

Innovation in teaching and learning
in vocational education and training:
International perspectives

Yvonne Hillier

University of Brighton





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Publisher's note

To find other material of interest, search VOCED (the UNESCO/NCVER international database <<http://www.voced.edu.au>>) using the following keywords: educational development; e-learning; innovation; international education; learning method; skill development; teaching.

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About the research



Innovation in teaching and learning in vocational education and training: International perspectives

Yvonne Hillier, University of Brighton

Teaching and learning is the core business of vocational education and training (VET) providers. Finding ways to improve these practices is at the heart of a high-quality VET system. That is why in late 2007 the National Centre for Vocational Education Research (NCVER) commissioned two authors to examine the characteristics, and find examples, of innovative teaching and learning practice in Australia and in Europe.

This is the international paper, written by Yvonne Hillier, whose approach was to draw on information available from websites and other literature, as well as from personal contacts and experience. It is not written to provide solutions. Rather, it aims to open our minds and thinking to other possibilities, drawn mainly from the United Kingdom and Europe, which may still need to be contextualised to work effectively in Australia.

What follows, along with Jane Figgis's study of developments in Australia, was designed to inform a series of workshops across the country, where NCVER heard how practitioners can best use this research, and gathered further contributions to our knowledge of good teaching and learning in VET.

Key messages

- It is important for practitioners to be able to step back from their 'daily grind' to think about what, and how, they can do things differently. They need to be supported to test new approaches in a culture of active experimentation.
- Networks and centres of excellence are very important in promoting better teaching and learning. Technologies can be used to support networks of practitioners and resource banks to foster better professional practice and help practitioners exchange ideas and resources.
- New technologies and the workplace can also be used to support learning. Brokerage and partnership arrangements are particularly important in supporting effective work-based learning and better engagement between providers and employers.
- Collaboration across educational sectors can be beneficial. The creation of 'foundation degrees' in the United Kingdom provides a way of developing employment-focused awards involving both further and higher education and employers.

Those interested in this work should also read *Regenerating the Australian landscape of professional VET practice: Practitioner-driven changes to teaching and learning* by Jane Figgis, available at <http://www.ncver.edu.au/publications/2136.html>.

Tom Karmel
Managing Director, NCVER

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Executive summary

Vocational education and training (VET) helps prepare people for work, develops their skills while at work and changes what they are doing so that they can work in new or different occupations. Across the world in recent years, VET has been expected to meet the demands of the rapidly changing global environment. This means that we have to find different ways to support the vocational learning of people already in the workplace, as well as those who are about to join it.

This paper, which is likely to be of most interest to those with responsibility for teaching and learning policy and practice, attempts to capture innovative ways that VET practitioners practise their profession in response to the changing face of vocational learning. It is an overview of provision across many countries but particularly countries of the European Union and with specific reference to the United Kingdom. The paper includes specific examples of innovative provision, as well as an appendix with an annotated list of useful websites.

Identifying innovative practice

The search for examples of innovative practice began in the international literature but it soon became clear that little was available on this topic, since those who are developing new and different ways of teaching and assisting people to learn often do not publish what they are doing. A web search provided a better source of examples of innovation, including a large number of relevant web-based networks that could be interrogated for examples of current innovative practice. These websites provide resources for practitioners, including downloadable learning resources, examples of innovation in sector-specific occupations and opportunities for practitioners to share their practice in formal ways through conferencing and, informally, through wikis and blogs.

The literature (what there was) and web search identified four dominant trends in current teaching and learning practice, each reflecting the current international imperative for highly skilled and highly motivated expert workforces with the inherent capacity to meet the challenges of global competition, an ageing population and evolving technology. The examples that comprise the innovative practices described in this report basically fall into four categories: closer engagement in work-based learning; new technology facilitating learning; networks, centres of excellence and resource banks; and networks in professional practice.

Closer employer engagement in work-based learning

Over the years the involvement of employers and stakeholders has been crucial to the successful operation of the VET system. This research found that employers are being engaged and are engaging in innovative practices in a number of ways, each of which represents a unique approach to an old practice:

- ✧ *Partnerships and government-aided brokerage services*: designed to create new institutions to build skills differently by putting employers in touch with the appropriate providers, by involving the unions and by giving employers a stronger voice in determining training content.

- ✧ *Collaboration between sectors*: cross-sectoral cooperation now also involves industry as well as the various education sectors, for example, ‘foundation degrees’ in England are delivered in further education colleges in partnership with higher education institutions, and developed with industry assistance.
- ✧ *New teachers*: mentors in the workplace involving experienced employees working with newer/less experienced employees and auspiced through the VET provider or the employer.
- ✧ *Motivating the workforce*: employers are now using competitions, quizzes and games to promote workplace learning that is fun—and effective.

New technology facilitating learning

If there is one factor which has fostered innovation in new teaching and learning practices more than any other, it is technological development. Globally, the use of e-learning through virtual learning environments (VLEs), multimedia hardware and software, and through social networking has helped people learn at times previously impossible. Virtual learning environments provide opportunities for people to download resources, follow links to websites, discuss their work and ideas through discussion boards, add to their ideas through wikis, and socialise through chat rooms and blogs.

Some of the newer technologies are also being used to encourage disaffected young people to engage in VET; for example, mobile phones, PDAs, ultra-mobile personal computers, mini notebooks, Sony PSP and Nintendo DS games machines, handheld voting and GPS devices, MP3/MP4 and multimedia players are being used to engage hard-to-reach learners.

Networks, centres of excellence and resource banks

There has been a huge increase in the number of networks in the VET system. These range from very informal, between practitioners, through to large, international networks. Some networks focus on subject specialist content and share resources online. Others provide opportunities for practitioners to meet and discuss their work. Still others provide case studies of innovation, along with opportunities to test out activities in different contexts.

Networks in professional practice

The changing workplace environment offers many opportunities for innovative teaching but the problem is keeping abreast of all of these exciting initiatives. Furthermore, the rapid technological advances are placing demands on VET teachers, and resources need to be made available to help VET practitioners benefit from these advances.

Teaching performance has become an increasing worldwide issue. The most likely scenario for VET is that trainers will need to prove the quality of their teaching more frequently. This also has implications, including the need to increase teacher training capacity. The status and position of VET practitioners varies across countries and is reflected in the level of qualifications required for teachers to practise. Equal esteem with academic/general education teachers is another indicator of parity.

The challenges of keeping up to date and also gaining the appropriate qualifications to enable practice suggest the need for innovative networks for practitioners which focus on *their* practice and on *their* learning needs.

Issues for the Australian context

International examples of innovation in teaching and learning practice demonstrate how practitioners are trying to link the content of their VET programs more effectively to employer needs. Practitioners cannot change the system but they can work within it. The most fruitful paths to innovation, then, are through contact with employers and by collaboration and networking and

by establishing, with the help of government and the industry partners, including the unions, initiatives that reflect the changing work environment. Innovations also include new ways of looking at old practices, for example, workplace mentoring auspiced through the VET provider.

The new technologies hold out great promise for vocational teaching and learning, particularly in the workplace. But first we need to look at the new information communication technologies (ICTs) and determine their potential for helping trainees learn and then test and evaluate them through experimentation (before going 'live' with learners).

Not all the networks described in the paper will contain resources appropriate for Australia; many of them are so highly contextualised that they will need considerable adaptation if they are to be useful. However, the key is to experiment and change what is not relevant.

Challenges ahead

Innovation does not arise in a vacuum. There is a tendency for policy-makers to assume that, by upgrading the qualifications of vocational teachers, the pedagogical quality required in the knowledge-based economy and society will follow, and then ICT will do the rest. Despite ongoing day-to-day challenges, practitioners are being innovative in a variety of ways. What is clear is that they need spaces to enable testing of new ideas and then to share these with their peers. There needs to be a culture where experimentation is possible, in a context of learning from experiences—including failure—without fear of reproach.

Networking, including sharing practice through conferences and workshops, has a huge potential for cross-fertilisation of ideas and active experimentation. A range of bodies in Australia are well placed to foster such networking by helping practitioners to answer the 'what works?' questions. To assist practitioners to fully engage in innovation in their professional practice, systemic support and recognition for formal networks and partnerships must be forthcoming. And, crucially, the cooperative involvement of practitioners, managers, employers, industry, business and government is key to successful learning.

The frenetic pace of change and the current economic uncertainties only add to the challenges, but with an ongoing commitment to seeking 'what works', VET practice will be able to be proactive in its aim of helping people to acquire skills and knowledge to ensure their successful participation in society.

Introduction

Background

The aim of this paper is inform policy-makers and practitioners in the Australian vocational education and training (VET) sector of recent and innovative developments and initiatives in VET in those countries whose VET systems most align with that of Australia. The paper is likely to be of particular interest to those with responsibility for teaching and learning policy and practice.

