

Sustaining the skill base of technical and further education institutes: TAFE managers' perspectives—Support document

BERWYN CLAYTON

THEA FISHER

ELVIE HUGHES

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Appendix A

Literature review

The research questions defining this study dictated that a broad-ranging review of relevant literature was undertaken across a range of interrelated topics. These topics included: TAFE in the context of change; issues surrounding population ageing and the implications of this on the TAFE teaching workforce; the concepts of vocational competency and currency; and the transfer of organisational and pedagogical knowledge and skills. Because of the relevance to these topics, the extensive literature on knowledge, knowledge types, knowledge sharing strategies and enablers and barriers to effective knowledge sharing within organisations was also reviewed, as were models for continuing vocational competency.

TAFE in a context of change

For more than a decade, one of the greatest challenges TAFE institutes have had to confront has been the continuous reformation of the vocational education and training sector in Australia. Generated by what Chappell and Johnston (2003, p.6) describe as ‘an increased focus on the economic importance of education and training provision’, the changes wrought have included the opening up of a competitive training market, the implementation of training packages, an emphasis on work-based and workplace delivery and the introduction of new learning technologies (Harris, Simons & Clayton forthcoming). In embracing new national initiatives, TAFE teachers have had to adjust to more flexible work arrangements, to delivering in different locations, to employing a range of pedagogical approaches, to detecting emerging industry trends and to innovating continuously in order to meet the specific learning needs of diverse client groups and multiple stakeholders.

Unparalleled changes such as these have transformed teachers’ work, teachers’ roles and teachers’ relationships with learners, employers, colleagues and their organizations. This has, as a consequence, transformed their professional identity (Harris, Simons & Clayton forthcoming; Chappell 1999; Chappell & Johnston 2003; Blom & Clayton 2002). Where TAFE teachers once saw themselves as institute-based and teaching-focused they are now much more likely to be engaged in learner-centred delivery in a diversity of training environments.

It is important to note, however, that the introduction of major policy initiatives designed to reform the national training system has occurred within a climate of much broader change. Most influential in this regard have been the interrelated factors of globalisation of the economy and culture, and international competition which has produced information and communication technology-driven productivity increases. Also influential have been the shift in balance from predominantly blue-collar to white-collar work, uneven organisational change, the increase in non-standard temporary or flexible work, and polarization in access to technology, work and income (Marginson 2000).

In reviewing Australian and European research on the nature of work in the knowledge economy, Chappell et al. (2003) note a distinct change in the nature of work and the workforce. They describe changes in employment patterns; the way organisations work together; and the working knowledge, capacities and attributes required by knowledge workers. They see as consequent on this an increasing move to a core-periphery approach to workforce management involving a small core of permanent workers with high-level skills supported by a larger cohort of casual or part-time employees augmented by outsourcing (Chappell et al. 2003). At the same time as the numbers of casual employees are increasing, full-time permanent positions are dwindling

and there is a reduced demand for workers with middle-level skills (Cully 2003; Watson et al. 2003). These broad changes can all be recognized in microcosm in TAFE institutes.

Workforce ageing

Accompanying these significant changes in the nature of work, population ageing has also become a matter for considerable economic and social policy debate globally. In Australia, demographic projections indicate population growth will slow, the proportion of mature age people in the population will increase, while the rate of labour market growth will decline (Australian Bureau of Statistics 2003). More importantly, the proportion of people aged over 65 years is expected to grow to around 25% of the population by 2051 while the proportion of working age Australians (15 to 64 years) is likely to fall to 59% (Australian Bureau of Statistics 2003).

The impact of these demographic changes on the workforce will be significant, as is indicated by the following 1999 Australian Bureau of Statistics projections for the period 1999 to 2016:

...between 1998 and 2016, Australia's labour force is projected to increase 16%, or 1.5 million people, with 81% of them aged 45 years and over. The proportion of the labour force aged 55 years and over is projected to increase from 10% in 1998 to 15% by 2016. The rate of growth of the labour force is projected to fall from 1.6% in 1998-99 to 0.4% in 2015-16 (cited in The Office of Public Employment, 2001 p.1).

There are a number of authors, however, who caution against drawing what they see as flawed conclusions about the impact of population ageing on the labour force (Johnson 2002; Doughney 2003; Cully cited in South Australia Skills for the Future Inquiry 2003). Doughney, (2003, p.25) for example, attributes the responsibility for the higher average workforce age on shifts in workforce composition rather than on population ageing and proposes:

The challenge we have is how to craft complex ways of enhancing the capabilities of this workforce in the future. Organisations and societies have work to be done and given workforces (both actual and potential) with which to do it. The question is how best to do it.

Cully also questions the inappropriate focus on ageing, suggesting that the focus should shift to the high level of youth unemployment that exists now, rather than concentrating on the ageing of a workforce that has yet to come about (Cully cited in South Australia Skills for the Future Inquiry 2003).

Retaining mature workers

Importantly, however, the ageing of the workforce is occurring at a time when skills and labour shortages are also emerging (Victorian Equal Opportunity Commission 2003; Davey 2003). Under these circumstances, it is unsurprising that governments and employers are encouraging the reversal of the common trend of early retirement and are examining a range of strategies to promote the continued participation of older workers in the workforce (OECD 1998; Perry & Freeland 2001; Access Economics 2001). As Encel (2003, p.3) notes:

While obviously it is for individuals to decide when it is right for them to retire, there is growing recognition in Australia and overseas that some policies and attitudes have encouraged and reinforced a trend towards early exit from the labour force – voluntary or otherwise. It is important to ensure that policies are balanced and support older workers choosing to remain in the labour force.

In encouraging mature age workers to remain in the workforce, there is a general acknowledgement that in the near future there will be fewer younger workers available in the marketplace and many more mature age workers (Access Economics 2001). The benefits gained

by maintaining these workers in the workforce are obvious. They have critical skills and knowledge developed by experience and are, therefore, a primary resource in organisations (Business, Work & Ageing 2002). In recognition of this, perceptions are shifting – a move that is well reflected in the comment by Access Economics (2001, p.16), ‘it is competence and experience that counts, not age’.

Such changes in perceptions are supported by research which indicates that productivity levels of mature workers are equal to or better than that of younger, less experienced workers:

...mature workers are highly productive, familiar with the organisation’s products, its customer base and the way in which the organisation’s systems work. They are imbued with loyalty to the organisation and have a strong work ethic (Access Economics 2001, p.4).

In contrast, younger employees have much less experience and considerably more effort must be expended on training and then retaining them in the organisation (Access Economics 2001).

This drive to extend working life has grown globally and, as Encel (2003) suggests, is reflected in many reports emanating from the key international agencies such as the Organisation for Economic Co-operation and Development, the European Union, the International Labour Organisation and the World Bank as well national governments. There is a general call for fundamental changes in both public policies and attitudes with regard to the ageing workforce (Access Economics 2001; Council on the Ageing 2002; European Foundation for the Improvement of Living and Working Conditions 1999). A range of key players are actively seeking ways to modify working arrangements and human resource management policies and practices to increase flexibility and employment options for older workers who wish to continue working (Patrickson 2002).

