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Transforming Queensland **VET:**

Challenges
& Opportunities

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Foreword

This volume is the second in a series that addresses change and development in the delivery of vocational and education programs in Queensland. A similar volume was published in 2007. Considerable change was foreshadowed for TAFE Queensland by the release of *The Queensland Skill Plan* (QSP) in 2006. This volume addresses implementation issues for the Actions identified in the QSP. The chapters focus on a breadth of issues that relate to the changing landscape for teaching and learning in TAFE Institutes. The incorporation of Information Communication Technologies (ICTs) and e-learning approaches into the delivery of training packages remain key foci for change, as was evident in the first volume of this series. The chapters also consider issues for some client groups in VET, as well as approaches to professional development to build the capabilities of staff for new teaching and learning environments.

The chapter by **Sandra Lawrence** examines the professional development issues for staff across TAFE institutes in the implementation of the Learning Management System. **Suzanne Walsh** discusses the issues of new “learning spaces” and “Mode 2 learning in the re-development at Southbank Institute. The chapter by **Angela Simpson** focuses on VET in schools and school-to-work transition programs. **Josie Drew**, in her chapter, takes up the issues of embedding employability skills into the delivery of training packages through flexible delivery. The chapter by **Colleen Hodgins** focuses on the organisational challenges for Lead Institutes in relation to the professional development for TAFE educators in light of policy changes. **Bradley Jones** discusses the changing roles of libraries in VET contexts and their importance. He examines the adequacy of the VOCED database and reflects on the current nature, role, and practices of VET libraries. Finally, **Piero Dametto** discusses the pragmatics for TAFE educators in understanding the use of digital objects and learning objects within the LMS and LCMS systems that were presaged in the QSP.

These papers were completed by the authors as a part of their postgraduate studies at QUT. The views reported are those of the authors and should not be attributed to the Queensland Department of Education, Training and the Arts.

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Contents

Foreword	iii
<hr/>	
Chapter 1: Using Smarter Technology: A Professional Development Model for TAFE Educators	1
Sandra Lawrence	
<hr/>	
Chapter 2 A Shift in Modes: Can New Learning Spaces Transform Educational Practice?	17
Suzanne A. Walsh	
<hr/>	
Chapter 3 Seeking the Balance: Lifelong Learning and Trade Training during the School-to-Work Transition	32
Angela Simpson	
<hr/>	
Chapter 4 Supporting Employability Skills through Flexible Learning Approaches	47
Josie Drew	
<hr/>	
Chapter 5 The F.A.C.T.S: TAFE Qld Lead Institutes and Professional Development	63
Colleen Hodgins	
<hr/>	
Chapter 6 A Vocational Library Stocktake: A Systematic Review of the Library Content of the VOCED Database	75
Bradley Jones	
<hr/>	
Chapter 7 Moving forward with Learning Objects: Doing It Right for TAFE	89
Piero Dametto	
<hr/>	

Figures, Tables and Boxes

> Figures

Figure 1.1: Proposed LRM program model and its relations to professional development and policy initiatives	3
Figure 1.2: Learning experiences for educators in the LRM program across facilitated, guided-independent and social-collaborative modes	10
Figure 1.3: Evaluation approach for the LRM program	12
Figure 4.1: Interaction wheel of the relationship of learning approaches to flexible delivery strategies and employability skills	58
Figure 7.1: Representation of how Learning Objects contribute to the whole	92
Figure 7.2: The Learning Resource Management framework	95

> Tables

Table 2.1: Features of knowledge production in Mode 1 to Mode 2	20
Table 2.2: Features of pedagogy in teacher-centred and learner-centred classrooms	22
Table 4.1: The ACCI/BCA employability skills framework	49
Table 6.1: Summary of characteristics of records analysed in the review	80

> Boxes

Box 2.1: Teacher reflections on the new learning spaces	23
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Chapter 1

Using Smarter Technology: A Professional Development Model for TAFE Educators

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> Abstract

The implementation of the Learning Resource Management (LRM) program for the systemic administration of the educational technology platforms across TAFE Queensland is a key response to the Queensland Skills Plan. The LRM program provides core systems to support improved quality, consistency, and accessibility to public vocational education and training. This report proposes that it is only through the agency of skilled, committed, and reflective practitioners that technology programs, like the LRM, can transform teaching and learning. The basis and description for a multimodal professional development model for the LRM program has been proposed. This model is described in this chapter. This report discusses the value of facilitated, guided-independent and social-collaborative experiences to professional development. The provision of such experiences can transcend the technical skills required to implement new education technologies. Such experiences can motivate, support, and sustain new approaches to enhanced technology-enabled teaching and learning environments.

The Learning Resource Management (LRM) program across TAFE Institutes has been implemented as a part of the development of the learning content management and learning management platforms. The program is an initiative within the Queensland Skills Plan (QSP) (Department of Education and Training, 2006). It is a significant investment to improve the quantity and quality of training through TAFE institutes to meet labour market needs. TAFE teachers are the critical stakeholders for the LRM for designing, building, extending and sharing learning experiences that can be used with students across Queensland. In the implementation of the LRM, the professional development of TAFE educators is crucial. This chapter explores how effective professional development (PD) can be delivered in the TAFE context and a model for LRM professional development is examined. TAFE educators include full-time, part-time, and sessional teachers, lead vocational teachers, educational leaders and tutors employed under the TAFE Teachers' Award (Department of Employment and Industrial Relations, 2003), as well as workplace trainers who are employed as public servants and contractors.

Leading change through technology is challenging enough even if homogeneity around TAFE practices could be assumed. However, there are diverse and complex demands on TAFE training from the market place. The QSP forecasts that these diverse and complex demands will become more, rather than less, over time. Vocational areas in TAFE, staff and students are also diverse. The inherent contradiction at the heart of the LRM program is that it is driven by a standardised platform but, at the same time, seeks to ensure that there are creative, imaginative, and customised applications in the delivery of programs. Teachers require mastery over the standardised technology tools but also require understanding and motivation to use the LRM to fashion extraordinarily variable learning environments. As an ICT project, the LRM program also has boundaries. When it ends in June 2009, platforms, business processes, work flows, and professional development will have been implemented and ownership transferred to TAFE institutes supported by DETA Information Technology and Product Services Operations. The LRM program is concerned with platforms, intellectual property and principles for quality resources.

> The policy context and the LRM program

The QSP (DET, 2006) proposed that education and training underpins economic and social prosperity. There was an emphasis in the QSP on the impact of information and communication technology (ICT) in vocational training to improve learning accessibility, flexibility, efficiency and learning outcomes. Positioned under the QSP, the Department of Education, Training and the Arts Strategic Plan 2007 – 2011 (DETA, 2007a) focused on the importance of new technologies to ensure flexible and responsive TAFE training to meet labour market demands. The Information and Knowledge Strategic Plan 2007–2011 (DETA, 2007b) also focused on the importance of technology-driven change to ensure “anywhere-anytime learning”. This latter plan requires that educators increase their digital literacy to more fully utilise emergent educational technologies. The Strategic Professional Development Framework for Queensland VET 2007 – 2010 (DETA, 2007c) and its derivative the Professional Development Strategy for Queensland's Vocational and Education and Training (VET) Sector 2007 – 2010 (DETA, 2007d) also prioritised technology capabilities to add value to the learning processes.

The QSP described 24 actions to transform and modernise the VET system. Action 5 and Action 7 proposed a learning management system to deliver more flexible student access to education and training, with Action 7 noting the importance of intellectual property management and resource sharing between trainers. The LRM program for TAFE Queensland will provide core educational technology platforms to underpin these transformations for resource sharing between trainers. Action 1 is also important. It indicated that training effectiveness depends on educators' skills in combining teaching techniques with the latest technology and noted the importance for effective staff professional development in its scope.

> PD or not PD? That is the question

Given that the focus of the LRM program is technology, perhaps the LRM program could limit itself to the core business of the implementation of the technical platform and not necessarily take into account the professional development of the teachers. However, from the initial business case, proposed in the funding bid and program management plan, it was envisaged that the LRM program would incorporate professional development with the rollout of the technology platforms. This is justified on the basis that changing technologies will be a major driver of future professional development (Wilson, 2003). Educators need to improve their technology skills, their abilities to apply them to resource development and training delivery, and their responsiveness to technology preferences in students' learning styles. A priority for the Queensland VET sector is to be conversant with learning platforms in order to enhance competitiveness. Ongoing professional development for TAFE educators is especially important given the range of pre-service and in-service knowledge, teaching experience, diversity of qualifications, and the sometimes and insufficient training given to new TAFE teachers (Loveder, 2005). In Figure 1.1, the relations between the LRM program, professional development and policy is outlined.

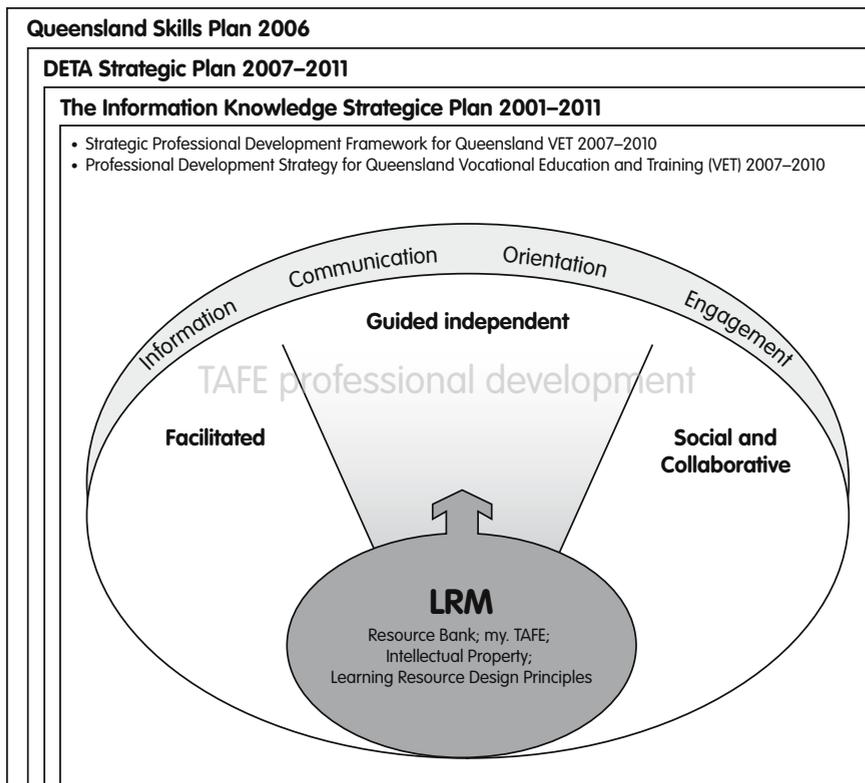


Figure 1.1: Proposed LRM program model and its relations to professional development and policy initiatives

Teachers are not technicians (Nettelbeck, 2005). However, they are the driving force if technology is to produce innovative change in teaching and learning. Teachers' willingness and ability to integrate technology is largely dependent on the professional development that they receive (Watson, 2001). Effective professional development is crucial if the use of the technology is to have more than just novelty value (John, 2002). Common standards are important within the LRM. However, Laurillard (1993) noted that common standards in the implementation in delivery of learning programs should not limit creativity, usability, or teaching options. While the LRM program must instigate specialized professional development, it is important in the longer term planning for professional development that it is transferable and sustainable across the system so that professional development not only survives but thrives in the wider TAFE community. If this is to be achieved, then in the LRM implementation there needs to be iterative input from institutes, feedback and partnering on all aspects of relevant professional development. TAFE institutes will eventually inherit the system. Callan (2006) noted the risk in this that institute-based professional development can foster pockets of skill, commitment, collaboration and innovation but that professional development programs can fail to broaden institutionally or systemically.

> Engaging educators in innovation

Educators may well only accept and embrace, master and apply LRM technology when convinced that there are genuine potential benefits for teaching and learning. The participation of educators in professional development program seems more likely if they see the technology as a highly desirable "killer application" (Watson, 2001), rather than as a part of a procession of "panacea-de-jour" fads that inure them to any openness to change (Ellsworth, 2000). The greater their confidence in the LRM, the greater should be the engagement. Innovations, like the LRM program, which change norms and routines, have a cost to educators (Loveless, DeVoogd, & Bohlin, 2001). Their time is an expensive and scarce resource (Moser, 2007), both on an individual and collective level. This signals the need for communicating and promoting a strong, engaging and convincing case for the LRM returns on investments of educators' time and effort.

Diffusion theory (Rogers, 2003) suggests that users' perceptions of innovations influence their adoptions. Over time, knowledge and perceptions about innovations are constructed and communicated through the formal and informal channels that connect users. Rogers (2003) suggests that individuals transition through different stages as they make decisions to accept or reject innovations. In the first Knowledge Stage, understanding of the benefits can raise interest and reduce resistance, as users become aware of the potential improvements for their current situation. They then weigh up the comparative advantages in the Decision Stage as they move towards the Implementation Stage. In the Persuasion Stage, users need to be able to visualise the outcomes, for example, the technology working well in their own environments. Rogers (2003) outlines a final Confirmation Stage; a kind of post-implementation dissonance, in

which individuals come to believe that the right decisions have been made. Professional development for the LRM should acknowledge diffusion theory and instigate persuasive communication and engagement through educator networks. Maximum leverage is likely to result from exploiting both formal and informal channels. Benefits could be clarified, both initially and continuously, through planned engagement strategies as well as informal, more spontaneous and opportunistic exchanges, particularly with opinion leaders (Holden, 2003).

Extrapolating on Rogers' theory (2003), influential peers, are just as likely, if not more likely, to influence perceptions of the LRM through formal analyses of cost-benefit and return-on-investment. While professional development of the LRM program should plan for increasing awareness of the benefits through formal communication and training channels, it should also encourage and influence educators' communities of interpretation (Breuleux, 2001), as educators network to explore and understand the potential of the innovation. The success of the LRM program can provide a catalyst for radical educational change. It may facilitate change through the links between educators' beliefs about technology and their practices (Loveless et al., 2001). The learning messages need to be publicised (Knight, 2002) but also marketed in a facilitative way which raises educators' awareness and also develops their sense of ownership (Australian National Training Authority, 1997). Communication and marketing about change is an important professional development activity that should be seen as a priority (Wilson, 2003).

> Technology, educators and learning

Educators implementing new technology need initial specific workshops that provide technical training. This is an essential, although probably an inadequate, response (Segrave, Holt, & Farmer, 2005). Professional development beyond the capabilities of the LRM platform is needed if technology is to leverage the desired changes in order to encourage more student-centred learning, proposed as desirable by Ching-Sinh and Swe-Khine (2006). ICT investments can only realise outcomes when professional development moves beyond skills provisioning to ongoing support that enables educators to appreciate the reforming and transforming possibilities for teaching and learning (Watson, 2001).

Because it integrates technical processes into human ones in order to solve problems or to create new capacities, the power of technology is fundamentally people-based. Inattention to the human side, inherent in change through technology, risks that ICT implementations are unlikely to produce innovation (Holden, 2003). ICT augments, extends and supports learning environments in which learners and educators remain the protagonists. Educational technology implementations should underscore, not diminish the importance of good teaching (McCallum, 2007). The role of the teacher in creating an engaging and effective learning environment remains essential (Nettelbeck,

2005). Authentic and encouraging affirmations about the critical influence of the role that educators have on learning should thus permeate the professional development activities in implementation of the LRM.

The LRM program offers technology for TAFE training but educators have to be both willing and able to embrace its possibilities through conscious shifts to new pedagogies that reshape their understandings, norms and routines (Loveless et al., 2001). It is not surprising that educators, in the first instance, look to how new technology fits into their existing pedagogical practices (Raiti, 2007). However, the new tools that ICT offers to education could be significantly underemployed and undervalued, if the tools are simply considered as attractive processing and presentation gizmos (Nettelbeck, 2005).

If incorporating technology into VET programs requires more than a mere shift from one medium to another, then it follows that training methods should be modified to take advantage of the affordances of the technology (Reeves, 2002). As well as mastering new technologies and new teaching strategies, educators will need to adopt new perspectives about teaching and learning to be successful users of new educational technology (Feist, 2003). It is only educators with these clear visions of the potential for technology who are likely to design learning programs in which the technology has more than just promiscuous use (Reiedinger & Rosenberg, 2006). The professional development of educators should be firmly anchored in critical and reflective examination of their teaching and learning processes which is the sine qua non for change (Ball, cited in John, 2002). This also means that professional development needs to go beyond understanding the learning platforms and the pedagogy. It requires an appreciation also of learners' perceptions and expectations about technology (Moore, Moore, & Fowler, 2005).

> Complexities and possibilities in the implementation of the LRM

Educational platforms, like the LRM program, have unique characteristics which are more than just "out-of-the-box" applications. There will be different configurations and integrations that compound the nature of the applications. Both educators and students can choose and use platform tool sets in different ways, depending on their needs, preferences, and skills. The professional development for the LRM program should certainly build the technical skills of educators but also enhance their imagination and vision, their confidence and commitment, so they can confidently make choices from the range of technical and pedagogical selections. Such directions are likely to have the most positive consequences for student learning. Technology itself doesn't change practice - people do (Loveless et al., 2001).

To be worthwhile, educator professional development needs to impact on student outcomes. Indeed the specific aim for continuing professional education should be to ensure that learner-clients get better quality service as a result of practitioners' continuing

learning (Jeeawody, 1997). If student outcomes are the bottom-line for professional development programs then such programs should be framed as a professional responsibility, including ensuring that the results are reflected in benefits for learners (McDonald & Tout, 1996; Reiedinger & Rosenberg, 2006). This presupposes that professional development includes opportunities for educators to determine the links between their technology skills and training outcomes (Raiti, 2007).

A four level assessment model of professional development was proposed by Kirkpatrick (1994). It is commonly used in VET for examining training effectiveness. The first level is the reaction level which assesses participants' perceptions of interest and relevance. Positive reactions do not necessarily transfer to learning but negative reactions are almost certain to limit it. At the second level, advancements in skills, knowledge and attitudes are measured. Learning is measured through pre-and post activity assessments as well as by peer and self-evaluations. The third level is the transfer level and, as its name suggests, addresses the more complex measures of the transfer of knowledge, skills and behaviours into learning environments. At the fourth level, results in terms of the effects on student learning outcomes are considered. Although this last level is difficult to directly link to training provided, it represents the true impact on end results. Each level demands greater measurement effort and precision but, at each level, more impact data on training outcomes becomes available. This assessment model could also be represented as a strand in the holistic LRM Program Logic based Evaluation Framework.

> Characteristics of effective professional development programs

Presentations, seminars, workshops, and tutorials for educator audiences are still favoured professional development methods (Ellis, O'Reilly, & Debrecey, 1998). These methods allow facilitators to efficiently impart new knowledge and demonstrate new skills. Opportunities for sharing ideas and practising some skills are also important (Hoban, 1997). A one-size-fits-all solution is unlikely to meet the diverse and changing needs of TAFE professional development programs (Wilson, 2003). One-off professional development encounters can inspire initial interest and also introduce new ideas, knowledge and skills. However, presentations, seminars, and workshops by themselves are inadequate to meet all the challenges of systemic ICT implementation and transformation (Landvogt, 2005). Even motivated, technically inclined and pedagogically creative educators can not be expected to be completely independent after a few hours of engagement in workshops (Reiedinger & Rosenberg, 2006). Traditional professional development approaches seem to offer some starting value for the LRM program but they will not provide the complete answer.

Once educators have participated in professional development events, they may quickly forget new educational technology skills if they do not have opportunities to use

them in practice (Feist, 2003). It is easy for such learning to fade when the new skills do not become part of the job (Raiti, 2007). Practical knowledge is gained through participation and reflection on action (Schon, 1983). Retallick (1997) proposed that workplace learning should be encouraged in professional development programs to ensure that knowledge transfer occurs and that beliefs change as a result of practice. Educators who learn-by-doing with LRM platforms could reinforce a range of knowledge and skills specific to their roles and industries that could bring learner-educators to real work applications that also have immediate student benefits. Workplace professional development, using on-line technologies with integrated action projects, is a model supported by the literature (Australian National Training Authority, 1997).

> Communities of practice for educators

VET educators like to talk to each other about their professional practice, sharing stories to build a collective pedagogical repertoire of new techniques and possibilities (Callan, 2006; Knight, 2002). This predilection for sociability could be exploited to develop safe, collaborative environments where staff share their expertise and take risks with ICT (McCallum, 2007). Such community-based approaches could overcome the shortcomings of more conventional professional development programs through providing the ongoing support educators need to change practices (Lock, 2006).

Through communities of practice, educators can share useful information and these communities can be the scaffold through which formal knowledge is incorporated into practical knowledge through informal learning networks (Mason, 2005). In these communities, educators scrutinise theories, share knowledge and expertise and construct new roles (John, 2002). The support and continuing opportunities for collaborative approaches can also specifically target hesitant technology users (Feist, 2003). When others, including researchers, join with educators, communities of interpretation emerge, where teaching and learning transformations are engineered, based on constructed knowledge around promising practice (Breuleux, 2001).

The professional networks and communities which provide opportunities for researching, sharing, trying out and reflecting on teaching and learning could also model pedagogical concepts, when provisioned through the interactive capabilities of technology (Loveless et al., 2001). Carefully and deliberately designed online educator professional development communities could foster a learning culture (Lock, 2006). This would require pedagogical frameworks that cultivate close, trusting relationships, through which participants engage in shared learning experiences mediated through technology.

> Models for professional development and the LRM

A professional development model is a design for learning, which includes assumptions about where knowledge of educational practice originates, and how educators acquire and extend their knowledge (Sparks & Loucks-Horsley, cited in Hoban,

1997). John (2002) details the benefits and limitations of both top-down and bottom-up professional development approaches. The former injects expertise but does not necessarily recognise existing practitioner knowledge and networks. The latter promotes collaboration but does not provide a focus on the need for critical or urgent change within an organisation. Hoban (1997), similarly, discusses outside-in and inside-in approaches. He recognises the importance of new ideas but also the need for convenience and economy. Hoban doubts that outside-in approaches to professional development that are led by external specialists are able to sustain change; while inside-in approaches encourage group collegiality and personal reflection but they may not provide challenging or alternative perspectives.

Holliday's (1997) professional development blueprint is designed around SPACE: Self; Personal meaning; Action; Collegiality and Empowerment. The self aspect encourages educators' positive feelings about themselves, including their views of themselves as learners. A sense of worth through the creation of personal meaning draws on individuals' knowledge, understandings, feelings and skills though critical self-analysis and reflection. Interactions with co-workers result in collegiality; while empowerment includes notions of ownership, autonomy, control and choice over work and learning. Action is at the centre of the model, both literally and figuratively, as it tests individuals' theories and ideas in practice through thoughtful and purposeful experiences. The SPACE model is one that creates and allows room for learning by doing and reflecting.

The LRM program for professional development must conform to policy and strategy expectations as well as incorporating the benefits and mitigating the shortcomings of other models. It must stimulate evolutionary change in complex environments and account for multifaceted industry, technology, pedagogy, educator and student interdependencies. The professional development model for the LRM program responds to the framework of policy and strategy imperatives cascading from the QSP. Stakeholder contributions reflecting diverse needs and shared individual-organisational accountability are assumed in both the Strategic Professional Development Framework for Queensland VET 2007-2010 (DETA, 2007c) and the Professional Development Strategy for Queensland's Vocational and Education and Training (VET) Sector 2007 – 2010 (DETA, 2007d). Expectations for flexibility, responsiveness, timeliness, cost-effectiveness, innovation and effective outcomes need to be met through the professional development approach.

> Modes of learning and professional development

The QSP expects TAFE students will be able to use technology to access diverse learning experiences. The professional development activities of the LRM program should provide, support and model the same opportunities for its learners who are TAFE educators. The program assumes that educators will interact with LRM tools in different ways, at different times, for different reasons, serving different clients, with

different needs, by creating different learning environments. In response, the LRM professional development model proposes three interrelated dimensions of facilitated, guided-independent, and social-collaborative learning. These dimensions recognise that educators have different learning preferences and styles, and they need to be granted time and opportunity to reflect and apply new learning. It must support educators to venture beyond superficial transfers of old ways to digital mediums, to create new practices from the affordances of the technology. The professional development experiences across the modes, summarised in Figure 1.2, will overlap and interact, rather than be separate. Educators will be encouraged to choose their own paths depending on their backgrounds, preferences, enabling skills, industry expectations, employment conditions, and by the nature of their student cohorts.

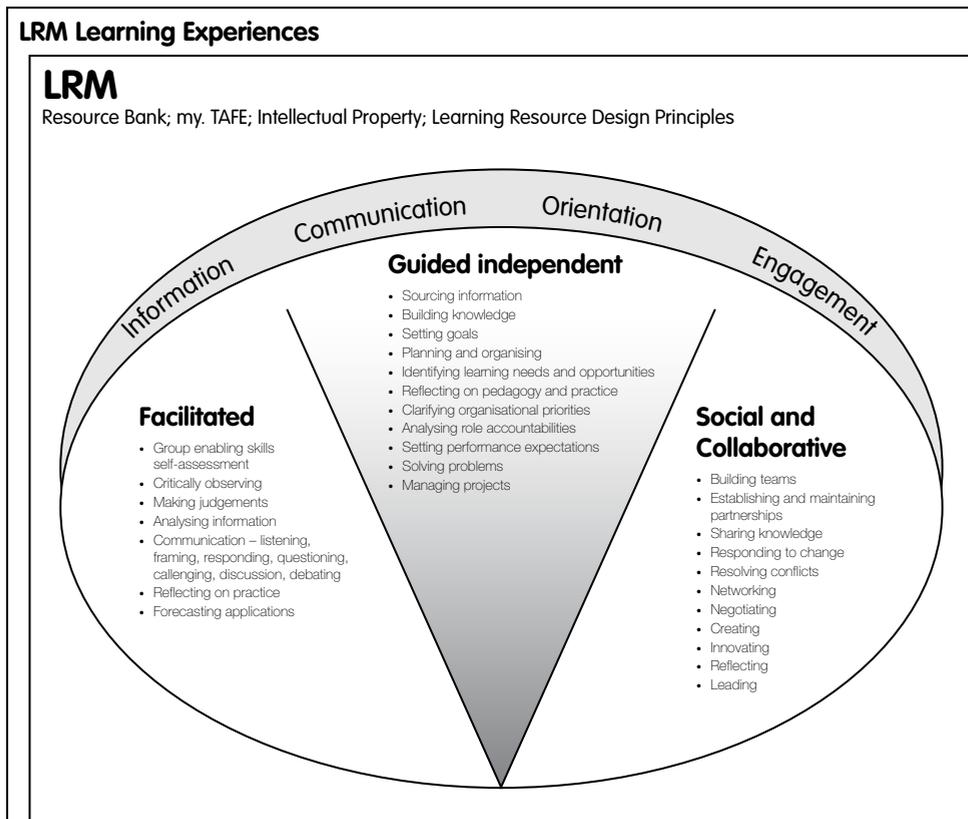


Figure 1.2: Learning experiences for educators in the LRM program across facilitated, guided-independent and social-collaborative modes

Facilitated mode

Surveys about the LRM program have confirmed that new platforms need initial specific workshops. While attending to technical skills, facilitated professional development will solicit educators to adopt technology creatively and reflectively to impact on student

outcomes as proposed by Laurillard and McAndrew (2003). Critical reflection about what they do now and what is newly possible with the technology is an experience that will need to permeate all professional development modes.