Vocational education and training helps prepare people for work, develop what they do while at work and change what they are doing so that they can work in new or different occupations. Across the world in recent years, VET has been expected to meet the demands of the fast-changing global environment. This means that we have to find new and different ways to support the vocational learning of people already in the workplace, as well as those who are about to join it. This paper has attempted to capture the new and evolving ways that VET practitioners practise *their* profession in the context of the changing nature of vocational learning. It is an overview of provision across many countries but particularly those within the European Union (EU) and with specific reference to the United Kingdom.

The companion publication to this one, *Regenerating the Australian landscape of professional VET practice* (Figgis 2009) has looked at what is going on in the ‘swamp’—in the mud of everyday practice. I have tried to lift myself out of the English swamp that I know quite well so that I can take a look at the ground that projects from the international swamp. I have taken a bird’s eye view of practice, a ‘google earth’ view, with occasional zooming in to see what is happening.

The report highlights a number of activities that may be worth considering from the Australian perspective, although some of these ideas may not relate well to the national context or be useful once tried out. This report, therefore, is aimed at helping practitioners to take a step back from the ‘daily grind’ to see if they can think about what they could do differently, be tempted by ideas that seem to be working elsewhere—and try them out, adapt them and add them to the growing repertoire of teaching and learning practices in VET.

A word of warning. I have obviously not been able to see, for myself, every example in this report and I have a healthy scepticism about the way that many reports, websites and networks promote their activities. In other words, we hear and see the good news but rarely those aspects of projects that didn’t work, and we’re not told about the long hard slog to get things right. It is important, therefore, for readers to follow up some of the suggestions themselves, where possible to talk to colleagues who have had experiences of these activities and to pursue both the ‘what works’ and the ‘what didn’t’.

The report begins with a brief reminder of the policy drivers influencing the practice of VET internationally and the methodology used in the research. The rest of the paper outlines the ways in which VET is practised, with specific examples illustrating key themes and approaches. I am convinced that it is important to share innovation in teaching and learning to a wide audience and the report provides examples from other parts of the world where VET practitioners are trying to test, adapt and develop their practice.

What is VET?

It is always difficult to capture a complex activity system such as VET and this report cannot do justice to the richness and depth of the system. It is hard to be precise about what VET is and so I have chosen to take an eclectic approach to defining VET. My view is that VET is all about vocational learning: learning which prepares for, and takes place in the workplace. This includes learning through work, at work, learning in colleges, universities and in private training organisations, work-related learning, experience-based learning, learning through face-to-face and online methodologies, and learning both formally and informally. When I talk about *teaching* I mean teaching, training, tutoring and facilitating learning and this can be done face to face or online and through participation in groups or individually.

With this wide definition of VET in mind, what *do* we know about what is being practised, how it is being practised, what is effective and what provides potential for further innovation and development? Before providing some evidence to answer these questions, it may be helpful to summarise the context in which VET has grown over the last few years.

Policy drivers for new approaches to teaching and learning in VET internationally

There are three key drivers influencing policy where VET has a clear role: global competitiveness, demographic change and technological change. In both Europe and North America, there are concerns that the labour force is not competing with the fast-growing economies of China and India in particular. This concern led to the establishment in 2000 of the Lisbon Agenda, which created the key priorities of having a skilled and trained workforce to be achieved by 2010 (see Organisation for Economic Cooperation and Development studies such as participation in lifelong learning [OECD 2006] and informal learning [OECD 2007]).

The second driver is demographic change in Europe. We are all getting old! In Europe, it is projected that by 2050 there will be one inactive elderly non-working person for every two of working age (Eurostat 2006). However, this will be balanced by population migration, which provides opportunities for growth, and VET plays an important role in helping migrants enter the workforce, along with its more traditional role of working with young people. Today, as more people need to remain in work for longer, VET also plays a crucial role in lifelong learning.

The third key factor affecting workplace practices, and indeed daily life generally, has been the development and prevalence of technology. This technological innovation and the spread of the communication technologies globally mean that countries are now using advanced production systems. So VET is needed to help people work with these technological developments.

The response of the United Kingdom Government to the challenges of globalisation was to call for a review of the skills of the working population, the *Leitch Review of Skills* (Leitch 2006). Targets have now been set to ensure that the United Kingdom has world-class skills. A raft of initiatives has been created to help meet these targets, with examples included throughout this report.

Thus, with economic pressures globally, the technological imperatives and shifting population and demographic changes, VET needs to provide learning opportunities which respond to the increased demands from employers, employees and learners. New and different places and spaces for learning are required, partnerships developed, and infrastructures created to ensure that people can adapt to this complex, dynamic environment. As Chris Humphries, chief executive of the United Kingdom Commission for Employment and Skills noted: ‘almost every country in the OECD is undertaking a review programme at the moment to try and understand how to ensure that their education and training system keeps pace with the rate of industry change in order to ensure their competitiveness’ (quoted in Besley 2008a). A key component of the system is the practice of VET professionals. What are they doing to meet the challenges set out by their governments?

Methodology, limitations and definitions

How can we know what VET practitioners are doing in other countries? Although publishing enables new ideas and initiatives to be widely disseminated, those who are developing new and different ways of teaching and assisting people to learn often do not publish what they are doing. The research for this project was begun through a search of international journals such as the *International Journal of Learning and Work*, and the *Journal of Vocational Education and Training*, that is, those produced in English-speaking countries and particularly from the United Kingdom, Australia and the United States. However, very little information was found in this published literature. A web search provided a better source of examples of innovation but overall it became clear early on in the research that practitioners generally do not write about what they do. My subsequent interviews with experienced researchers and practitioners confirmed this.

However, a large number of relevant web-based networks exist and I was able to interrogate these for examples of current innovative practice. These websites provide resources for practitioners, including downloadable learning resources, examples of innovation in sector-specific occupations and opportunities for practitioners to share their practice in formal ways through conferencing, and informally through wikis and blogs.

The location of teaching and learning innovations

The literature and web search identified four prevalent trends in current teaching and learning practice, each reflecting the current international imperative for highly skilled and highly motivated expert workforces with the inherent capacity to meet the challenges of global competition, an ageing population and evolving technology. The examples that comprise the innovative practices described in this report basically fall into these four categories. These are:

- ✧ innovations in work-based learning through closer employer engagement, including new institutions to build skills differently, new teachers, new engagement across different sectors and new ways to stimulate demand
- ✧ the use of new technology to facilitate learning
- ✧ the use of technology in the provision of resource banks for wider professional dissemination
- ✧ the use of networks (electronic and traditional) to foster professional practice.

Within these four trends reside the spaces and places where VET occurs, for example, within organisations or in colleges and universities. What people learn, for example, soft skills, health and safety and subject specialisations, are also included in the examples provided.

This report does not specifically address the accreditation of VET (this could make a report on its own!), but many countries are using accreditation and qualifications to ‘up-skill’ and ‘re-skill’ the working population. For example, there are credit frameworks which aim to align qualifications gained at the end of compulsory schooling with vocational qualifications gained through tertiary education and in the workplace. These qualification frameworks are also being set up to address the needs of business and industry, both through qualifications designed for young people at school and through sector-specific qualifications for the workforce.

Finally, for any system to work effectively, practitioners need their own professional development, and this report gives examples of how this occurs. Innovation, then, occurs not only ‘at the chalkface’, but also in the hinterland occupied by tutors, trainers and teachers.

What is innovative?

What is innovative for one person will be ‘old hat’ for another. Yet there are trends emerging in an international context, and, where innovation is occurring, it is in response to the policy drivers

noted above. For example, in a study of European strategies for modernising VET (Bohlinger & Münk 2008), the authors argue that the following educational concepts are innovative:

- ✧ acknowledgement that key skills to the knowledge society include entrepreneurial skills
- ✧ learner-focused approaches with the use of new technologies and media
- ✧ approaches in which motivation to learn is to the fore, with the adoption of measures to enable learning to learn
- ✧ approaches covering the multiple aims of education policy, that is, self-realisation, personal development and economic, social and cultural goals.

In another European study, Armstrong et al. (2008, p.49) found the following trends in innovation across European VET programs:

- ✧ increase in learning platforms and distance learning initiatives
- ✧ increased practice of peer, collaborative and network learning
- ✧ personalisation of learning according to individual needs/paths
- ✧ award of recognised certificates for online courses
- ✧ wide availability of different tools favouring validation of prior knowledge and experience
- ✧ introduction of scholarship into the teaching and learning stream, aiming to professionalise the teachers, professors, trainers and all kinds of tutors.

If it is agreed that these are innovative trends, how are they influencing the specific practices of VET?