Not surprisingly, attitudinal factors are seen to be a likely impediment to rapid innovation in this area. For example, persuading employers that mature age workers are an asset to their organisations rather than an encumbrance is crucial, as is convincing business that a diverse age mix is a positive attribute in a workforce, rather than a negative one (Australian Centre for Industrial Relations Research and Training 2003). Confirming some of these views, Davey (2003) suggests negative employer attitudes can be sheeted home to age discrimination, stereotyping of older workers, under-valuing of human capital, lack of succession planning and an under-valuing of a mixed age-workforce. Additionally, some employers are concerned about the ‘potential risks and financial costs of retraining or recruiting older workers because of health and workplace related injury adaptability and training’ (Commonwealth of Australia 2004, p.14).

But older workers too have negative attitudes about their own participation in the workforce. Attitudes such as these are generally associated with them seeing themselves as having obsolete skills, a lack of credentials, a lack of self-worth, expectations about retirement and elder care responsibilities (Davey 2003).

Determining how to overcome these negative attitudes together with the damaging impacts of workforce ageing is a complex and urgent task. As a consequence:

...employers, governments and older people themselves need to make hard decisions about policies and choices affecting workforce participation. Strategic management of intergenerational differences when employing older workers will also become inevitable as the supply of younger workers begins to fall (Patrickson & Ranzijn 2004, p.10).

The response to this situation can be seen in strategies designed to extend participation that have become part of human resource management and development discussions. Modification of work arrangements, the introduction of phased retirement and the building in of greater flexibility with regard to hours and location of work are all seen as appropriate mechanisms for keeping older workers gainfully and happily employed (Access Economics 2001; Patrickson & Ranzijn 2004). Already large organisations such as General Electric, Monsanto, Chevron, BP-

Amoco, the World Bank and the Tennessee Valley Authority in the United States have developed special arrangements to accommodate the retention of their mature age employees (Robson 2001).

Maintaining worker knowledge and skills

From an industry and employer perspective, future competitiveness will rest partly on the abilities and productivity of ageing workforces and, as a consequence, on the effective utilisation of mature age workers (Office for an Ageing Australia 2004). Simply preserving a continuing role for them in the workforce, however, is not sufficient to sustain the currency and relevance of their knowledge and skills (Walker 1998). Hand in hand with retention strategies there must also be a concomitant commitment to providing learning opportunities for them so that they can continue to contribute productively in the future (Access Economics 2001).

Within the literature there is general agreement that while some older workers will require a significant amount of retraining to take on different work roles and to keep up-to-date with changes in the workplace, others will require very little training to keep their skills and competencies relevant (Access Economics 2001; Patrickson 1999; Encel 2003). In emphasising this viewpoint, McDonald and Kippen (1999), suggest that the training process for many older workers will simply involve a gradual adaptation to change that will be adequately achieved through learning on the job. Furthermore, where once training for mature age workers was perceived to be unjustifiable because they were soon to leave the workforce, returns on investment of training are now more likely to be guaranteed when they continue to participate in the workforce beyond the traditional time for retirement (Access Economics 2001; The Office of Public Employment 2001).

Other authors, however, offer a word of caution about assuming that training can address skill deficits and maximise the potential of mature age workers to maintain their productivity. Davey (2003) suggests that there are a number of barriers that might hinder ready take-up of training opportunities. These impediments include whether employers yet see training of older workers worth the investment given that they are unlikely to stay for an extended period of time, and the possible unwillingness of older workers to participate in training. On this latter point, Davey (2003, p.168) suggests:

Individuals may need more encouragement and support than is presently available to return to a regime of study which will produce heavy demands on their family and recreation time, in addition to financial pressure. Some are reluctant to shift away from long-term specialization even if it opens up new employment options. And given threats of unemployment and redundancy, those occupying secure jobs may not wish to divert their time and energies into study unless the benefits are very clear. [Others] ... may be less likely to volunteer for training, linked to low expectations and self-esteem in older workers, particularly women.

Finally, Davey (2003) raises as another potential impediment to the effective and enthusiastic up-take of training - the question of how well educational institution offerings are able to meet the training needs of those mature age workers wishing to remain in the workforce and their employers.

Ageing, training and the education workforce

It is apparent from the extensive literature on the subject that education and training is seen to be a crucial mechanism for redressing some of the problems associated with workforce ageing. However, it is also clear from data on the labour force that the education industry itself is one which is significantly affected by the ageing phenomenon. The median age for workers engaged in Australian education is 43 years and the proportion of employed persons 45 years and over

within the education industry is 45%. Only agriculture, forestry and fishing industries have older workforces (Australian Bureau of Statistics 2004).

Education, therefore, is one of the industries 'most exposed to a retirement bubble, which started to burst as the 4.1 million baby boomers born between 1946 and 1960 began reaching early-retirement age of 55 in 2001' (Washington & Morris 2003, p.14). One explanation of this situation is provided by the Office of Public Employment in Victoria (2001, p.3) which contends:

...career development opportunities for certain professional occupations are closely associated with employment in the public sector...once employed in the public sector organisation these professionals tend to remain in the sector for long periods, extending in some cases to their entire working life. The teaching profession is an example.

In their study of the Australian university sector Anderson et al. (2002) suggest that universities will face a staffing crisis in the near future, but emphasise that a more critical issue is likely to be the inability to replace highly experienced academics with younger staff. Stressing the important educative role that older academics can play in mentoring and supporting less experienced staff, Anderson et al. (2002) also outline an important dilemma for educational institutions – matching the profile of teaching staff with the profile of students. Thus, meeting the needs of increasingly diverse groups of students at a time of considerable transformation of the academic workforce is seen as a significant problem for universities.

Is the situation in the vocational education and training sector any better? And what is the situation with regard to the TAFE teaching workforce?

Ageing, training and the TAFE teaching workforce

Extensive change has added to the difficulty of the task of monitoring the nature, size and activities of the complex VET workforce (ANTA 2003). There are serious limitations on the quality, consistency and comprehensiveness of information about the VET workforce, including a lack of information on teaching qualifications and experience, staff development and hours worked (ANTA 2003). A national picture of VET is only now emerging in the work of Cully et al. (forthcoming). This work used demographic data and job characteristics data, but was still unable to produce an accurate count of the number of people working in VET.

This is also seen to be the case for the TAFE teaching workforce:

The absence of good quality workforce data and the lack of robust market intelligence in some areas makes it difficult to plan for, manage and measure alignment between the demand for TAFE services and the characteristics of the TAFE workforce (Victorian TAFE Association 2001, p.8).

Despite this lack of information, more seems known about the TAFE component of the VET teaching workforce than that of other sectors. Cully et al. made conclusions that summarise findings from much of the other research available about TAFE teachers (Cully et al. forthcoming):

- ◆ TAFE practitioners are older than VET professionals as a whole.
- ◆ Permanent TAFE teachers have long tenure.
- ◆ There are roughly equal numbers of male and female VET practitioners in TAFE, though more males are full-time.
- ◆ More TAFE teachers are employed part-time than full-time.
- ◆ Most TAFE teachers are employed on a non-permanent basis.
- ◆ A high proportion (18%) of VET professionals in TAFE are self-employed.

- ♦ TAFE professionals are more likely to hold post-school qualifications and education or training qualifications than other VET professionals.