Guided-independent mode

It is unrealistic to expect even self-motivated, pedagogically creative and technically inclined educators to be completely independent after a few workshops. Guided-independent activities will be woven into ongoing educator learning in the LRM program so that there are self-directed but supported, work-related applications. This will nudge educators past just repeating, only electronically, habituated training approaches to examination and experimentation around the teacher-learner-technology-pedagogy mix. Guided-independent professional development will open up the landscape so that educators can explore new directions with their students. They will be able to foray into innovation, while still gathering understandings about both the technology and its pedagogical implications (John, 2002).

Social collaborative mode

Within the LRM program, a social-collaborative mode will be encouraged to respond to the need for community that was identified in the theoretical and research literature. Experiences of community will be both “real” and virtual and hosted on LRM platforms. Some collaboration could piggy-back on existing networks, reference groups, working parties, and professional associations. These include industry specific teaching and learning networks, intellectual property expert group, and flexible learning communities. Others will be initiated and initially moderated, if desired, either by LRM program staff or by identified or self-nominated champions. Some are likely to have a precise purpose, and probably short life-spans, while others will persist, because educators still find them valuable. The intent is to encourage reflective individuals to be a part of collegial communities in order to share the research, questions, ideas, concerns and solutions that can create new insights to shape and re-shape VET pedagogical practices. This can have the purpose of capitalising on community potential (Fischer & Sugimoto, 2006).

Evaluation

Professional development programs will need to be evaluated to ensure that they meet the needs of educators, impacts positively on their knowledge, skills and behaviours, and improves student outcomes. Because it is based on a familiar model in TAFE, the approach recommended is illustrated in Figure 1.3. However the training strand, along with all other LRM program activities, will still need to be considered within the overarching LRM Program Logic based Evaluation Framework.

LRM PD – Evaluation

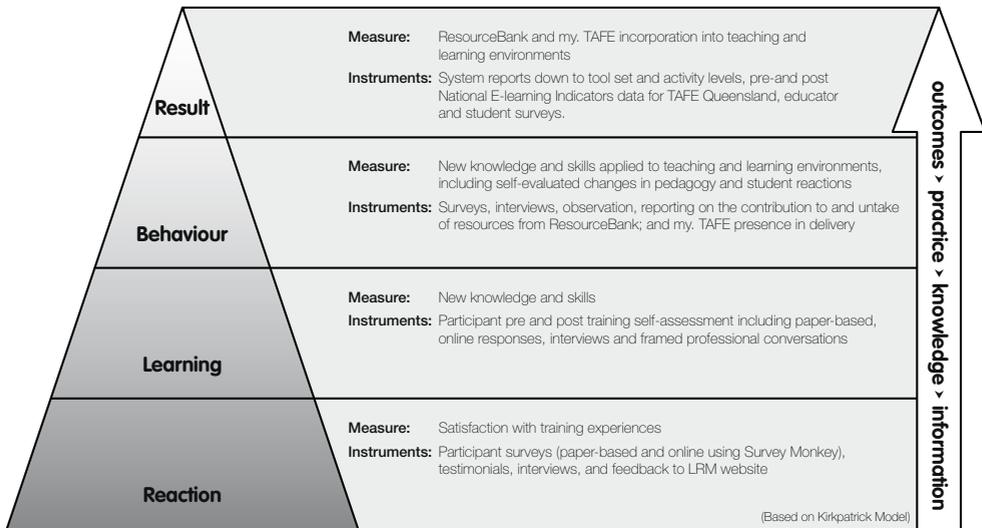


Figure 1.3: Evaluation approach for the LRM program

> Conclusion

Professional development within the LRM program must be smarter than just technical skills training. The platforms themselves will not ensure more effective learning because new knowledge and student-centred pedagogy are no more self-implementing than new technologies. The professional development program needs to equip and support educators' technology uptake through the progressive journey from awareness, adoption, application, to transformed practice. The framed and promoted model of professional development needs to recognise the policy and strategy imprimatur, research findings, and the objectives and proposed outcomes of the LRM program. The three dimensional model proposed indicates that that educators' professionalism is a primary influence on the quality and flexibility of TAFE training. It recognises educators both as complex, diverse individuals, as well as members of multiple-networked communities.

An educator, reporting to the Blue Ribbon Commission on the Teaching Profession said, "When I die, I hope it is during a professional development session because the transition from life to death will be so seamless" (Fullan, 2007, p. 283). The LRM program hopes to eschew death-by-professional development through facilitated, guided-independent and social-collaborative professional development experiences that can promote new knowledge, and approaches to pedagogy that can put new life into TAFE training programs.

> References

- Australian National Training Authority. (1997). *From desk to disc: Staff development for VET in flexible delivery*. Adelaide, South Australia: National Centre for Vocational Education and Training Research.
- Breuleux, A. (2001). Imagining the present, interpreting the possible, cultivating the future: Technology and the renewal of teaching and learning. *Education Canada*, 41(3), 1-8.
- Callan, V. (2006). *Ready, willing and capable: Teaching capabilities for the Queensland vocational education and training (VET) sector*. Brisbane: Department of Education and Training.
- Ching-Sinh, C., & Swe-Khine, M. (2006). Understanding ICT integration in schools. In Swe-Khine, M. (Ed.), *Teaching with technology* (pp. 49-62). Singapore: Prentice Hall.
- Department of Employment and Industrial Relations. (2003). *TAFE teachers' award – State 2003*. Brisbane, Qld: Queensland Government.
- Department of Employment and Training. (2005) *Queensland's proposed responses to the challenges of skills for jobs and growth: Matching the supply of skills to rapidly changing demands: modern>educated>responsive*. Brisbane, Qld: Queensland Government.
- Department of Employment and Training, (2006). *Queensland Skills Plan*. Brisbane, Qld: Queensland Government.
- Department of Employment and Training and the Arts (DETA). (2007a). *Department of Employment, Training and the Arts Strategic Plan 2007–2011*. Brisbane, Qld: Queensland Government.
- Department of Employment and Training and the Arts (DETA). (2007b). *Information and Knowledge Strategic Plan 2007–2011*. Brisbane, Qld: Queensland Government.
- Department of Employment and Training and the Arts (DETA). (2007c). *Strategic professional development framework for Queensland VET 2007–2010*. Brisbane, Qld: Queensland Government.
- Department of Employment and Training and the Arts. (2007d). *Professional development strategy for the Queensland vocational education and training (VET) sector*. Brisbane, Qld: Queensland Government.
- Department of Premier and Cabinet. (2005). *Smart Queensland: Smart State Strategy 2005–2015*. (2005). Brisbane, Qld: Queensland Government.
- Ellis, A., O'Reilly, M., & Debrecey, R. (1998). Staff development responses to the demand for online teaching and learning. In Corderoy, R. (Ed.), *Flexibility: The Next Wave? Proceedings of ASCILITE'98*. (pp. 191-201). Wollongong, NSW: University of Wollongong.

- Ellsworth, J. (2000). *Surviving change: A survey of educational change models*. Washington DC.
- Feist, M. (2003, June). Removing barriers to professional development. *THE Journal*, 1-3.
- Fischer, G., & Sugimoto, G. (2006). Supporting self directed learners and learning communities with sociotechnical environments. *Research and Practice in Technology Enhanced Learning*, 1(1), 31-64.
- Fullan, M. (2007). *The NEW meaning of educational change* (4th ed.). New York: Teachers College Press.
- Hoban, G. (1997). Theories and models of professional development. In Faculty of Education, Charles Sturt University. (Ed.), *Exploring professional development in education* (pp. 1-20). Wentworth Falls, NSW: Social Science Press.
- Holden, E. (2003). *Technology transfer – the human side of IT*. Paper presented at the InSITE-Informing Science and IT Education, Pori, Finland.
- Holliday, R. (Ed.). (1997). *A model of teacher learning applied to workplaces other than schools* Wentworth Falls, NSW: Social Science Press.
- Jeeawody, B. (1997). Continuing professional education: A critical review. In R. King, D. Hill, & J. Retallick, J. (Eds.), *Exploring professional development in education*. Wentworth Falls, NSW: Social Science Press.
- John, P. (2002). *Teaching and learning with ICT – new technology, new pedagogy?* Paper presented at the BERA Conference. Exeter, United Kingdom.
- Kirkpatrick, D. (1994). *Evaluating training programs: The four levels*. San Francisco: Berrett-Koehler.
- Knight, P. (2002). A systemic approach to professional development: learning as practice. *Teaching and Teacher Education*, 18, 29-241.
- Landvogt, J. (2005). Sharpening up PD: Learning for teaching. *Teacher: the National Education Magazine* (September, 2005), 6-9.
- Laurillard, D. (1993). Effective teaching with multimedia methods. In D. Laurillard, *Rethinking university teaching: A conversational framework for the effective use of learning technology* (pp. 223-256). London: Routledge/Falmer.
- Laurillard, D., & McAndrew, P. (2003). Reusable educational software: A basis for generic learning activities. In *Reusing online resources* (pp. 81-93). London: Kogan Page.
- Lock, J. (2006). A new image: Online communities to facilitate teacher professional development. *Journal of Technology and Teacher Education*, 14(4), 663-678.

- Loveder, P. (2005). *World trends in staff development: Implications on the performance of technical education institutions*. Paper presented at the Development of Technology and Technical-Vocational Education and Training in an Era of Globalization Retrieved 31 October, 2007, from <http://www.ncver.edu.au/publications/1628.html>.
- Loveless, A., DeVoogd, G., & Bohlin, R. (2001). Something old, something new: Is pedagogy affected by ICT? In A. Loveless, & V. Ellis (Eds.), *ICT, pedagogy, and the curriculum: Subject to change* (pp. 63-83). London: Routledge/Falmer.
- Loveless, A., DeVoogd, G. L., & Bohlin, R. M. (2001). Something old, something new: Shifts of knowledge and pedagogy in a post-typographic world. In A. Loveless and V. Ellis *Changing the subject: Information technology, pedagogy, and the curriculum*. London: Routledge.
- Mason, R. (2005). Blended learning. *Education, Communication and Information*, 5(3), 217-220.
- McCallum, N. (March 2007). Integrating ICT: the basics of successful strategic leadership. *Professional educator*, 6(1), 22-29.
- McDonald, M., & Tout, B. (1996). *National scan of best practice for professional development of teachers in vocational education*. Canberra, ACT: Commonwealth Department of Employment, Education and Training.
- Moore, A., Moore, J., & Fowler, B. (2005). *Faculty development for the Net generation*. Retrieved 18 August, 2007, from www.educause.edu/educatingthenetgeneration.
- Moser, F. (2007). Faculty adoption of educational technology. *Educause Quarterly*, 1, 66-69.
- Nettelbeck, D. (2005). *Computers, thinking and learning*. Camberwell, Victoria: ACER Press.
- Raiti, J. (2007, August). It's about culture: How to really integrate ICT. *Teacher: The National Education Magazine*, 10-13.
- Reeves, T. (2002, December). *Storm clouds on the digital education horizon*. Keynote address at the 19th Annual Conference of the Australasian Society for Computers in Learning in Tertiary Education (ASCILITE). Auckland, New Zealand.
- Reiedinger, B., & Rosenberg, P. (2006). Uniting technology and pedagogy: The evolution of an online teaching certification course. *Educause Quarterly*, 1, 32-38.
- Retallick, J. (1997). Workplace learning and the schools as a learning organisation. In King, R., Hill, D. & Retallick, J. (Eds.), *Exploring professional development in education*. Wentworth Falls, NSW: Social Science Press.
- Rogers, E. (2003). *Diffusion of innovations*. New York: Free Press.

- Schon, D. (1983). *The reflective practitioner. How professionals think in action*. London: Temple Smith.
- Segrave, S., Holt, D., & Farmer, J. (2005). The power of the 6^{three} model for enhancing academic teachers' capacities for effective online teaching and learning: Benefits, initiatives and future directions. *Australasian Journal of Educational Technology*, 2(1), 118-135.
- Watson, G. (2001). Models of information technology teacher professional development that engage with teachers' hearts and minds. *Journal of Information Technology for Teacher Education*, 10 (1 & 2), 179-190.

Chapter 2

A Shift in Modes: Can New Learning Spaces Transform Educational Practice?

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> Abstract

In 2007, at Southbank Institute of Technology, the first new building planned for the institute opened. Its design incorporated new architectural ideas for creating teaching and learning environments. The vision was to design new buildings that included a range of contemporary “learning spaces” specifically for “Mode 2” educational practice. This chapter explores the rationale for using space to transform educational practice and the role of technology in supporting teachers and learners in new learning environments. While it is still too early to evaluate evidence for changes in the experiences of teachers and learners from the Southbank redevelopment, to-date, Mode 2 learning spaces have not necessarily brought about changes in teaching styles. Many teachers continue to use traditional teaching methods. For collaborative modes of teaching and learning to become a reality, a shift in philosophy and extensive professional support for teachers is required. Particular concerns addressed in this chapter include the planning and implementation of learning spaces, technology integration, and capacity building for teachers.

The first of the new buildings planned for Southbank Institute of Technology (SBIT) opened in 2007 as a part of the redevelopment plan for the site. Its design incorporated new architectural ideas for creating teaching and learning environments that are integrated learning spaces. This design approach is described as a form of “Mode 2” knowledge production. Ideas that inform how learning spaces are designed stem from the theoretical propositions of Gibbons et al. (1994) and Fisher (2005). These theorists differentiated two approaches to knowledge production and learning. These are Mode 1 (individualistic, discipline-based, and teacher-centred) versus Mode 2 (collaborative, interdisciplinary, and learner-centred). The new learning spaces at SBIT are visually different from traditional classrooms having free-form furniture layout, non-traditional room shape, and walkways that pass through large open learning areas. Chism and Bickford (2002) also described Mode 3 learning areas. These are also a part of the Southbank redevelopment. Mode 3 learning areas have been integrated into the new design approach to encourage informal learning: “anywhere, anytime, and not only in the classroom”.

In this chapter, the evolution of Mode 1, Mode 2 and Mode 3 theories of knowledge production and learning are discussed. How these different theoretical modes of knowledge production and learning might facilitate more collaborative learning between students is considered and the role of technology in educational transformation is analysed. The chapter draws on a broad range of published literature, planning documents, and governmental reports to explore the rationale behind the transition to learning spaces and the accompanying shift to a pedagogy that is learner-centred. Key questions arising from the introduction of these new learning spaces in a TAFE institute include: Can these new learning spaces transform learning into a collaborative experience? What role might technology playing transforming approaches to learning and teaching? What other factors might support or inhibit a shift in pedagogy from teacher-centred to learner-centred practice? What are the implications of these changes for teachers and learners? These questions are discussed across this chapter.

> A snapshot of the past and a vision for the future

A large number of teachers relocated to the new SBIT buildings during 2007 and the remainder faced the challenge in 2008. Many of the teachers had extensive experience using didactic teacher-centred delivery methods in traditional classroom environments. Early evidence indicates the transition to new learning spaces has been difficult for many teachers and the changes have not yet produced an expected shift to more learner-centred pedagogies. In order to examine the transformation from “classroom” to “learning space”, we consider the past. Change can be measured against the past as the benchmark. Any significant transformation has to consider the world we leave behind. The vision for the future, as depicted in planning documents, is of innovation in the use of learning spaces.

In the past, Southbank Institute of TAFE expanded without specific plans and the campus developed a patchwork appearance, consisting of a mix of purpose-built facilities, converted warehouses, and temporary accommodation. By the 1980s, Southbank Institute had spread in an ad hoc fashion and covered most of two city blocks in South Brisbane. The institute contained fifteen buildings with construction dates ranging from 1940 to 1997. Classrooms had a traditional layout with rows of seats facing the front of the room where the teacher and whiteboard were located. Educational practice matched the classroom layout, being predominantly teacher-directed and focused on the didactic transfer of information to students in a step-by-step manner. Teaching facilities from this period were described as “tired” and in need of a “makeover”.

The Southbank Institute redevelopment project involves the construction of eleven new buildings and refurbishment of four others. The educational focus of the project is for Southbank Institute to “provide internationally recognised, learner-centred, job-ready outcomes” by being “a pioneer in the introduction of new methods of delivery” (Southbank Education and Training Administration, 2003, p. 17). This declaration

captures the essence of the project and it aligns with the role assigned to Southbank Institute in the Queensland Skills Plan (Department of Employment and Training, 2006). A significant financial objective of the project has been to achieve “efficiencies” by amalgamating the South Brisbane, Kangaroo Point and Morningside campuses into a single South Brisbane site (Southbank Institute of TAFE, 2005).

> What is meant by Mode 1, Mode 2 and Mode 3 learning?

In an effort to establish a common understanding of the terms, Mode 1, Mode 2 and Mode 3, this section explores the origin and evolution of the terms and their relationships to learning spaces and collaborative pedagogy. Gibbons et al. (1994) first proposed Mode 2 as a form of knowledge production that was described as context-driven, problem-focused and interdisciplinary. Gibbons et al. argued that Mode 1 knowledge production related to traditional research approaches that were investigator-initiated and discipline-based. Mode 3 was not mentioned in their work and is a later conceptualisation that does not necessarily match with the initial concept of knowledge production inherent in the ideas proposed by Gibbons et al.. However, in recent times, the concept of Mode 2 production has continued to attract considerable interest and has evolved from its original conceptualisation.

Various theorists (e.g., Brophy, 1998; Dittoe, 2002, Fischer, 2005) have discussed the concept of Mode 2 learning. Brophy (1998) associated Mode 2 learning with lifelong learning. He challenged traditional thinking about the nature of learning and proposed that group learning as a social activity is important. He argued that new ways of learning should engage a greater cross-section of society because traditional methods of educational practice exclude some parts of society “with 50% of active or recent learners in formal learning institutions being upper or middle class individuals”. Dittoe (2002) argued that Mode 2 is “a complex of spaces - interconnected and related spaces designed to support learning” (p. 39). Dittoe proposed that physical learning spaces needs to be radically different from traditional learning spaces to allow for a shift to a learner-centred pedagogy. Fisher (2005) also linked space to pedagogy. Fisher considered that embracing the concept of Mode 2 learning could change practice, from a teacher-centred to a learner-centred pedagogy. His ideas are summarised in Table 2.1. The model contrasts traditional knowledge production in Mode 1 with Mode 2 knowledge production that encourages cross-disciplinary and learner-centred activities. In the ideas of Fisher, there are obvious connections to the original concept of knowledge production proposed by Gibbons et al. (1994).

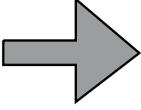
Mode 1 [Closed]		Mode 2 [Open]
<ul style="list-style-type: none"> • Disciplinary • Homogenous • Organisationally hierarchical • Tends to preserve its form • Quality control related to discipline • Context based on basic research or academic science 		<ul style="list-style-type: none"> • Trans-disciplinary • Heterogeneous • Organisationally heterarchical • Transient • Quality temporary and heterogeneous practitioners • Context around a particular application

Table 2.1: Features of knowledge production in Mode 1 to Mode 2

Mode 3 as a social space for collaborative learning stands on its own. It refers to the informal spaces in which the social construction of knowledge can occur (Chism & Bickford, 2002). It aligns with ideas that learning occurs anywhere, anytime and not only in the classroom. According to Brown and Long (2003), new approaches to understanding learning are focussed on active learning, social engagement, mobility, and multiple pathways to learning. The demand for Mode 3 spaces will continue to increase as mobile technologies become more affordable. Many believe that advances in technology will produce a revolution in educational practice. The consequence of such a change for educational institutions is that students will require wireless access to the Internet and electronic resources in all the Mode 3 areas proposed for the development at SBIT.

> **How does mode relate to collaborative learning?**

Recent literature about learning modalities focuses on the learner-centred construction of knowledge through collaborative engagement. This may occur electronically or through face-to-face interactions. Wiersema (2000) proposed that: "Collaborative learning ... is a philosophy of teaching ... working together, building together, learning together, changing together, improving together". Wiersema argued that a key element of collaborative learning is "positive interdependence" through which students make an effort to teach each other and learn from each other. Key considerations in the development of collaborative learning approaches are: What role will individuals play? How does group work relate to individual work? How do you measure participation? It is also worth considering that many individuals do not instinctively know how to work collaboratively; therefore, understanding group processes must be the first focus of learning for individuals who are participants in group learning activities.

One of the most noticeable features of discussion about the transition from Mode 1 to Mode 2 and Mode 3 knowledge production and learning has been the emergence of

a “space” related language. Some of the terms now commonly used at SBIT include - refreshment hubs, knowledge transfer zones, computer commons, virtual studios, breakout areas, hubs, pods and studio spaces. Most of the new terms imply a change in pedagogy from teacher-centred to learner-centred practice. When students gather for discussion or refreshment then a “hub” is formed. The term Knowledge Transfer Zone (KTZ) has been received with more scepticism from teachers and students: “ ... given that most people would call it a breezeway!” The new language is colourful, descriptive and (usually) matches the learner-centred influences of collaboration and co-construction of knowledge.

> Can new “learning spaces” transform pedagogy?

Historically, the look and layout of learning spaces reflect the learning theories of the time. A learner walking into a traditional classroom with a single focal point will receive a message that the teacher will instruct and the learner will listen. Learners receive a very different message when they walk into a space with clusters of tables or furniture that does not focus on a single teacher location. This suggests that, if we change space, pedagogical transformation may follow. Chism and Bickford (2002) proposed that educators habitually take space for granted failing to notice how it can assist or hinder intended learning outcomes. They put forward the following space-related assumptions about learning. They believe that these assumptions need to be challenged for pedagogical transformation to occur:

- Learning only happens in classrooms;
- Learning only happens at fixed times;
- Learning is an individual activity;
- Learning in classrooms is much the same from class to class and from day to day;
- A classroom always has a front;
- Learning demands privacy and the removal of distractions.

The need for new learning spaces and new forms of pedagogy is driven by changing student demographics, curriculum reform, workplace needs and the desire for competitive advantage (National Learning Infrastructure Initiative, 2004). Punie (2007) focused on the needs of the individual within society and proposed that the motivation for change is learner emancipation, empowerment and self-fulfilment. These factors not only create a need for new learning spaces and pedagogy. They are also drivers for ensuring pedagogical reform.

Fisher (2005) identified that the nature of what is expected from the competencies that graduates are expected to learn in their courses are important in the shift from teacher-centred practice to more learner-centred practice. The development of graduate competencies, in which there is a focus on skills for teamwork, collaboration and

reflection, requires learning spaces that are suitable to facilitate such skill development. When learner-centred activities are attempted in a traditional classroom, it is less likely that the activities build students' skills for teamwork and collaboration. In Table 2.2, a comparison of features of the pedagogy in teacher-centred and learner-centred classrooms is presented. These ideas are drawn from Fisher (2005).

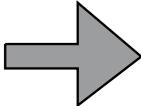
Teacher-centred classroom	Learner-centred classroom	
<ul style="list-style-type: none"> • Content focussed • Memory • Rote learning • Individual testing/competitive • Problems are not 'real' • Set tasks • Within discipline • Rigid timetables & supervision 		<ul style="list-style-type: none"> • Process focussed (learning to learn) • Critical thinking • Ability to communicate • Ability to work in teams/ collaborate • 'Authentic' problem solving • Project based learning • Cross disciplinary learning • Ability to self organise/ self-direct

Table 2.2: Features of pedagogy in teacher-centred and learner-centred classrooms

Traditional classroom design focused on efficiency, outcomes and the transmission of information. With the move toward a new paradigm for learning, Jamieson, Fisher, Gilding, Taylor, and Trevitt (2005) emphasised that: "the 'classroom' as we know it is dead" (p. 21). Oblinger (2006) asserted that space must be harmonious with learning theories and learner needs and should reflect the elements of flexibility, comfort, technological support, de-centredness, and sensory stimulation. She identified the following important features of modern learning space design:

- Creating multiple focal points in classrooms, not just a single focal point at the front of the room;
- Grouping or clustering students rather than seating them in rows;
- Establishing informal group work spaces;
- Providing movable furniture;
- Building reconfigurable space.

The features described by Oblinger allow learning to be shaped by space, rather than by traditional or organisational imperatives. It is crucial for spaces to be flexible, allowing efficient reconfiguration for a variety of activities. Traditional learning space design limits the range of activities thereby preventing pedagogical transformation. However,

a frequently overlooked element of learning space design is acoustics. It is widely accepted that traditional classrooms have: “line of sight, good acoustics, and a focal point at the front of the room” (Lomas & Oblinger, 2006, 5.5). In any learning space, however, it is desirable for sound to be absorbed to prevent it travelling to adjoining areas. One of the new buildings at SBIT (shaped like a boat) had extremely poor acoustics in what is commonly called the “pointy-end”. Compounding this problem, the “pointy-end” contains all of the open learning spaces and sound from adjoining areas travels to the “point”, reverberating and rendering some areas unfit for their purpose. Reflections by teachers using this space is presented in Box 2.1. It illustrates a level of frustration shown by teachers working in the new spaces. Some teachers like Dhamy adopted new ways of teaching while others like John clung to tried-and-true didactic methods that are no doubt contributing to the sound problems within the spaces.

Reflections on learning space with SBIT teachers.

Teachers at SBIT had been in the new learning spaces for approximately four months. During this time, they struggled with noise that travelled between the learning spaces. Some teachers came to arrangements about who can talk, and when, while others push limits with statements like, “Ah, it’s just good healthy competition. Let’s see who can talk the loudest”. When asking teachers if their teaching practice has changed since being in the spaces, teachers predominantly felt there had been no change. Many teachers commented that the rooms are “really nice” and they enjoyed being in brand new spaces. Other teachers who used some of the radically different spaces made statements like, “It’s a joke.” or “We have people just walking through the spaces like it’s a side-show.” (referring to the pedestrian traffic passing through learning spaces).

Below are two contrasting responses to a question about the spaces from John and Dhamy.

Question: *Has your teaching changed since being in the new spaces?*

John: *Not one iota, nothings different. Oh, I probably use the projector more.*

Dhamy: *The students spend more time learning by themselves and using me as a resource. It has made the students more independent and they are finding the content easy even though it’s quite complex. I’ve been amazed ... its hard work though because you need to have really good resources.*

Box 2.1: Teacher reflections on the new learning spaces

An oversight in the new learning spaces at SBIT has been the lack of flexibility and manoeuvrability of the internal furnishings. Many new spaces have desks “flowing” around the walls (or other large odd-shaped benches) which cannot be repositioned because they are attached to “data poles” or fixed to the wall. Some spaces have greater flexibility, containing small tables and seating intended for group work. Most

furniture, however, is not suited to easy relocation (e.g., by using wheels or curved-bases to allow for sliding). More affordable but less ergonomic items were purchased. Lomas and Oblinger (2006) proposed that even in traditional learning environments, teachers can take advantage of emerging learner-centred practices in a variety of ways. However, they emphasised the importance of flexible furniture arrangements, even in traditional spaces: “Many instructors find that interspersing interactivity, discussions, and group work in lectures engages learners. Physical constraints, however, such as the ability of students to turn around their seats, can limit the success of these techniques” (¶ 5.5).