Characteristics of VET pedagogy

VET happens anytime, anywhere and covers a multitude of different areas. Although this report has adopted an eclectic definition of VET, it is helpful to identify the characteristics of the learning being fostered. VET often includes the following features. It is:

- ✧ task-related
- ✧ performance-based or issue-led
- ✧ innovative
- ✧ strategic but may also be ‘just in time’
- ✧ autonomously managed and self-regulated (for example, when informally learned in the workplace)
- ✧ self-motivated
- ✧ team-based
- ✧ concerned with enhancing personal performance
- ✧ concerned with enhancing the performance of a business, enterprise or organisation (Brennan & Hemsworth 2007, p.20).

The range of activities includes:

- ✧ online learning
- ✧ simulation
- ✧ mentoring, coaching
- ✧ study circles
- ✧ action learning sets

- ✧ correspondence
- ✧ shadowing
- ✧ personalised approaches (learner-centred).

Most of these approaches will be familiar to VET practitioners. The activities can also be divided into those applicable at the level of an individual learner, those which are created to address organisational goals, those which work with sector-specific groups and those that address regional, national and international needs. During 4000 interviews with employers in a 2006 survey of workforce training in England, it was found that the most common method used to deliver training was through in-house staff at the trainee's workstation, followed by on-site training using external providers or off-site provision using external providers. Sixty-five per cent of employers relied on staff participating in self-learning, including e-learning, and two-fifths of this training led to formal qualifications (Winterbotham & Carter 2007). The following list captures some of the activities that have been surveyed through a Leonardo-funded project to identify the practices used by small and medium enterprises (SMEs) to increase their workforce competences (Gruber, Mandel & Oberholzner 2008). Leonardo is part of the European Commission's Lifelong Learning Programme and aims to support the building of a skilled workforce across Europe.

External

- ✧ visits to expositions/trade fairs
- ✧ conference and seminar attendance
- ✧ training courses provided externally
- ✧ study visits to other enterprises
- ✧ job rotation and exchange
- ✧ use of trade and sector magazines and publications
- ✧ internet-derived information (websites, databases)
- ✧ analysis of patents and licenses.

Internal

- ✧ in-house training courses/seminars provided by own personnel
- ✧ self-study activities during work time
- ✧ on-the-job learning
- ✧ job task/rotation
- ✧ coaching/guidance activities
- ✧ tutoring/mentoring systems for new employees
- ✧ apprenticeship schemes
- ✧ meetings among personnel for knowledge exchange/quality circles
- ✧ innovation and research and development (R&D) activities.

An underpinning characteristic of these activities is that they focus on problem-oriented or cooperative learning, for example, through the creation of communities of practice (CoP). None of the above activities is particularly innovative and many have been in use for a long time in VET.

So where *is* the innovation occurring?

Closer employer engagement in work-based learning

The first group of examples of innovation are drawn from developments in work-based learning in the United Kingdom and Europe. Highlighting the crucial importance of innovation to skills and knowledge acquisition, the white paper on science and innovation produced in 2008 by the United Kingdom Department of Innovation, Universities and Skills, *Innovation nation*, noted: ‘Innovation is key to unlocking talent and exploiting knowledge’.

Over the years the involvement of employers and stakeholders has been important for the successful operation of the VET system. Some countries offer centralised support to facilitate outreach to employers and their employees, including ‘one stop shops’. There are new frameworks to accredit work-based learning and in-house company training, as well as the increasingly tried and tested teaching and learning approaches which draw strongly upon learners’ experience from their workplace practices. In this section, the following four aspects of employer engagement in work-based learning exemplify how innovative practices in VET are being fostered:

- ✧ new institutions to build skills differently: the role of partnerships
- ✧ collaboration between sectors
- ✧ new teachers
- ✧ the motivated workforce: skills competitions and prizes.

New institutions to build skills differently: The role of partnerships

It is clear that close cooperation between providers of VET and employers is a key factor in successful development and transfer of learning for and in the workplace.

‘Learning by doing’, that is, authentic learning (Figgis 2009) is a feature of teaching and learning in Australia. This learning is based on the ‘real world’ and includes reflection on work activities and problem-solving, and fostering individuals’ own responsibility for taking action. This learning also needs the engagement of employers, since they are, of course, responsible for the workplace. Examples of authentic learning practices involving employers can also be seen in the United Kingdom and Europe. For example, use of case studies, equipment and materials help learners engage in the projects which replicate workplace practices. One of the major problems for VET providers is ensuring that their training is what employers want and that employers articulate to providers what their needs are. In addition, many employers do not invest in their staff because they think their employees will seek work elsewhere once they have become qualified and more marketable to their competitors. Despite these challenges, there is evidence that employer engagement *is* fostering innovation.

Brokerage and partnership

In many countries a structural feature which supports innovation is government policy such that employer engagement is supported and facilitated. Systems of brokerage are being used by

governments to help employers find appropriate training for their employees and in some instances even fund such training, as the following examples show.

In England the *Train to Gain* initiative aims to ensure that employers are put in touch with training providers through the use of brokers who carry out skills needs analysis for organisations. Using financial incentives to stimulate demand for training and development is a key component of this initiative. The program is designed to encourage employers to engage with the training and development of their employees. Tektra, a company which develops vocational skills, has been developing information technology (IT) user training programs and has assisted further education colleges to create over 160 IT learning centres. Tektra's model of flexible delivery, whereby learning slots are inserted into the workplace and agreed through individual learning plans that take account of business objectives, has helped employers to engage with their programs. Through *Train to Gain*, the company has developed a database of thousands of clients and aims to work with employer partners to incorporate bespoke software (<<http://www.tektra.com>>).

In Ireland, Skillnets was formed by industry stakeholders, with funding from the National Training Fund of the Department of Enterprise, Trade and Employment. This enterprise-led approach to VET supports flexible and effective training methods for enterprises which experience difficulties in accessing training. The networks are usually sector-based and companies come together to identify training needs and devise their own specific programs. This approach particularly helps small and medium enterprises (<<http://www.skillnets.com>>).

Germany hosts a think-tank called Innovation Circle for Vocational Education, which is comprised of high-ranking members from science, trade associations, trade unions and federal regions who are working on a new qualifications system and developing a training culture in innovative, growth and research-related industries.

In Finland, a workplace development program, TYKES, funded by the Finnish Work Environment Fund, the Occupational Safety Centre, the VETO program of the Ministry of Social Affairs and Health and the National Technology Agency, Tekes, with European Social Fund (ESF) funding, focuses on enhancing productivity and the quality of life of employees. Its learning networks enable researchers and workplace practitioners to work together through consultancies and external experts to create new knowledge about and expertise in sustainable productivity growth.

The 'national skills academies' (NSA) were established in 2007 in England to provide employers with a much stronger voice in shaping the supply of vocational education and training. Each new skills academy is expected to have national reach and has the goal of raising standards, fostering innovation and spreading good practice, as well as contributing to the professional development of teachers, lecturers and trainers. One academy, the Fashion Retail Academy, has an outstanding building in central London and enjoys close connections with the successful leaders in the fashion retail industry. It has a learning resource centre with online and paper-based resources and four IT suites. A number of students were recently able to meet Sir Philip Green (owner of the high street retail clothing group, Arcadia) in central London to discuss their work experience and future aspirations. Master classes are held with speakers from the top retail companies in the country. The academy has made use of sponsorship to award prizes in competitions, such as working with 'Get Serious World' for prizes for the design of an eco bag.

The role of the unions has been increasingly important in supporting workplace learning, as noted in the Skills, Knowledge and Organizational Performance project, SKOPE, hosted by the Universities of Warwick and Oxford. British trade unions are involved in a range of union learning programs and have created 'union learning representatives' (ULRs), who encourage employees to participate in a variety of learning activities. A union learning fund has been set up to support the activity, and unions are now a key stakeholder in the VET system, with around 13 000 union learning representatives trained for the role. By 2006 there had been 450 projects across 3000 workplaces where 67 000 employees had been engaged as learners. U-Net is a union learning network which operates with *learnirect*, the government-sponsored learning provision for adults.

Learning centres are being established, for example, the Bakers' and Allied Food Workers' Union has a centre in Harlesdon, London and here the Workers' Education Association (WEA) provides classes in English Language, English, Maths and IT. The Workers' Education Association operates a books swop scheme and employees can use the centre before and after shifts.

Finally, companies are now also accrediting the learning of their employees; however, this is not always seen as a good idea. In England, Network Rail, Flybe and McDonalds are three commercial companies that now have the status of awarding bodies, which enables them to accredit their own training programs, but as Besley (2008b) noted, the media's description of them as 'wise guys with the fries' perhaps sums up the response in the United Kingdom to this development!