A *National Study of the TAFE Workforce* (Blythe & Stanwick forthcoming) has also aimed to provide baseline data on the nature of the TAFE workforce. This research shows some insights into the TAFE workforce, despite the lack of national data and the variations across states and territories that have made comparisons difficult. In particular it cautions against the influence of NSW TAFE on any national aggregates, as this state accounts for 45% of the overall TAFE workforce and 52% of the teaching workforce.

Broad observations do emerge from this 'point-in-time' data. Firstly, the study supports the findings by Cully et al. that the permanent TAFE workforce - particularly the teaching workforce - is old compared to the Australian workforce overall. The figures recorded by Cully et al. show that the age profile of VET matches almost exactly that for the Australian labour force as a whole: in 2002 43% of workers were under 35 years of age. However, they also show that older VET teachers are concentrated in TAFE, the percentage of VET professionals aged 45 years or more being considerably higher in TAFE than in all other provider types. Guthrie's (2004) analysis of the situation also show that in 2002 only a small proportion of the TAFE workforce was under 35 years of age, and that between 35% and 52% of teachers were over 50 in the various jurisdictions.

This ageing workforce profile has implications for teaching staff replacement and professional development. Guthrie (2004) claims that most research on this topic has focused on teachers and trainers in institutional settings, and their response to changing work, contexts, conflicts, demands and pressures to change their skill base and its ways of working (Corben & Thomson 2002; Down 2002; Harris, Simons & Clayton forthcoming). The research shows in detail how these demands require a level of professional expertise and flexibility, and an ability to adopt a diversity of roles and new types and methods of training beyond those of the traditional teacher (Blythe & Stanwick forthcoming). However, at this time of great demand for highly skilled teachers, there is a risk that much of the capacity will be lost as teachers with high levels of industry and teaching experience, and graduate qualifications, resign or retire.

A second observation to emerge from the *National Study of the TAFE Workforce* (Blythe & Stanwick forthcoming, p.10) is that TAFE now uses a large number of casual/sessional teaching staff. The study contends that the full-time TAFE teacher is now only a small part of the overall VET workforce. This is consistent with Cully's findings on part-time and non-permanent staff in TAFE. Decisions on changes to employment patterns have been largely based on cost-cutting and concerns about flexibility, and have occurred despite a trend to increased teaching hours (Chappell & Johnston 2003).

Rumsey (2002, p.32) claims that this trend to a part-time workforce has implications for the 'stock of knowledge in adult learning principles and educational theory'. While there is little hard evidence, some research shows that casual teaching staff often do not have the same educational knowledge and post-school qualifications in education or training as permanent teaching staff (Guthrie 2004). Cully finds that TAFE professionals are more likely to hold post-school qualifications and education or training qualifications than other VET professionals, but he does not distinguish between permanent and casual staff. Certificate IV qualifications in assessment and workplace training are not seen as an adequate replacement for these (ANTA 2003). Further, although casual teaching staff may have more current industry experience, they have more limited access to professional development.

The movement to casualisation in the TAFE teaching workforce is not necessarily a simple one. Guthrie sees this shift more as part of the world-wide move towards adopting non-standard work patterns, rather than as a changing balance between permanent and non-permanent employment (Guthrie 2004). Literature also supports the idea that the increasing feminisation of the TAFE workforce is partially related to the increasing part-time, or non-standard employment, in the

TAFE work-force (Cully et al. forthcoming). There are also indications that TAFE is no longer a long-term career for many employees, but can provide a stepping-stone towards staffing TAFE's competitors:

Talented young staff with both industry credibility and teaching experience are very difficult to retain. With the confidence and experience gained in TAFE they are attracted by more money and opportunities in private enterprise and tend not to stay in teaching (OPCETE 2000, p75).

This trend adds to the difficulties in recruiting the best workers for TAFE that have been identified: lack of rewards, incentives, succession planning and career structures combine with low morale and a 'jaded' workforce to constrain workforce renewal. (Victorian TAFE Association 2001)

This combination of factors that emerges from the literature describes a TAFE teaching workforce losing its working knowledge just at a time when it needs to develop greater expertise.

Ageing and knowledge loss

Much like other elements of production, working knowledge is now seen by many to be a key economic resource and a crucial asset for any organisation (Casher & Lesser 2003). However, the significant changes in workforce demographics caused by ageing are forcing many organisations to face up to the fact that vital corporate memory is likely to depart in the heads of mature age workers if they choose to retire.

Variouly termed in the literature as 'knowledge loss', 'knowledge collapse' and 'knowledge discontinuity', the impact of the passing of valuable skills, experience and tacit work-related 'know-how' can be quite devastating (Access Economics 2001; Casher & Lesser 2003; Field 2003). Not capturing or sharing knowledge before it walks out the door can result in the 're-invention of wheels' by employees who have no understanding of previous solutions to problems (Access Economics 2001; Shivakumar 2002). Reinforcing this view, Eisenhart (2001) suggests that this process of trial and error to re-establish good practice is costly and inefficient. Furthermore, when high-level skills and experience leave with retiring employees there is also a likelihood that those who follow on with the job may take a considerable time to reach an equivalent level of expertise. Under these circumstances, an organisation's ability to respond quickly and strategically to new demands can be somewhat hampered (Field 2003).

Emphasising the impact that knowledge loss can have, Beazley (2002, p.1) contends that it is 'the single most pervasive and costly source of knowledge mismanagement in corporate America today' and that as these knowledge losses mount 'organizational learning stalls, and organizational forgetting begins'. Combined with the increasing demands of the knowledge-based economy, the problems associated with an ageing workforce and associated knowledge loss would seem to be of enormous significance for every organisation wishing to participate in this highly complex new world of work.

Performance under rapid change and uncertainty requires workers armed with knowledge that goes beyond the explicit information contained in manuals and databases. There is an increasing need to tap into the experience, intuition and social networks of employees. More than ever, critical knowledge is about pattern recognition, social norms and relationships, which can be difficult to learn due to their tacit nature (Casher & Lesser 2003, p.4).

To counter the impact of knowledge loss within organisations, numerous strategies have been developed to support what Romhardt (1997, p.3) terms the 'purposeful protection' of critical knowledge. The extensive literature on knowledge management describes these activities variously as knowledge preservation, knowledge retention, knowledge transfer and knowledge

continuity. Beazley (2002, p.20) provides a definition of continuity management that reflects the core elements in all of these activities:

Continuity knowledge management is the efficient and effective transfer of critical operational knowledge – both tacit and explicit, both individual and institutional – from incumbent employees to their successors by means of a structured system of knowledge harvesting, transfer and acquisition.

The key aspect of continuity knowledge management is that it involves the vertical transfer of organisational ‘know-how’ between generations of employees (Beazley 2002). For the many organisations that are about to have significant knowledge loss as a result of extensive employee retirement, it would seem imperative that they immediately recognise that retention alone is unlikely to facilitate the transfer of the critical knowledge that older workers have accumulated to relevant people within an organisation, and that they recognise the value of corporate memory and worker ‘know-how’. It is apparent that managers need to determine very soon what critical knowledge they are likely to lose in the near future and implement workable strategies to ensure they retain knowledge continuity. They need to set up an environment and activities to facilitate the active exchange of that knowledge from those who are willing to divulge it to those who are eager to receive and apply it.