Oblinger (2006) highlighted the importance of rethinking the finance of space. Many educational institutions have no funding for the replacement of furniture. Additionally, when it comes to informal Mode 3 areas such as hallways and lobbies, it is unclear who has authority over these places. They are rarely viewed (particularly by administrators) as a potential location for learning. It is also important for administrators and teachers to consider the longevity of learning spaces (National Learning Infrastructure Initiative, 2004). Buildings and their learning spaces are designed to last 50 to 100 years, which places greater importance on the internal refurbishment cycle. Curricula and courses taught in the spaces may change every 10 years (or sooner) and there are technology advances every year. The ideal refurbishment cycle should include adequate reflection on the changing needs of learner and pedagogical changes over time.

A shift to collaborative, learner-centred pedagogy is worthwhile in terms of learning outcomes so that learning spaces support the transformation from teacher-centred to learner-centred environments. The spaces should be appropriate for learner-centred activities. Les Watson, Pro Vice-Chancellor from the Caledonian University in Glasgow (cited in Joint Information Systems Committee, 2006) is an advocate: “We spend a lot of time trying to change people. The thing to do is to change the environment and people will change themselves” (p. 24). Pedagogical transformations require quality learning spaces that are flexible, comfortable, have good acoustics, have multiple focal points and are able to be easily reconfigured. Other key drivers for change in teaching practices require technology-integration and teachers who are motivated to build their professional capabilities.

> What is the role of technology in educational transformation?

Technology enables different uses of physical space. It provides access to information anywhere, anytime and is essential for supporting the operation of Mode 2 and Mode 3 learning (Oblinger, 2006). The benefits of using technology include increased learner engagement, new ways of collaborating, and the capacities to cater for a range of learner needs. Breuleux (2001) suggested that collaborative learning environments are enhanced by: “well-designed technologies in the context of meaningful, mindful inquiry

projects, non-presentational pedagogies, access to resources and tools, and adequate support for technological maintenance and pedagogical renewal” (p. 3). John (2002) noted that Information and Communications Technology (ICT) is not an end in itself but “a catalyst to spur on a shift from transmission forms of pedagogy to more social constructivist approaches” (p. 4). Loveless, DeVoogd, and Bohlin (2001) suggested that teachers will change their roles and ways of working when using ICT in the classroom if they carefully examine what technology can afford. When exploring technology integration, it is important to differentiate between teaching with computers and teaching about computers (Watson, 2001). To successfully facilitate the integration of technology into educational practice, teachers need access to a supported process of learning about any new technology, before (or in conjunction with) exploring pedagogical uses for the technology.

Fisher (2005) suggested that ICT and space should be seamless and infrastructure planning should include ICT and buildings in the same budget. However, when we start defining “technology-enabled” in relation to learning spaces, the water becomes murky. One manager at SBIT stated that the high-levels of data cabling equals “technology-enabled”. Educators have a different perspective. They view technology-enabled as the digital technologies available within learning spaces to enhance, facilitate and encourage learning. Some of the technologies that will be integrated into SBIT learning environments include: interactive whiteboards, audience response systems, digital data projectors, document cameras (or visualisers); access to the, Learning Management Systems, podcasts and an assortment of collaborative “Web 2.0” tools. Since moving into the new spaces there have been delays in the supply and installation of these new technologies leaving many teachers feeling despondent. This also delays the rollout of professional development programs intended to support teachers in the use and application of new technologies.

Sutherland et al. (2004) suggested that when it comes to technological change, there is a tendency for policy makers and practitioners to think that ICT is so “new” that its use will somehow magically transform educational practice. In doing so, they ignore the theoretical perspectives related to teaching and learning. Educators need to continually lobby, inform and educate administrators and promote: “. . . integrating the physical with the virtual [that] provides additional options for faculty and learners alike” (Oblinger, 2005, p. 17).

> What factors support or inhibit a shift in pedagogy?

Many human factors potentially interfere with pedagogical transformation. Some inhibitors relate purely to change, others to new learning environments, and many relate to the integration of technology into teaching practice. Barriers at SBIT include teacher age, attitude, workload and the poor quality of relationships between administrators and educators. Educators struggle with: the complexities of new pedagogy; integration of

the technology with content; insufficient time to experiment; and feeling overwhelmed, isolated and resentful (Watson, 2001). When it comes to technology, most educators at SBIT are “digital immigrants” with some adapting to new ways better than others. Many students, on the other hand, are “digital natives” who are used to receiving information in a rapid, multitasking manner (Prensky, 2001). Prensky noted that it is highly unlikely that digital natives will regress back in time. Therefore, educators have little other option than to move with the times.

The Dusseldorf Skills Forum and Australian Industry Group (2007) highlighted the need for “new models of innovation and pedagogy”. The need to strengthen teacher capacity to offer student-centred learning was emphasised. It highlighted that student-centred learning is expensive and demands a high level of professionalism and pedagogical understanding. One way of supporting significant change in pedagogical practice is by implementing a strength-based approach to developing teacher capability (Staron, Jasinski, & Weatherly, 2006). Strength-based approaches focus on the positives (looking at what is right rather than what is wrong), adding to existing strengths, building confidence and re-energising teachers.

According to Fullan (1991), educational transformation is difficult to achieve. Individuals react to change in different ways and respond according to their own immediate needs. Fullan proposed that a multidimensional approach is required to achieve transformation and identifies three dimensions in educational change:

1. The possible use of new or revised materials (repurposing of teaching resources);
2. The possible use of new teaching approaches (new teaching strategies or activities);
3. The possible alteration of beliefs (the assumptions and values associated with change).

Fullan suggested that educators often achieve the first step but are unable to progress beyond that point. He believes that achieving each dimension takes time and it is unusual to accomplish them simultaneously. Many teachers resist change indicating that they are so overloaded with preparation and administrative duties that they have no time to learn new things. Teachers who manage to attend short training programs say they quickly lose the skills without the opportunity to practice. One way to overcome this is by providing sponsored release from teaching to allow time to experiment, interpret and build confidence. Many administrators reject this view indicating that these activities should be undertaken in a teacher's own time. The author suggests that pedagogical transformation requires much more support than occasional release to attend short professional development activities. A supportive “middle-ground” that recognises time invested in learning would do much to support better relationships between educators and administrators.

Below are a range of strategies proposed by Staron et al. (2006) for supporting educational change and the ongoing capability development of educators. Some may

appear obvious. However, the Southbank experience demonstrated that they can be easily overlooked.

- Involve educators in decisions about the environment, technologies and capability development (consultation, ownership, pedagogical consideration);
- Provide teachers with an accessible safe environment to experiment, explore and be supported through their mistakes (sandpit environment);
- Make sure that development programs are flexible and responsive (range of programs/methods, relevance, timeliness);
- Recognise the benefits of individual and social processes and utilise activities that capitalise on these processes (practice what you preach);
- Focus on the people rather than the place and structure (humanise the process);
- Apportion combined responsibility to individuals and the organisation (shared responsibility);
- Implement a range of programs to support the capability development of teachers (mentoring, coaching, learning circles, talent management, expert in residence, rewards and recognition programs, communities of practice).

Breuleux (2001) suggested that communities of practice are a valuable way of connecting the present with the future and allowing teachers to observe, make sense and interpret. They allow educators to be participants rather than observers in the re-engineering of practice. Knowledge is constructed rather than being “told”. John (2002) indicated that most professional development to-date has focused on re-tooling and supplementing existing curriculum. Moving forward requires a multifaceted approach by focusing on capability development rather than training programs offering a “quick-fix”.

> Changing modes: What are the implications for educators and learners?

As an outcome of the redevelopment of Southbank Institute, teachers and learners find themselves inhabiting new learning spaces and experiencing new modes of educational practice although, to-date, limited pedagogical transformation has occurred. The transition to new learning environments is often seen to benefit young “net-gen” learners, however, as educators we need to ensure, whenever possible, that we minimise disadvantage for other learners or already disadvantaged groups (Punie, 2007). Incongruously, learners are often the forgotten element in educational reform even when changing learner needs are one of the identified reasons for the reform.

When exploring the implication of changing modalities for learners, it is easy to find more questions than answers. Questions include: How will learners manage the freedom offered by the new environments? How will learners with disabilities be supported in the new spaces? How will mature learners (and some young ones for that matter) manage

the noise and disruption that are characteristic of the new learning spaces? Finally, is this transformation catering for, or ignoring, the broad range of learning styles and learner needs? While these questions are beyond the scope of the chapter, they are worth considering. They highlight the need to support learners to develop the skills required to function effectively in collaborative learning environments. Francis and Raftery (2005) suggested that many issues in new learning spaces could be resolved by providing a new category of student support - someone who is “on-hand”, with practical help-desk skills, and a deep understanding of collaborative pedagogies.

For educators, the transition to new environments and the pressures imposed to transform pedagogy optimistically can be a time of renewal but, more likely, a time of stress. Many teachers feel professionally challenged by pedagogical change believing existing practices are under siege. Since SBIT teachers moved into the new learning spaces, there has been a noticeable increase in the number of educators using the Learning Management System (LMS) purely to distribute learning resources. This aligns with the first dimension of change proposed by Fullan (1991) when teachers “repurpose” their existing resources and the way in which they are used. However, only a small number of teachers have moved beyond the first dimension and are utilising collaborative tools or collaborative learning activities (e.g., Wikis or problem-based activities).

> Conclusion

There is a substantial body of literature supporting the matching of space to pedagogy. The literature proposes that collaborative learning activities require reconfigurable space, with movable furniture, multiple focal points and opportunities for clustering learners. Whether new “learning spaces” can transform educational practice into a collaborative experience is a more complex question. Early evidence from the SBIT redevelopment indicates it is too soon to quantify any significant change in educational practice. However, a great deal of learning has occurred which will assist future transformation. The proposed shift to learner-centred “modalities” has encountered resistance from many teachers who continue to use traditional teacher-centred pedagogy. Compounding factors include design faults within spaces, delayed installation of technologies, and delayed rollout of capability development programs.

The Southbank Education Precinct redevelopment set out to challenge traditional pedagogy, introducing a range of new learning environments in the hope of transforming educational practice. While project stakeholders carried out considerable investigation before construction commenced, very few large-scale operating models were available for evaluation. Therefore, the final project design involved a degree of calculated risk. Although there has been limited pedagogical transformation to-date, there is sufficient evidence to support the proposition that new learning spaces can influence pedagogy. Punie (2007) proposed that transformation requires investment, resources, multi-stakeholder involvement, and trial and error. The final message is that successful

pedagogical transformation requires significant financial investment, quality fit-out of learning spaces, provision of appropriate and current technologies, and extensive capability development for staff.

> References

- Breuleux, A. (2001). Imagining the present, interpreting the possible, cultivating the future: Technology and the renewal of teaching and learning, *Education Canada*, 41(3), 1-8.
- Brophy, P. (1998, June). Distributing the library to the learner. *Beyond the beginning: The global digital library*. Paper presented at an international conference organised by UKOLN on behalf of JISC, CNI, BLRIC, CAUSE and CAUL. London: United Kingdom. Retrieved September 25, 2007, from <http://www.cni.org>
- Brown, M., & Long, P. (2003). Trends in learning space design. In D. Oblinger (Ed.), *Learning spaces* (pp. 9.1-9.11). EDUCAUSE e-Book. Retrieved August 12, 2007, from <http://www.educause.edu/learningspaces>
- Chism, N., & Bickford, D. (Eds.). (2002). *The importance of physical space in creating supportive learning environments: New directions in teaching and learning*. San Francisco: Jossey-Bass.
- Ditoe, W. (2002). Seriously cool places: The future of learning-centred built environments. In D. Oblinger (Ed.), *Learning spaces* (pp. 3.1-3.11). EDUCAUSE e-Book. Retrieved August 12, 2007, from <http://www.educause.edu/learningspaces>
- Dusseldorf Skills Forum & Australian Industry Group. (2007). *It's crunch time: Raising youth engagement and attainment*. Retrieved September 25, 2007, <http://www.dsf.org.au>
- Fisher, K. (2005). Mapping pedagogy & space: *The emerging hybrid campus*. Retrieved August 20, 2007 from <http://www.tefma.com/infoservices/papers>
- Francis, R., & Raftery, J. (2005). Blended learning landscapes. *Brookes eJournal of learning and teaching*, 1(3), 1-5. Retrieved August 12, 2007, from <http://www.brookes.ac.uk>
- Fullan, M. (1991). The meaning of educational change. In *The new meaning of educational change* (2nd ed.), Chapter 3. New York: Teachers College Press.
- Gibbons, M., Limoges, C., Nowotny, H., Schwartzman, S., Scott, P., & Trow, M. (1994), *The new production of knowledge*. London: Sage.
- Jamieson, P., Fisher, K., Gilding, T., Taylor, P., & Trevitt, C. (2000). Place and space in the design of new learning environments. *Higher Education Research and Development*, 19(2), 221-237.

- John, P. (2002, September). *Teaching and learning with ICT new technology, New pedagogy?* Paper presented at British Educational Research Association Conference. Exeter, United Kingdom: University of Exeter.
- Joint Information Systems Committee (JISC). (2006). *Designing space for effective learning: A guide to 21st century learning space design*. Bristol, UK: Higher Education Funding Council for England. Retrieved September 20, 2007, from http://www.jisc.ac.uk/uploaded_documents/JISCcleaningspaces.pdf
- Lomas, C., & Oblinger, D. (2002). Student practices and their impacts on learning spaces. In D. Oblinger (Ed.), *Learning spaces* (pp. 5.1-5.11). EDUCAUSE e-Book. Retrieved August 12, 2007, from <http://www.educause.edu/learningspaces>
- Loveless, A., DeVogd, G., & Bohlin, R. (2001). Something old, something new ...: Is pedagogy affected by ICT? In A. Loveless & V. Ellis (Eds.), *ICT, pedagogy, and the curriculum: Subject to change* (pp. 63-83), London: Routledge/Falmer.
- National Learning Infrastructure Initiative. (2004). *Leading the transition from classrooms to learning spaces: An NLI White Paper*. Retrieved October 19, 2007, from <http://www.educause.edu/ir/library/pdf/NLI0447.pdf>
- Oblinger, D. (2005). Leading the transition from classrooms to learning spaces: The convergence of technology, pedagogy, and space can lead to exciting new models of campus interaction. *Educause Quarterly*, 1, 4-18.
- Oblinger, D. (Ed). (2006). *Learning spaces*. EDUCAUSE e-Book. Retrieved August 12, 2007, from <http://www.educause.edu/learningspaces>
- Prensky, M. (2001). Digital natives, digital immigrants. *On the Horizon*, 9 (5), 1-6. Retrieved August 25, 2007, from <http://www.marcprensky.com>
- Punie, Y. (2007). Learning spaces: An ICT-enabled model of future learning in the knowledge-based society. *European Journal of Education*, 42(2), 185-199.
- Southbank Education and Training Precinct Administration. (2003). *Southbank education and training precinct development project: Information memorandum*. Brisbane: Author.
- Southbank Institute of TAFE. (2005). *Southbank TAFE education precinct gets go ahead*. Retrieved August 19, 2007, from <http://www.southbank.tafe.net/site/epicentre>
- Staron, M., Jasinski, M., & Weatherly, R. (2006). *Life based learning: A strength based approach for capability development in vocational and technical education*. Retrieved October 8, 2007, from <http://www.icvet.tafensw.edu.au/resources>
- Sutherland, R., Armstrong, V., Barnes, S., Brawn, R., Breeze, N., Gall, M., Matthewman, S., Olivero, F., Taylor, A., Triggs, P., Wishart, J., & John, P. (2004). Transforming teaching and learning: Embedding ICT into everyday classroom practices. *Journal of Computer Assisted Learning*, 20, 41-425.

Department of Employment and Training. (2006). *Queensland Skills Plan*. Brisbane, Queensland. Queensland Government.

Watson, D. (2001). Pedagogy before technology: Rethinking the relationship between ICT and teaching. *Education and Information Technologies*, 6(4), 251-266.

Wiersema, N. (2000). *How does collaborative learning actually work in a classroom and how do students react to it? A brief reflection*. Retrieved October 27, 2007, from <http://www.city.londonmet.ac.uk/deliberations/collab.learning/wiersema.html>

Chapter 3

Seeking the Balance: Lifelong Learning and Trade Training during the School-to-Work Transition

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> Abstract

This chapter discusses the challenges that vocational education programs present to young people when they are at school. It considers the impact of vocational education studies at school on students' transition from school-to-work. The role of skills for lifelong learning within students' studies and work environments is explored. A high demand for labour market skills, particularly, in some trade areas has driven the vocational educational policy agenda in Queensland. At the school level, these vocational programs may be implemented in a less than optimal way, driven by local community factors. School Based New Apprenticeships (SBNAs) are discussed in depth. The rapid expansion of SNBA programs in Queensland has meant that there has been less focus on other vocational programs in schools that might be on offer to facilitate students' transition from school-to-work that may have greater impact on the development of students' lifelong learning skills.

A traditional view of the transition process between school and work considers that there is a linear, sequential pathway from full-time education to securing full-time employment. This view has significant sway within the vocational education and training (VET) policy agenda with many initiatives focused on targeting “youth at risk” in transition to work programs. This focus may create tensions between the interests and objectives of a number of key stakeholders in their understanding and facilitation of transition to work programs. These stakeholders include government, industry, schools and, most importantly, young people. This chapter investigates whether the trend to promote School Based New Apprenticeships (SBNAs) as a key program facilitates the transition from school-to-work for young people. It examines whether the training that a young person undertakes for a specific trade may be at the expense of a broader preparation for long term participation in the workforce and the development of skills for lifelong learning.

The expansion of VET programs in Australian secondary schools has been extensive in the last decade. VET is now a key feature of secondary schooling in Australia. There are

a number of broad categories used to describe vocational programs in schools. Barnett and Ryan (2005) noted that these programs are variously called vocational learning, VET-in-schools, School Based New Apprenticeships (SBNAs), work experience, and Structured Workplace Learning (SWL). In Queensland, there has been a strong growth in the implementation of SBNAs across government, Catholic and independent secondary schools. In 2004, Queensland had the highest number of students in SBNAs in Australia (Ministerial Council for Education, Employment, Training and Youth Affairs [MCEETYA], 2004). Across the last decade, various reports have examined the overall success rate of SBNAs. These reports indicate that the value of SBNAs is that they increase the retention rate to Year 12 and have a positive flow on effect on engagement in full-time work and study. This chapter looks beyond the broader achievements of SBNA programs to some of the particular issues that are faced by young people commencing a SBNA apprenticeship while at school in areas in which there are trade skill shortages. Identified areas of apprenticeship trade shortage in Queensland include automotive, construction, furnishing, engineering, baking, commercial cookery, electrical and plumbing.

> The concept of lifelong learning

Fisher (1999) defined lifelong learning as encompassing all learning activity undertaken across the life span. It is a way of thinking, a state of mind, an approach to life that will support a person in self-directed learning, learning on demand, informal learning, and organisational learning. Lifelong learning can be understood in different ways (Brookes, 2006). From an economic perspective, the focus is on the importance of individuals' capacities to update their skills for the "knowledge economy". From a personal perspective, it is about individuals seeking to cope with change and maximising their potential. There is also the social contribution that lifelong learning makes to promoting active citizenship and participation in democracy. No single perspective can be seen in isolation.

There are a number of indicators which are accepted amongst the OECD countries as key quantifiers for measuring how successful a country is in providing lifelong learning opportunities. These macro-level indicators measure resource expenditure; access and participation in training and work; and the level of work-based skills and competencies which include literacy and numeracy. These indicators provide measures by which the investment of any country in their citizens' participation in lifelong learning activities can be evaluated. In addition to these measures, the Australian Qualifications Framework (MCEETYA, 1995), which provided a national structure for qualifications in post-compulsory schooling, attempts to encourage lifelong learning by creating learning pathways and seeking to remove boundaries between educational sectors such as schools, TAFE institutions, and universities.

In 2001, Ryan provided a critique of Australian VET policy against the practices and principles of lifelong learning. He outlined the recent history of the concept of lifelong learning in the Australian training sector and argued that lifelong learning is not essentially a focus in VET policy. In the 1970s, technical trainers in Australia were among the first to adopt the lifelong learning philosophy. With impetus from the Kangan Report, *Technical and Further Education in Australia* (Kangan, 1975), a new vocational education and training system was established with a strong basis in lifelong learning. However, the intervening years saw the vocational sector adopt a stronger industry focus. The adoption of terms such as “skills formation” in VET policy reflected the intent that the training needs of the labour market dominate over the learning needs of the individual. General education and equity programs almost disappeared from the TAFE sector during the late 1980s and early 1990s as economic rationalism determined the directions of vocational education. More recently, in Australia, the concept of lifelong learning has been of increased interest because of the economic climate and global interest.

Ryan (2001) noted that, while earlier models of lifelong learning delineated between formal education and learning at work, learning is now seen as a continuous and embedded process in the workplace beyond tertiary formal learning programs. Ryan suggested that there is now a difficulty in providing opportunities for lifelong learning in workplaces because of a market environment in which there is underemployment; increasing part-time and casualisation of the workforce; a rise in outsourcing of products and services; and the increased use of labour hire companies. As a consequence, not all workers have opportunities to participate in ongoing learning programs in work environments.

While a goal in workplaces may be for individual workers to achieve personal mastery in recognition of the importance of lifelong learning, it still may be a privilege accessed by some young people but not all. The pessimistic outlook presented by Ryan (2001) finds its basis in policy directions which transferred much of the risk, cost, and responsibility associated with learning from the state to the individual. This increased the likelihood that lifelong learning is not an inclusive, equitable experience for all. Ryan concluded that lifelong learning policy needs to demonstrate a number of key qualities to ensure that it does not merely become an instrument of short-term economic need. Two of these qualities are that educational policy does not show prejudice on a perceived vocational /non-vocational basis and that lifelong learning policy builds pathways other than that of “school-to-work” in order to meet the learning needs of adult learners across their lifespan. Ryan’s view suggested that it will take considerable rethinking of current policy to re-establish the balance in the lifelong learning equation.

A view of lifelong learning is that it is about encompassing the needs of the economy, the social cohesion of communities, and the personal development of individuals (Brookes, 2006). It means that the implementation of vocational learning programs around these principles is about creating balance and choice that address those three areas. It is important for individuals to have the skills and knowledge that will support engagement

in ongoing learning activities to develop capacities to adapt to new and changing work environments during their adult years. Lifelong learning needs to be valued and actioned with the same priority and urgency that is being given to addressing current labour market shortages.

> School-to-work transition

The introduction of work-based learning during the school-to-work transition can be an effective tool to help young people internalise the skills, knowledge and attitudes for successful lifelong learning. The Career and Transition Services Framework put out by MCEETYA (2003) as part of the Ministerial Declaration, *Stepping forward: Improving pathways for all young people*, emphasised that the transition from school-to-work needed to be viewed broadly as a process by which young people develop knowledge and understanding of themselves in relation to the world of work, before making decisions about their career pathways. In analysing the range of work-based learning programs offered in school-to-work transitions, Billett and Ovens (2007) distinguished between those programs that assist students to be informed about school-to-work decision-making processes (e.g., Structured Workplace Learning [SWL]) and general vocational learning versus programs that develop vocational skills for specific occupations (e.g., SBNAs).

Concerns have been raised that the school-to-work transition is being viewed purely as a measure of progress from full-time schooling to full-time employment with the aim of minimising time spent by young people “economically inactive, disengaged, disconnected or simply ‘Not in Employment, Education or Training’ ” (NEET) (Taylor, 2006, p. 180). Vaughan and Roberts (2007) have challenged the traditional view of the transition from school-to-work as a process of a simple “school-to-labour market” model. They argued that if transition is viewed as a richer concept then it is not just a process but is about the production of an individual’s work identity. Their research complements the more holistic notion of lifelong learning as a way of thinking, a state of mind, and an approach to life.

The simple school-to-labour market model focuses on what job a young person enters into and how long the process takes. A richer view is to consider the transition as a journey focusing on giving young people greater understanding about the pathways that can provide them with entrance to the kinds of people they would like to become. This was emphasised in a work-based learning “apprenticeship” project documented by Hamilton and Hamilton (1997). They made recommendations about what could constitute successful work-based learning programs. Learning technical skills was only part of the equation. Informing youth about all aspects of the industry and, importantly, giving them exposure to broad work experiences and knowledge was seen as critical. They recognised that the development of the social and personal competence of the young person was an important outcome in any work-based learning program.

Bye (2003) considered the notion of youth in transition against the concept of governmentality proposed by the French philosopher, Foucault. This provided an interesting point of view on how young people are being perceived by neoliberalist governments in the school-to-work transition. Bye indicated that it was apparent that youth transition from school-to-work was a complex and risky process with many influencing factors outside the individual's control. Globalisation, youth unemployment, deregulation of the labour market, casualisation of labour, the impact of information and communication technologies (ICTs) on the economy, all contributed to an uncertain labour market. These factors make the notion of a linear, systematic pathway from school-to-work an illusion for many young people. Bye (2003) developed the argument that current VET policy in Australia is also squarely aimed at apportioning blame to young people for failing to make the transition smoothly and effectively:

The focus has been effectively shifted from the changing global economic structures which created large-scales youth unemployment in Western industrialised nations to the individual, who if in possession of the right skills (gained through education and training programs), would be able to overcome the obstacles faced in the transition from school-to-work. In this policy construction, youth become the problem rather than global economic trends and here the slippage, in terms of the location of the problem, is complete. (p. 4)

In line with the ideas presented by Bye (2003), Vaughan (2005) noted that young people are bombarded with the notion of “choices” and that choosing a pathway is part of the process of transition. Vaughan, in reflecting on the debate in New Zealand over the legitimacy of various pathways within the transition to work framework, stressed that young people in the “options generation” view the situation of making decisions differently from the older generation. The idea is to remain non-committed as long as possible before adopting a short term “just in time” decision (p. 180-181). Vaughan noted that the OECD refers to this behaviour as “milling and churning” – the process of shifting between various activities before settling to one. Vaughan suggested that this behaviour could be a reaction to the current unpredictable economic and social climate for youth. Youth are continually informed about jobs disappearing, unstable work environments and high youth unemployment.

It would seem that, in the implementation of the vision proposed by MYCEETA (2003) of the nature of an effective school-to-work transition process, the emphasis has fallen to individuals to find and start on an employment pathway. This is at the expense of time invested in developing knowledge and understanding about themselves as a person in the community and in the labour market during their adult years; and the possible roles that they can play in the world.

> Issues for young people during school-to-work transitions

The cost if the transition is not successful for the young person can be significant, as described by Vickers (2003):

Young people who leave school early or who do not make effective transitions from school-to-work are likely to be economically vulnerable for many years. What this means is that they are likely to endure long periods of underemployment, or to become trapped in a series of short-term, part-time, poorly-paid casual jobs. (p. 6)

Hango and de Broucke (2007) discussed a range of social and cultural factors that influence the school-to-work transition for youth in Canada. They noted that socio-demographics factors such as the number of siblings, the structure of the family unit, the educational attainment of the parents, the students' academic progress at school, and the impact of managing paid work while a student is still at school are all linked to the success or otherwise of the transition from school-to-work. Hango and de Broucke also discussed the so called "normative" path of the past. This was finish school, start full-time work, marry, and have a family. They noted the situation had radically changed for many young people with some events occurring simultaneously or in varying sequences, often resulting in young people still not having established an independent household by age 30. Vickers (2003) in a review of literature around early school leaving also highlighted the financial considerations that influence a significant number of young people in the school-to-work transition. Of the respondents in his research who left school early: 46% gave the need to work or gain an income as reasons for quitting school but 43% of the young people also reported a desire to get a job or apprenticeship.