Collaboration between sectors

The first example of collaboration between sectors and which has been an experiment in England was the creation of the 'foundation degree' (FD). Foundation degrees were created in 2001 with the aim of providing higher-level technical and professional qualifications and are the equivalent of the first two years of a three-year full-time bachelor degree. It is expected that they will be designed in collaboration with employers. The foundation degrees are delivered mainly in further education colleges, in partnership with higher education institutions. Collaboration between these two sectors, along with employer engagement, is a central characteristic of this new award, which has been the subject of discussion and debate (see, for example, Hillier & Rawnsley 2008; Reeve et al. 2007; Little 2008).

A foundation degree in web design offers an example of employer engagement with this award. The full-time students are placed with small companies and gain successful experience and work. The course team has also set up a 'virtual' company which sells services to clients and, as a result, some students have become self-employed (Reeve et al. 2007). Another foundation degree in fashion has used fashion photo shoots organised by the students themselves. These shoots were not a simulation but something that employers actually requested. This innovation was led by the employers rather than the course tutors. It developed from the normal practices in the industry but became innovative when applied in a traditional college setting (Reeve et al. 2007).

In the United Kingdom also, a number of networks and initiatives have been developed to engage employers in workplace learning. Foundation Degree Forward (fdf) has a remit to work with employers and is the national body that supports the development and validation of high-quality foundation degrees. It is funded by the Higher Education Funding Council for England to support employer engagement across higher education programs generally and in relation to foundation degrees specifically. One way in which it achieves this is by undertaking research and by publicising examples of good practice. This practice includes stimulating demand from employers, which then can lead to accredited programs and the development of a specific foundation degree. For example, as a result of the priority given to exercise referrals by general practitioners (GPs), Newcastle College and the City Council have developed, through the college's Lifestyle Academy, a foundation degree tailored to address the need for qualified practitioners in exercise programs. In some instances employers approach the universities to help introduce new practices. For example, the University of Bath has worked with Airbus UK and other companies associated with aerospace in the creation of a curriculum to support the introduction of new composite materials in the industry. The collaboration works across higher and further education institutions and the resultant resources will be used widely within the sector (Foundation Degree Forward 2008).

Belgium has attempted to remove barriers between general education and vocational provision through a project, *Accent op talent*, whereby schools innovate by removing barriers between the two forms of provision. Here, local projects focus on training in the workplace, promoting technology in schools and building cooperation between schools and enterprises. In the Netherlands, regulations which penalised students transferring from courses have been abolished to help create flexible pathways from secondary vocational to higher professional education. France and the

Netherlands have school-based and apprentice routes to the same qualification. France introduced the *validation des acquis de l'expérience* in 2002 so that all sectors would have recognised awards. France is also creating a national catalogue of vocational qualifications, with equivalence to European qualifications in some cases. In Denmark, there is a high level of stakeholder involvement, with two main pathways, the school pathway and company pathway. Recent research examining apprenticeships concluded that good training focuses on on-the-job training, a high degree of participation in production, challenges that are above the level of the apprentices, and reflection that takes place in the social environment of the company. Apprentices are supported with learning to learn, trying things out, formulating ideas and becoming self-disciplined (Harrebye 2006).

New teachers: Mentors in the workplace

There is a new breed of teachers in VET drawn from employees whose primary role in the workplace is assisting in developing the work of others. These are mentors and a substantial number of workplace learning activities rely on their support. A recent Spanish study of teaching concluded that, as well as practical work and on-site training, coaching and mentoring on site are appropriate approaches for fostering socio-emotional skills (Talavera & Pérez-González 2007).

Mentors can be employed directly by an awarding institution, for example, in many of the initial teacher training programs in compulsory and post-compulsory education and in higher education programs which use placements. The mentor can be drawn from the organisation supporting an employee's continuing professional development (CPD), where it is expected that the mentor will work with the colleague as part of normal professional responsibilities.

Mentoring can involve experienced employees working with newer/less experienced employees. In a Portuguese information communication technologies company, technical workers train each other in an informal way. The ICT workers meet weekly to evaluate how well services to clients have been delivered and, arising from this, norms and rules are refined. They have developed a one-week training package which was designed by the experienced technical workers for new recruits. In an agro-food company specialised employees help train staff on specialised machines (Brown 2005). An electrical equipment firm in Latvia with 700 employees arranges for senior staff to mentor and train newcomers over a three-month period. The mentors receive additional remuneration of up to 25 per cent of their regular salary, demonstrating how some companies recognise the importance of mentors for their role and contribution to the effective development of new employees.

Motivating the workforce: Competitions, quizzes and games

Yes, but is it fun? So far, all these developments are mainly focused on encouraging employers to be involved in the design of the program and in the introduction of new practices and keeping in touch with providers. However, the research identified specific examples of innovative teaching practices in companies; for example, an Austrian cable manufacturer with ten staff uses a firm-specific questionnaire game that covers organisational issues, work procedures, products, customers and competitors ("Who are our five most important competitors?"). This game is played monthly, with new questions included at any time (Gruber, Mandl & Oberholzner 2008, p.38).

National skills competitions particularly suit certain sectors. For example, Skillbuild is a national competition in the United Kingdom for young people training in the construction industry. Trainees compete annually in regional competitions, with the winners progressing to the national competition. The lucky winners are sometimes able to participate in the World Skills competition (Skills Olympics) held bi-annually.

Prizes can also go to providers. The Austrian KnewLEDGE prize (<<http://www.knowledge.at>>) rewards innovative training concepts and the annual prize also awards events which are organised to foster exchange of good practice. For example, in 2005, a prize was awarded to the qualification network of construction companies in Upper Austria (Strasser 2005).

Issues for the Australian context

The examples given above indicate the richness of experimentation occurring across Europe. People are trying to find ways to better link the content of their VET programs to employer needs, and there are some important lessons to be learned from the practices identified. Firstly, there needs to be support from government to help the system. What is being learned in school needs to contribute to what is being learned in the workplace. People need help in choosing what to study and if they want to change direction, they should not be penalised. So in the wider scheme of things, ensuring that the system allows for change, transfer and new content is an underpinning driver for innovation.

The next lesson arises from the workplace itself. Employers are busy people and particularly in the recent economic climate are hard pressed to make training a priority. Yet they need the innovation in their own workplace to keep competitive. If practitioners spend time finding out what is going on in the workplace, they have a better chance of creating learning relevant opportunities. The innovation here, however, is how they liaise with employers. The third lesson lies in how information is being shared, and the innovation appears to be arising from new ways to communicate between providers, between employers and between their employees. Finally, helping people learn by drawing upon experienced employees as mentors is becoming an established practice in the workplace.

Practitioners cannot change the system but they can work within it. The most fruitful paths to innovation, then, are through contact with employers and by collaboration and networking, finding and documenting new case studies and simulations and, where possible, actual practices that capture the changing environment at work. The next sections describe ways these innovative practices can be documented and spread in innovative ways.

New technology facilitating learning

If there is one factor which has fostered innovation in new teaching and learning practices more than any others, it is technological development. Globally, the use of e-learning through virtual learning environments (VLEs), multimedia hardware and software and through social networking has helped people learn at times that would have been impossible had it been necessary to meet their VET practitioners face to face or rely on hard copy in the form of books and reports. Virtual learning environments provide opportunities for people to download resources, follow links to websites, discuss their work and ideas through discussion boards, add to their ideas through wikis, and socialise through chat rooms and blogs. The use of this type of learning environment is widespread across the United Kingdom and Europe.

Another innovation facilitated through new technology is in the use of simulations. Simulations themselves are not new but the way in which they simulate a workplace environment through the use of technology is. One aircraft manufacture industry in England is working collaboratively with the organisers of a foundation degree. The industry software used in airline cabins is being applied in simulated learning experiences in the foundation degree so that students can experience of the actual software used in the industry (Reeve et al. 2007).

The University of Brighton has a simulated court environment with a Bench of actual magistrates who operate the proceedings as a real court. This learning environment is utilised by students studying law, journalism, media and the foundation degree for police. The police students set up the case files adapted from actual cases and the law students introduce the cases and call the police students as witnesses.

In the United Kingdom the practice of simulation has been developed within the school curriculum. British Telecommunications (BT), a private-sector telecommunications company has sponsored a project using media simulation in universities and schools (MESUS). The project aimed to build on universities' links with local schools. Working with disaffected young people, this project provided 'work experience' in the context of journalism and helped to foster transferable skills, enabled experimentation with new roles for pupils and staff, and developed communication and ICT skills (Smalley & Saunders 2001).