Defining knowledge

In order to develop effective transfer strategies it is important to understand the nature of the knowledge to be shared. Davenport and Prusak (1998, p.5) define knowledge as:

...a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers’.

Khandelwal and Gottschalk (2003, p.3) refine this view of the complex make-up of knowledge by suggesting that it is ‘information combined with experience, context, interpretation, reflection, intuition and creativity’. Emphasising that knowledge should in no way be confused with information, the same authors suggest:

Knowledge is a human act, knowledge is the residue from thinking, knowledge is created in the present moment, knowledge belongs to communities, knowledge circulates through communities in many ways, and new knowledge is created at the boundaries of old (Khandelwal & Gottschalk 2003, p.3).

Yet another definition of knowledge provided by Standards Australia (2001, p.7) emphasises this human element - ‘knowledge is the body of understanding and skills that is mentally constructed by people. Knowledge is increased through interaction with information (typically from other people)’. In short, it is the human intervention and human interactions that turn information into knowledge (Kidwell et al. 2002).

Types of knowledge

Extensive literature on the definition of knowledge categorises and systematises its complexities. Nonaka and Takeuchi (1995) describe two forms of knowledge in corporate settings – explicit knowledge and tacit knowledge. The first is formalised, generally systematically codified and represented in data, organisational policies and procedures and in guidelines and manuals. Explicit knowledge can be processed, catalogued, transmitted and stored relatively easily (O’Dell & Grayson 1998). Tacit knowledge, on the other hand, is personalised and resides solely in the heads of individuals within the organisation as insights, intuitions, memories, wisdom and experiences. Given its informal nature, tacit knowledge is much more difficult to ascertain, document, process, formalise and transmit to others. Davidson and Voss (2001, p.2) explain that this implicit knowledge within an organisation is difficult to determine and use because it is often

knowledge ‘that has become so thoroughly embedded that the holders no longer ‘think’ about what they’re doing but simply ‘do’ it.’

There are, however, differing views about types of knowledge. For example, Gamble and Blackwell (2001) move beyond the relatively simple concepts of explicit and tacit to describe three knowledge types:

- ◆ embodied knowledge (un-codified, undocumented information residing in the heads of people such as the intuition, empathy and experience
- ◆ represented knowledge (codified and documented information and data underpinning the making of decisions) and
- ◆ embedded knowledge (knowledge that is located in such things as processes, products, rules and procedures).

Heron (2001), going even further, presents an inventory of ten knowledge types, selected from twenty-four variations he was able to locate in a search of the literature. The inventory, set out in the following table, includes the attributes of each knowledge type and describes how they influence knowledge creation and knowledge sharing within organisations.

Table 3: Knowledge types inventory

| Type of Knowledge | Attributes |
|-------------------|--|
| Tacit | Highly personal knowledge, which is hard to formalise, difficult to communicate and difficult to articulate. |
| Causal | The knowledge of ‘why’ something occurs. When shared, causal knowledge enables organisations to coordinate strategies for achieving goals and outcomes. |
| Declarative | Knowledge about something. Shared explicit understanding of concepts, categories and descriptors. Declarative knowledge lays the foundations for effective communication and knowledge sharing in organisations. |
| Procedural | Knowledge of ‘how’ something performs or occurs. Procedural knowledge lays the foundation for efficiently coordinating action in organisations. |
| Collective | Collective knowledge encompasses social, cultural and managerial systems and values within an organisation. It can be used to describe the knowledge held by a group of individuals with similar interests within an organisation, where each holds certain knowledge, which is combined to achieve goals. |
| Embedded | Embedded knowledge is ‘tacit’ knowledge residing in organisational routines. It is entrenched in organisations ‘communications-of-practice’, and generally has no written rules. Embedded knowledge may be lost to an organisation if an employee leaves (Davenport & Prusak, 1998). |
| Strategic | Strategic knowledge is ‘What an organisation must do’, in order to maintain competitive advantage. It is acquired through environmental scanning and business intelligence processes. |
| Relationship | Relationship knowledge refers to the social capabilities of a person, and the ability to draw on the expertise of specialised groups or individuals. It can be thought of ‘knowing who knows’. |
| Organisational | Organisational knowledge is knowledge that resides with an organisation, and may include any or all of the above types. It is organisational knowledge that, if managed effectively, can provide competitive advantage. |
| Proprietary | Knowledge that is the sole property of an individual or organisation, such as intellectual property, patent design or copyright, is known as proprietary knowledge. |

Source: Heron (2001) Knowledge types: Inventory and attributes, pp.1-2.

In contrast to Heron’s typology, other authors such as Gagne (1984), Kim (1993) and Lundvall and Johnston (1994) make the following distinctions between the various types of knowledge:

- ◆ know-what-knowledge (information and facts)
- ◆ know-why-knowledge (principles and causal relationships)

- ♦ know-how-knowledge (how people understand and apply learning)
- ♦ know-who-knowledge (who knows what).

The first of these two types of knowledge are explicit in nature and are generally easily codified and are, therefore, more easily transferred. The last two types are person-specific and network-related and, as such, are less able to be shared (Ylinenpaa & Nilsson 2000). And, while all four types of knowledge are equally important within an organisation, the loss of know-how and know-who knowledge is likely to be significant because they cannot be regenerated in a short period of time, but must be developed through experiential learning and workplace interactions.

Given the rapidly evolving demographic change that is occurring in the TAFE teaching workforce, it is highly *probable* that considerable amounts of know-how- knowledge and know-who-knowledge that resides in the heads of TAFE teachers will be lost in the not too distant future as experienced teachers leave TAFE institutes. It is also *possible* that all four types of knowledge described by Ylinenpaa and Nilsson (2002) are at risk.

TAFE knowledge

In a report on the Victorian state training system, Schofield (2002, p.31) describes the capability of the TAFE teaching workforce as ‘the single most important source of future value in the TAFE system’. Meeting the learning needs of diverse clients engaged, or wishing to engage, in the new world of work will require highly skilled and knowledgeable practitioners. In particular, it is suggested that vocational education and training will:

... rely more than ever on learning specialists who have a sophisticated appreciation of the full pedagogical choices that are open to them and which are consistent with the context, clients and learning sites that make up the arena in which they work (Chappell et al. 2003, p.13).

Of necessity then, TAFE institutes will require a highly skilled teaching workforce that has the flexibility and the agility to meet what may be contradictory education and training priorities and expectations of individual learners, industry, the community and government. Sustaining the TAFE skill base, therefore, has become a matter of paramount importance for senior management and practitioners in TAFE institutes (McNickle & Cameron 2003; Harris, Simons Clayton forthcoming).

Very much in line with the definition of organisational knowledge provided by Haider (2003), vital TAFE knowledge includes knowledge relating to organisational capabilities, management know-how and operational know-how. But even more central to TAFE’s capacity to meet its future training obligations is knowledge relating to vocational competency and VET pedagogy.

The concept of continuing competency

Within the professions, the associations that register and support each profession mandate the continual renewal of the skills and knowledge of individual members. To retain membership of professional associations, members are required to provide evidence of the activities that they have taken to ensure their continuing professional competence. Thus, in the majority of professions, responsibility for maintenance of competence rests with the individual.