Young people are also challenging the values of workplaces. Taylor (2006) noted that young people in Canada were generally more challenging of authority, more vocal, and held different perceptions of work ethic and attitude to work to that of the "baby boomers" or "Generation X" employers. Apprentices did not stay in the system when they experienced negative work incidents such as bullying, pay problems, poor supervision, or unsafe work experiences. These findings are supported by Grose (2005) who identified some of the unique characteristics shown by young people making the transition to adulthood. Their non-committal attitudes, the transient nature of their engagement in work, and their defiance of traditional workplace cultures could put them at odds with employers who were more senior in years.

In summary, youth in transition from school-to-work seem only too aware of the balancing act involved in making the right choices in an ever changing social and economic environment. Young people are adopting a number of different strategies and hold a different set of personal values than the previous generation to help them survive in a labour market which is, in a large part, shaped by factors beyond their control.

> School based new apprenticeships

School based new apprenticeships (SBNAs) involve a contract of training delivered by both an employer and a registered training organisation. The on-the-job component is based in a workplace, usually organised as a one day per week release from school. This is complemented by formal vocational training in a related qualification. A SBNA is carried out in conjunction with a range of other secondary studies. Students often modify their school program in order to manage completing a SBNA contract alongside their school-based program.

Apprenticeships undertaken as a SBNA cannot be completed while at school, unlike the majority of traineeships. In Queensland, the “one third” rule prohibits apprentices from advancing more than a third of the way through the formal training while still engaged in a SBNA. The intention is that the apprentice will transition to a full-time or part-time contract enabling them greater exposure to on-the-job training while completing the balance of the formal apprenticeship qualification. A SBNA traineeship will generally be completed while a student is at school and these studies contribute towards a Senior Certificate.

SBNAs are the product of government intervention in response to a number of factors. These factors were documented by Smith and Wilson (2004). The development of SBNAs was driven by a belief that leaving school with some vocational skills would result in better employment outcomes for school leavers and encourage non-academic students to stay within the education system for longer. It also reflected the successful and wider adoption of apprenticeships and traineeships implemented to address youth unemployment through the 1990s with a key role for national skills formation. SBNAs were also seen as a means of addressing some concerns that engagement in formal paid work while at school had an adverse impact on the completion of school. More recently, the Education and Training Reforms for the Future (ETRF) in Queensland (Department of Employment, Training and Youth, 2002) saw the introduction of legislation that now requires students up to the age of 17 to be involved in learning or earning. This is achieved through participation in the Senior Certificate, gaining a Certificate III level vocational qualification, or participating in an approved education program.

SBNAs in Queensland

According to MCEETYA (2004), Queensland recorded 5,955 SBNA commencements in 2004. This represented 46% of all SBNA which were commenced in Australia that year. Smith and Wilson (2004) noted that in Queensland, unlike other states, schools benefited financially from each SBNA contract that was established. This suggested that a situation was created in Queensland in which the school actively promoted SBNA to students. The trend of high participation in this program has continued to be maintained in subsequent years. Half of all SBNAs are trainees undertaking an Australian Qualifications Training Framework (AQTF) Certificate II qualification working in fast food outlets, cafes, restaurants and retail outlets. Smith and Wilson (2004) noted that this

trend reflected broader school student employment practices with 63% of employed school students holding jobs in these sectors.

There are three issues. Firstly, much of the wider SBNA reporting to-date has been focussed on the overall population of SBNAs. This raises the question as to whether we know enough about what is happening to subgroups of trades apprentices engaged in SBNAs. The experiences of SBNA subgroups requires further investigation as there are a number of significant issues worth noting. Unlike SBNA trainees, apprentices cannot complete the training contract while at school. Secondly, while it might be deemed that trainees have secured a job, the transition from school-to-work could be smoother and what is happening to those SBNA trainees who cancel out of the apprenticeship? Thirdly, those in SBNA apprenticeships are generally male with many of this group commence the training contract in Years 9 and 10 of school. The broader profile for SBNAs students is that they are generally female and enrolled in Year 11 at school.

The early commencement of an apprenticeship during the middle years of schooling may add to the number of apprentices confronting literacy, language, and numeracy barriers in their later apprenticeship and in further learning. Anecdotally, it is known that some SBNA cancellations are due to failure by the apprentice to make reasonable progress in the apprenticeship. There are also a growing number of apprentices who need to access literacy and numeracy support classes during their apprenticeship. However, there is limited data on how widespread this is across the system. Early commencement of an apprenticeship may also have implications as to whether the apprentice stays at school to Year 12 or feels pressured to leave earlier either to progress training past the one-third mark of the apprenticeship or, for other reasons, such as to gain financial independence.

Apprentices are generally encouraged by their employers to do more than the minimum 48 days paid work per year. This sometimes results in the school being requested to release students for two days per week. This can have a significant impact on the students' school timetable and, ultimately, means eliminating some pathway options, such as university entrance. Smith and Wilson (2004) noted that some students suffered considerably from trying to manage their school commitments alongside a SBNA and that, in some cases, school timetabling and demands with other activities did not consider the needs of the apprentice.

> Structured workplace learning

Barnett and Ryan (2005) defined Structured Workplace Learning (SWL), as a more "formally designed and managed program of work placement" (p. 18). Work experience, on the other hand, is generally for "short periods of work observation and taster placement" (p. 18). SWL provides useful opportunities in exposing young people to a range of career possibilities, outside of formal employment arrangements, and are usually operated as part of a VET-in-schools program. The key to SWL is assisting students

to make informed decisions about their transition from school-to-work. The experience of SWL also often has other flow-on effects. Smith and Green (2005) outlined effects such as building awareness and confidence about decision-making, learning about individual abilities and interests, building networks with the world of work and enhancing employability skills. Smith and Green outlined the value of work experience in “both selecting and rejecting career options” (p. 10). The downside of such work experience, as perceived by some students, was that it was too brief and limiting in the experiences that it offered.

Statistics are very difficult to compare between states due to data collection variations and interpretations. Relative to other states, Queensland has low levels of participation in SWL programs and there is limited state-wide recording of such work experience. Queensland participation peaked in 2002 with 17,826 students participating in SWL but declined to just 12,667 by 2004. MCEETYA data for 2004 shows just 22% of VET-in-schools students in Queensland undertook SWL, compared with other states such as NSW (81%), Victoria (72%) and Tasmania (83%). It was noted that SWL was not mandated in Queensland for students studying VET courses / competencies which are embedded in the Board Authority registered subjects. SWL does not seem to be utilised widely in Queensland although the research into the benefits of SWL would suggest that there are many positive flow-on effects for young people when they undertake SWL as part of a VET-in-schools program. The benefits that SWL provide are about building the knowledge on which to make effective decisions around the transition to work. It is not just about what vocational pathways a young person might want to follow. It is also about having the opportunity to explore pathways that they may not in the end pursue.

> VET-in-schools

There has been significant growth in the uptake of VET-in-schools programs in Australia, from just 16% of students who participated in VET-in-schools programs as part of their senior schooling in 1997, to nearly 50% in 2004 (MCEETYA, 2004). A VET-in-schools program is based on the development of competencies specified within a training package. It is undertaken as part of a senior secondary certificate and its completion by the student provides credit towards a recognised qualification within the AQF (MCEETYA, 2004).

Barnett and Ryan (2005) noted that VET-in-schools now accounts for 12% of all VET qualifications in Australia and that nearly 50% of students in Queensland participating in the VET-in-schools program undertook courses of study related to tourism, hospitality, business, clerical work or computing. Anlezark, Karmel and Ong (2006) concluded that school VET programs made a notable contribution to further education and training pathways for boys who undertook engineering and construction programs although they provided little positive contribution to other students' post-schooling pathways other than providing an elimination mechanism for some areas of further work or training.

The current focus of VET-in-schools programs seems to be in part addressing the training needs for the part-time and casual labour market sectors for young people including hospitality and retail. VET-in-schools programs are particularly popular in Queensland with over 370 schools currently registered as training providers of VET courses. However it is questionable that the current profile of VET-in-schools courses really exposes students to more diverse pathways to work and study. Debate is needed around what vocational programs schools offer. Such a debate needs to consider the range of factors influencing students' experiences. These factors include schools' access and willingness to use "outside" vocational specialists so that they have the resources to offer a wider variety of programs to meet local and regional skill demands and opportunities; changing industry needs including the advancement of ICT skills into many industries; and the career interests of individuals. The education system needs to scrutinise the use of VET-in-schools so that it makes a more valuable contribution to the school-to-work transition process for young people.

> Innovation in school-to-work transition programs

An innovative project in Canada that focused on the school-to-work transition in the motive power trades was documented by Edmunds and Freeman (2002). The students progressed in Year 11 from: pre-employment training in areas, such as occupational health and safety and general education, under the direction of technical trainers and school teachers, supported with field trips and work experience placements; to co-op apprenticeship placements and accredited training in Year 12 contributing to "common core" training within an apprenticeship. The project focused on addressing concerns about the need to recruit young people into apprentices with the right attitudes and aptitudes; challenging the social stigma often associated with entering an apprenticeship; and challenging schools on their practices of "streaming" students into either academic or vocational programs. The school established a strong link with local employers and technical trainers in the delivery of the program. The project ultimately delivered a series of successful programs achieving an 80% completion rate in the 2001 program. The key success factors were "recognition of the academic demands of the trade, pre-employment preparation, technical skills development, and a supportive school-work transition policy" (Edmunds & Freeman, 2002, p. 16).

A similar project in Australia commenced in 2007 at Holmsglen Institute in Victoria. The Victorian Certificate of Applied Learning (VCAL), intended for students completing Year 10 or turning 16 years of age, is a vocationally-based program which aims to give students ample opportunity to experience training in a range of industry areas before making choices to specialise in the second year of the program. Key features of the program include a strong literacy, language and numeracy component; extensive work placement; and an aim that students establish a balance of work and life skills (Holmsglen Institute, 2007).

There are a range of vocational programs that operate to support the decision-making process for a young person considering a transition to a trade apprenticeship. The key to a number of these successful programs seems to be their ability to expose individuals to areas of learning, without needing to commit to that pathway too early. They also encompass elements that ensure continued development of general learning including a focus on literacy and numeracy skills. What is not clear from looking at the range of vocational programs operating in Queensland schools is how the programs to be offered are determined and why some programs do not seem to be more widely utilised. This would suggest that there is a need for an explicit rationale within the education and training sector that will better manage the choices and directions that schools take in implementing vocational learning programs.

> The role of schools

Given the significant increase in the number of students undertaking vocational education and training it would not be unreasonable to conclude that schools have been successful in their obligation to provide students with improved pathway options. However, there are a number of critics who propose that the high rate of participation is masking a number of issues related to the quality of the programs on offer, in particular, whether the programs are well organised, supported and effectively used as learning opportunities by schools.

Billett and Ovens (2007) were critical of the lack of resourcing and commitment to vocational education by schools. While they acknowledged that there are individual zealots within the system, they concluded that there was not a systematic and genuine commitment by educational institutions to give vocational education the priority it requires. Taylor (2006) noted the organisational structure within schools in Canada that streams students as either academic or vocational; virtually, creating parallel education systems with consequence that teachers then promote apprenticeships to some students and not others. A similar system seems to be developing in Australia. Barnett and Ryan (2005) highlighted an interesting issue that they believed that there is little understanding in Australia on: "... the extent to which schools counsel students to enter VET-in-schools and SBNA programs – and the extent to which this reinforces the academic and socioeconomic profile of VET-in-schools participants" (p. 27). A number of academic papers have reported that schools in Australia lacked the broad understanding and knowledge of industry options available for students. Smith and Green (2005) and Dumbrell (2003) have suggested that there is a perception from key players outside of the school system of a lack of current effective career advice available within school communities.

Concerns about the role of schools in vocational programs are not isolated to Australia. In the Canadian study by Edmunds and Freeman (2002), they noted that initially some teachers felt threatened by the vocational programs that were introduced. Teachers held

perceptions that the programs were designed to remove their best senior students from the academic stream, While funding for schools and training organisations continues to be calculated on the number of hours a student is enrolled within a specific institution, there are unspoken issues within the education and training sector between institutions about who participates in these programs and how vocational training is delivered. The approach by schools to vocational education and, in particular, to SBNAs seems unplanned and inconsistent across Queensland. At the school level, while the uptake of students into VET programs has been extensive, there seems little educational planning leading to these outcomes, suggesting that a stronger framework for development, implementing and monitoring these programs is required by schools.

> The role of the employer

There are clear economic implications for employers if the labour market needs of industry groups are not addressed through the training of young people. To that end, industry needs to take a greater role than that of employer to the school leaver. Edmunds and Freeman (2002) in their research called for the clearer identification of the entry level criteria for students that employers expected. They concluded that employers expected students to arrive without much left to learn. A pragmatic view for employers is that they need to appreciate their role is to engage students in effective learning activities while they are in the workplace. One of the challenges identified by Taylor (2006) was the competing interests of the “partners” in the vocational system developed in Canada – business, schools, technical trainers, and unions. Taylor suggested that schools and technical trainers monitoring apprentices in the workplace bowed to, what they perceived, as the productivity pressures applied by employers. This undermined the contribution that the programs could have. More reflective analysis and communication with employers by schools and trainers could have improved the set-up and outcomes for vocational programs. This raises concerns about the balance of power between stakeholders in the apprenticeship system.

Employers who are knowledgeable about certain vocational programs can also use them selectively for their business. Smith and Wilson (2004) go as far as to suggest that, in Australia, major retail outlets and franchises who know about the traineeship and apprenticeship system have capitalised on it by converting what were ordinary part-time and casual work to SBNAs. Creating successful SBNAs requires balancing the needs of key stakeholders who have different priorities. The economic demands of the workplace need to be balanced with the need for meaningful learning for students to be occurring. It is also critical that SBNAs are seen by employers as training programs not as subsidised employment, a basis on which they are sometimes marketed.

> Conclusion

At a national level, a great deal of investment is being made into vocational learning. VET within the school environment contributes significantly to this result. However, Ryan (2001) called for more “nerve and imagination” (p. 145) from policy makers in reframing the existing directions for VET policy. This is to ensure that the principles of lifelong learning are recognised and that issues of social cohesion and the personal development of young people are considered in the school-to-work transition. This needs to be balanced against training needs for economic growth. At the school level, some of the broader educational issues around what and how schools delivery vocational training requires further debate in Queensland. One debate is whether schools should focus more seriously on VET pathways with clear labour market targets that will include a strong emphasis on delivering workplace learning programs or, conversely, whether schools should focus on prevocational preparation and remove themselves totally from the delivery of specific AQTF training delivery.

For the individual student in the transition from school-to-work, the research suggests that there are many pressures being placed on young people to take a greater level of responsibility for making an effective transition to the workforce through the right training pathway. The enthusiasm of governments to see young people participating in the workforce and their discomfort with young people spending indefinite time “milling and churning” between school and full-time work may see some pathways such as SBNAs, targeted and promoted to young people at the expense of other programs which have a less structured vocational pathway outcome.

The literature suggests that current school vocational programs that support the school-to-work transition in Queensland are being applied in a relatively ad-hoc manner, at the vagaries of business interests, financial incentives, school resources, and individual school preferences. SBNAs are set up on an individual basis; schools are financed by governments for their role in the program; and there is minimal monitoring required by schools once the SBNA is established. In contrast, some of the other programs not as widely promoted such as pre-apprenticeships and SWL take considerable planning, coordination and monitoring by schools. It is easy to see why SBNAs would be a resource friendly option to promote in the school environment. However, programs such as the community partnerships program trialled in Canada and, similarly within Victoria, may provide an alternatives approach that balances many of the concerns raised in this chapter. The key will be in the delivery of professional development, resources and support to schools to deliver such programs within a framework that promotes the transition from school to a life time of learning.

This chapter has highlighted the need to know more about how young people who enter a trade apprenticeship as a SBNA are faring. More clarity is required to understand the long term consequences for those who commence their apprenticeship during the middle years of schooling and what impact this has on their general education

outcomes. Further research is also essential to understand the outcomes for those apprentices who cancel their contract while still a SBNA to determine the impact that this has on their transition from school-to-work and their lifelong learning prospects.

> References

- Anlezark, A., Karmel, T., & Ong, K. (2006). *Have school vocational education and training programs been successful?* Adelaide, South Australia: NCVET. Retrieved August 8, 2007, from <http://www.ncver.edu.au>
- Barnett, K., & Ryan R. (2005). *Lessons and challenges: Vocational education in schools – research overview*. Adelaide, South Australia: NCVET. Retrieved August 8, 2007, from <http://www.ncver.edu.au>
- Billett, S., & Ovens, C. (2007). Learning about work, working life and post-school options: Guiding students' reflections on paid part-time work. *Journal of Education and Work*, 20(2), 75-90.
- Brookes, R. (2006). Learning and work in the lives of young adults. *International Journal of Lifelong Education*, 25(3), 271-289.
- Bye, J. (2003, November). *Governmentality and post-compulsory education – youth problematising their conduct*. Conference Proceedings for Continuity and Change: Educational Transitions. Sydney, NSW: University of Western Sydney.
- Department of Education, Science and Training (DEST) (2004). *SWL student destination survey 2003*. Canberra, ACT: Commonwealth of Australia.
- Department of Employment, Training and Youth. (2002). *Education and training reforms for the future*. Brisbane, Queensland. Queensland Government.
- Dumbrell, T. (2003). *Pathways to apprenticeships*, Adelaide, South Australia: NCVET. Retrieved July 24, 2007, from <http://www.ncver.edu.au>
- Edmunds, R., & Freeman, S. (2002, October). *New demands and dimensions for apprenticeship in the new economy school work partnerships*. Paper presented at the International Conference on Technical and Vocational Education and Training, Winnipeg, Manitoba, Canada.
- Fischer, G. (1999). *Lifelong learning: Changing mindsets*. University of North Carolina, Centre for Public Health Preparedness. Retrieved August 11, 2007, from <http://nccphp.sph.unc.edu/lifelonglearning/toolkit/LLLChangingMindsets.pdf>
- Grose, M. (2005). *The new rules of generational warfare*. Milsons Point, NSW: Random House.
- Hamilton, M. A., & Hamilton S. F. (1997). When is work a learning experience? *Phi Delta Kappan*, 78(9), 682-689.

- Hango, D., & de Broucke, P. (2007). Education-to-labour market pathways of Canadian youth: Findings from the youth in transition survey. Pathways to the Labour Market Series No/5. Toronto, Canada: Canadian Policy Research Networks.
- Holmsglen Institute (2007). *VCAL foundation course*, Retrieved July 20, 2007, from www.holmsglen.vic.edu.au
- Kangan, M (Chair) (1975). *Australian Committee on Technical and Further Education. TAFE in Australia*. Canberra, ACT. Australian Government Printing Service.
- Ryan, R. (2001). Master concept or defensive rhetoric: Evaluating Australian VET policy against past practice and current international principles of lifelong learning. *International Education Journal*, 2(3), 133-145.
- Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA) (1995). *Australian qualifications framework*. Retrieved August 11, 2007, from <http://www.aqf.edu.au/aboutaqf.htm#when>
- Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA) (2003). *Career and transition services framework - An effective national approach to youth transition*. Retrieved August 11, 2007, http://www.mceetya.edu.au/mceetya/career_and_transition,12049.html
- Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA), (2004). *National data on participation in VET-in-schools programs & school-based new apprenticeships for the 2004 school year*. Retrieved August 11, 2007, from http://www.mceetya.edu.au/mceetya/national_data_participation_in_vet,11896.html
- Smith, E., & Green, A. (2005). *How workplace experiences while at school affect career pathways*. Adelaide, South Australia: NCVER. Retrieved August 8, 2007, from <http://www.ncver.edu.au>
- Smith, E., & Wilson, L. (2002). *Learning and training in school-based New Apprenticeships*. Adelaide, South Australia: NCVER.
- Smith, E., & Wilson, L. (2004). School-based apprenticeship and traineeships in Australia. *Education and Training*, 46(2) 64-74.
- Taylor, A. (2006). The challenges of partnership in school-to-work transition. *Journal of Vocational Education and Training*, 58(3), 319-336.
- Vaughan, K. (2005). The pathways framework meets consumer culture: Young peoples, careers, and commitment. *Journal of Youth Studies*, 8(2), 173-186.
- Vaughan, K., & Roberts, J. (2007). Developing a 'productive' account of young people's transition perspectives. *Journal of Education and Work*, 20(2), 91-105.
- Vickers, M. H. (2003, May). *Freedom in a rocking boat: The changing nature of youth transitions*. Proceedings of the International Conference on Continuity & Change - Educational Transitions. Sydney: University of Western Sydney.

Chapter 4

Supporting Employability Skills through Flexible Learning Approaches

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> Abstract

This chapter focuses on how flexible learning approaches can be used to enhance the development of employability skills for students in VET programs. The chapter examines policy initiatives at the national and state level about employability skills and flexible learning. It explores practical and innovative approaches to developing employability skills through the potential that flexible learning approaches offer. The development of employability skills can be enhanced by opportunities afforded for reflective, collaborative, problem-based, self-directed, inquiry based or experiential learning. The position proposed is that the use of flexible learning strategies through a learner-focused and authentic learning approach will facilitate the development of employability skills. However, such a direction also requires the establishment of structures that support a collaborative approach among the various stakeholders in the VET sector so that innovative and universally aligned initiatives are developed and shared.

In 2002, a report from the Australian Chamber of Commerce and the Industry and Business Council of Australia called *Employability Skills for the Future* was released. The report was commissioned by the Department of Education, Science and Training (DEST) and the Australian National Training Authority (ANTA). It highlighted the need for the revision of the key competencies required in vocational education and training (VET) courses to reflect the demands of the changing world of work and the broader range of skills required by employees in the workplace. It gained strong support from peak employer bodies and governments. Subsequently, the National Training Quality Council endorsed the incorporation of employability skills into all training packages. From 2007, all revised and new Training Packages specify the inclusion of a description of an Employability Skills Qualification Summary and how the eight employability skill are applied to level and context. In this same time frame, when greater attention was being focussed on the importance of the development of employability skills, the *Queensland Skills Plan* (Department of Employment and Training, 2006) was released. It identified numerous objectives for skilling Queenslanders. Many of these are facilitated through the continued move toward flexible learning. One such objective is the following: "Meeting

the lifestyle needs of all TAFE Queensland clients by delivering training in different ways, including face-to-face instruction, online, distance education and in the workplace” (p. 37).

The chapter provides an overview of the nature of employability skills and the history of their incorporation into training packages. Practical and innovative approaches to developing employability skills through flexible learning will be considered. The chapter outlines the policy and practice issues in the incorporation of flexible learning into VET programs. It examines some of the obstacles and barriers to effectively achieving desired outcomes in the development of employability skills through flexible learning. Possible solutions to the challenges identified are then discussed.

> What are employability skills?

During the 1990s, a rollout of reforms to VET in Australia saw the introduction of a unified national credentialing system incorporating competency-based training. The reforms endorsed national competency standards and national accreditation and assessment frameworks for VET programs. This was followed by the development of industry training packages. A key aspect of reforms to the VET system in Australia was the “industry-led” focus, referring to the importance of implementing a training system that aligned closely with industry and employer needs (Williams, 2005).

The Australian Education Council, as a consequence of the Mayer Report (Australian Education Council/MOVEET, 1993), sanctioned the need to identify key competencies for industry areas. These key competencies eventually became the basis for the development of industry training packages. The focus of key competencies harbingered a new era in preparing learners for the workplace. Over time, it became increasingly apparent that review and reform of these competencies were necessary. The eight employability skills (see Table 4.1), also often known as generic skills, or key skills, are based on the seven key competencies originally presented in the Mayer Report. As specified in the report, *Employability Skills for the Future*, these competencies are the “skills required not only to gain employment, but also to progress within an enterprise so as to achieve one’s potential and contribute successfully to enterprise strategic directions” (Australian Chamber of Commerce and Industry and Business Council of Australia, 2002, p. 3). These key competencies are, “non-technical skills and competencies which play a significant part in contributing to an individual’s effective and successful participation in the workplace” (DEST, 2006, p. 8)

Table 4.1: The ACCI/BCA employability skills framework

Communication	Team work	Problem Solving	Initiative and enterprise	Planning and organising	Self-management	Learning	Technology
Listening and understanding	Working as an individual and a team member	Developing practical situations	Adapting to new situations, including changing work conditions	Managing time and priorities	Evaluating and monitoring own performance	Using a range of learning mediums to learn	Having a range of basic IT skills
Speaking clearly and directly	Applying teamwork to a range of situations	Solving problems in teams	Identifying opportunities not obvious to others	Collecting, analysing and organising information	Taking responsibility	Apply learning to technical issues and operations	Having the OHS knowledge to apply technology
Reading and interpreting documentation	Working with people of different ages, genders, races religions or political persuasions	Showing independence and initiative in identifying problems and solving them	Being creative	Identifying contingency situations	Having knowledge and confidence in own vision and goals	Being open to new ideas and change	Having appropriate physical capacity
Using numeracy effectively	Coaching, mentoring and giving feedback	Resolving customer concerns in relation to complex project issues	Generating a range of options	Implementing contingency plans	Articulating own ideas and vision	Contributing to the learning community at the workplace	Operating equipment
Sharing information	Knowing how to define a role as part of a team	Using mathematics, including budgeting and financial management, to solve problems	Translating ideas into action	Being resourceful			Using IT to organise data
Being assertive	Identifying the strengths of team members	Translating ideas into action		Allocating people and other resources to tasks			Apply IT as a management tool
Writing to the needs of the audience				Adapting resource allocations to cope with contingencies			
Empathising				Participating in continuous improvement and planning processes			
Negotiating responsibly				Planning the use of resources including time management			
Persuading effectively				Developing a vision and a proactive plan to accompany it			
Establishing and using networks							

Table 1 The ACCI/BCA Employability Skills Framework. Source: Employability Skills from framework to practice.

This greater interest in employability skills is driven by the Commonwealth Government's goal to develop a new approach to providing vocational education and training based on a more sophisticated understanding of clients' various needs. According to Meyer (2003) it is widely recognized that the skills needed for employability now and, in the future, are reflective of broader changes in the nature of work, skill, knowledge and learning. Meyer presented research findings that supported the view that a workforce that is flexible and adaptable, resilient, innovative, with the capacity to learn to learn, and work with others are critical to economic effectiveness. Cotton (2001) noted that, while employers are generally satisfied with the level of technical skill of new graduates, they are dubious regarding their competency in non-technical abilities or employability skills. Cassidy (2006) followed the argument that employability skills are fast becoming a requirement for employment rather than just a desirable option. However, employers also see the responsibility for the development of such skills lying with educational institutions.

> What is flexible learning?