Comfort Driving Centre in Singapore secured 25 per cent of the driving school market by changing the traditional method of teaching, by speeding up the learning process and teaching socially responsible driving. This was achieved by incorporating a computer-based teaching program into the theory component and included video clips, graphics and animation, and by making the learning fun rather than a chore. The instructors were trained in learning theory, enabling them to adapt the techniques of explanation, demonstration and practice to suit their learners (Ashton 2002).

New technology has helped create platforms for learning, as seen by the introduction of 'learning islands' and learning partnerships. Learning islands are equipped with additional learning material, software and visualisation tools and are located within the workplace. Here people have time to pursue their learning while engaging in their normal work practices (Dehnbostel & Patzold 2004).

How do you capture the learning taking place? Once again, technology has helped here by logging learning electronically. These 'e-portfolios' have become a significant development in Europe because of their potential for accreditation. Canada, Australia, Ireland and the United Kingdom

are particularly keen on sharing practice about the use of e-portfolios at national and international conferences (for example, in La Rochelle, 2004) and recently have begun work on standardising these.

Some of the newer technologies are being used to encourage disaffected young people to engage in VET. Mobile learning is a new area of innovation within ICT. Here, equipment such as mobile phones, PDAs (personal digital assistants), ultra-mobile personal computers, mini notebooks, Sony PSP (PlayStation Portable) and Nintendo DS games machines, handheld voting and GPS devices, MP3/MP4 and multimedia players are being used to engage hard-to-reach learners. For example MoLeNET has introduced mobile learning into 89 colleges in England. In one college, Nintendo DS with Brain Training has helped students improve their writing skills.

Issues for the Australian context

Anyone who has just had their latest edition of Microsoft installed will understand the need to keep up to date with technology, with all the frustrations of having learned and become comfortable with one way of doing something only to discover it isn't quite the same in the new version! The clear lesson from using technology as a learning tool is that it needs to be tested out. What starts off as an application in everyday life can be used as a learning tool. Mobile phones are a case in point.

As far as teaching is concerned, the implication is that we need to adopt the new ways to communicate and decide whether they also have the potential to help trainees learn. This does not mean slavishly taking on a new technology just because it is new. The new technology is only as good as the use to which it is put (also true for the more traditional learning resources).

What would be useful, however, is to see the new technology in practice, to try it out (perhaps with colleagues so that all the glitches involved in using new technology are eliminated before going 'live' with learners) and to evaluate what works. There have been examples of further education colleges in the United Kingdom where, in the past, unreasonable and unrealistic rules have been introduced in an attempt to foster technological innovation in learning, for example, all programs must contain a percentage of online learning. In some instances this has been a dismal failure because the technology has been put to poor use, with consequently unhappy practitioners!

So the next question is how can practitioners acquire resources that are making use of new technology? A further key theme for innovation is the way in which technology has helped create resource banks and links to programs and websites which can be used by VET practitioners.

Networks, centres of excellence and resource banks

Networks

There has been a huge increase in the number of networks in the VET system, and these range from very informal, between practitioners, through to large international networks, funded, for example, by the European Union. Some networks focus on the subject specialist content and share resources online. Others provide opportunities for practitioners to meet and discuss their work. Still others provide case studies of innovation along with opportunities to test out activities in different contexts. Some networks are highly regulated, while others are entirely informal. This section focuses on the content of the networks rather than the ways in which practitioners can and do update their professional knowledge and practice. Below are some of the easy-to-locate networks, with examples of what they do and who they represent.

The National Learning Network (NLN) provides an online database of interactive online resources. Funded by the Learning and Skills Council in England (which is responsible for all post-compulsory education and training provision apart from universities in England), these are free to the education and training sector. The materials can be used by existing virtual learning environments (for example, Moodle—a course management system) and there is a section for practitioners to review and share collections assembled by other practitioners, a service that has been enthusiastically received by the sector, with registered user number 10 000 signing on by July 2008 (<<http://www.nln.ac.uk>>). Netskills (managed by the University of Newcastle) produces training materials which can be accessed online by institutions holding their licence and these include most universities and further education colleges. The website shows sample pages from modules, which include analysis of how training activities could be transferred to an online mode.

CoVEs

The further education sector in England received a boost to fostering good practice in VET when centres of vocational excellence—CoVEs—were established. The CoVE program was launched in 2001 to improve the capacity of further education to deliver specialist work-related learning. By 2006 there were nearly 4000 centres, covering a range of sectors, including food technology, ICT, financial services, construction, retail, childcare, sport and leisure and the creative industries. The next stage, introduced in 2006 was a ‘quality mark’ for employers, whereby CoVEs were reaccredited to create a new standard for employer responsiveness and vocational excellence. This new standard became available in 2007. An Adult Learning Inspectorate report (2005) on 40 centres of vocational excellence identified that the centres were operating responsive delivery models, with made-to-order training programs, product development and recognition of existing skills held by employees.

Centres of vocational excellence have taken up the challenge of finding innovative ways to share their practice within their subject specialists and they have also found unusual ways to attract learners. For example, Sussex Hospitality CoVE commissioned the conversion of a 7.5 ton lorry to a site for workplace learning. The lorry visits areas not well served by public transport and as a result there has been an increase in take-up of short theory courses. In Doncaster, the hospitality and catering CoVE has worked with the school meals service in providing workplace learning. Lewisham College in London installed the ICT systems used by the catering CoVE to record

and broadcast cookery demonstrations through its virtual learning environment and, as a result, approaches from high-profile employers have been made to the college.

Each of the centres of vocational excellence in Northumberland links to a specific manufacturer, where a planned program of visiting technical lecturers has been established. For example, a national adhesives manufacturing company provides demonstrations, product development and technical lecturers to learners across the trade areas. The manufacturers provide a range of materials, tools and equipment and one manufacturer took a group of staff to its plant in Germany to be trained in engineered flooring systems. This is not only an example of developing specialist practice but also of linking with employers.

Specialist resources and facilities

An area of VET that has particularly benefited from both the creation of centres of vocational excellence and the standards for specific vocational programs in England has been the construction industry, with the industry being able to draw upon resource banks from the CoVEs to help foster good practice in teaching and training. A survey of college provision found that, to promote interactive learning in construction, teachers made extensive use of the high-quality resource materials from the former Standards Unit of the Department for Education and Skills (DfES), with some staff adapting these materials (Office for Standards in Education 2008). Other specialist resources include skills competitions, with prizes sponsored by employers and manufacturers to help motivate learners. In some colleges, learners not only worked towards the main qualification, they could use specialist courses offered by the college and achieve industry-related qualifications, such as electrical testing, and safe use of ladders, along with the more generic first aid, health and safety courses.

The survey undertaken by the Office for Standards in Education also noted that in one college a carpentry and joinery course included a short video clip about site safety, an interactive quiz testing learners' knowledge of specialist tools and equipment, group work activities which developed the skills associated with team building, and role play. Another college offered flexible access to workshops outside normal timetabled sessions. Staff would provide specific demonstrations, for example, on how to set out and boss a chimney weathering apron, which some learners had found difficult to manage in their timetabled session.

The equipment supplied by enterprises is a key factor in enabling learners to gain industry experience. Some companies sponsor rooms or workshops and even provide occasional visits by their engineer. Even materials left over from completed contracts (bricks, paint, timber) are useful donations to enhance the learning experience.

The National Construction College is supported by the Construction Industry Training Board, one of the few original industrial training boards left in the United Kingdom. It promotes tailor-made training, designing courses for the construction industry, including apprenticeship training, and health and safety and management training. The college has a team of instructors, providing hands-on, practical experience and has developed programs on sustainability. The college specifies its training and assessment methods and, in their 'where to next' section, details how each course and qualification can be built upon (<<http://www.nationalconstructioncollege.co.uk>>).

Support of subject-specific activities is not the only role for networks. It is well recognised in the United Kingdom and Europe that good-quality information, advice and guidance (IAG) is a necessary component of VET. In England, lifelong learning networks have been set up to support a range of activities and within these, 'IAG networks' have evolved which are both generic and subject-specific and which link with further and higher education and the sector skills councils (SSCs).

Dissemination of good practice

A variety of methods have been employed to enable practitioners to share their practice. One example in England has been the creation of printed bulletins such as the *Workplace Learning and Skills Bulletin* which offers ‘essential reading for all who provide or support workplace and workbased learning and skills’. Its focus is on practice and its editorial team represents many stakeholders in the learning and skills sector in England, including the national agency for adult learning, the National Institute for Adult and Continuing Education (NIACE); an awarding body, City and Guilds; and a union development manager. Sussex Lifelong Learning Network has held monthly ‘twilight’ meetings for practitioners working on foundation degrees, also producing an electronic newsletter. Opportunities for practitioners to develop their use of new technology were also organised, for example, through an ‘e-learning event’, where, supported by staff from the Open University, one of the leading promoters of learning technology in the United Kingdom, people could engage with the latest innovative learning technologies.