Despite this emphasis on individual responsibility, the concept of continuing competence remains a concern for the professions. Apprehension about continuing competence is registered in the literature generally in relation to the ever-changing and evolutionary nature of the world of work. Lenburg (1999, p.2) for example, discusses the forces which have generated recent disquiet about continuing competence in the nursing profession in the following way:

Concerns about competence are not new; with increasing urgency, however, perceptions and expectations related to competence are being reconceptualised and redesigned to be more responsive to escalating changes...Waves of new technology, technology and related requirements overtake previous ones before they can be absorbed and put into use. These changes are causing continual transformation of practice.... Other factors also have precipitated higher expectations of competence: the public is more savvy and assertive about the competence of providers, the consequences of incompetence are extraordinarily dire and expensive, and changes in the global economy demand more productivity and efficiency.

Lester (1999) contends that it is not just the dating of knowledge that initiates demands for the ongoing refreshment of professional knowledge, but the fact that the very conception and interpretation of professional tasks and roles changes over time.

The issue of maintaining credibility in the eyes of clients is also a key factor underpinning demands for engagement in developmental activities to build and extend the skills of those in the professions. The Canadian Academy of Engineering (2003, p.10) for example, proposes that 'a continuing reputation for competence is central to retaining and enhancing the confidence of clients, employers and the public'. As a consequence, professional associations endorse a range of strategies that can be employed by individual members to sustain professional competence in an ongoing manner. Generally these strategies include one or more of the following activities:

- ◆ periodic re-examination
- ◆ practical experience in the workplace
- ◆ mandatory continuing education, technical workshops and other structured learning
- ◆ peer review and mentoring
- ◆ self-assessment
- ◆ professional portfolios
- ◆ professional reading.

As part of this process, many professional associations mandate that a certain number of hours are to be dedicated to these professional development activities (Institute of Chartered Accountants of British Columbia 2002; Australian Nursing Council 2002; Office of the Professions 2002). Registering some concern about the idea of dictating a number of hours to approved activities, Lester (1999) suggests that such a demand can over-burden members who are already actively engaged in maintaining their competency, whilst being ineffective for those who are inclined to be less proactive in maintaining the currency of their competency. Further, he argues:

In setting up continuing professional development schemes, professional bodies are typically aiming both to encourage practically relevant updating and development among their members and provide a means of demonstrating that members are maintaining their competence. While these aims should ideally be mutually supportive, an overemphasis on demonstration and policing can promote a culture of conformance rather than one of professional capability and development (Lester 1999, p.8).

This latter point is a significant one when considering the ongoing professional competence of teachers in TAFE institutes in Australia.

VET requirements for vocational competency

Section 7.3 of Standard 7 of the *Australian Quality Training Framework: Standards for Registered Training Organisations* (ANTA 2001a, p.17) determines that training providers must ensure that

delivery is conducted by people who have all of the competencies in the Certificate IV in Assessment and Workplace Training and are 'able to demonstrate vocational competencies at least to the level of those being delivered'. The intent of this clause is to ensure that those engaged in teaching vocational education and training programs have the relevant technical knowledge and skills equal to the standards of performance required in the workplace or better.

In contrast to the other professions and professional associations, the onus for maintaining the vocational competency of VET teachers formally rests with the registered training organisation rather than with individual VET practitioners. Maintenance of the currency of practitioners' vocational/technical competencies as well as their assessment competencies is a key mechanism for ensuring quality outcomes within the sector (ANTA 2001b). It is acknowledged that teaching staff with industry credibility and technical currency are critical to the success of the national training effort (Noonan 2001).

The concept of currency is defined in a number of ways in the literature. For example, the *Quality assurance guide for assessment* (ANTA 2001b, p.44) suggests 'currency means being aware of the industry, workplace and job/role function of the person being assessed against the competency standards'. Moy (2001) reiterates this reference to keeping up-to-date in an industry or discipline area, but broadens the meaning of currency by including the following important knowledge and skill requirements:

- ◆ knowledge of how tasks are integrated and performed within workplace environments
- ◆ compliance with relevant licensing, regulatory or legislative requirements
- ◆ recent industry experience in appropriate enterprise environments
- ◆ knowledge of leading practices and emerging trends in the industry or discipline area.

Moy's definition of currency, therefore, extends the concept of technical currency beyond task skills to include knowledge previously identified as know-what-knowledge, know-why-knowledge, know-how-knowledge and probably know-who-knowledge. In essence, Moy is affirming that to be technically current in their vocational competencies, teachers must have more than just up-to-date technical knowledge and skills to the standard required by their relevant industry, but also a thorough understanding of industry culture, industry networks, technological advances and new ways of working.

Despite the requirements to maintain the currency of teachers' vocational skills and knowledge determined by the AQTF, there is considerable evidence in the literature to indicate that training providers and practitioners are struggling to meet this obligation (Down 2002; Harris, Simons & Clayton forthcoming). Schofield (2002, p.33) suggests in relation to the competence of the Victorian TAFE workforce, for example, that:

...the internal skill formation processes within TAFE are not well-understood nor are there well developed profiles of the actual skills, competencies and capabilities of the teaching or non-teaching staff. Expectations of staff competence are generally poorly defined and articulated.

Rumsey (2002, p.49) believes that one of the perceived gaps in skill and knowledge requirements of VET practitioners is 'up-to-date knowledge and understanding of current and emerging industry processes, systems, technologies and regulatory requirements'. Confirming these views, Moy (2001) highlights concerns about the competence of casual staff, while relatively experienced practitioners have acknowledged their own inability to remain vocationally current (CURVE & The University of Ballarat 2003). In a TAFE study undertaken by Corben and Thomson (2001, p.28) participants accepted the importance of competency, but at the same time admitted that it was extremely difficult to sustain current industry skills and knowledge and that 'stagnation is a problem'.

In her examination of the technical currency of New South Wales TAFE teachers implementing training package qualifications, Moy (2001) emphasises the importance of ensuring that the issue of currency is encapsulated in workforce and professional development planning. Unsurprisingly, participants in the same study indicated that enabling activities to build and extend the currency of their vocational competency would only be effective if processes were streamlined, flexible approaches were available, and organisational support was strong.

Confirming this need for a range of flexible approaches to address technical currency requirements, Moy identifies the following amongst activities others as appropriate training and development strategies.

Table 4: Strategies for maintaining technical currency

| Strategies | |
|-----------------------------------|--------------------------------------|
| Paid/unpaid employment | Teacher networks |
| Return to industry | Workshops/forums |
| Industry partnerships | Involvement with professional bodies |
| Practice firms | Judging competitions |
| Job rotation/secondment | Holding industry licence |
| Enrolment in TAFE courses modules | Enrolment in non-TAFE courses |
| Industry study tours | Retraining programs |

Source: Adapted from Moy (2001) Planning for the technical currency of full and part time TAFE NSW teachers implementing Training Package qualifications

In suggesting these strategies, Moy contends that there are a number of key factors that could influence the selection and success of various approaches. Particularly significant are:

- ◆ characteristics of the industry sector and the extent of change affecting teacher technical currency
- ◆ resourcing issues (eg equipment requirements)
- ◆ section size and the ratio of full time to part time staff
- ◆ geographic location of staff
- ◆ the nature, availability and cost of training and development opportunities provided within the industry or professional body
- ◆ the leadership, dynamism and creativity of middle and senior managers and the culture of the specific teaching sections (Moy 2001, pp.4-5).