Flexible learning "expands choice on what, when, where and how people learn. It is a learner-centred approach to education and training that covers a range of delivery modes, including distance education, mixed-mode delivery, e-learning on-line learning, self-paced and self-directed learning" (Australian National Training Authority [ANTA], 2003b, , p. 4). Flexibility means anticipating, and responding to, the ever-changing needs and expectations of VET clients – enterprises, learners and communities." (ANTA, 2003a, p. 3). The national training system strongly supports the concept of flexibility in training. Students are drawn to systems that support them in balancing the competing demands from work, life, and education. While the term, flexible learning, has become synonymous with e-learning, this report embraces the broader understanding of flexible learning, as defined above.

The national training system strongly supports the concept of flexibility in training. Since 1993, the Commonwealth Government and all states and territories have worked together, in partnership with users of the VET system, to support more flexible learning approaches. In 1999, the Council of Australian Governments (COAG) took a major step forward by developing and investing in a five-year national strategy known as the Australian Flexible Learning Framework for the national vocational education and training (VET) system 2000 – 2004 (ANTA, 2003a). Two further iterations of the Framework (2005 – 2007; 2008 – 2011), have focused on making e-learning an integral part of the national training system (Department of Education, Employment and Workplace Relations, 2007).

The ultimate test of the success of the Flexible Learning Framework is whether it achieves its purpose to increase the sustainable uptake of quality e-learning in vocational education and training; and contributes to its goal of a flexible VET system which meets diverse client needs and helps them succeed in a global environment. In the Queensland

VET sector, as proposed in the *Queensland Skills Plan*, this includes meeting the lifestyle needs of all TAFE Queensland clients by delivering training in diverse ways, including face-to-face instruction, online, distance education and in the workplace (Department of Education and Training [DET], 2006a). This direction is based on the assumption that for TAFE institutes to be responsive to a rapidly changing training environment, the institutes need increasing flexibility and adaptability to build more capability and resources at a local level (DET, 2006a).

> Supporting an employability skills framework through flexible learning

Employability skills focus on practical, non-technical skills (with the exception of technology skills). Flexible learning enthusiasts strongly support the shift away from “chalk and talk” and the “sage on the stage” approach toward a more student-focused, “guide on the side” approach to learning, which flexible delivery methods have a vast capacity to foster (Johnson, Johnson & Smith, n.d.). This shift is increasingly viewed as a more effective strategy for developing skills for lifelong learning and the sort of skills employers are generally seeking (Kearns & Papadopoulos, 2000). Flexible learning strategies and online delivery are highly appropriate technologies for learning generic skills for the current information age (Kearns, 2001). Ballantine and McCourt Larres (2007) highlighted the role of collaborative learning, which is strongly supported through e-learning, in promoting the development of generic skills. Jefferies, Carsten-Stahl and McRobb, (2007) emphasised the use of discussions to support knowledge construction through discourse.

Gibson (2001) proposed a creative approach by which Information Communication Technology (ICT) can be viewed and applied to support learning. He drew upon the work of Madox (1986, cited in Gibson, 2001) to breakdown the use of technology for learning into two categories: *Type 1* in which technology is used to support the traditional classroom processes for knowledge instruction. Here technology is viewed as a “tutor”. Knowledge construction is facilitated through *Type 2* in which applications incorporate the development of innovative pedagogical approaches through ICT which are learner-centred and foster abstract thinking, problem solving and collaborative learning. In this application, technology is viewed as a “tool”. Gibson (2001) further highlighted that a distinction could be made about two interacting purposes of education. First, there is an instrumental purpose in which the learner develops new knowledge to facilitate the ability to do something in particular and so develops specific skills. Second, there is a transformative purpose in which the learner participates in a process of change as either an individual or as a member of a community. The following strategies are presented as a means to foster both purposes, instrumental and transformative.

Collaborative learning

It is clearly evident that it is highly beneficial to align teaching and learning strategies for generic skills with the national adoption of flexible learning in order to meet the skill demands of the information economy (Kearns, 2001). Student-centred learning strategies such as action learning, situated learning, and project-based learning can facilitate the development of the attributes and skills to ensure motivated lifelong learners (Williams, 2005).

According to Brogan (2006), group activities engaged in through project-based learning are an established method for developing employability skills. Employability skills most evident in project-based learning are developed in group formation and group reflection activities. Important skills that are facilitated include planning and organisational skills; skills for collecting and analysing information; skills for communicating ideas, working with others and team-building; as well as skills for autonomous learning and taking personal responsibility.

Jefferies et al. (2007) outlined examples of empirical research that reported the benefits and potential of networked learning and Crook (2001) noted the positive effects of social interaction during learning. Crook cited research which revealed that collaboration amongst students stimulates activity, makes learning more realistic and improves motivation. Specific reference is made to research which found that discussion methods are more effective than didactic methods (e.g., lectures) for stimulating thought, enhancing personal and social adjustment, and for facilitating change in attitudes. Peer assessment is another strategy being utilised which has been identified as a positive contributor to the development of employability skills. It should be implemented routinely in higher education, according to Cassidy (2006).

It has further been suggested that the ultimate goal of a constructivist approach is on learning how to construct knowledge appropriate to the situated task - similar to the idea of metacognition which is the process of reflecting on our own thinking and learning processes (Jefferies et al., 2007). This practice has powerful problem-solving potential. Teaching is aimed at facilitating students to construct their own realities in accordance with context. Flexible learning strategies have immense potential to support constructivist learning. For example, the use of the discussion boards has been shown to not only have the potential for supporting learning through participation but they can also facilitate a more andragogic, social constructivist pedagogy.

Problem based learning

Strong arguments were presented by Meyer (2003) on the value of problem-based learning as a strategy that is relevant and robust to meet the needs of the VET sector. It facilitates the opportunity for individual and group learning, as well as having adaptability to different contexts (i.e., work or institutional learning environments). It has the capacity to foster independence, teamwork, communication and innovation through a learner-

centred approach. He cites research that demonstrates that, for students, opportunities for interaction with others including teachers makes a difference in achievement and satisfaction with flexible delivery VET provisions. This underlined the importance of structuring opportunities for peer learning as well as teacher support to nurture independence and self-direction.

The benefits afforded by problem-based learning, according to Meyer (2003), include: access to authentic learning tasks within the workplace; guidance by a workplace coach or mentor; opportunities to use theory within workplace practice situations and engage in discussion and interaction with peers and trainers; use of self-paced resources that allow flexibility and self-direction; opportunities to network with others from a similar vocational area; as well as holistic learning and assessment relevant to workplace tasks.

Reflective learning

There appears to be a general consensus amongst existing employability skill project developers that the use of individual employability skill portfolios are a beneficial way to record and also develop employability skills (Allen Consultancy Group, 2004). It is clear from the literature that there has been a recent increase in the use of portfolios in tertiary education. This method is used to provide transportable and linkable evidence of employability skills. An Employability Skills E-portfolio Project was funded by the Department of Education, Science and Training (DEST) and reported by Curyer (2006). After researching the existing practices in e-portfolio development the following definition of an e-portfolio was adopted for the purpose of the project: "An e-portfolio is a web-based information management system that uses electronic media and services. The (user) builds and maintains a digital repository of artefacts, which they can use to demonstrate competence and reflect on their learning" (Curyer, 2006, p. 5). Though having access to their records, a digital repository, and through feedback and reflection, students are able to achieve a greater understanding of their own individual growth, as well as to use the e-portfolio for career planning and building a curriculum vita.

An e-portfolio tool involves documentation of examples of the attainment of skills, as well as opportunities for self-reflection regarding those skills. Students' understanding of the essential relationship between employability skills, technical and vocational skills, and the context of application can be developed (DEST, 2004). Explicitly designed and delivered activities facilitate students' awareness of their skills, how to develop those skills, the relevance of the skills to their studies and future life goals, and how to utilise those skills in career advancement. In many programs, students are enabled to reflect on their class content and activities; identify the links between what they are being taught and the skills they are attaining; as well as being able to conduct an assessment of their existing skills and those which employers would require in the future (Cranney et al., 2005). Barrett and Carney (2005) note that "electronic portfolios can be powerful tools for learning if they are part of a balanced system of assessment *of* and *for* learning ... whenever possible, learners should have the opportunity to actively connect elements of their

knowledge, consider how artefacts of learning reflect their values and goals, assess their own learning, receive feedback from members of a learning community, and formulate new learning goals” (p. 11).

Apart from the value of learning through assessment, another reason for the high level of consensus amongst participants in an e-portfolio project is that a portfolio is the most effective way of addressing the development of employability skills as well as gaining recognition that the skills developed may require ongoing development through a lifelong process. It is argued that a portfolio which records an increasing complexity of the application of employability skills and the flexibility of their usage makes more sense than an arbitrary cut off point at which the employability skills are considered to have been attained (Allen Consultancy Group, 2004).

> Addressing employability skills through flexible learning strategies

In 2003, the Queensland Department of Employment and Training provided funding for a number of projects to promote the development of employability skills. One of these was an employability skills pilot project (*Work Futures*) which was implemented by the Training Products Support Unit in collaboration with the Brisbane North Institute of TAFE (DET, 2006c). In broad terms the project aimed to define and evaluate the effectiveness of various strategies for delivering and assessing employability skills within the existing training package framework. The project involved student focus groups and teacher interviews. These revealed that teachers saw their students as practical, hands-on learners. Students were found to enjoy learning technical skills but found traditional classroom instruction (theory) less interesting. This project for *Work Futures* (DET, 2006c) highlighted the commonality of student and teacher perceptions. It advocated for a model of learning which allowed for a blended delivery approach with time dedicated to classroom theoretical instruction. It proposed that, as well as application and practice through technology to enable students to understand the relevance of the employability skills, learning opportunities should be afforded to students to ensure their preference for practical work was met. Observations in the project indicated that there were ample opportunities for practicing employability skills through practical activities.

In South Australia, the Torrens Valley TAFE developed a flexible learning approach to facilitate the implementation of the electrotechnology training package (Denton, 2004). It promoted the philosophy that key competencies (skills) are not taught but rather “learned and developed” largely through the learner-centred strategy of self-assessment. Assessment was used to promote the explicit practices and processes of key competencies. The project demonstrated that the application of a reflective learning approach could enhance knowledge and skills.

Nicholls (2007) reported on a project from the United Kingdom in which work-based learning was used as the means to provide experiential learning of employability

skills. The project developers based their approach on research that student who had participated in work experience programs were more able to exhibit many of the skills that employers wanted, including maturity, team work, and higher levels of communication and interpersonal skills. They also concluded from their project that reflective learning was important in the development of employability skills.

Davey and de Vries (2004) outlined a flexible learning project which they conducted at the Douglas Mawson Institute of Technology. This project had several layers of objectives. The primary focus was to research and trial an integrated enterprise learning model which would provide a link between a simulated business environment (a “practice firm”) to the real world of entrepreneurial small business. A secondary objective was to explore effective ways to map and assess the employability skills that students developed. There was also a focus on investigating the ways in which teaching practices needed to be adapted when collaborating with business partners in a new learning environment. A number of beneficial outcomes from this project, some not included in the original objectives, were noted. Through the collaborative relationship with networked business and community structures, students were able to develop networking skills and participate in an authentic learning environment. This fostered community capacity building and experiential knowledge about how communities work. Additionally, student interactions fostered stronger links between the training environment with the community learning environment.

> Challenges to developing employability skills through flexible learning

A continuum exists of prescriptive and non-prescriptive ways in how employability skills can be addressed within curricula in relation to the definition, development, demonstration, assessment and recording (Allen Consultancy Group, 2004). At the highly prescriptive end of the continuum, there is likely to be a very detailed approach to terminology and requirements. At the non-prescriptive end of the continuum, there is a more open-ended approach to the definition of the employability skills and how they can be addressed. With a portfolio approach, a prescriptive approach to validation and assessment protocols runs the risk of limiting the range of appropriate uses for skills portfolios as well as limiting the perceived usefulness of portfolios within the education and training sector. On the other hand, a non-prescriptive approach also has its drawbacks. Lack of clear definitions for the employability skills to be developed and for performance level assessment profiles may lead to a variability of definitions emerging across and within sectors, leading to a reduction in an overall lack of clarity about what is to be achieved as well as a reduction in cross-sector applications.

The skills agenda is not bereft of critical evaluation. An argument is made by Williams (2005) that a nature/nurture dichotomy about the learning and assessment of personal attributes can impede policy makers and educators in their efforts to codify personal

attributes for the purposes of including them in training packages. An argument exists that questions the “learnability” of personal attributes and their inclusion in training packages. Williams (2005) noted that it is not at all clear about how standard attitude measurement methods can be applied to the assessment of competencies of the desired personal attributes. The concern is that assessors are inescapably subjective. Their values and beliefs are also intrinsically linked to their own professional and ethnic backgrounds.

In the *Work Futures Report* (DET, 2006b), it is noted that the inclusion of attributes in the broader concept of employability is essential to assist students to gain an understanding of employer expectations. These attributes should not be assessed but used to ensure students know about employer expectations and to support students to make their own personal evaluations, set goals, and develop strategies for personal development.

Cornford (2005) identified the need for policy makers, and others, to reconceptualise generic skills in terms of teaching, learning, and transfer. He considered that there was poor understanding of the specific processes required for translating policies about generic skills into effective practices to ensure better learning outcomes. In Australia and the United Kingdom, policies have not recognised the central role of teachers in effective learning. There has been little consideration about the practical strategies needed to support the progressive transfer of learning from the initial training setting to work contexts or consideration of the need for professional development opportunities for teachers so that can develop the information technology skills required for teaching and assessing generic skills. This argument is further supported by research on education and training outcomes from a study in the United Kingdom. Hayward and Fernandez (2004) examined successive waves of education and training policies that were aimed at building the generic skills of students but which had failed to deliver the desired results. They attributed the failure to a combination of factors. These included poor policy formulation; the unclear relationship between policies about the development of generic skills with various other policy reforms in education; as well as the broader socio-economic pressures which existed. They concluded that the current initiative for the development of key skills for all 16-19 year old learners in England were unlikely to succeed without substantial changes in the existing education and training policies.

In order to tie employability skill development to flexible learning, then the issue of the development of ICT skills for teachers is important if students' ICT skills are a key employability skill. Gibson (2001) highlighted that the benefit to students in using new technologies is greatly dependent on the technological skills of the teacher and the teachers' attitudes to the presence of technology in teaching. These skills and attitudes are, in turn, largely dependent on the training that teaching staff has received in this area. For many teachers and students, the lack of access to technology resources can inhibit learning opportunities in which technology is the preferred tool to enable learning. It may even serve to leave behind those already disadvantaged through the lack of access and

skills required to exploit the potential benefits of ICT (Lindsay, 2005). As diverse ICT tools for flexible learning become available, there is a challenge for teachers to meet the range of learning styles and skills of students in any class group.

> Possible solutions to the challenges in developing employability skills through flexible learning

The degree of necessary prescription regarding the definition, development, demonstration, assessment and recording of employability skills is an issue. The Allen Consultancy Group (2004) presented a viable intermediate approach to the level of prescription where the strategy would be to provide some detail regarding how portfolios should be structured; provide guidance on how skills development can be supported; address issues surrounding the validation of claims in portfolios; and even develop protocols for the assessment of employability skills. This would allow for some flexibility in interpreting how employability skills can be demonstrated specific to individual industries and, yet, maintain the potential for cross sector-application. However, the issue remains that there is no clear universal approach or structure to understanding how employability skills can be measured within a performance level assessment mode.

There is also a need to review of existing policies about employability skills in order that VET teachers are supported on the teaching and learning of employability skills in terms of time, resource provisions, and opportunities for professional development. This may be achieved through existing communities of practice and communities of reflection (Breuleux, 2001). Discussion forums that focus specifically on flexible learning for the development of employability skills could also be put in place, as well as providing conferences, seminars, videoconferences, and podcasts.

Laurillard (1993) sets forward an infrastructure to ensure high quality teaching and learning is delivered through the use of ICT, founded on the belief that learning should be a process of engagement. Central to the framework is the concept that monitoring, feedback and evaluation mechanisms must be established for every part of the process, from design and development through to implementation and assessment. The infrastructure must enable the system to learn about itself and adjust to the changes that technology brings. Success lies in the educators' ability to recognize that learners develop their own preferred set of behaviours and approaches to learning; and to develop mediated, student-centred, flexible learning environments where real and authentic learning opportunities are provided that will enhance employability skills. It is important to clearly map the employability skills to be developed with the learning approach to be utilized. Figure 4.1 presents one example of how this can be viewed. Mapping can also provide information for students to enable them to "construct" their own learning to achieve their objectives and plan their future skills development (Gibson, 2001).



Figure 4.1: Interaction wheel of the relationship of learning approaches to flexible delivery strategies and employability skills

An essential element of best practice standards for educational programs is the provision of clarity around expected outcomes for both educators and students. Genuine attention needs to be paid to both the provision of clear communication to students around the nature of employability skills and developmental expectations, as well as to understand students' perceptions of the skills which they are expected to develop. Success in communication of this information will support the explicit identification, development, recording and evaluating of employability skills. This enhances students' reflective learning through such a learner-centred approach.

A blend of teaching and learning approaches are required that promote optimal learning experiences which incorporate the need for learning theory as well as skill development as proposed by Gibson (2001). This encompasses both instrumental processes (learner

acquires new knowledge or skill for the purpose of activity) and transformative processes (learning through participation in a process of changing as an individual or member of a community).

> Conclusions

There is strong support for both employability skills recognition and flexible learning approaches in VET amongst policy makers and many educators and learners. However, there are also serious concerns about the ways both of these initiatives have been promoted. If educators chose to exploit the opportunities to learn, grow, and develop in order to facilitate more effective learning opportunities for students, we will have been successful in modelling the learning strategies that we are also promoting to our students. It is not suggested that a laissez-faire approach is taken to developing new flexible learning initiatives directed at supporting employability skill development, on the contrary, this report advocates for a clear and thorough planning process. However, there is the need for educators to utilise the same learning strategies that we are hoping to inspire in our learners that include reflection, collaboration, self-directed and inquiry based learning. This paper has emphasised the need to promote the use of flexible learning strategies for the development of employability skills through a learner-focused and authentic learning approach. This relies on the establishment of structures which will support a collaborative approach amongst stakeholders in the VET sector to develop new and universally aligned initiatives.

> References

- Australian Chamber of Commerce and the Industry and Business Council of Australia (2002). *Employability skills for the future*. Canberra, ACT: Department of Education, Science and Training.
- Allen Consultancy Group (2004). *Development of a strategy to support the universal recognition and recording of employability skill: Directions paper*. Melbourne, Victoria: Allen Consultancy Group.
- Australian Education Council /MOVEET. (1993). *Putting general education to work: The key competencies paper (The 'Mayer Report')*. Canberra, ACT: Australian Government Printing Services.
- Australian National Training Authority (ANTA). (2003a). Definition of key terms used in e-learning Australian Flexible Learning Framework Quick Guides series. Melbourne: ANTA. Retrieved August 22, 2007, from <http://flexiblelearning.net.au/guides/keyterms.pdf>
- Australian National Training Authority (ANTA), (2003b). *Flexible learning business planning framework*. Melbourne, Victoria: Author.

- Ballantine, J., & McCourt Larres, P. (2007). Cooperative learning: Pedagogy to improve students' generic skills. *Education and Training*, 49(2), 126-137.
- Barrett, H., & Carney, J., (2005). *Conflicting paradigms and competing purposes in electronic portfolio development*. Retrieved on October 27, 2007, from <http://electronicportfolios.com/portfolios/LEAJournal-BarrettCarney.pdf>
- Breuleux, A. (2001). Imagining the present, interpreting the possible, cultivating the future: Technology and the renewal of teaching and learning. *Education Canada*, 41 (3), 1-8.
- Brogan, M. (2006). 'What you do first is get them into groups : Project-based learning and teaching of employability skills. *Fine Print*, 29(2), 11-16.
- Cassidy, S., (2006). Developing employability skills: Peer assessment in higher education. *Education and Training*, 48 (7), 508-517.
- Comford, I. (2005). Challenging current policies and policy makers' thinking on generic skills. *Journal of Vocational Education and Training*, 57(1), 25-45.
- Cranney, J., Kofi, M., Huon, G., Jensen, L., Levin, K., McAlpine, L., Scoufis, M., & Whitaker, N., (2005). Portfolio tools: Learning and teaching strategies to facilitate development of graduate attributes. *UniServe science blended learning symposium proceedings*. Sydney, NSW: University of New South Wales.
- Cotton, K. (2001). *Developing employability skills*. Portland, OR: Northwest Regional Educational Research Laboratory. Retrieved July 27, 2006, from www.nwrel.org/scpd/sirs/8/c015.html
- Crook, C., (2001). The social character of knowing and learning: Implications of cultural psychology for educational technology. *Technology, Pedagogy and Education*, 10(1) 19-36.
- Curyer, S. (2006). *The Australian experience: Developing an employability skills e-portfolio*. Conference paper at the 4th International E-portfolio Conference. Retrieved August 23, 2007, from: http://www.educationau.edu.au/jahia/webdav/site/myjahiasite/shared/papers/e-portf_EifelSC.pdf
- Davey, P., & de Vries, P. (2004, March). Enterprising partnerships: Incubating learning. *AVETRA 7th National Conference*. Douglas Mawson Institute of Technology. Retrieved September 25, 2007, from http://www.avetra.org.au/Conference_Archives/2004/documents/PA028Davey.PDF
- Denton, R. (2004). Assessment of key competencies: The Torrens Valley TAFE approach in generic skills in vocational education and training Research readings. In J. Gibbs (Ed.), *Generic skills in vocational education and training: Research readings* (pp. 173-187). NCVER. Accessed September, 25, 2007, from: <http://www.ncver.edu.au>

- Department of Education, Employment and Workplace Relations. (2007). *2008–2011 Australian flexible learning framework strategy*. Canberra, ACT: Australian Government.
- Department of Education, Science and Training (2004). *Employability skills: Final report – Development of a strategy to support the universal recognition and recording of employability skills: A skills portfolio approach*. Canberra, ACT: Australian Government.
- Department of Education, Science and Training (2006). *Employability skills from framework to practice: An introductory guide for trainers and assessors*. Canberra, ACT: Australian Government.
- Department of Employment and Training. (2006a). *Queensland skills plan*. Brisbane, Qld: Queensland Government.
- Department of Employment and Training. (2006b). *Work futures: Employability skills and attributes*. Brisbane, Qld: Queensland Government.
- Fallows, S., & Steven, C. (2000). Building employability skills into the higher education curriculum: A university wide initiative. *Education & Training*, 42(2/3), 75-82.
- Gibson, I. (2001). At the intersection of technology and pedagogy; considering styles of learning and teaching. *Journal of Information Technology for Teacher Education*, 10(1-2), 37-61.
- Hayward, G., & Fernandez, R. M. (2004). From core skills to key skills: Fast forward or back to the future? *Oxford Review of Education*, 30 (1), 117-145.
- Jefferies, P., Carsten-Stahl, B., & McRobb, S. (2007). Exploring the relationships between pedagogy, ethics and technology: Building a framework for strategy development. *Technology, Pedagogy and Education*, 16 (1), 111-126.
- Johnson, T., Johnston, W., & Smith, K. (n.d.). *Cooperative learning*. , Minneapolis, MN. University Of Minnesota.
- Keams, P. (2001). *Review of research: Generic skills for the new economy*. Adelaide, South Australia: NCVET.
- Keams, P., & Papadopoulos, G., (2000). *Building a learning and training culture: The experience of five OECD countries*. Adelaide, South Australia: NCVET,
- Laurillard, D. (1993). Effective teaching with multimedia methods. *Rethinking university teaching : A conversational framework for the effective use of learning technologies* (pp. 223-256). London: Routledge/Falmer.
- Lindsay, C. (2005). Employability services for unemployed job seekers and the digital divide. *Urban Studies*, 42(2), 325-339.

- Meyer, L. (2003). *Changing pedagogy: Teaching and learning strategies: OVAL research working paper*. Australian Centre for Organisational, Vocational and Adult Learning.. Retrieved August September 26, 2007, from: <http://www.oval.uts.edu.au/publications/2003wp0315meyer.pdf>
- Nicholls, E., & Walsh, M. (2007). University of Wolverhampton case study; Embedding practical work-based modules into a traditionally theoretical programme. *Education & Training, 49* (3), 201-209.
- Williams, C. (2005). The discursive construction of the "competent" learner worker: From key competencies to employability skills. *Studies in Continuing Education, 27* (1), 33-49.

Chapter 5

The F.A.C.T.S: TAFE Qld Lead Institutes and Professional Development.

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> Abstract

In order to develop innovative teaching approaches, VET educators in TAFE Queensland need to experience technology-enhanced professional development programs. These professional development programs must enhance staff capabilities aligned with the policy directions of the Queensland Skills Plan and effectively utilise the Lead Institute Model. Lead Institutes have a coordination and support role in the implementation of adaptable staff development approaches focused on improved client service and product delivery. This chapter examines the interaction between Policy, People, and Platforms (the 3Ps) and also how programs can be evaluated through the F.A.C.T.S. criteria to ensure the sustainability of VET professional development programs.

Educators are required to implement new policy initiatives that focus on flexible and networked learning in a changing vocational educational environment. Designing relevant, flexible professional development programs for TAFE educators in a changing vocational education context requires funding and support structures. Synergising technology with the people and policies is now the challenge for TAFE Lead Institutes to engage educators with the vision of the possibilities of e-learning programs and how that vision aligns with current organisational policies. For Lead Institutes, the synergy between the Policy, People and the Platforms (the 3Ps) is important in the implementation of sustainable staff development programs. Lead institutes in TAFE have responsibilities for improving teaching quality, reducing resource development costs, improving access for learners to an increased range of products across the state, and reducing the cost of service delivery.

TAFE Queensland delivers 800 programs and courses to over 250,000 students each year. The Queensland Department of Education, Training and the Arts (DETA), as well as the Commonwealth Department of Education, Employment and Workplace Relations (DEEWR) administer policy and provide funding to TAFE Queensland. While the Queensland Skills Plan (QSP) (DET, 2006) outlined the key actions needed to provide educators with enhanced skills in the design of flexible and blended educational

products and services. The Strategic Professional Development Framework for Queensland VET 2007-2010 stands alongside the QSP (DETA, 2007) to detail the specific directions to be taken. In turn, the professional development initiatives are supported by two new service delivery platforms: a learning management system (LMS) and a learning content management (LCMS). These technology platforms provide the vehicles through which professional development can be coordinated.

The possibilities for using technology for professional development are analysed in this chapter against the F.A.C.T.S criteria. The F.A.C.T.S acronym is proposed by the author of this chapter to represent important criteria for effective professional development. It is a pragmatic and simple representation of key factors. Flexible and focused professional development models require adaptable opportunities for collaboration across TAFE institutes between educators, industry, and learners in order to proactively use technology for educational innovation. Educators need to understand how the 3Ps (Policy, People and Platforms) can be blended and leveraged for successful professional practice. The acronym, F.A.C.T.S, refers to criteria for implementing policy change: F for flexible and focused; A for active and adaptable; C for communities and collaboration; T for technology and tools; and S for supportive and sustainable practices. These criteria provide the framework for analyses in this chapter on how effective professional programs can be developed.