Online and paper-based methods have been developed by the Quality Improvement Agency (soon to be merged with the Centre for Excellence in Leadership to become the Learning and Skills Improvement Service). These include the *Gateway to Excellence*, which incorporates a good-practice database originally set up by the Office for Standards in Education, which has sections on best practice and over 300 case studies demonstrating how this practice can be implemented. The database contains a *Skills for Life* section aimed at employers and workplace learning providers (Office for Standards in Education 2008). The aim of the *Skills for Life* strategy is to increase the basic literacy, numeracy and ICT levels of adults.

Listed below are examples of agencies responsible for learning in the post-compulsory sector, which, as part of their remit, provide a variety of sources of information, learning resources and shared practice for VET practitioners.

Institute for Learning

The Institute for Learning (IfL) has responsibility for registering all newly qualified practitioners in the learning and skills sector, along with maintaining the CPD (continuing professional development) database, whereby all practitioners who work in further education must undertake 30 hours of continuing professional development annually. The institute’s newsletter provides web links and, recently, podcasts from other sources. One podcast examines how workplaces, including the Army and Transport for London, encourage learning with their employees. The Institute for Learning is a professional body for teachers, trainers, tutors, student teachers and assessors in the further education and skills sector. It was set up to support the needs of its members and raise the status of teaching practitioners across the sector.

Quality Improvement Agency

The Quality Improvement Agency (QIA) was set up in 2006 to promote quality enhancement in the further education sector in England. Along with an online journal, it has an excellence gateway with a vocational learning support program aimed at promoting and supporting teaching excellence in schools and colleges. It provides case studies of good practice and a series of problems and scenarios with suggested solutions for practitioners to test. For example, in one engineering program for young people at school, the tutor managed to gain unclaimed bikes from the police and worked with local bike shops and manufacturers to assist the learners in developing and making bicycles. Some bikes have been entered into national competitions and feature in magazine articles (<<http://excellence.qia.org.uk/vlsp>>).

The Quality Improvement Agency has a diploma support program which offers made-to-order training for the new 14–19 diplomas currently being introduced in England. These provide vocational training and qualifications for young people in schools and colleges. The training covers six topics: pedagogical approaches, personalised learning, assessment, collaboration, curriculum

strategies and delivery of the new 14–19 diplomas. This program is in its infancy, but it is likely that the collaboration between providers in further education, schools, and employers will create demands for and innovation in pedagogical approaches (<<http://www.diploma-support.com>>). The Quality Improvement Agency publishes a 14–19 newsletter for practitioners targeted to practitioners preparing for the 14–19 diplomas. The newsletter contains case studies as well as information about resources, web links and updates on policy. At the time of writing, the Quality Improvement Agency is becoming a new organisation, the Learning and Skills Improvement Service (LSIS).

Learning and Skills Network

The Learning and Skills Network was set up in 2006 to foster and share practice in the learning and skills sector in England. It hosts the national Teaching and Learning Change Programme (formerly the Subject Learning Coaches Programme), which comprises subject-specific teaching and e-learning resources, subject coaching networks organised to facilitate networking, and professional training for subject learning coaches. The latter are designed to foster peer coaching skills and support teachers and trainers to work with their colleagues. The network also lists case studies of successful organisations, for example, Rathbone, a national work-based training provider with 35 subject learning coaches that has invested heavily in a whole-organisation approach. As a result of this investment, learners are more successful in gaining employment and they are more engaged in the learning process and better able to adopt problem-solving approaches at work. Staff are also creating their own resources and are more proactive and motivated to engage in the learning process of their trainees (<<http://www.subjectlearningcoach.net>>).

Learning resources are also available from the network, for example, for developing and using virtual learning environments, where there are links to developing simple learning objects, creating e-portfolios and developing web quests.

The Higher Education Academy

The Higher Education Academy (HEA) was set up by the British Government to support the sector in the provision of the best possible learning experience for all students. It has developed its *Learning and employability* series of materials, which includes a report entitled *Pedagogy for employability*. The series is intended for staff in higher education institutes who are concerned with the enhancement of student placements. The Universities Vocational Awards Council is primarily responsible for accrediting vocational awards and is particularly concerned with employer partnerships in foundation degrees. The council produces a special edition of its newsletter that focuses on the presentations, discussions and outcomes of the organisation's annual conference. Centres for Excellence in Teaching and Learning (CETLs) have been funded to share and develop good practice. The University of Portsmouth has a centre for excellence in teaching and learning which is making use of social networking to foster the development of foundation degrees. It has also recognised the need for a 'one stop shop' for knowledge transfer and has created a 'purple door' for businesses which provides a central focus for workforce development provision, including foundation degrees, learning at work, knowledge transfer partnerships and tailor-made continuing professional development courses (Higher Education Academy 2006a).

Joint Information Systems Committee and similar support bodies

The Joint Information Systems Committee (JISC) has sponsored a number of projects that enable higher education institutes to engage with employers. *Intute* is a virtual training suite supported by the Joint Information Systems Committee and two research funding councils. It provides tutorials written and updated by a national team of subject specialists based in universities, for example, tutorials in aeronautical engineering; leisure, sport and recreation; and agriculture, food and forestry (<<http://www.vts.intute.ac.uk>>). The agriculture, food and forestry site includes examples of success stories, such as an organic farmer who is now able to check the soil association website for updates and who has now linked with other organic smallholders through her use of the net.

Another success story in civil engineering shows how a tutor wanting to set up an online course within his university virtual learning environment drew upon the resources of *Intute*, including access to the Open Courseware Ground Hydrology page and other resources of the Higher Education Academy.

An important development, *TechDis* is a service set up to foster greater accessibility and inclusion by stimulating innovation and providing expert advice and guidance on disability and technology. This service has enormous potential in stimulating innovation and is particularly welcome as it addresses issues of accessibility.

There are a number of organisations that have become more central to the support of practitioners over the years, including the British Educational Communications and Technology Agency (BECTA), which provides events, awards, newsletters and funding for research to help develop educational and instructional design. This organisation was originally focused on school teaching, but it now works across the compulsory/post-compulsory sectors and was hugely influential in encouraging practitioners to engage with computers in the early 1980s. The agency encourages practitioners to make use of the many and varied electronic resources on offer from private and public companies specialising in educational products.

In the United Kingdom, awarding bodies have played a key role in workforce development through the accreditation of VET. The City and Guilds Institute has created the independent, not-for-profit Centre for Skills Development, which works with organisations internationally to share knowledge and good practice. Its aim is to achieve a vision of a world in which all people have access to the skills they need for economic and individual prosperity. The centre has produced country reports which cover not just information about population, GDP and labour market trends, but also information about the qualification frameworks and key emerging issues for VET (see <<http://www.skillsdevelopment.org>>).

European and other international networks

A recent European research project, *New Forms of Education and Professionals in VET* (Europrof), involving 16 partners from research institutes and universities in 14 European countries, has been initiated to develop a community of researchers and practitioners and aims to gain recognition of VET as a discipline and profession in its own right. It is working towards developing new qualifications for VET practitioners through a European Masters qualification offered in the participating countries. Activities being supported include a link between specialised schools and initial training centres in Spain, and, in Finland through an in-depth study, identifying that trainers can act as development agents in the workplace, even in small-to-medium enterprises, particularly in light of the use of IT and automation. The study used the wood processing industries and the health and social care sector. The study suggests that VET professionals should focus on developmental interventions such as mentoring, coaching, facilitating and simulation rather than instruction and training (Attwell 2006).

These developments have their counterparts in Australia, for example, TAFE NSW's International Centre for VET Teaching and Learning (ICVET) has information on pedagogy, with related resources on topics ranging from the practical, such as using quizzes and games, to the more theoretical, such as learning styles and action research. The website has links to additional sources and websites and provides exemplars and think pieces (<http://www.icvet.edu.au/resources/vet_pedagogy.htm>).

In North America there have been networks for research and development used by practitioners such as the National Center for Research on Vocational Education but, as with United Kingdom and European centres discussed above, there was little focus directly on practice. When the National Center for Research on Vocational Education existed, it was administered from 1988 until 1999 through the University of California at Berkeley and involved a consortium of scholars at various universities and centers of research. Many of the publications of the National Center are

still available on the web (see <<http://vocserve.berkeley.edu/>>) and/or through the ERIC Clearinghouse on Adult, Career and Vocational Education (see <<http://www.eric.ed.gov/>>). Unfortunately the ERIC Clearinghouse was closed at the end of 2003 but it contains a good archive of material up to that date. The Community College Research Center has conducted considerable research on community colleges (see <<http://www.ccrccolumbia.edu/>>). Its *Community College Journal* provides information about new trends, such as the rise of non-credit workforce education, along with discussion papers, news events, announcement of conferences and information about professional development programs for practitioners.