Each of these factors could be either a facilitator or a barrier to successful developmental activities. But by far the most significant impediment to the effective maintenance of technical currency is the issue of work overload which is identified constantly throughout the literature relating to practitioners in the Australian VET system (Down 2002; CURVE & The University of Ballarat 2003, Harris, Simons & Clayton forthcoming).

However, while accepting the concerns expressed in much of the recent research on the VET professional, Chappell (2000) questions the capacity of some teachers to remain technically current. He argues:

Technological advances and changing work organisations mean that vocationally relevant knowledge and skills are now more than ever cross-occupational, transient and often context-specific. Given this, it is increasingly unlikely that full-time TAFE staff will be in a position to claim currency over the particular vocational expertise of an occupation (cited in Moy 2001, p.30).

Under such circumstances, Chappell suggests that there is a need for TAFE teachers to refocus their professional identities to that of being learning experts rather than industry and technical experts. Given the requirements of Standard 7 of the AQTF, however, such a transformation is likely to be a difficult task (Moy 2001, p.30).

VET pedagogy

Setting aside requirements for industry credibility and technical currency, there have also been marked concerns about the quality and nature of teaching and learning in the sector identified by a number of recent studies (Rumsey 2002; CURVE & The University of Ballarat 2003, Chappell et al. 2003; Dryan 2003; Henry & Andrews 2004). This is not to suggest that many teachers in the sector are not already applying new teaching and learning approaches. From the study undertaken by Mitchell and his colleagues on innovation in teaching and learning in VET, there is considerable evidence of VET teachers and trainers employing techniques that demonstrate high-level pedagogical skills and knowledge (Mitchell et al. 2003).

However, as Chappell et al. (2003, p.14) suggest:

A much greater pedagogical challenge has emerged as a result of the changing nature of work and the requirements of the contemporary economy. These changes in many ways point to quite different pedagogical practices and orientations than those that have traditionally formed the basis for vocational learning for they suggest that the contemporary worker has to be more than highly skilled as this has been traditionally understood.

Influenced as they are by diverse and often competing industry, government, region, enterprise and learner training demands, an appropriate response from the vocational education sector and its teachers is to implement novel pedagogical approaches that are far more 'learner-centred, work-centred and attribute focused' (Chappell et al. 2003, p.14).

In focusing on learners, Zubrick (ANTA 2002, p.37) suggests that it is imperative that teachers move away from the concept of a teaching environment to a learning environment 'where learners have been afforded tasks which "demand thinking" and are given support and resources to successfully carry them out'. In other words, they are taking on an approach that involves 'people becoming active and deliberate agents in a learning network' (Boud in ANTA 2002, p.44). In focusing on work-conducive learning, Chappell (2003) suggests that teachers develop approaches that allow a high level of integration with existing learning strategies within enterprises, thus ensuring that learning outcomes have direct utility and are transparently valuable to the enterprises involved in the learning process. It is widely believed that in proposing a focus on attributes, such dimensions of performance as 'learning transfer, innovation, and enterprise' can be enhanced by placing greater emphasis on generic skills within the training process' (CURVE & The University of Ballarat 2003, p.25).

Emphasising the reliance of the VET sector on highly skilled teachers and trainers, Schofield & McDonald (2004, p.11), also note the importance of practitioners who:

- ◆ have and choose from a sophisticated pedagogical repertoire
- ◆ can work with multiple clients; in multiple contexts and across learning sites; and
- ◆ understand that the integration of learning and work is a major feature of the contemporary work environment.

Given these requirements, the challenge for training providers, and particularly TAFE institutes, 'is to expand teaching staff engagement in the innovative processes required to create improved training and learning experiences for VET customers – trainees, employees, businesses and communities' Henry and Andrews (2004, p.5). To achieve these critical goals will require teachers 'to share insights and practice-related applications based on new knowledge through mutual

interaction and collaboration' (Henry & Andrews 2004, p.6). Further, to meet these demands, they will need to be provided with the time and space to work through the issues and undergo the developmental activities that must underpin this complex and evolving pedagogy.

Sharing and transferring knowledge: What and why?

Knowledge sharing can occur between individuals, either in isolation or as part of a group, or it can occur between groups. Knowledge sharing has the capacity to build the expertise of individuals and teams and a good deal of organisational learning takes place through sharing knowledge in meetings, in communicating with colleagues and in engaging in ad hoc training on the job. As suggested by Davidson and Voss (2001), it also occurs at the water cooler.

While there is a good deal of information in the literature on strategies to transfer various types of knowledge there is much less guidance on what information might be worthy of sharing within organisations. Lancaster et al. (2003, p.11) citing the work of Wilson and Holloway (2001) identify a number of aspects of working knowledge that always should be gathered to ensure knowledge continuity. These aspects include:

- ◆ process flow (this happens, then this happens)
- ◆ relationships to other people and work
- ◆ documents, information or people referenced in the process (in order to know how to do this, the contributor uses these materials, resources, people etc)
- ◆ systems or tools.

Swart and Wild (2001) suggest four areas of competence that should be the focus of knowledge sharing activities – working with people, management of work, personal effectiveness and job knowledge and experience. These important competencies are described as:

- ◆ social competencies that determine how relationships with colleagues and line managers are handled
- ◆ structural competencies that determine how resources are planned, organized, administered and controlled to achieve company objectives and satisfied customers
- ◆ personal competencies that determine how employees manage themselves to achieve self-confidence and self-control; adaptability and innovation; motivation and results
- ◆ skill specific competencies that determine what employees can do and how they perform their jobs.

The ultimate decision on what knowledge to share is largely driven by organisational or business imperatives and acknowledgement of the benefits that can be gained from engaging in systematic knowledge transfer. These benefits are commonly portrayed in the literature as being that tangible knowledge assets of an organisation can be significantly increased, while previously intangible assets can be articulated and made available to others (Frappaolo & Wilson 2000; National electronic Library for Health 2001). Additionally, the pace at which business is undertaken can be accelerated and productivity increased (Frappaolo & Wilson 2000; National electronic Library for Health 2001). Knowledge sharing can also shorten the learning curve for new employees and safeguard organisations from extensive knowledge loss resulting from staff attrition. This latter point emphasises a particularly important reason for managers to facilitate knowledge transfer. Ylinenpaa and Nilsson (2000, p.2) suggest it is one strategy for reducing an organisation's vulnerability in case of a 'brain drain'.

Summing up the benefits of knowledge sharing for the Australian companies participating in his study, Richard Hall (2002b, p.7) makes the following comment:

Knowledge sharing practices hold two great advantages for these organisations – first, knowledge shared is knowledge that is more easily appropriated by the organisation; second, knowledge sharing is a two-way process in which the contributor of knowledge also gains knowledge about other workers, other divisions and the interdependencies amongst different parts of the organization.

In a TAFE environment, similar outcomes from knowledge sharing activities would provide similar benefits for institutes and individuals.