> TAFE Queensland: Current context

The QSP outlined a policy framework of twenty-four actions to transform and modernise the VET system. This chapter will take account Action 4 of this plan. This action proposed the establishment of TAFE Qld Lead Institutes with a view to the restructure and reorganisation of TAFE Qld to meet the current and future needs of industry, employers, and learners. The rationale for the Lead Institutes was to create a more meaningful productive engagement across all TAFE institutes with industry to enhance service delivery to a wider range of client groups, particularly to clients who wanted to enhance their skills base or to change careers. The identified Lead Institute in any industry area was expected to provide leadership, accountability, collaboration, engagement, specialisation, and co-ordination of specific activities for that industry.

The QSP introduced changes and opportunities for TAFE Qld to move forward in the new learning economy. Other actions in the QSP that have relevance in this chapter include: Action 5 which specified improved coordination of TAFE product development; Action 6 to support TAFE Qld staff; and Action 7 investing in TAFE infrastructure and information communication technologies (ICT). In December 2007, the Strategic Professional Development Framework for Qld VET 2007-2010 (DETA, 2007) was released. This framework provided direction and focus for Registered Training Organisations (RTOs) to plan and design their staff development programs. However, within any policy direction, it is people who implement and drive innovation.

TAFE educators are public sector professionals who must work within the constraints of government policy. Staff development programs require funds and time for educators to meet the challenges and pressures impacting on their daily work, before they even consider designing and implementing new ideas in their practice. Learners, their employers and industry, now demand more responsive design of learning programs. These demands by the clients and the learning communities often involve technological options in the delivery of programs. These options challenge the practitioner to deal with unfamiliar Information Communication Technology (ICT) options that, in the past, were not a key part of the product and service delivery “toolkit”. Continual learning is vital for professionals to ensure that they are maintaining educational and industry currency especially with respect to ICT. This is particularly important for individuals who are isolated, either geographically or professionally.

Herrington and Herrington (2006) highlighted that the Internet had the potential to provide a vast array of resources to isolated rural and remote professionals in Australia and also provide the means to more enhanced communication, collaboration, and community building across groups. Anderson, Annan and Wark (2005) proposed that emerging Internet-based technologies create opportunities for new types of learning communities that allow learners around the globe to learn at their own pace, yet engage in meaningful interactions with others. For many educators, the changing roles and the necessity to extend their skills beyond a traditional teaching and learning paradigm can be perceived as a threat. Additionally, many TAFE teachers do not have education or teaching qualifications. They are industry specialists who have been recruited for their industry skills and not necessarily for their knowledge and skills in instructional design, pedagogy, or technological competence.

This pressure to offer more blended flexible products and services can place a perceived imposition and stress on educators. How can e-learning staff development approaches assist them in dealing with the array of information, industry changes, and technology developments in order to enhance their pedagogy? Creatively designed professional development programs that take account of policy, people and platforms (the 3Ps) have the potential to meet this challenge.

> Staff development and learning

Staff development is any activity that develops an individual's skills, knowledge, expertise and other characteristics as a teacher. Development activities may include personal study and reflection, as well as learning undertaken in formal courses. The educator requires ongoing support for the effective transfer of their learning into work practices. Epper and Bates (2001) describe staff development as a daunting challenge and others (e.g., Shephard, 2004; Wilson & Stacey, 2004) have stressed the current imperative for professional development in the effective use of technology in teaching.

Mowatt (2007) proposed that educators make assumptions in their teaching based on psychological theories of human learning, the knowledge structures the learner will require, and on the cognitive processes that the learner will use. Learning is concerned with data, information, and knowledge development. Sourcing, organising and retrieving data and information are providing challenges to educators because of the abundance of information and the need to evaluate its quality. It is timely for educators to review their assumptions on learning and, thereby, revision and re-invigorate their practice by taking advantage of a variety of learning opportunities. Teaching strategies are most effective when they arise from the critical capacity of teachers to listen to their learners and actively engage them with the processes of learning. The creativity of teaching lies in constant critical reflection.

A recently released report commissioned by the Australian Flexible Learning Framework (AFLF) group, authored by Marie Jasinski (2006), focused on embedding e-learning innovations into practice. She outlined a number of key chasms that need to be bridged when promoting innovations through e-learning. The first chasm relates to educator profiles. There is a chasm between the early and mainstream adopters for e-learning. In planning professional development programs, Lead Institutes must consider their educator cohort. They also need to identify if there are support structures and organisational readiness chasms. An observation made in the report is that time and competing priorities, are limiting factors for engaging educators with e-learning innovations.

By 2008, TAFE Qld has progressed to a point where the technology, organisational readiness, and support chasms have potentially been bridged. However, evaluating programs against the F.A.C.T.S criteria can assist in the building of bridges and enhancement of the professionalism of educators for Lead institutes as they coordinate technology-enhanced staff development options. In the following sections, the F.A.C.T.S criteria are discussed in detail.

> F = Flexible and focused

Educators in Lead Institutes, as well as other educators who plan professional learning programs need to design programs that are flexible and focused and that recognise diverse learning styles. These potential blended learning approaches need to address the strategic policies and priorities of TAFE Qld. The preferred option for delivering programs is blended learning so that programs can be delivered with adaptable designs. With increased access to educator networks, this can be cost-effective and provide a synergy between flexible learning options and human interactive experiences. Mowatt (2007) suggested that the real value of any instructional design model lies in the heuristics and the guidance provided through a meaningful learning framework that does not require rigid prescriptions of exact actions.

Jasinski (2006) proposed that to promote e-learning innovation, program designers need to recognise that individuals adopt innovations at different rates. Wilson and Stacey (2004) discussed “early adopters” and the “mainstream majority”. Early adopters prefer discussions with peers, mentoring, sharing experiences and reviewing examples of best practice. These approaches provide early adopters with opportunities to creatively bounce ideas off others. Milne and White (2005) also note that interaction with peers, face to face workshops, one-on-one consultations, and mentoring are useful professional development activities for early adopters. In contrast, the mainstream majority are more motivated by one-on-one learning options that explicitly provide exemplars of how to use innovations. Therefore, there is a need for flexible professional development models so that meet the needs of these two different groups. A focus on pedagogy aligned with the technology using a constructivist approach is also important. Such an approach with blended learning options would incorporate mentoring and coaching through synchronous and asynchronous online options so that there is flexibility in how educators can engage in ongoing dialogue that meets their individual learning styles and adoption stage.

A business approach to building staff capability needs a strong vision and a project methodology. The use of flexible templates for the design of professional development plans that align with strategic policy, as well as taking account of the funding criteria assist in this process. Lead Institutes also need to design and evaluate e-learning options for sharing intellectual capital and networked learning. The barriers to the uptake of e-learning in education are a lack of time, technical expertise and understanding of the potential use of new technology. Alignment of professional development plans to TAFE Qld policies should focus on tangible measurable outcomes that will help bridge the chasms and barriers for educators to participate in learning programs.

> A = Active and adaptable

Lead Institutes and educators in planning their professional e-learning programs need to make this learning active and adaptable through customised approaches. They need to promote outcomes that are achievable and transferable to their work context. Watson (2006) suggested that educators are not interested in technology use for technology sake. Programs need to be engaging and active and involve experiences that encourage, reflection, experimentation, and thinking about what constitutes “best practice”. Challis, Holt and Rice (2005) proposed that there are increasing numbers of teachers who are realising the polarity between the intellectual and the practical. This chasm needs to be bridged to enhance engagement.

Educators and industry have inherent beliefs about teaching and learning delivery methods that are suitable to their vocational area. It is necessary for all stakeholders to challenge their understandings and beliefs about their teaching and learning roles in the changing educational context and to “unlearn” some long held assumptions about what

is important in teaching for their specific vocational area. Educators need to see the value and relevance of blended learning approaches using technology. Most importantly they need time to explore and develop confidence in constructing and creating alliances between learning, ICT, and industry. Experiential e-learning approaches support the integration of theory with workplace practices and the development of enhanced professional thinking about practice. The experiential learning model by Kolb (1984) of concrete experience, reflective observation, abstract conceptualisation, and active experimentation is one model which can inform an adaptable e-learning model.

Self-directed e-learning provides staff with access to learning opportunities that need to be relevant and timely for them. The availability of learning objects in the LCMS supports adaptability for e-learning practices. Learning objects are any entity, digital or non-digital, which can be used, reused, or referenced during technology-supported learning. Mowatt (2007) presented an instructional design approach for the use of reusable learning objects. She illustrated that redesigning existing learning products into learning objects, promotes standardisation of learning products, and enables the creation of a database of learning objects for re-usability. The LCMS in TAFE Qld is now available as a repository for these adaptable and customised resources for professional development use.

> C = Communities and collaboration

Lock (2006) proposed that people need to think differently about professional development and consider a community model approach. Communities of inquiry in Vocational Training Areas (VTA) can support and overcome educator scepticism in the use of different learning approaches. Wenger (1998) described a community of practice as a supportive learning mechanism involving people. It is a group of people who interact, learn together, and build relationships. In the process, they develop a sense of belonging and mutual commitment. It is not just a website, a database, or a collection of best practices.

The purpose and relevance of a community of practice is to share perspectives on problems and reflect on what it is that individuals can do. Individuals need to ask questions and explore how, as a community, they might help each other and the industry participants with whom they work. Watts (2004) provided evidence from a social network analysis that supported the value of membership by learners in diverse groups within vocational and personal domains. In a community of practice model, peer collaboration and peer-to-peer production methods are enhanced. Jonassen, Davidson, Collins, Campbell and Banaan-Haag (1995) viewed this form of learning as a means of sustaining two-way communication that not only enabled increased levels of communication but, most importantly, enabled the social construction of knowledge amongst learners at a distance. Garrison (1989) indicated that the concepts of dialogue and debate were essential for learning because such communication allowed learners to negotiate and structure personally meaningful knowledge.

Ellis and Phelps, (2000) and Torrisi-Steele and Davis (2000) noted that educators wanted more opportunities to hold informal discussions and view examples of online teaching practices. Their research indicated that educators can benefit from collegial support, sharing experiences, ideas and examples. The opportunity to become a critically reflective educator in a networked learning environment and to access best practice exemplars and case studies from peers with relevance and direct application in their teaching is considered vital. Concerns of lecturers in the research, conducted by Torrisi-Steele and Davis (2000), were their perceived lack of knowledge about “how it works” and “what is possible” in an online learning environment. The participants in the research specifically asked for access to others’ experiences in developing their own online teaching and learning resources. This iterative process enables integration of technology and reflective practice. Learning from demonstrations by colleagues, as well as cross-faculty sharing, promotes sustainability. Enhancing critical thinking and increasing social networking capacity can be developed in order to use ICT effectively. This is now a priority in TAFE Qld.

Time management, teamwork skills, peer support, orientation, intercultural perspectives, and faster completion times of formal learning programs are achievable outcomes of communities of practice. Publication and promotion of successful learning design is encouraged in these learning spaces. By talking about work practices from “inside a practice”, educators can enhance their competence. Practice is an effective teacher and provides a community of practice provides a powerful learning environment. Educators can use what they are learning from the community to experiment with new practices in their workplace.

In the last decade, education reform projects have focussed a great deal of time in creating and supporting sustainable, scalable online communities for education professionals. For the most part, these communities have been created in isolation from existing local professional communities within which educators practice that involve industry partners. Lead Institutes can communicate and share good practice across communities ensuring that this is also an integrated process with industry partners. The convergence of these communication networks sets the stage for a host of new business models that function as platforms for value creation among distributed knowledge workers and clients. Lead Institutes in their support role can focus on removing barriers and encouraging these innovation networks to form. The Learning Management System offers the intellectual space for community dialogue and, thereby, in developing a social learning system.

> T = Technology and tools

Watson (2006) stressed that technology is not a catalyst for change but rather its tool. The purposeful use of technology is a core competency in a knowledge society. Pittinsky (2003) believed that there is an imperative for new forms of professional capabilities requiring and being supported by ICT. Doherty and Honey (2006) proposed that careful

consideration should be given to the preparedness of educators for working with technology and their levels of computer literacy. They will need phased training in the use of technology to enhance their pedagogy. Conducting a comprehensive needs analysis and recognising current competencies in computer usage, prior to LMS or LCMS training, is vital. Hallas (2006) recommended that the acquisition of technical skills required for online teaching should not be limited to LMS functions but should encompass a wide variety of hardware and software skills, such as file management, institution supported standard software, Internet and multimedia skills. This combination builds technological knowledge that provides educators with the capabilities to create and facilitate development of products and services that will ultimately be used by students to assist with deeper approaches to learning.

Forster, Dawson and Reid (2005) measured preparedness to teach with ICT in their research and identified the advantages and disadvantages in the use of ICT. The advantages in ICT use are the opportunities for one-to-one interactive learning, remediation, revision, as well as the advantages to cater for visual learners and lateral thinkers. The disadvantages were related to technical issues and access within education institutions. The failure in technology training is also related to neglect of understanding the ways in which people learn, their resourcefulness in solving problems, and the communities of practice in which they participate. Technology that supports a training model of learning tends to pull professionals away from their practice, focusing on information about a practice rather than on how to put that knowledge into practice. Skills in technology use should be aligned with pedagogical intent at all times.

Learning economies are being promoted as the future of education and training. In this environment leveraging networking tools, open knowledge repositories that support corporate content management and personal content management are emerging. Centrally provided architectures in the form of an LMS and an LCMS are now a TAFE Qld reality. The LMS is identified as a necessary technology to effectively implement new approaches to instruction suitable for the information age. The LCMS and LMS have a different focus but integrate well (Watson & Lee, 2006; Watson, Lee, & Reigeluth, 2007). An LCMS system allows for the creation and delivery of learning objects while an LMS system managed the learning process as a whole incorporating the LCMS within it. The LMS as the provider of the rules and the LCMS provider of the content. Reigeluth and Garfinkle (1994) proposed that it is the educators' understanding of technologies and the approaches to instruction that it supports that will make it most likely that they can integrate technology into their teaching.

> S = Supportive and Sustainable

Support for staff development initiatives focuses on three key resources: human, physical and financial. Funding to support the educator in their professional development is vital. Lead Institutes have a major role in sourcing funding opportunities across the

VET and industry sector and in developing collaborative funding applications. Effective models of support for e-learning identify the following enablers: a team-based approach with experienced and innovative staff, involving supportive senior managers who drive the vision. Teams can include project managers who coordinate activities, key stakeholders, program developers, early adopter or learning champions, mainstream adopters and IT managers. Educators need to be encouraged to propose innovative professional development ideas that may relate to design, development, or reconfiguring existing products or services.

There are a variety of blended support models that could be customised for staff development projects. Authors in this area (e.g., Oliver & Dempster, 2003; Wiles & Littlejohn, 2003) indicated that e-learning support models and structures differ widely across education institutions and levels within institutions and many support structures are either overlooked or not effectively used. Centralised support models commonly revolve around “educational development units” or specialist “e-learning teams” who might work with individual educators in departments across an institution and who may also second staff to work on designated projects. Decentralised approaches include the appointment of faculty or departmental e-learning advisors (usually an existing member of staff or learning technologist). Lucas (2006) proposed a networked e-learning advocate model. A project manager and selected advocates provide technological and pedagogical support. These units can organise workshops, short courses and can run accredited learning courses.

The development of online exemplars providing flexible and on-demand staff development focused on best practice exemplars can complement the emerging LMS training. While there is widespread recognition of the potential benefits of incorporating e-learning into a range of traditional teaching techniques and a willingness to share resources that are developed, time for educators to realise these ideas in practice is a barrier. Oliver and Dempster (2003) noted that the operational context is important and that there appears no ready model, no single clearly successful path that ensures that e-learning will be embedded. Their impression was that in most cases the support was too remote and spread too thinly to offer the level of hand-holding that educators need. The challenge for Lead Institutes is to adapt and blend the models presented above to meet the needs of TAFE Qld educators.

Lead institutes need to determine the organisational readiness chasm for e-learning professional development and bridge this gap. Research shows that sponsoring small scale innovations in a vocational area may not be the most effective way to embed best practices in e-learning. Challis et al. (2005) stressed from their research that a progressive roll-out of effectively designed environments is not done easily or quickly. It requires determined continuity of action over a minimum, three year, time frame. There should be regular, compulsory and non compulsory professional development options with an emphasis on collaborative and creative design using flexible and blended e-learning approaches. Holt and Seagrave (2003) proposed criteria to consider when

implementing new technology infrastructure. The focus needs to be on creating and sustaining quality e-learning environments of enduring value for teachers and learners. The criteria for success are broad. Direct contributions from stakeholders, customisation and personalisation of learning experiences, sharing of learning resources, and development of communities of practice are success factors. In order to create this environment, multi-dimensional approaches are required. The approach should value the diverse nature and individual requirements of educators.

> Conclusion

Successful learning systems and environments need to be designed using a flexible and blended systems approach in order to maximise the possibilities of effective educational use of ICT. The success factors include a focused vision, leadership, trust, encouragement, rewards, and continuity of action. The staff development of TAFE Qld educators is too important to be left to individual teachers' own personal motivation.

Staff development needs to be accessible and adaptable to have value for diverse needs. Initial training cannot be expected to sustain an educator through their entire teaching career. The Lead Institute can provide opportunities for diverse and flexible approaches to meet staff capability imperatives. They also need to be accountable for their support and creatively blend the 3Ps with the F.A.C.T.S criteria for evaluation. Lead Institutes have a responsibility to source funding that supports flexible and focused approaches with a well developed project management methodology. The Lead Institute implementation strategy for staff professional development can synergise policy, people, and platforms to promote successful implementation of the actions identified in the QSP. TAFE Qld in their innovation journey has adopted policy around innovation and learning enhancement. The diffusion and implementation challenges can be co-ordinated and creatively delivered by Lead Institutes.

> References

- Anderson, T., Annan, D., & Wark, N. (2005). The search for learning community in learner paced distance education: Or, 'Having your cake and eating it too!' *Australasian Journal of Educational Technology*, 21(2), 222- 241.
- Challis, D. Holt, D., & Rice, M. (2005). Staff perceptions of the role of technology in experiential learning: A case study from an Australian university. *Australian Journal of the Educational Technology*, 21, 19-39.
- Department of Employment and Training (DET). (2006). *Queensland Skills Plan*. Brisbane, Qld: Queensland Government.
- Department of Employment and Training and the Arts (DETA). (2007). *Strategic professional development framework for Queensland VET 2007– 2010*. Brisbane, Qld: Queensland Government.

- Doherty, I. & Honey, M. (2006). Taking ownership of technology: Lecturers as LMS learners. In L Markauskaite, P. Goodyear, & P. Reimann (Eds.), *Proceedings of the Australasian Society for Computers in Learning in Tertiary Education: Who's Learning? Whose Technology?* (pp. 213-216). Sydney: Sydney University Press.
- Ellis, A., & Phelps, R. (2000) Staff development for online delivery: A collaborative team based action learning model. *Australian Journal of Educational Technology*, 16(1), 26-44.
- Epper, R. M., & Bates, A. W. (Eds.). (2001). *Teaching faculty how to use technology Best practices from leading institutions*. Westport, CT: Oryx Press.
- Forster, P. Dawson, V. M., & Reid, D. (2005). Measuring preparedness to teach with ICT. *Australasian Journal of Educational Technology*, 21(1), 1-18.
- Garrison, D. R. (1989). *Understanding distance education: A framework for the future*. New York: Routledge.
- Hallas, J. (2006). Professional development for on line teaching practices. In L. Markauskaite, P. Goodyear, & P. Reimann (Eds.), *Proceedings of the Australasian Society for Computers in Learning in Tertiary Education: Who's Learning? Whose Technology?* (pp 245-253) Sydney: Sydney University Press.
- Herrington, A. & Herrington, J. (2006). Using the internet for professional development: The experience of rural and remote professionals. In L Markauskaite, P. Goodyear, & P. Reimann (Eds.), *Proceedings of the Australasian Society for Computers in Learning in Tertiary Education: Who's Learning? Whose Technology?* (pp. 313-322) Sydney: Sydney University Press.
- Holt, D. M. & Seagrave, S. (2003, December). Creating and sustaining quality e-learning environments of enduring value for teachers and learners. In *Proceedings 20th ASCILITE Conference*, (pp.226-235). Adelaide, South Australia: University of Adelaide.
- Jasinski, M. (2006). *Innovate and integrate: Embedding innovative practices*. Department of Education, Science and Training. Canberra, ACT: Australian Government.
- Jonassen, D., Davidson, M., Collins, M., Campbell, J. & Banaan-Haag, B. (1995). Constructivism and computer mediated communication in distance education. *American Journal of Distance Education*, 9(2), 7-26.
- Lock, J. V. (2006). A new Image: Online communities to facilitate teacher professional development. *Journal of Technology and Teacher Education*, 14, 4-
- Lucas, B. (2006). Bringing e-learning home: An experiment in embedding e-learning using departmental advocates. In L Markauskaite, P. Goodyear, & P. Reimann (Eds.), *Proceedings of the Australasian Society for Computers in Learning in Tertiary Education: Who's Learning? Whose Technology?* Sydney: Sydney University Press
- Kolb, D. (1984). *Experiential learning: Experiences as the source of learning and development*. Englewood Cliffs, NJ: Prentice Hall.

- Milne, J., & White, P. (2005). *E-Learning guidelines. Guidelines for the support of e-learning in New Zealand tertiary institutions*. Retrieved May 20, 2007, from <http://elg.massey.ac.nz/Guidelines-questions.pdf>
- Mowatt, J. (2007, July). The instructional design of learning objects. The e-learning guild learning solutions. Practical applications of technology. *E-Learning magazine*. [online journal]
- Oliver, M., & Dempster, J. A. (2003). Embedding e-learning practices. In R. Blackwell, & P. Blackmore (Eds.), *Towards strategic staff development in higher education* (pp. 142-153). SRHE and Open University Press.
- Pittinsky, M. S. (Ed.) (2003). *The wired tower: Perspectives on the impact of the Internet on higher education*. New York: Pearson Education.
- Reigeluth, C. M., & Garfinkle, R. J. (1994). Envisioning a new system of education. In C. M. Reigeluth & R. J. Garfinkle (Eds.), *Systemic change in education*. Englewood Cliffs, NJ: Educational Technology Publications.
- Shephard, K. (2004). The role of educational developers in the expansion of educational technology. *International Journal for Academic Development*, 9(1), 67-83.
- Torrise-Steele, G., & Davis, G. (2000). "A website for my subject": The experiences of some academics' engagement with educational designers in a team based approach to developing online learning materials. *Australian Journal of Educational Technology*. 16(3), 283-301.
- Watson, D. M. (2006). Pedagogy before technology: Rethinking the relationship between ICT and teaching. *Education and Information Technologies*, 6(4), 251-266.
- Watson, W., & Lee, S. (2006). *Learning Management Systems for the Information Age*. Paper presented at the Annual Meeting of the Association for Educational Communications and Technology, Dallas, TX.
- Watson, W. R., Lee, S., & Reigeluth, C. M. (2007). Learning Management Systems: An overview and roadmap of the systemic application of computers to education. In F. M. M. Neto & F. V. Brasileiro (Eds.), *Advances in computer-supported learning* (pp. 66-96). London: Information Science Publishing.
- Watts, D. (2004). *Six degrees: The science of a connected age*. Norton: New York.
- Wenger, E. (1998) *Communities of Practice, Learning, Meaning and Identity*. Cambridge, MA: Cambridge University Press.
- Wiles, K., & Littlejohn, A. (2003, December). Supporting sustainable e-learning: A UK National Forum. *Proceedings of the 20th Annual Conference of the Australasian Society for Computers in Learning in Tertiary Education*. Adelaide, South Australia: University of Adelaide.
- Wilson, G., & Stacey, E. (2004). Online interaction impacts on learning: Teaching the teachers to teach online. *Australasian Journal of Educational Technology*, 20(1), 33-48.

Chapter 6

A Vocational Library Stocktake: A Systematic Review of the Library Content of the VOCED Database

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> Abstract

Since its inception the vocational education database VOCED has recorded vocational education and training (VET) literature through substantial historical developments including varied economic climates, different educational approaches, and major technological change. One microcosm of the VET environment is the library network. With the historical user-driven focus on learning, VET libraries could pre-empt some emergent trends on technological shifts to individualised, lifelong and life-based collaborative learning. A systematic review of the VOCED records relating to VET based libraries was conducted. It examined both quantitative and qualitative aspects of these records. Findings identified that, instead of finding comprehensive, current and cutting edge-material, the coverage on libraries is wanting in three areas: the adequacy of the VOCED database, the research and publication culture in VET libraries, and what constitutes research itself. These issues require major reconsideration and possible actions are proposed and discussed.

One of the areas at the forefront of technologically driven changes occurring within the vocational education and training (VET) sector has been libraries. In a number of ways, the context in which libraries now operate has been redefined. Print-based collections have shrunk as information has shifted from scarcity to surfeit, from hardcopy to electronic. Through the changing manner in which information is available and accessed, other library operating characteristics have also changed. The demarcation lines have blurred between educators and librarians in the delivery of educational programs. This chapter explores how we can understand these changes in the function and role of libraries in VET through a review of published literature. The chapter presents findings of a review of published literature on the role and use of libraries in the VET sector. It provides a systematic review of published materials based on a method described by Anlezark, Dawe, and Hayman (2005).

Libraries have traditionally been places for the self-motivated learner where users are trained to become as self-sufficient as possible but, usually, with in-depth assistance

available on request via, for example, the reference desk. Such an approach for self-direction in learning has a very good fit with evolving educational trends. Beyond encouraging self-education, librarians have occasionally made forays into the educational delivery of programs, for example, team teaching with educators. More recently, librarians have had a greater role in teaching students and delivering content in what is generally defined as information literacy (Bundy, 2004). Information literacy is focussed on the development of skills to effectively access, analyse, evaluate and utilise information. As lines have blurred between librarians and educators, there have been some creative collaborative approaches. This has included librarians taking change agent roles to assist already busy educators with incorporating information technology into courses. It has also included supporting transitions in course delivery to blended and online approaches through which students need to access and use online information.

Given the nature of the information sciences and their evolution in recent decades, one might anticipate a high standard of publicly available, current and future-focused research on vocational libraries. On the other hand, it may be that other preoccupations of the times including restructures in the VET sector and economic constraints have not seen this issue examined in any critical way in scholarly publications. In the review of the literature presented in this chapter, the emphasis is on publications that concentrate on the functions and role of libraries in post compulsory schooling and education but not, generally, on the university sector. In Australia this generally means those libraries within the TAFE/VET sector, although other countries may have different terminology to refer to this sector.

While detail on changes and challenges for VET libraries may be embedded in budget and policy reports, the major starting point for this investigation was the primary vocational education resource in use. This is the VOCED database which is supported by the United Nations Educational, Scientific and Cultural Organization (UNESCO) and which is largely Australian funded. There are over thirty thousand records in the database. The methodology for the review presented in this chapter was a subject based search, using *librar** as a truncated search term. This retrieved one hundred and forty-four records, roughly 0.005% of the total records in the database. It is important to examine the scope and adequacy of this literature and to assess its utility for understanding the current role and functions of libraries in VET.

> From traditional classroom to flexible delivery

Interwoven with recent policy changes for the VET sector has been the digital revolution that has infused most areas of education. This revolution has increasingly shifted learning experiences from the classroom to other learning spaces including the workplace and home. Synchronous and asynchronous Internet technologies have alleviated the tyrannies of time and distance to allow more students to engage in formal training programs, as well as enabling new forms of course delivery through blended and

distributed models of learning. These factors have primed a reassessment of educational processes and what it means to be both a learner and an educator.