Issues for an Australian context

With so many networks to link into, the first consideration has to be where to start! Not all the networks will have appropriate resources, as many of them are so highly contextualised in their own country that they will need considerable adaptation if they are to be useful in Australia. However, the key is to experiment and change what is not relevant. The second lesson, though, is to undertake a careful web search and concentrate on one or two networks that appear most promising in terms of the learning resources they offer. The most useful sites were those that also contained evaluations of the resources or had additional guidelines for their use.

This, then, leads to the important conclusion that many networks are only as good as the engagement of the users. Some sites appear to have been created in a flurry and then as interest wanes, their usefulness dwindles. Establishing how many 'hits' a network has and how much user discussion is taking place are useful ways to assess the worth of a website. Also useful is following up some of the activities with participants and developing personal favourites.

Networks in professional practice

The VET practitioner and professional development

The changing workplace environment offers many opportunities for innovative teaching. The problem is keeping abreast of all of these exciting initiatives. The rapid technological advances, including high-speed networks, multimedia and innovative instructional techniques, are placing demands on VET teachers. Teachers also need to be trained and this requirement has begun to make an impact on the professional development of VET practitioners across Europe. Indeed, the recognition of teachers' performance is an increasing worldwide trend and the most likely scenario for VET is that trainers will need to prove the quality of their teaching more frequently (Armstrong et al. 2008). This has implications, including the need to increase teacher training capacity, both face-to-face and online, accredit these programs, conduct research into the effect such programs have on the quality of VET, as well as finding resources to help VET practitioners benefit from continuing technological advances (Armstrong et al. 2008, p.53). An example of this is where individual VET practitioners identify from a series of competences those they personally wish to gain credit for and they then build such credit up through e-portfolios (although non-electronic portfolios can achieve similar objectives).

Status of VET practitioners and their professional development

The status and position of VET practitioners varies across countries. Some European countries require a university-based qualification and relevant employment experience, while in others colleges can recruit without requiring vocational and teaching qualifications. The status of VET practitioners is reflected in the level of qualifications required to practise, along with whether there is parity of esteem with academic/general education teachers. For example, the German-speaking countries (Germany, Austria, Switzerland) and the Czech Republic have enhanced vocational education, which has a distinctive ethos but which benefits from providing students with a wide range of options through collaboration between the differing education institutions. Institutions in the Scandinavian countries, including Finland and Norway, collaborate to provide stimulating learning methods and environments, where the two educational and vocational pathways can draw the best features from each other and through the use of common certification and accreditation frameworks. This latter strategy has recently been adopted by the English and French. Scotland and Sweden already have a single system of post-16 education, but in both countries vocational and academic students and teachers continue to be distinguished (Lasonen & Gorden 2008, p.18).

A recent workforce strategy in the United Kingdom has been facilitated by Lifelong Learning UK, an independent employer-led sector skills council responsible for the professional development of staff working in the lifelong learning sector. The council looks at the skills development needs of trainers, tutors and learning support staff as well as those of human resources and business support professionals. Its aim is to develop a framework for workforce development needs that is common to providers across the sector. Lifelong Learning UK is currently discussing how best to capture data on the workforce in the varied parts of its remit and is hoping to develop the strategy in a more coherent way (see <<http://www.lluk.org>>).

The challenges of keeping up to date and also gaining the appropriate qualifications to enable practice suggest the need for innovative networks for practitioners which focus on *their* practice and on *their* learning needs.

Networks for practitioners

Networks to support professional training in England include SCEPTR_E, a project funded by the Teaching and Learning Research Programme (TLRP), which focuses on 'learning as work'. The project has produced a number of reports and suggests links to further research and websites (<<http://www.surrey.ac.uk/sceptre/ResourcesandlinkstosupportPT.htm>>). For example, the website lists links to the Practice-based Professional Learning Centre (PBPL) at the Open University, the Work Integrated Learning UK website, which provides a portal to relevant resources, and the Centre for Excellence in Teaching and Learning in Professional Learning from the Workplace, based at the University of Westminster.

In England, centres for excellence in teacher training (CETTS) have been established to help foster good practice in post-compulsory education. One project has provided sessions on integrating interactive whiteboards into further education provision. All further education teachers in England are required to undertake 30 hours of continuing professional development and the centres for excellence in teacher training therefore provide an important source of information for guidance in the choice of professional development activity. The professional development requirement is managed by the Institute for Learning and uses an e-portfolio system, PebblePad, to capture and assist in planning professional development activities (see <<http://www.excellence.qia.org.uk>>).

European networks for practitioners

In Europe, the primary network for VET is Cedefop, the European centre for the development of vocational training, based in Greece. This network undertakes research, promotes dissemination of practice and hosts conferences, all of which activities can be accessed through its website. One of its activities is the Training Village. The Training Village provides a list of European training projects and initiatives, which include the following:

- ✧ VET policy analysis, which aims to stimulate debate amongst researchers and practitioners internationally
- ✧ TTnet, which is the Training of Trainers network set up by Cedefop in 1998
- ✧ Skillsnet, which brings researchers together to discuss changing skills needs
- ✧ Lifelong Guidance, which is a resource for recent European Union policy developments on guidance
- ✧ Lifelong Learning, which promotes the Lisbon Agenda's core goal of making lifelong learning a reality
- ✧ Cedra, which is a Cedefop Research Arena aiming to develop net thinking about adults learning in work environments
- ✧ Ero, which is a research overview supporting cooperation between researchers in VET and human resource development.

Each network disseminates information through the Skillsnet newsletter, which provides an editorial and information on new initiatives, such as the recent enterprise survey as a tool for identification of skills needs. Here a common European approach is being developed and comprises 13 member states, including the Czech Republic, Estonia, Finland, France, Germany, Greece, Ireland, Portugal, Romania, Slovakia and England (Skillsnet newsletter 1, 2008).

The Training Village includes a number of reports, for example, a discussion of the European Qualifications Framework; an analysis of VET reform in individual countries, such as the introduction of an education technology plan in Portugal; projects to address gender inequality in Greece; and tax incentives for lifelong learning in Slovakia (<http://www.trainingvillage.gr/etc/Upload/Information_resources/Bookshop/489C18E>).

Funding streams within the European Union are primarily available through the Leonardo program but also through Gruntvig to support the development of knowledge and practice of VET. Grundtvig is part of the European Commission's Lifelong Learning Programme and aims to strengthen the European dimension in adult education and lifelong learning. ECUANET, the European Corporate Universities and Academies Network, is one Leonardo-sponsored project and is a transnational project of seven partners whose aim is to create a best-practice network of private and public-sector organisations.

Issues for an Australian context

Each European country examined has requirements for qualified and experienced VET practitioners. Although some of the networks given above will be too context-specific for Australian application, the need for practitioners to access opportunities to develop their own practice is substantial. The ways in which this is being supported in Europe are worth exploring for the Australian context. The Institute for Learning website may be a useful resource in this regard. Although it now registers all the continuing professional activities of further education staff, it is primarily a membership organisation with a key purpose of strengthening good practice in the sector.

Challenges ahead

Innovation does not arise in a vacuum. There is a tendency for policy-makers to assume that, by upgrading the qualifications of vocational teachers, the pedagogical quality required in the ‘knowledge-based economy and society’ will follow, and that information communications technology will do the rest. Those of us who support students coming from the VET field are under pressure. We work in a context of decreasing time for face-to-face-encounters with our learners, overly bureaucratic evaluation and quality assurance systems, and, increasingly, the requirement to network with other education providers, authorities and companies. This has created tension since we are unable to respond to the educational and occupational needs of students and the workplace. VET practitioners are developing ‘coping strategies and innovation’ in these circumstances (A Heinnekin [University of Tampere] pers. comm. 2008).

This report has shown that, despite these challenges, practitioners are being innovative in a variety of ways. What is clear is that they need spaces to enable testing of new ideas and then to share these with their peers. There needs to be a culture where experimentation is possible, in a context of learning from experiences—including failure—without fear of reproach. There also needs to be a commitment to finding ways to help encourage those least inclined to participate to do so. Some of these issues cannot be dealt with in isolation from the system itself. There is no point in providing innovative, exciting learning opportunities if employees and potential employees cannot see a worthwhile job at the end.