Strategies for sharing and transferring of knowledge

Within the extensive literature on knowledge management there is a range of strategies identified for use in the sharing of knowledge within organisations. Casher and Lesser (2003) provide a useful framework for examining these strategies by clustering them into two distinct groupings under the headings of knowledge elicitation and knowledge exchange. The first, knowledge elicitation, covers strategies that are designed to capture the tacit knowledge of individuals and transform it into an explicit form that can be used by others. Casher and Lesser (2003, p.6) suggest that the prime goal of knowledge elicitation strategies is to ‘increase both the visibility and retention of an individual’s knowledge by preserving it in some form of repository’. The second group – knowledge exchange - involves activities that bring people together to share tacit knowledge. Casher & Lesser (2003, p.8) suggest:

These types of initiatives stem the loss of organizational knowledge by creating conditions where individuals can discuss experiences, engage in complex problem solving and, in some cases, observe actual work activities. While mechanisms for capturing knowledge may be used as a part of knowledge exchange effort...the effort focuses on connecting individuals rather than collecting materials.

The strategies included within each of these groupings are listed in the following table.

Table 5: Knowledge sharing strategies

| Knowledge elicitation | Knowledge exchange |
|----------------------------------|---------------------------------------|
| After action reviews | Communities of Practice |
| Knowledge audits | Exit interviews |
| Knowledge centres | Identifying and sharing best practice |
| Knowledge directories | Mentoring |
| Knowledge harvesting | Networking |
| Social Network Analysis | Peer assists |
| Subject matter expert interviews | Storytelling |

Source: Adapted from National electronic Library for Health 2001

Knowledge elicitation activities

After action review

This is a tool pioneered by the United States army and now widely used in a range of organisations in formal, informal or personal formats. It can be a five-minute sharing session with two individuals, or a day-long project team session.

The review is basically a discussion of a project or an activity that enables the individuals involved to learn for themselves what happened, why it happened, what went well, what needs improvement and what lessons have been learned. This is done in a spirit of openness and learning – not critique. Lessons learned are tacitly shared on the spot but can be documented and shared more widely.

Useful at any stage in a major activity, after action reviews generate the opportunity for the multiple perspectives of team members to be addressed in a way that ensures a learning process in which lessons learned can be immediately applied (National electronic Library for Health 2001).

Its major benefit is in providing a live learning process in which tacit knowledge is made explicit and lessons learned can be immediately applied. However, Casher and Lesser (2003) note that such a review must be conducted as soon after the event as possible to ensure maximum accuracy in knowledge capture.

Knowledge audit

A knowledge audit is a qualitative evaluation of an organisation's knowledge 'health' to find out where an organisation needs to focus its knowledge management efforts. Suggesting that such an evaluation of organisational knowledge is essential for successful performance, Bishop (2002, p.6) proposes that a knowledge audit is a sensible mechanism for identifying gaps in 'processes such as knowledge acquisition, development, application and retention'. In addition, undertaking a knowledge audit offers an organisation the opportunity to determine 'whether corporate knowledge value potential is maximised' (Hylton 2002b, p.1).

A typical audit will look at:

- ◆ what are the organisation's knowledge needs
- ◆ what knowledge assets or resources has it – and where are they
- ◆ how does knowledge flow around the organisation
- ◆ what are the gaps in its knowledge and the blockages in its knowledge flow.

This is not an information audit. Every aspect of an organisation's knowledge is examined and analysed in the process and this includes the possible 80% of an organisation's knowledge that is tacit. A knowledge audit:

...charts the formal and informal knowledge and communication networks and the internal and external relationships that exist within this environment, and spotlights knowledge flow and knowledge gaps in the organisation (Hylton 2002b, p.2).

Benefits of a knowledge audit include providing tangible evidence (such as maps, inventories) on which to base decisions to support organisational, team or individual goals and activities and knowledge management. A knowledge audit will also reveal the organisation's knowledge management needs, strengths, weaknesses, opportunities, threats and risks (National electronic Library for Health 2001).

Hylton (2002b, p.4) identifies a number of additional benefits that can be gained by an organisation undertaking an audit of its knowledge assets. For example:

- ◆ It offers a formalized and evidence based accounting of knowledge that exists or is embedded in the company, and how that knowledge moves through the company.
- ◆ It helps to identify and unearth dormant and potential knowledge resources; in particular people based knowledge, so that this knowledge can be productively used.
- ◆ It allows hidden knowledge to become highly visible, knowledge assets to become more tangible, and therefore more measurable and accountable.

Knowledge centres

This is an enhanced version of a library that focuses on knowledge as well as information. It has a broader sphere of activity than a library, which includes connecting people with each other as

well as with print-based and electronic information. It is concerned with active, not archived knowledge – who is doing what now (National electronic Library for Health 2001).

It collects, organises and disseminates both knowledge and information, or if it doesn't do all these activities, it creates a framework and provides leadership, co-ordination, guidance and expertise to do this. It brings core knowledge management responsibilities and activities under a single umbrella rather than leaving it to dispersed individuals and teams. Importantly, a knowledge centre identifies sources of important knowledge, both inside and outside the organisation, maintains and sustains the 'knowledge bank' and knows who can help. Further, a knowledge centre conducts an advisory service which offers critical expertise on sources – 'their availability, relevance, quality and overall usefulness to the business' (Skyrme 1998a, p.4).

These responsibilities could cover an organisation's intranet, databases and collections, its services such as cataloguing, indexing and taxonomies for electronic knowledge repositories, its knowledge capture from projects and assignments, and its provision of links and pointers to people, information, resources and training. In short it is a one-stop shop for multiple knowledge and information needs.

Benefits include economies of scale achieved through avoiding duplication, pooling expertise, bulk purchasing and reusing knowledge and information in a variety of contexts.

As suggested in the National electronic Library for Health (2001, p.2):

Good knowledge centres will put as much emphasis on connecting people with people – 'know-how' – as they do on connecting people with information and document collections. They will be concerned with 'active' not 'archive' knowledge, so need to be fully up to speed with what is happening in the organisation including current priorities and work in progress – 'who is doing what now'.

Knowledge directories

Also called 'white pages' or yellow pages' in the literature on knowledge management, knowledge directories resemble the usual staff directory listing people's names, job titles, departments and contact details, it is either a paper-based or online resource that allows people to find colleagues with specific knowledge, skills, experience and interest. It is often known as a directory of experts, expertise, skills or capabilities (National electronic Library for Health 2001).

As noted by Khandelwal and Gottschalk (2003) these directories are not so much repositories of knowledge-based information but gateways to the various types of knowledge that reside with individuals within an organisation. These directories are designed to facilitate ready transfer of knowledge between the people who have particular knowledge and expertise and those who are seeking to tap into their specialist knowledge. Importantly, knowledge directories:

Represent more of a belief in personalized knowledge of individuals than the codified knowledge of knowledge bases and may demonstrate organizational preference for human, not technology-mediated, communication and exchange (Khandelwal & Gottschalk 2003, p.7).

White pages can include groups such as communities of practice and project teams as well as individuals. Some include external entries for suppliers, or collaborating organisations, or link into other knowledge management tools such as best practice databases.