Policy turns in the VET sector from classroom to the “customer of one” foreshadowed by the Queensland Skills Plan (Department of Employment and Training [DET], 2006) and from “just in case” to “just in time” training reflected changing mind sets about vocational education. Students became individuals with different learning styles. Students are increasingly of mature age with formidable life experiences and prior learning. The learner is now considered to be largely responsible for his or her own education in terms of motivation, participation and outcomes. As the shift began from the “sage on the stage” to “the guide on the side” the teacher is no longer expected to know everything.

A variety of philosophical and pragmatic approaches in understanding the purposes and directions for education have included resource-based learning (Hill & Hannafin, 2001), lifelong learning (Watson, 2003) and life-based learning (Staron, Jasinski, & Weatherley, 2006). The educator is expected to be more adept with technologically mediated strategies driven by emergent theories of learning such as constructivism (Vrasidias, 2000) and connectivism (Siemens, 2004). More radical elements suggest that learning is being redefined and the role of the educator is under challenge (Blackall, 2005; Downes, 2004). Significant changes are required for the educator to accommodate this brave new world.

> New directions for libraries in vocational education

Libraries have been affected by restructures and questions of their relevance in a digital age are posed. While it might be expected that these factors would have had an impact on the operation of libraries, libraries have not been an industrial force and accommodated the new technologies relatively early. Card catalogues were replaced by CDROMs, computers for student use were housed in libraries, and the Internet appeared. As free access to information on the Internet boomed and economic rationalism seeped into the institutions in which the libraries were a part, libraries were required to make some major readjustments to their priorities. “Collection development” took on new meaning as information, previously scarce, suddenly became available for free. Resources that were previously available in print now became available electronically or, often, in both formats. Additional issues such as consortia negotiations, copyright and intellectual property changed the library role. More recently, developments generally described as Web 2.0 (O’Reilly, 2005) have also led to suggestions of Library 2.0 (Casey & Savastinuk, 2006) based on interactive and collaborative approaches, with computer banks and Internet access. A view of libraries as social spaces is evolving.

What is the library’s role? The library has long provided orientation for new users but has, more recently, added a specific focus on information literacy. One of the skill sets considered necessary in the information age (Bundy, 2004). In addition to this role, in some institutions, library staff have also taken on an intermediary role of assisting

teaching staff migrate the delivery of programs to incorporate new and emerging technologies. In some locations, libraries house “information commons” based on banks of computers where students may work through e-Learning courses or research and prepare their assignments, often with the assistance of not-quite-teaching staff, such as librarians and tutors.

The library has traditionally been a base for self-directed learning. Patrons arrive with whatever interests or needs they may have, generally, to find their own resources or are assisted to develop the skills to do so. Additional services were readily available on a “client of one” basis. Libraries have always had an eye on distance delivery, from the traditional interlibrary loan and post-out services through to support to use online databases and to develop an online presence. These directions and approaches align with lifelong and life-based learning educational philosophies. Thus, librarians have complementary educational roles in, for example, “team teaching” and “collaboration”. This author suggests that the librarian role has changed and expanded, although this is not necessarily mirrored, as yet, in the formal job descriptions.

These developments and the changing role of libraries and librarians apply to libraries in general. There are, however, many different library sectors – public, school, VET, and university. These sectors face both similar and different challenges, issues and responses. While the VET sector has changed significantly over the last couple of decades and confronted its own unique challenges, libraries have not had major influences on this process. Cooperative networks have struggled and energies have been focussed on identifying appropriate roles for libraries in a turbulent environment. We might ask how extensively the available vocational library literature documents these developments and demands. How is the role and value of the library as a significant institution within the vocational education sector discussed? What research has been conducted into understanding the changes in the function and use of VET libraries?

> From information literacy to evidence-based practice

In recent years, largely in response to the flood of Internet content, the concept of information literacy has achieved some prominence. This includes specific focus on evaluating the quality of information that is obtained and sorting the relevant, useful and valid material from the dross. This has been paralleled by another move which the author contends is effectively a strand of the evaluative process about the role of libraries but at a more academic level. Originating in the health area, “evidence-based librarianship” has attempted to examine the professional and the scholarly quality of research about the role and function of libraries.

It may be considered as “evidence literacy” (Martina & Jones, 2005), an exercise in evaluating the research conducted about libraries. It is suggested that the evidence ranges across a variety of categories, from lower level anecdotal material and case studies, up to the randomised controlled trials, systematic reviews of research and meta-

analyses. This approach has gained considerable ground in the area of librarianship. Eldredge (2000, p. 298), for example, is concerned “that librarianship does not offer a better representation of the more rigorous methods at the higher levels of evidence”. Similarly, Brice, Booth and Bexon (2005, p. 17) claim “Librarians place a great emphasis on anecdote and experience”. Such lower levels of evidence often result in an “overwhelming positive-outcome bias” (Eldredge, 2000, p. 297).

Thus, while we might look at the quantity of literature on libraries in the vocational sector, the author considers that the qualitative aspects of the evidence are also relevant. It is essential to also look at all the evidence through an evaluative lens. How might the literature on VET libraries be categorised? What sort of distribution exists between the more lightweight evidence to the seriously academic evidence? The methodology for the review reported in this chapter, therefore, was inspired by the “systematic review” approach. Based on the Cochrane / Campbell / EPPI-Centre precedents to evaluating research in the health, educational and social science fields, this is relatively new approach in the VET environment (Anlezark, Dawe & Hayman, 2005).

The “systematic review” is structured around research questions. As this chapter is still largely a scoping exercise, the research questions effectively become:

- How much published material is there focussed on vocational libraries (quantitative)?
- How “good” is the material that exists (qualitative)?

The approach relies upon two principal assumptions relating to source material and research strategy. Firstly, this review relies on examining the premium vocational education and training database, VOCED. According to Saunders (2006) “... It is a specialised tool unique to the field of vocational education and training (VET) ... international in scope, with an emphasis on Australia and the Asia Pacific region ... Its international profile enhanced by its UNESCO endorsement enables the VET community to showcase its research and policy information to an international audience ... VOCED aims to provide comprehensive coverage of Australian VET resources and to include all key international technical vocational education and training English language documents (p. 1).

The research strategy was relatively simple. As the database precluded the need to search for vocational education terms, the only concept necessary for refinement was “library”. Taking advantage of the truncation capability in the VOCED’s search engine the database was searched using the term *librar**. A broad keyword search resulted in several thousand occurrences, most being irrelevant. Accordingly, it was decided to use the term in the subject field, relying on the assumption that if “library” based terms were sufficiently important they would have been so classified. A subsequent check of the VOCED thesaurus revealed that this covered some 22 subject terms. It is possible, however, that some relevant material was missed, though given the results obtained, this core assumption appeared valid.

The search was undertaken on September 28th, 2007. Some one hundred and forty-four items were identified. Bibliographic details and the abstracts were examined and analysed according to a variety of comparative criteria: date of publication; geographical context; classification of material by type (e.g., conference paper, journal article); content focus (e.g., research study, curriculum focus); research methodological sophistication; and also, more subjectively, on a judgement on the quality. As this is an initial foray into conducting a systematic review and the analysis was made solely by the author, the data was not always neat and easy to classify. For example, a conference paper might warrant a record of its own, but also be cited as part of a compilation of conference papers. It might even later appear as a journal article. While another reviewer might interpret some aspects differently, the author considered that subjective differences would be relatively insignificant and not detract from the conclusions reached. The bibliography is available on request from the author.

> Findings from the systematic review

All VOCED items retrieved using librar* somewhere in the subject field were included. This resulted in one hundred and forty-four items, representing roughly 0.005%, or one in two hundred, of the total of over thirty thousand VOCED records. The available information was then analysed by descriptive criteria such as age, geography, academic quality of the material, and qualitative content. The findings are presented in Table 6.1.

Table 6.1: Summary of characteristics of records analysed in the review

Characteristics of the records accessed	Number of records
Date of publication	
2005 – 2007	8
2000 – 2004	25
1995 – 1999	53
1990 – 1994	47
1984 – 1989	11
Geographical context of publication	
Australia	110
United Kingdom	16
New Zealand	5
Philippines	5
International	2
Other (1 record each from Canada, Finland, Fiji, India, Switzerland, Pakistan)	6
Type of content	
General written reports	51
Conference, seminar, workshop	33
Serials – journals and newsletters (scholarly & non-scholarly)	28
Bibliographies, catalogues	11
Guidelines	7
Curriculum	5
Manuals	3
Dissertations	2

Date of publication.

The currency of the material in the database is detailed in Table 6.1. The results show that there is an average addition of only six library-related items per annum over the life of the database. These show a peak output in the mid 1990s. It is difficult to draw detailed conclusions without considering other factors, but the major aspect is clear: in an e-growth period, when one might expect substantial activity, there appears to be only a limited amount of content in the VOCED database about the use and role of libraries.

Geographical focus of work

Table 6.1 details the geographical focus of the content. The focus was overwhelmingly Australian (76 %), with a smaller number of key publications from the United Kingdom. Interestingly, and reflecting the different international approaches to vocational education, the limited amount of material from most of these countries and the complete absence of material from many more, including the United States, suggests that an international perspective on the role of libraries in training and education for employment may not as yet have come to fruition. This seems a perplexing conclusion given the overwhelming importance of economic issues in global public affairs, and, if confirmed by further work, the author suggests that this should be a significant concern for the profession.

Authorship

Without knowing the exact backgrounds of contributors, an examination of author affiliations, publishers and content count suggested that approximately one-fifth of the authors of the library-based articles were not librarians, but a mixture of academics, consultants, industry bodies and corporate VET. This suggests that the librarian contribution is further diminished to perhaps 120 items, with the remaining one-fifth being authored by commentators or others with an interest in the field. This again raises the issue of the quantum of work emanating from within the discipline as well as the related, but difficult to quantify, question of which works have most influence in the area.

Type of content

An examination of qualitative aspects of the content enabled groupings into a number of categories (see Table 6.1). To elaborate on these:

General written reports: There is a considerable amount of publicly available “grey literature”, described variously as reports, surveys, unpublished assignments, booklets, discussion papers, documents, issues papers, and so forth. These fifty-one items reveal that VOCED contains a surprisingly broad range of content, unlike the traditional scholarly literature database of academic journal articles and relevant conference material.

Conferences, seminars and workshops: The conference material also varies considerably. Some caution might be exercised here. The VOCED records show a recording anomaly in that twenty-three records relate to individual conference papers,

as might be expected, but the remaining ten cover entire conference contents. Further, items described as papers from possibly lesser events such as seminars and workshops have been included in this category. The conferences of the Australian Library and Information Association's (ALIA) TAFE section, where one might have expected full coverage, are arguably the benchmark where the focus on library research might be strongest. There were only five records from the 3rd conference in 1991 through to the 8th in 2001. Three of these records were individual papers and two records covering whole conferences. This indicated that coverage is poor. Another five papers were recorded at ALIA (non-TAFE section) conferences. There were two records from national Library Technicians' conferences; several records from state-based conferences or workshops; with the balance being a mix of different Australian-based and international-conferences. It would be useful to further analyse this material for serious content, a task complicated by the fact that there were little more than title details available for the "entire conference" records.

Serials – journals and newsletters: The journal literature is of major significance, as a standard measure of the quality of professional publication, since they will usually have some review process before publication. There were twenty-eight records in serials. However, this included numerous items in non-peer reviewed works and what appeared to be newsletter-type serials, including several lightweight "newsy" items of one or two pages. It seems the sum total of serious library literature listed in VOCED since 1984 ranges across perhaps half a dozen peer reviewed journals (e.g., Australian Academic and Research Libraries, Australian Journal of Adult Learning, British Journal of Education Technology, Journal of Further and Higher Education) with only a dozen or so items of academic peer reviewed standard over the entire period.

Bibliographies and catalogues: One of the categories of content is the bibliography, traditionally, a profession skill related to library output. This chapter hoped to focus on this literature as a discussion forum for reflection on relevant changes. Less directly, the content itself may be an indicator of change in the discipline. The bibliography appears to be gradually fading out of the professional literature. Technology has, in the age of information overload, where close enough is often good enough, presumably enabled by the production of "user-generated" bibliographies using online databases.

Statistical returns: These are annual comparative returns of activity that libraries would keep as a matter of course and would maintain as a legacy practice. These include measures of collection sizes, usage, loans etc. On the surface, as the existence of such statistical material would be an ongoing cyclical activity, it might be anticipated that they would appear perhaps annually in the database. This was not the case. Such statistical returns existed for NSW in 1993, 1994 and 1995; for South Australia in 1990; and for New Zealand for 1990, 1994 and 1995. This category is exhausted after a six year period. There may be various reasons for this. Perhaps this was the heyday of centralised structures, reporting and record keeping. Perhaps it is an artefact of the database collection policies. Irrespective, it is a pity that the information has not

been consistently maintained. As with the database content on conferences, there are substantial gaps.

Other categories (e.g., guidelines and curriculum, manuals): There were a number of relatively isolated working documents. It was perhaps interesting that such material should come within the ambit of the database collection policy. By their inclusion, they would give the impression to the casual searcher that the database is indeed comprehensive and includes substantial grey literature. However, their appearance is sufficiently random to make it unlikely that they are included even as sample or exemplar documents. They do provide another insight into database compilation by suggesting that collection policies might not have been particularly well defined over time.

Dissertations: Of considerable interest for the VET context are the dissertations. These were only two Masters level theses (i.e., Zobec's 1998 work on information literacy; Hannan's 1995 work on funding levels and new approaches to VET). Thus, from the earliest VOCED library entry in 1984, the library sector has only had two Masters dissertations recorded in VOCED. It might be noted that the bibliography in the journal articles by Lloyd and Bannister (1999) identified another Masters level dissertation from 1995 by Miller that was not recorded in VOCED. This limited activity might generate some concerns regarding the academic and research capabilities of the VET library sector.

Content analysis

The overall nature of the content of the articles is wide but individual items are often library esoterica. The content focus included: learning resources, user education kits, ESL collection development, a regional library study tour, circulation desk design, library planning, campus facilities design, campus maps, student satisfaction surveys, bibliographies, the history of one specific library, private provider access to TAFE libraries, teambuilding, metadata, and biography.

From an educational perspective, there was much happening but no decipherable patterns could be discerned. Competency-based training is mentioned from both the perspective of supporting such courses and as applied to training library industry workers. Learning rates highly, but in a multitude of contexts: learning resource centres (particularly in South Australia); open learning centres (particularly in NSW); open learning; flexible delivery; online learning; lifelong learning; blended learning; and even informal or non-formal learning. Much of the content focussed on the support service role of libraries and occasionally on team or collaborative work with educators. Some more recent records focussed on information literacy, the primary content delivery concern of librarians. Surprisingly little material aggregated or contextualised this content.

> Discussion of findings

This paper began with the suggestion that the primary vocational database might offer good coverage of significant library developments over a critical historical

period, particularly given the increased international preoccupation with education for employment-related outcomes. Instead, a limited amount of material was found in the database. Much of it was not current or topical and the content was rarely international in coverage. From an information literacy perspective, there was a substantial amount of grey literature, often on library specifics. Conference coverage was useful, but fragmented in the database. The journal literature suggests possibly only a dozen peer-reviewed articles since 1984 and only two Masters level dissertations were in the records. Coverage had breadth but was by no means comprehensive. The library role in the educational process was evident in records related to the provision of resources, occasional support for teachers, and a service focus. Whilst records about learning were evident, this was at a limited level, and rarely in the context of serious discussion or analysis of learning theories or evolving technological affordances for learning. Most work reflected the shortcomings as outlined in earlier discussion on evidence-based librarianship. The records mainly reported evidence that was anecdotal, case study-based, and newsy. These were few well-designed research studies reported in the evidence gathered. Librarians may be skilled at literature research but there was little evidence of serious qualitative and quantitative research. Three areas warrant some discussion - the nature of the VOCED database, research work in vocational libraries, and the meaning of "research" in the library sector.

The initial research questions related to the coverage and quality of the VOCED database for library-related material. While some ephemeral and lightweight content gave a misleading impression that the database coverage was comprehensive, the substantive library content was limited. The quality of the articles was patchy and offered a relatively minimal picture of major developments and issues for libraries at a time when challenges, demands and change are unique and extensive. While there is substantial representation of Australian grey literature, this still leaves many areas that are under-researched, such as contextualisation of library roles within major VET reviews and developments such as competency-based training. Overall, national, state and even regional summaries were rare. This suggested that much of the grey literature has not moved beyond working papers to even become available in the database. There were some indications of gaps in the data. It appeared that annual statistical returns may be available but inclusion was not systematic. Similarly, there were potentially substantial items from TAFE conferences and records of entire conferences which are often major stocktaking events that were missing from the database. Irrespective, the content was overwhelmingly Australian with some minimal material from the United Kingdom. With globalisation, it would seem to be strategically opportune to examine different international responses to vocational education across schools, universities and other sectors, to examine how libraries might address the unique needs of vocational training. As the information age continues, it would seem appropriate that a greater database focus on proactive collection, by identifying gaps and attempting to rectify these, as well as by commissioning library research, would seem to offer considerable potential.

However, the shortfalls in the focus on VET libraries may not be wholly the result of the collection practices for the VOCED database. It may be that the level of research about libraries is low. Macauley (2004), for example, laments the lack of PhD level qualifications in the university library sector with deleterious consequences for a research skills base. He considers that this is reflected in a preoccupation with lower order information literacy skills, rather than the higher level skills related to reworking information into generating new concepts, understandings and knowledge. This situation also seems to exist in the VET sector. The research skills shortfall argument is supported here in that only two library-based Masters qualifications were located in VOCED. Further, this study suggests that the VET library sector may not be documenting its activity. This professional literature seems to indicate a cultural lack of interest or skills in professional publication, in general, and research, in particular. There may be various reasons for this. For example, with the restructures across VET there has been a loss of the sustained strength and coordination among libraries that is present in, for example, the public and university sectors. The area might benefit from a more specific focus or augmentation from consultants or higher education academics. An annual review of VET library activity at a national level would be valuable. Practically, it has been suggested that it is timely to examine the library penchant for the reactive discourse of collecting material to support VET programs to a more educationally proactive and heutagogical role.

This review used a traditional index / abstract / database approach to access the scholarly publications. It may be that this approach needs review. It is apparent that a broader approach would be needed. We may be justified in stepping back from VET libraries and looking more generally at the library literature, making inferences that developments elsewhere have parallels in the VET sector. This might be supplemented with the “big picture” material relating to the evolving political and structural landscape that is contemporary VET. Primary resources, additional grey literature, and personal communications might also be highly relevant. However, it may still go further. Different peer review approaches are being trialed. Seminal works such as the initial suggestion of Web 2.0 (O’Reilly, 2005), the Long Tail (Anderson, 2004) and the Buntine Oration (Downes, 2004) are not initially appearing in traditional peer reviewed academic circles but are on mainstream websites and blogs. Cutting edge work has shortened timeframes: from books to journals to preprints and e-prints, and more recently blogs and other digital communications. Issues that are researched about VET libraries may not be reaching formal academic publication. Critical issues previously covered in hardcopy newsletters may now be published electronically behind an Intranet. Conferences and discussions possibly occur behind electronic registration / password required communities of practice, in areas ignored by the databases. Despite the efforts at raising library profiles, such practices relocate this work to the “invisible web”, giving rise to a “digital dark ages” twist as work becomes temporary and with restricted access.

The New Media Consortium and the Educause Learning Initiative’s Horizon Report (2007) predicted that technology is likely to have a dramatic impact on academic publication

within a two year timeframe. Perhaps these changes are already upon us, and this is where relevant debates are occurring. Authority and credibility become difficult issues in a rapidly changing world of user driven content, and traditional ground rules are not as clear as they once were. Irrespective, researchers may well face a dual dilemma of an inadequate traditional record and an uncertain redefinition of what constitutes credible research.

> Conclusion

This chapter began with what appeared to be a relatively simple issue: what has been happening in VET libraries and how well is it documented in VOCED, the primary library VET database. An examination of the database revealed a limited amount of material, inadequate coverage, limited international content, and a general low level of research. It is suggested that this has significant implications across three areas. Firstly, given the patchy results of the review the compilers of the database may find it valuable to reflect upon the adequacy of existing inclusion policies and perhaps engage in some retrospective recovery. Secondly, with the low volume of quality research material in the database, the VET sector library profession might examine its skills set and involvement in research and publication, particularly in a volatile world where vocational education is increasingly significant. Finally, it is suggested that while authoritative, rigorous and credible research may be difficult to discern in the current turbulent environment, there might be potential dangers in losing relevant material to ephemeral storage or the invisible web. Our attitude and understandings of what constitutes academic research may also require careful reflection.

> References

- Anderson, C. (2004). The long tail. *Wired*, Issue 12.10, Retrieved Mar 22, 2006, from <http://web.archive.org/web/20041127085645/http://www.wired.com/wired/archive/12.10/tail.html>
- Anlezark, A., Dawe, S., & Hayman, S. (2005). *An aid to systematic reviews of research in vocational education and training in Australia*. Adelaide, South Australia: NCVET.
- Blackall, L. (2005). *Die LMS! You too PLE!* Retrieved September 18, 2007, from <http://teachandlearnonline.blogspot.com/2005/11/die-lms-die-you-too-ple.html>
- Booker, D., Murphy, C., & Watson, M. (1995). *Focus on learning: A framework for the provision of learning resources, library and information services in vocational education and training* [Abstract]. Adelaide, South Australia: National TAFE Chief Executives' Committee. Retrieved October 14, 2007, from VOCED database.
- Brice, A., Booth, A., & Bexon, N. (2005). *Evidence-based librarianship: A case study in the social sciences*. Paper presented at Libraries – a voyage of Discovery, World Library and Information Congress: 71st IFLA General Conference and Council, Oslo,

- Norway, 14-18th August, 2005. Retrieved August 10, 2005, from http://www.ifla.org/IV/ifla71/papers/111e-Brice_Booth_Bexon.pdf
- Bundy, A. (Ed.). (2004). *Australian and New Zealand information literacy framework: Principles, standards and practice* (2nd ed.). Adelaide: Australian and New Zealand Institute for Information Literacy. Retrieved September 12, 2007, from <http://www.anzill.org/resources/Info%20lit%202nd%20edition.pdf>
- Casey, M., & Savastinuk, L. (2006, September 1). Library 2.0: Service for the next generation library. *Library Journal*, Issue 14. Retrieved October 14, 2006, from <http://www.libraryjournal.com/article/CA6365200.html>
- Clark, J. (2003). *To hell in a handcart: Educational realities, teachers' work and neo-liberal restructuring in NSW TAFE*. Sydney: Unpublished PhD thesis, University of Sydney. Retrieved September 18, 2007, from <http://hdl.handle.net/2123/590>
- Department of Employment and Training. (2006). *Queensland skills plan*. Brisbane, Qld: Queensland Government.
- Downes, S. (2004) *The Buntine Oration*. Retrieved September 18, 2007, from <http://www.downes.ca/post/20>
- Eldredge, J. D. (2000). Evidence based librarianship: An overview. *Bulletin of the Medical Library Association*, 88(4), 289-302.
- Hannan, D. (1995). *Will there be a TAFE library in the year 2000? The impact of economic constraints and new approaches to vocational education and training on the information services provided by TAFE libraries* [Abstract, unpublished Masters thesis]. Wagga Wagga, NSW: Charles Sturt University
- Hill, J., & Hannafin, M. (2001). Teaching and learning in digital environments: The resurgence of resource-based learning. *Educational Technology, Research and Development*, 49 (3), 37-52.
- Lloyd, A., & Bannister, M. (1999). Things are not always as they seem: Perceptions of the role of librarians in TAFE. *Australian Academic and Research Libraries*. 30(4), 251-264.
- Macauley, P. (2004). *Challenging librarians: The relevance of the doctorate in professional practice*. Paper presented at ALIA 2004: Challenging Ideas Conference, 21-24 Sept 2004, Gold Coast, Australia. Retrieved January 21, 2007, from <http://conferences.alia.org.au/alia2004/pdfs/macauley.p.paper.pdf>
- Mayer, E. (1992). *Key competencies: Report of the Committee to advise the Australian Education Council and Ministers of Vocational Education, Employment and Training on employment-related key competencies for post-compulsory education and training [Mayer report]*. Canberra, ACT: Australian Education Council and Ministers of Vocational Education, Employment and Training.

- Martina, C., & Jones, B. (2006). Employing evidence: Does it have a job in vocational libraries? *Evidence Based Library and Information Practice*, 1(1), 26-36.
- New Media Consortium & the Educause Learning Initiative. (2007). *The horizon report: 2007 edition*. New Media Consortium. Retrieved April 30, 2007, from <http://www.nmc.org/horizon/2007/report>
- O'Reilly, T. (2005). *What is web 2.0? Design patterns & business models for the next generation of software*. Retrieved September 18th, 2006, from <http://www.oreilly.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html>
- Owen, R. (1994). TAFE libraries: Where to from here? [Abstract], *Kangan: 20 years on*. pp.193-225. Adelaide: NCVET.
- Saunders, M. (2006, April). *Connecting people to information through the VOCED database*. National Library of Australia Innovative Ideas Forum. 2006, Canberra, ACT.
- Siemens, G. (2004). *Connectivism: A learning theory for the digital age*. Retrieved November 11, 2006, from <http://www.elearnspace.org/Articles/connectivism.htm>
- Staron, M., Jasinski, M., & Weatherley, R. (2006). *Life based learning: A strength based approach to capability development in vocational and technical education*. Sydney, NSW: TAFE NSW ICVET with Department of Education, Science and Training (DEST).
- Vrasidias, C. (2000). Constructivism versus objectivism: Implications for interaction, course design, and evaluation in distance education. *International Journal of Educational Telecommunications*, 6(4), 339-362.
- Watson, L. (2003). *Lifelong learning in Australia*. Canberra, ACT: Department of Education, Science and Training.
- Zobec, H. (1998). *An investigation of library literacy levels of flexible learners at the Canberra Institute of Technology: a pilot study* [Abstract, unpublished Masters thesis]. Canberra, ACT: University of Canberra.

Chapter 7

Moving Forward with Learning Objects: Doing It Right for TAFE

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> Abstract

This chapter discusses the nature of digital objects and learning objects and reviews background information on the international standards associated with their use in web-based e-learning program delivery. It also examines the attributes required to adequately describe a learning object. It examines how the LMS and LCMS in TAFE can be used to assist teachers to build instructionally sound learning objects and meet the learning needs of students. It presents exemplars from those who have written about their experiences with digital/learning objects and how they have successfully managed digital resources. It concludes with ideas to suggest how effective use of digital/learning objects can be developed so that teachers and learners can ensure that the learning management systems can be moved forward to reach a pinnacle of the “best of the breed” for TAFE in the use of learning objects.

The Queensland Skills Plan (QSP) (DET, 2006) emphasised the major role of Information and Communications Technology (ICT) for vocational education and training (VET) in Queensland. The QSP outlined the importance of providing TAFE Institutes with access to enhanced online delivery systems and better business management systems. Action 7 of the QSP focused on the importance of more effective use of ICT in order to allow students more flexibility in the manner in which they undertake their training and to opportunities for accelerated skill acquisition. Action 7 also foreshadowed the development of the Learning Management System to allow greater sharing of resources between trainers, including better intellectual property management. A number of these initiatives are now in place to achieve the outcomes proposed in the QSP.