Resourcing the VET system, then, requires commitment nationally, regionally and locally. It requires collaboration between employers, employees and providers. Networking has a huge potential for allowing cross-fertilisation of ideas and active experimentation. A range of bodies in Australia are well placed to foster such networking by helping practitioners answer the ‘what works?’ questions. However, networks only provide part of the picture within the systemic environment. To help practitioners to fully engage in innovation in their professional practice, the following supports need to be established:

- ✧ an infrastructure of support for VET practitioners through online networks
- ✧ opportunities for VET practitioners to share their practice through networks, conferences and workshops, as well as through the more traditional means of professional journals and newsletters
- ✧ ways to test out new resources and pedagogies in a culture of active experimentation
- ✧ opportunities to reflect on ‘what works’ and to identify how to embed good practice in the varied contexts in which VET is delivered
- ✧ a recognition that informal learning plays a significant part in VET, both for the learners and for the practitioners. Ways need to be found to ensure that this informality and creativity is nurtured but not controlled.

There are many bodies in Australia which have been and are promoting practice that has been actively researched, evaluated and is ready for dissemination. Of course, the involvement of practitioners, managers, employers, industry, business and government is key to successful

learning. The frenetic pace of change and the current economic uncertainties only add to the challenges, but with an ongoing commitment to seeking ‘what works’, VET practice will be able to be proactive in its aim of helping people acquire skills and knowledge to ensure their successful participation in society.

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Appendix A:

Annotated list of useful websites

Austrian KnewLEDGE prize: rewards innovative training concepts; the annual prize also awards events which are organised to foster exchange of good practice.

<<http://www.knowledge.at>>

British Educational Communications and Technology Agency (BECTA): provides events, awards, newsletters and funding for research to help develop educational and instructional design.

<<http://www.becta.org.uk/>>

Cedefop: European network undertaking research, promoting dissemination of practice and hosting conferences, all of which activities can be accessed through its website.

<<http://www.britishcouncil.org/learning-edefop>>

Centres for Excellence in Teacher Training (CETTs): established to help foster good practice in post-compulsory education.

<<http://excellence.qia.org.uk/nationalcetts>>

Centres for Excellence in Teaching and Learning (CETLs): established to share and develop good practice.

<<http://www.hefce.ac.uk/Learning/TInits/cetl/>>

City and Guilds Centre for Skills Development: an independent, not-for-profit centre which works with organisations internationally to share knowledge and good practice.

<<http://www.skillsdevelopment.org>>

Community College Research Centre: conducts considerable research on community colleges in the United States.

<<http://ccrc.tc.columbia.edu/>>

Department for Innovation, Universities and Skills (DIUS): United Kingdom government department responsible for further and higher education, innovation, science and technology.

<<http://www.dius.gov.uk/>>

Education Resources Information Centre (ERIC) Clearinghouse on Adult, Career and Vocational Education: closed at the end of 2003, but it contains a good archive of material up until that date.

<<http://www.eric.ed.gov>>

Eurostat: European Union statistics.

<<http://epp.eurostat.ec.europa.eu/>>

Foundation Degree Forward (fdf): has a remit to work with employers and is a national body that supports the development and validation of high-quality foundation degrees.

<<http://www.fdf.ac.uk/>>

Grundtvig Programme: Grundtvig is part of the European Commission's Lifelong Learning Programme and aims to strengthen the European dimension in adult education and lifelong learning.

<<http://www.grundtvig.org.uk/>>

The future of higher (lifelong) education: an online book promoting the vision of job training and education for everyone on the planet during this century, with links to hundreds of useful sites.

<<http://ecolecon.missouri.edu/globalresearch/>>

Higher Education Academy: supports the sector in the provision of the best possible learning experience for all students.

<<http://www.heacademy.ac.uk/>>

Institute for Learning (IfL): has responsibility for registering all newly qualified practitioners in the learning and skills sector, along with maintaining the continuing professional development database.

<<http://www.ifl.ac.uk/services/>>

International Centre for Vocational Education and Training (ICVET): Australian centre with information on pedagogy, with related resources on topics ranging from the practical, such as using quizzes and games, to the more theoretical, such as learning styles and action research.

<http://www.icvet.tafensw.edu.au/resources/vet_pedagogy.htm>

Joint Information Systems Committee (JISC) Intute: a virtual training suite supported by the Joint Information Systems Committee and two research funding councils. It provides tutorials written and updated by a national team of subject specialists based in universities.

<<http://www.vts.intute.ac.uk>>

Learndirect: government-sponsored learning provision for adults.

<<http://www.learndirect.co.uk/>>

Learning and Skills Network (LSN): set up to foster and share practice in the learning and skills sector in England.

<<http://www.lsneducation.org.uk>>

Leonardo Programme: part of the European Commission's Lifelong Learning Programme and aims to build a skilled workforce across Europe.

<<http://www.leonardo.org.uk/>>

Lifelong Learning UK (LLUK): looks at the skills development needs of trainers, tutors and learning support staff as well as those of human resources and business support professionals. Its aim is to develop a framework for workforce development needs common to providers across the sector.

<<http://www.lluk.org/>>

National Center for Research on Vocational Education: North American network for research and development used by practitioners, but closed in 1999.

<<http://www.vocserve.berkley.edu/>>

National Construction College: promotes tailor-made training and designs courses for the construction industry, including apprenticeship training, and health and safety and management training.

<<http://www.nationalconstructioncollege.co.uk>>

National Learning Network (NLN): funded by the Learning and Skills Council in England and provides an online database of interactive resources free to the education and training sector. The materials can be used by existing virtual learning environments.

<<http://www.nln.ac.uk>>

National Skills Academies (NSA): established in England to provide employers with a much stronger voice in shaping the supply of vocational education and training.

<<http://www.nationalskillsacademy.co.uk/>>

Office for Standards in Education (Ofsted): inspect and regulate to achieve excellence in the care of children and young people, and in education and skills for learners of all ages. The new Ofsted brings together the wide experience of four inspectorates to make a greater difference for every child, and for all young people and adult learners, in England.

<<http://www.ofsted.gov.uk/>>

Organisation for Economic Co-operation and Development (OECD): brings together the governments of countries committed to democracy and the market economy from around the world to support sustainable economic growth, boost employment, raise living standards, maintain financial stability, assist other countries' economic development and contribute to growth in world trade.

<<http://www.oecd.org/>>

Quality Improvement Agency: set up to promote quality enhancement in the further education sector in England. It has an excellence gateway with a vocational learning support program aimed at promoting and supporting teaching excellence in schools and colleges. It provides case studies of good practice and a series of problems and scenarios with suggested solutions for practitioners to test.

<<http://www.excellence.qia.org.uk>>

Quality Improvement Agency Diploma Support program: provides made-to-order training for the new 14–19 diplomas currently being introduced in England. These provide vocational training and qualifications for young people in schools and colleges.

<<http://www.diploma-support.com>>

SCEPTrE: a networks to support professional training in England and funded by the Teaching and Learning Research Programme (TLRP), which focuses on 'learning as work'.

<<http://www.surrey.ac.uk/sceptre/ResourcesandlinkstosupportPT.htm>>

Skillsnet: formed by industry stakeholders, with funding from the National Training Fund of the Department of Enterprise, Trade and Employment. This enterprise-led approach to VET supports flexible and effective training methods for enterprises which experience difficulties in accessing training.

<<http://www.skillnets.com>>

Teaching and Learning Change Programme (formerly the Subject Learning Coaches Programme): hosted by the Learning and Skills Network, comprises subject-specific teaching and e-learning resources, subject coaching networks organised to facilitate networking, and professional training for subject learning coaches.

<<http://www.subjectlearningcoach.net>>

The Training Village Europrof—New Forms of Education and Professionals in VET (Europrof): project involving partners from research institutes and universities in 14 European countries initiated to develop a community of researchers and practitioners and aims to gain recognition of VET as a discipline and profession in its own right.

<<http://www.trainingvillage.gr/etv/default.asp>>

TYKES: a workplace development program in Finland, focusing on enhancing productivity and the quality of life of employees. Its learning networks enable researchers and workplace practitioners to work together through consultancies and external experts to create new knowledge about and expertise in sustainable productivity growth.

<http://www.mol.fi/mol/en/01_ministry/05_tykes/index.jsp>

Universities Vocational Awards Council: primarily responsible for accrediting vocational awards and is particularly concerned with employer partnerships in foundation degrees.

<<http://www.uvac.ac.uk>>

University for Industry (Ufi): has a mission to use technology to transform the skills and employability of the working population, in order to improve the UK's productivity.

<<http://www.ufi.com/>>



The National Vocational Education and Training Research and Evaluation (NVETRE) Program is coordinated and managed by the National Centre for Vocational Education Research, on behalf of the Australian Government and state and territory governments, with funding provided through the Department of Education, Employment and Workplace Relations.

This program is based upon priorities approved by ministers with responsibility for vocational education and training (VET). This research aims to improve policy and practice in the VET sector:

Research funding is awarded to organisations via a competitive grants process.

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