What is causing difficulty? What is being done to rectify this?
• What are businesses seeing as the benefits of the e-learning initiative? What is causing difficulty? What is being done to rectify this?
• How is your training organisation measuring the effectiveness of the e-learning that is being used in these areas of skills shortages or national priority (e.g., RPL)? What is being done well for measuring such impact? What could be done better?

Part 3. Future directions

• What other initiatives are being considered where e-learning might play a major role in supporting other innovations for more flexibility and better ways to respond to training in high priority or skills shortage areas?
• What other issues did you think we would discuss but have not and you would like to expand on now?
For more information:

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