The major focus of this chapter is on how some of the ICT-related actions identified in the QSP will be met. TAFE Queensland has purchased a Learning Management System (LMS)¹ and a Learning Content Management System (LCMS). These systems are key to the delivery of many of the actions outlined in the QSP. The systems are seen as leading the way forward to provide new forms of education and training as well as to ensure that

¹ A glossary of key terms is presented at the end of this chapter.

the training targets for 2011 can be met. Through these systems, it is planned that there will be a more distributed approach to how learning objects and digital objects used across the training packages and across TAFE Institutes will be utilised. The systems will enable greater resource/content management (or digital/learning object management) and collaboration. Through the LCMS and LMS combination, delivery of content to the learner in the mode prescribed by the instructor can be achieved (e.g., online or blended).

This chapter is intended to enhance the understanding of educators around the collection, use, management, distribution, and reuse of digital objects within the Learning Resources Management framework (LRM). Through examples, it discusses where and when a type of digital object can be used. It provides an explanation of the current system and evaluates its strengths and limitations. It justifies alternative perspectives, outlining advantages and strengths by drawing on the experience of others in the use of digital and learning objects. Proposals for the use of the LCMS and the digital objects stored within it are described in this chapter.

> Context

There are 14 TAFE Institutes across Queensland. Each institute has its own unique requirements in the delivery of courses as each institute endeavours to meet the expectation of local clients and businesses. Within the same institute, a course could be delivered in face-to-face (or class) mode. It could be in a blended mode. It could be for trainees in which there is an on-the-job component. It could be fully online. Teachers' experiences with any or all ICTs will vary. They will build their courses to their own strengths. This diversity has the potential to create many learning objects. Hence, any expectations that one object fits all purposes is not the best model or in the greater interest of the learner or practitioner. The substantial investment in providing ICTs does not automatically produce benefits (Buckingham, 2007). It is important to look more closely at what needs to be learnt through the medium of digital/learning objects.

There already exists an extensive body of content knowledge within each TAFE institute. The harvesting of these products has begun and some content has been collated for the use by all institutes. It is reasonable to assume that after a LCMS and Learning Resource Design Principles (LRDP) work flow process has been undertaken that this content will be available within the LCMS. It is proposed that through links from the LMS to the content in the LCMS that duplication of information will be alleviated. The LCMS is the Knowledge Base and the repository for Digital Objects (DOs), Learning Objects (LOs), and Reusable Learning Objects (RLOs). The LMS (my.TAFE) is the delivery and student tracking system. An LMS course is made up of DOs and LOs from the repository. They can then be wrapped in local content to provide an authentic learning experience that has been related to the local context.

How we harvest, manage, use, create and share the vast amounts of current and future content used for teaching in the TAFE system will be developed through the LCMS and LMS. However, there is a disparate understanding of the term digital/learning object among TAFE managers and teachers. There is a concern that *all* content will be stored in the LCMS and that delivery will occur from the linked LMS to the “objects” stored within the LCMS. For example, if an object, let’s say a course, was the “best of a breed” then all TAFE institutes that deliver that course would use this content. This would satisfy a number of requirements in the delivery of VET courses as specified by the Australian Qualifications Framework; for example, the need for consistency in the delivery of training packages. However, such a prescribed model of delivery would provide little in the way of flexibility. It is an unrealistic expectation for *all* content objects to be stored. To have the “best of breed” Learning Object (LO) held in common storage in the LCMS is a grand move. It is then possible to take an LO from the LCMS and plug it into the LMS and further manipulate it so as to make it your own or suitable to the delivery mode that you choose. This is a simple example of how the LCMS and LMS might allow educators to access and use learning objects in their teaching. This process, in fact, would create a new object.

> About digital objects and learning objects

Digital objects (DOs) are described as the individual bytes of media. Learning objects (LOs) are combinations of these media to form “chunks” of data. They can be used and reused, even re-purposed for the creation of a new LO (Spence, 2005; The Learning Place [TLP], 2007; Northrup, 2007). For example, pictures of a fireman, a paragraph of text on fire-fighting, a flash file with some interactive activity about fires are all digital objects. These elements can be combined on a page to create a “lesson” on fire fighting. I could then have a lesson on recognising different uniforms. I could find a picture of a policeman, an ambulance officer, a pilot, bus driver and add these images onto a page and reuse my picture of the fireman on the same page. Each of these objects sourced are digital objects in themselves. The original page on fire fighting can be reused in a unit for Occupational Health and Safety (OHS) unit or in an induction program for OHS and, thus, become part of a larger whole. The OHS unit object may be part of an object for a Certificate course which, in turn, is part of an object in a training package. It could be used across multiple training packages because most training packages have some form of training for OHS.

Imagine your current delivery of content within a course. You have handouts, overheads or PowerPoint displays. You may even have a dedicated website. You may encourage the use the World Wide Web for student research. In this delivery of your course, you have already interwoven various elements to create the learning environment. Each of these elements is an object that is used to create the whole. The digital objects may be, but are not limited to text, images, maps, drawings, video footage, paintings, photographs, and audio files with songs or broadcasts. These digital objects, in turn,

can be used to build learning objects. These learning objects could be a PowerPoint presentation, a Study Guide, or an assessment item (e.g., an online test). All of these elements combine to form a new learning object for a particular class. The content for this lesson, in turn, is a part of a larger object called a module. There may be several modules that contribute to form a course or qualification. All of the current (or past) documents that have been created by trainers that relate in some way to the delivery, management and assessment of a unit, cluster, or course and that can be stored electronically are digital objects. They can be stored centrally, shared, used and reused (Northrup, 2007). These ideas are presented in Figure 7.1.

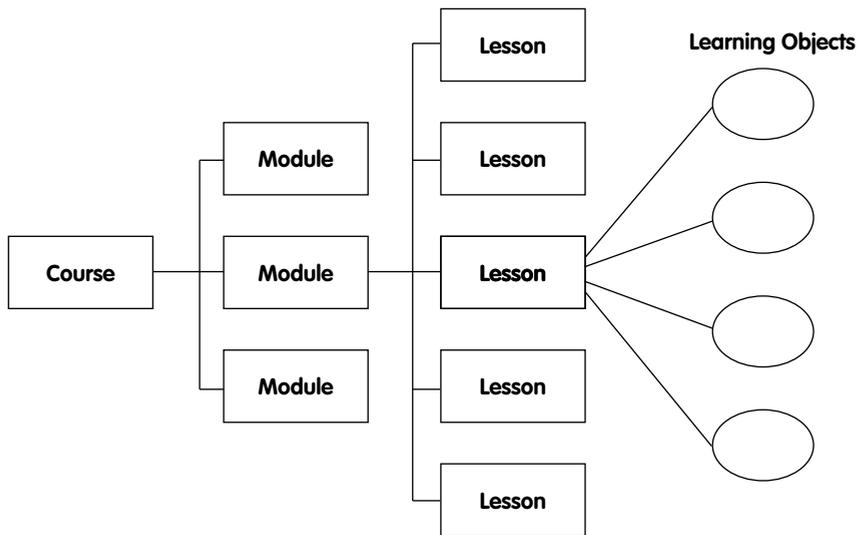


Figure 7.1: Representation of how Learning Objects contribute to the whole

In the previous example, I built a learning object. Similarly, I can disaggregate a “page” into its separate components. This process is often spoken of in granular terms, as an analogy (Northrup, 2007). Taking the “grains of sand” each with its own story and building a larger picture is possible; or, vice-versa, it is possible to break a larger object into its component parts. The objective is to break objects down to their most basic size so that can be used most effectively to build new objects of reusable content that can serve various purposes. It is also important to note that the smaller the object is then the greater the likelihood that it has reusability. However, conversely, the smaller the object then the likelihood is lower that it has instructional value in its own right. This can be easily seen if we take another example related to occupational health and safety. If we have an object for OHS for Hospitality courses then its relevance for Information Technology courses is likely to be diminished. However, if the various components can be reassembled for a desired context then it is more viable to use an object across contexts. For example, fire extinguishers do not change from workplace to workplace in Queensland and knowledge about their use in a given scenario will be generic. Hence,

this could be a common object stored in the LCMS. When a course is then developed, this object can be the focus of the learning with other specific content that is provided within the LMS. It could be suitable for any workplace and used for a specific learning or assessment task.

The power of digital objects comes from their modality (Northrup, 2007). If there were a change in the look, size, chemical composition, use of fire extinguishers, then a new object could be created by updating the original object. All learning objects with the original embedded component that related to fire extinguishers could then be updated simultaneously. If the “best of breed” object was developed for the Queensland context, it can then also be easily moulded to fit the regulatory context for any other Australian state. The creation of toolboxes in which collections of digital objects have been assembled into learning objects to be presented in interactive learning environments across a variety of contexts is then possible.

Further information on these topics can be found at The Learning Place (2007) website. An in-depth view of where digital objects sit in the bigger scheme of things can be found at a site called *Learning Objects 101* designed by Millar (2007). For another perspective on Learning Objects, an article by Polsani (2003) provides an interesting viewpoint.

Why do we need standards?

There are two major standards that deal with digital objects, their use and their reuse. They are SCORM and LOM (Northrup, 2007). SCORM is used to describe the “mechanics” in how various systems talk to each other. LOM is a standard that can be applied to describe a digital/learning object. SCORM is important because it is the language that the LMS and LCMS systems use to link objects and exchange information. LOM is important as it holds the descriptive data used to search for objects.

SCORM is a standard that describes how objects are packaged and thus exchanged or distributed. This tool allows content to be used and reused without the need for modification for e-learning programs. For example, have you noticed that, at times, when you open a web page in one browser (e.g., Internet Explorer) it does not appear or it does not behave in the same way that it does in another browser (e.g., Firefox). This could also happen between different versions of the same browser. This occurs due to the different interpretation of the code that sits behind the page (e.g., in Internet Explorer, go to the Menu, go to View, and click on Source. A new page opens with what looks like another world). This code is used to create the page you see. If we need to share an object(s) across systems and both systems are SCORM compliant then taking the object from one system and “plugging” it into another system should work seamlessly, if the code is interpreted by both systems correctly. Thus, if the systems are connected, a link should be able to be formed and the content will appear in the front system (the LMS) but it is actually being accessed from the rear system (the LCMS) and displays as intended. In the case of TAFE, the LMS would be able to display content from the LCMS

(e.g., the images of the various fire extinguishers stored in Knowledge Bank) on a page delivered by my.TAFE. Recommended reading is an article called *One-Minute SCORM Overview for Anyone* (2007). It can provide a depth of understanding about this standard and the implications.

The purpose of LOM is to provide a standard platform of naming to which data can be attached, usually called metadata. In the previous example of fire fighting, some of the naming for the data would include: Title, author, type, date created, licence, ownership, description, and many other fields. Some of these fields are mandatory and some can be created, if needed, and used for specific systems. For example, for the LMS, a review date and end date for its usage could be specified. For library usage, an ISBN number could be included. The main purpose of the LOM then becomes the ability to search for an object stored across various systems through the metadata recorded against any object. If an instructor wished to search for “fire extinguishers” in the title, a search of just the Knowledge Base (LCMS) could be made or a wider search could be conducted to include various other databases including a departmental library, interstate databases, and beyond. The search could be performed if the database conformed to the naming standards. Succinctly, LOM is the metadata used to describe digital/learning objects. An in-depth description of the LOM standard is provided at the IEEE Learning Technology Standards Committee site (WG12, 2002).

> The use of digital objects within the LRM framework

How can the sharing of DOs and LOs happen logistically? What objects should be stored in the LMS and what should be stored in the LCMS? What form and size is ideal? What are the limitations for the use of digital/learning objects? What support will be needed? These are just some of the questions addressed in this section. Examples from various institutes and their experiences are presented to provide some answers, although possibly other questions then arise.

A representation of the subsystem structure of the LMS and LCMS and their linkage is presented in Figure 7.2. The link between the systems is a virtual one based on the functionality provided by the SCORM/LOM standards. In understanding the operation of the systems, backend refers to the behind-the-scenes management of the system (e.g., course/student/object creation). While front-end refers to what is visible to most people in portions of the system (e.g., course content, student self help options, staff monitoring of student progress).

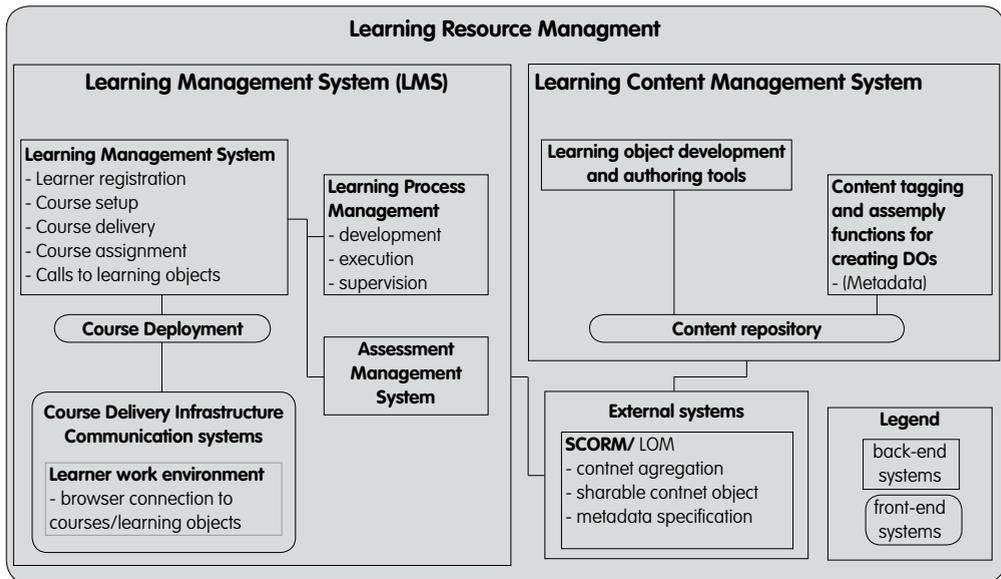


Figure 7.2: The Learning Resource Management framework

Current trends in DOs, LOs and RLOs

Mason, Pegler, and Weller (2005) suggest that a LO must summarise as a topic which consists of text, readings/resources, materials and activities that engage the learner with the topic. Each of these LOs should stand alone and be a study period in length. This then allows for some granularity and, thus, the LOs can become RLOs. The framework for the LO is then created and the context set so that learning appears to be a holistic experience for the student. Coghill (2006) agrees that a LO must be designed to engage and motivate learning. The “best of breed” LOs appear to be from those instructors who collaborate with instructional designers; have some background classroom/online ICT skills; and have content/subject knowledge (Buckingham, 2007; Muirhead & Haughey, 2005). Learning object creation and use is a mixture of the technology, content of the training package and/or course knowledge with pedagogical practice (Breslin, Nicol, Grierson, Wodehouse, Juster, & Ion, 2007; Cook, Holley, & Andrew, 2007; MacLeod, 2006). LOs are effective if they are well integrated into the course and provide positive teaching and learning experiences for instructor and student. Today’s students have a relationship with technology that exists in the domain of online popular culture (Buckingham, 2007). They could be involved in the understanding and critiquing of LOs.

Coghill (2006) recommended that LOs are constructed to be introductory activities or used to reinforce concepts in which practice scenarios are incorporated. Several LOs can be collated to provide varying perspectives or settings. Gronn, Clarke, and Lewis (2006) agreed that the task is constructing objects that build on subject matter. For example, the instructor demonstrates the use of a simple concept and then the class is

expected to perform and learn from a more complex object. They also suggest providing a third option in the development of the LOs for those who want greater challenges in their learning experiences. The design of LOs can provide content at various levels to stimulate learning but also allow a comfort zone for the practitioners and learners (Spence, 2005).

Gronn, Clarke, and Lewis (2006) suggest that it is important for the practitioner to be familiar with the content as the first and important step in the process of designing LOs. If it is a well structured learning object it will have branching as part of the object, so that there may be multiple paths for the learner to explore that may lead to the right and wrong answer. The need to not be surprised by an answer is important. This aspect of learning objects is what makes them attractive. Students can avoid making risky choices as a norm but knowing that there are multiple paths, right or wrong, encourages exploration. Coghill (2006) noted that this can not always be an option in real life experiences.

Learning object repositories like the LCMS/LMS that provide instruction and guidance in the creation, use and reuse of learning objects include:

- MERLOT (Multimedia Educational Resource for Learning and Online Teaching) has a collection of links to annotated DOs and LOs with peer reviews;
- EDNA Education Network Australia is Australia's online resource collection and collaborative network for the education and training community has a well built search engine.
- The Flexible Learning web site provides links to a multitude of Australian content including the LORN search and the toolbox/toolbox learning object repositories.

> Exemplars for using learning and digital objects

Mason (2006) found that with the use of online learning many adults prefer flexibility and opportunities for self-direction by which the learner has choices and a wide range of resources at their disposal. He notes that we must not undervalue the importance learning communities so that knowledge can be distributed as well as acquired. Course materials should provide flexibility so that students can act on them from work experiences and with applications that can be integrated back into the workplace. He noted that assessment of learning should be engaging, authentic and built on course content. If these elements exist then it is more likely that the learning experience will be exciting and challenging.

Breslin et al. (2007) adopted a unique approach in which engineering students were engaged in the creation, modification and evaluation of learning objects that were used in their own courses. The resources created were then stored for future students and staff in a repository that could be searched (through the attached metadata) and used for other classes or projects. Staff reaped the most useful objects for reuse and

submitted these to their equivalent LCMS. Assessment was monitored through the use of collaborative ICT tools (e.g., wikis/blogs) which, in turn, provided opportunities for deep analysis and reflection. Additionally, coaches monitored students' work and provided feedback throughout the semester. These processes allowed students to construct "elaborate knowledge structures" in which the teaching, learning and technology were closely integrated in a continuing cycle. Each year these processes were re-evaluated through student surveys and interviews. A similar approach could be used in TAFE courses as a project in the development of learning objects. In conjunction with teachers, students from within or across various areas could engage in "real world" experiences that training packages are required to provide.

Another example of creative use of learning objects was provided by Tan, Fazilah, Chan, and Sharma (2003). They described their efforts to provide e-learning services. They proposed that learning objects should be based on multimedia, be indexed (metadata), and be informed by learning theory. They proposed that a blending of learning theories (e.g., Behaviourism, Cognitivism, Constructivism, and Contextualism) can occur when using LOs for e-learning. A series of LOs can be mixed and matched to provide the learner with an environment in which students choose the LOs that they believe is suitable for them and their learning needs to ensure an effective online learning experience.

Cook, Holley, and Andrew (2007) used a similar approach to those discussed above in which each LO was a "cohesive learning resource focused on one clear learning goal". They also ensured that there were no links to other LOs to support the possibilities of re-usability. Each LO started with an introduction; an example of what was to be learnt; followed by interactive activities to "build" examples; and, finally, knowledge activities were included that may have encompassed assessment that included a traditional test. They advocated cross-institutional and cross-disciplinary engagement with multimedia developers, teaching staff and student teams in order to develop and share LOs. They proposed three phases in the development of an e-learning platform. Phase 1 was the engagement of pockets of teachers to develop resources and lead the way in an e-learning development plan. In Phase 2, through these pockets, broader networks of teachers were created which supported innovation and the redesign of LOs. Through these processes, in Phase 3, this engagement could be broadened for large scale transformations which, in turn, were able to provide self-sustaining growth.

> Issues and challenges in the use of digital and learning objects

It should be noted that TAFE has followed a similar model to that described above by Cook et al. (2007). We are at a similar position that they proposed for their Phase 2. We have had many pockets of "champions" building their own e-learning infrastructures. It was felt that a more consorted effort was possible. The LRM team was established and

the project to build the e-learning capability of TAFE Queensland is underway. Similar to many other projects in higher education, there are challenges that need to be met. Some of these that relate to the use of LOs will be outlined.

Like the project reported by Cook et al. (2007), TAFE has had the support of senior managers to implement/fund e-learning projects at many institutes to inform the LRM team. It is recognised that top level change is required to affect change throughout the organisation. There are teaching teams that may be resistant to change which can adversely impact on new initiatives. Through the LRM team, groups have been formed to deliver training to teachers and administrative teams who are interested. The challenge is to get everyone on board with new e-learning initiatives so that everyone is familiar with the new systems and can contribute to the development of LOs.

Tan et al. (2003) suggested that learning objects should be benchmarked, particularly when in their pilot phase and their outcomes should be measured against best practice. The LCMS provides a means for accomplishing this. When an object is created or largely modified it will enter a work flow process to be evaluated for authenticity, copyright, the Learning Resource Design Principles (LRDP) and by peer review. The LRDP are a set of guiding design conventions that include accessibility, operability, educational value, re-usability and format. These principles can be used for evaluating LOs. According to Tan et al. evaluation should also take into account: Durability (How long does the object live for?) and Affordability (Should we be resourcing new objects when they may already exist in other states?). For example, New South Wales and Victoria have been active in this field for a number of years and their resources could provide a great starting point for TAFE Qld to build on rather than to start from scratch. Image libraries (DOs) can also be procured for use in LOs. In line with the proposals of Tan et al., we need the means to capture and measure success (LOs that are rated highly) so that they can be proposed as “best of breed” exemplars.

> The way forward: The effective usage of digital and learning objects

A plan for the sustainability of change in the delivery of e-learning programs is needed. Further work is needed in the provision and design of learning paths for the professional development of staff. We have the Learning Design Principles which guide the evaluation of LOs. Further work is needed to systemically bring together designers, instructors and students to design and develop LOs. Previous projects that appear to have had the greatest success in the development of LOs come from projects which had a multitude of people formed into teams to plan, design, build and test their objects. This means having staff across campuses and institutes functioning as one. This is a process in which teams collaborate to create and moderate to build “best of breed” LOs that can be stored in the LCMS and then linked into the LMS. These can take account of local requirements so that relevance to learners in particular contexts is maintained.

In this chapter, a range of issues have been highlighted with respect to understanding, developing and using DOs and Los that are important in order for TAFE to grow and move forward in the delivery of e-learning programs. In conclusion, Johnson (2007) suggested that the basis of delivering meaningful and functional online learning experiences requires designers to address two key elements. The first issue is to ensure the overall quality of the instructional design. In TAFE, this is informed by the LRDP. Second, it is important that we remain mindful that “technology is a tool, not a strategy”.

> References

- Breslin, C., Nicol, D., Grierson, H., Wodehouse, A., Juster, N., & Ion, W. (2007). Embedding an integrated learning environment and digital repository in design engineering education: lessons learned for sustainability. *British Journal of Educational Technology*, 38 (5), 805-816.
- Buckingham, D. (2007). Media education goes digital: An introduction. *Learning, Media and Technology*, 32 (2), 111-119.
- Coghill, G. (2006). TLF learning objects in science classrooms. *Journal on Teacher Science*, 52 (4). Online journal.
- Cook, J., Holley, D., & Andrew, D. (2007). A stakeholder approach to implementing e-learning in a university. *British Journal of Educational Technology*, 38 (5), 784-794.
- Gronn, D., Clarke, O. & Lewis, G. (2006). Using the Learning Federation's learning objects in the classroom. *Australian Primary Mathematics Classroom*, 11(2), 4-7.
- Johnson, C. (2007, July). When information technology and instructional design meet. *Learning Solutions eMagazine*, Retrieved September 15, 2007, from <http://www.elearningguild.com>
- MacLeod, A. (2006, August). Really learning with ICT? Teacher: *The National Education Magazine*; Retrieved October 26, 2007, from <http://search.informit.com.au>
- Mason, R. (2006). Learning technologies for adult continuing education. *Studies in Continuing Education*, 28(2), 121-133.
- Mason, R., Pegler, C. & Weller, M. (2005). A learning object success story. *Journal of Asynchronous Learning Networks*, 9(1). Online journal.
- Millar, G. (2007). *Learning objects 101*. British Columbia Institute of Technology, Learning and Teaching Centre. Retrieved October 2, 2007, from <http://online.bcit.ca/>
- Multimedia Educational Resources for Learning and Online Teaching (MERLOT). (2007). MERLOT. Retrieved October 20, 2007, from <http://www.merlot.org/merlot/index.htm>
- Muirhead, B., & Haughey, M. (2005). *An assessment of the learning objects, models and frameworks developed by The Learning Federation Schools Online Curriculum Content Initiative Australia, Phase Two*. The Learning Federation. Retrieved October 20, 2007, from <http://www.thelearningfederation.edu.au>

- Northrup, P. T. (2007). *Learning objects for instruction: Design and evaluation*. Idea Group Inc. Retrieved August 24, 2007, from <http://www.qut.eblib.com.au>
- Polsani, P. R. (2003). Use and abuse of reusable learning objects. *Journal of Digital Information*, 3(4). Online journal.
- One-Minute SCORM (2007). *Overview for anyone*. Retrieved September 24, 2007, from <http://www.scorm.com/resources/oneminuteoverview/OneMinuteOverview.htm>
- Department of Employment and Training (DET). (2006). *Queensland Skills Plan*. Brisbane, Qld: Queensland Government.
- Spence, S. (2005, November). LO 'LO – Learning objects and learning outcomes: New-generation learning technologies and school libraries. *Access*, 19 (4), 5-8.
- Tan, D, Fazilah, M. I., Chan, T., & Sharma, R. (2003). *An architecture of a distributed archive for re-useable learning objects*. Centre for Educational Development, School of Computer Engineering. Singapore: Nanyang Technological University.
- The Learning Place (TLP). (2007). *About learning objects*. Retrieved September 2, 2007, from <http://www.learningplace.com.au/deliver/content.asp?pid=16536>
- WG12 (2002). *Learning object metadata*. IEEE. Learning Technology Standards Committee. Retrieved September 20, 2007, from <http://ltsc.ieee.org/wg12/>

> Glossary

A short explanation of the various terms used in this chapter.

Digital objects (DO) / learning objects (LO) / reusable learning objects (RLO):

These terms are used in unison and refer to digital resources that support learning or learning objectives. Such objects can stand alone or be a part of a whole that can be reused in various contexts.

Instructional Design (ID) and ADDIE: Instructional design model built on Analysis, Design, Development, Implementation, and Evaluation. This provides dynamic and flexible guidelines for building effective training.

LMS - Learning Management System: A software system designed to manage user learning interventions including learner self service, training workflows, online assessment, training resource management tools, provision of on-line learning (e.g., Janison – known to TAFE as my.TAFE).

LOM – Learning Object Metadata: The attributes required to fully or adequately describe a learning object.

LRDP – Learning Resource Design Principles: TAFE's guidelines for the creation of learning content encompassing digital objects.

LCMS – Learning Content Management System: A digital repository and, as such, used to store, index, search and deliver digital objects. It is a place where learning developers may create, store, reuse, manage, and deliver digital learning content from a central object repository (e.g. known to TAFE as a Resource Bank).

LRM – Learning Resource Management framework: The framework developed to guide the implementation of the learning management system for TAFE which, in part, consists of the LMS and LCMS.

Metadata: The specification and description of data that uniquely describes objects (e.g. name, surname, address, state, postcode, country or performance criteria, element, unit and version, course and version, related training package).

SCORM – Sharable Content Object Reference Model: The international standard for web-based e-learning delivery, in particular, digital objects and their packaging for transfer to other LRM systems.