An additional purpose of white pages is to increase the chance of people acting on the information and contacts they find. To do this, a voluntary approach is often used, in which individuals create their own entries if they choose. This 'living' system allows people to present their entries in a way that reflects how they want to be known rather than how the organisation sees them. It reflects real personalities and encourages personal relationships.

Knowledge harvesting

This is a tool to capture and document the know-how of ‘experts’ and top performers. It aims to make some of the tacit knowledge in an organisation more explicit and to make this more broadly available to others whether through training programs, manuals, best practice and knowledge management databases – or through live discussion or collaboration.

Its success depends on identifying what knowledge and expertise is needed and by whom, finding the experts with the knowledge and expertise, and using skilled harvesters and an effective packaging process of capture, documentation or dispersal.

Its benefits include saving on trial and error experiences by providing access to expert knowledge when and where it is needed, without being dependent on the availability of experts. This approach also prevents vital knowledge being lost and increases the tangible knowledge assets of an organisation.

Cullen et al. (2001) suggest that harvesting the knowledge assets of project teams within organisations using objective third party interviewing provides rich knowledge for those who may undertake similar projects in the future. The value of this approach is that working knowledge is constantly refined and there is less potential for ‘re-inventing the wheel’.

Critical knowledge may be harvested in a variety of ways, but a number of issues are identified as crucial in the literature (National electronic Library for Health 2001; Lancaster et al. 2003). These include:

- ♦ being clear about the knowledge and expertise to be harvested
- ♦ understanding the needs of the recipients who will be using the knowledge
- ♦ identifying the sources of the expertise
- ♦ selecting harvesters with the skills to capture the knowledge
- ♦ choosing the best method to harvest the knowledge
- ♦ packaging the harvested knowledge in a form that meets the needs of end users
- ♦ ensuring knowledge is applied, evaluated and adapted.

Social network analysis (SNA)

With such an emphasis on knowledge in the new world of work, the maintenance of working knowledge has become a significant issue for both organisations and individual workers.

Outlining a number of these pressures, Cross et al. (2002, p.1) suggest:

We live in fascinating, yet uncertain and often disconcerting times, and less and less time is available for us to grow comfortable in our own knowledge while at work. Even within narrow specialties, it is becoming more and more difficult just to stay current...Further, as we move into a knowledge-intensive economy, only rarely does any one person have sufficient knowledge to solve increasingly ambiguous and complex problems.

Under these circumstances, an individual’s formal and informal networks are crucial for the rapid gathering of knowledge. Evidence from research confirms that people make more extensive use of friends, colleagues and others in their personal networks when looking for answers than they do of other sources of information - ‘in short, who you know has a significant impact on what you know’ (Cross et al. 2002, p.2). For example, Greve (cited in Krebs 2002, p.2) found when he studied project managers in a number of European companies that those with better personal networks were ‘more productive – they were better able to coordinate tasks and find the knowledge necessary to accomplish the goals of their projects’.

In order to enhance the flow and transfer of knowledge within an organisation, much more use is now being made of social network analysis. This process maps and then measures relationships and flows between information/knowledge processing 'entities' such as people, groups, organisations or computers (Krebs 2002).

Social network analysis allows managers to understand how relationships either facilitate or impede knowledge flows, knowledge creation and knowledge transfer, and helps them plan and prioritise. It is sometimes called an 'organisational x-ray' because (unlike an organisation chart) it shows relationships that are normally invisible, the real networks that operate underneath the surface organisational structure (National electronic Library for Health 2001).

The process involves the use of questionnaires and/or interviews to gather information about the relationships between a defined group or network of people. The responses are then mapped and an analysis of the network diagrams that results, determines the extent to which certain people are crucial to the effective functioning of a network and where the blockages might lie (Cross et al. 2002).

In a study undertaken by Cross and his colleagues, they found that it was more important to focus on the knowledge-based dimensions of relationships rather than on communication, and that a number of dimensions critical to effective network relationships were identifiable. These include being aware of what other people know, gaining timely access to that person, creating viable knowledge through cognitive engagement, and feeling safe enough in the relationship to admit a lack of knowledge (Cross et al. 2001; Cross et al. 2002).

The process of social network analysis can provide considerable benefit to individuals and can raise awareness of the usefulness of informal networks for the timely transfer of critical knowledge. More importantly, as Anklam (2003, p2) notes:

SNA provides a view into the network of relationships that gives knowledge managers leverage to improve the flow of knowledge and information; acknowledge the thought leaders and key information brokers (and bottlenecks); [and] target opportunities where increased knowledge flow will have the most impact on your bottom line.

Subject matter expert interviews

Closely linked to knowledge harvesting, this knowledge elicitation strategy involves capturing the words and thoughts of those who have been designated as experts on audio or video tape for later use by others. Casher and Lesser (2003) suggest that when conducted well, these interviews can activate tacit knowledge that would not otherwise be brought out into the open by any other means. More importantly, transcripts can be readily linked to documents, manuals and other relevant explicit knowledge to enhance both transfer and learning.

The major limitation of this strategy, however, is that the linkages between the interview and workplace context may be difficult to sustain (Casher & Lesser 2003). Furthermore, it needs to be acknowledged that not all tacit knowledge can be made explicit in this way and an expert's know-how may simply remain tacit (National electronic Library for Health 2001).

Knowledge exchange activities

Communities of practice

This is a term coined by social learning theorist Etienne Wenger who believes that learning is a social activity and that people learn best in groups. Wenger, McDermott and Snyder (2002, p.4) describe communities of practice as 'groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise by interacting on an ongoing basis'.

Communities of practice can differ widely in purpose, duration, membership and geography. They differ from team or work groups because membership is voluntary, goals and results can be general and fluid, and because they last only as long as the members want them to. Ideally they emerge naturally, and they are largely self-organising. Though they can be 'seeded' or supported, too much structure might threaten the informal social relationships they depend on. As Stewart (1999) suggests:

Communities of practice are responsible only to themselves. No one owns them... they emerge of their own accord... [participants] collaborate directly, use one another for sounding boards, teach each other, strike out together to explore new subject matter...you cannot create communities like this by fiat, but they are really easy to destroy (cited in Davidson & Voss, 2001, p.5).

Communities of practice can benefit organisations by cutting across departmental boundaries and formal reporting lines, and by being a vehicle for cultural change. They can benefit individuals by providing access to experts and fostering confidence and professional commitment. But, as suggested by Denning et al. (2002, p.2) communities of practice tend only to thrive when the members of the community are 'passionately committed to a common purpose'.

Following Papargyris and Poulymenakou, Cox (2004, p.10) suggests that communities of practice appear to be a credible mechanism for solving some of the knowledge management problems that occur in modern organisations in that 'they are a social instrument to create, share and steward knowledge, including tacit knowledge'. The concept has been generally accepted in the business world, although the names under which communities operate are markedly different. For example, 'in the World Bank they are called thematic groups; in Hewlett Packard they are "learning communities" or "learning networks"; in Chevron they are called "best practice teams", and in Xerox they are known as "family groups" (Denning et al. 2002, p.1).

Rather than dictating terms for knowledge sharing from management downwards, these companies have provided the time, money and personal space for informal organisational knowledge exchange to take place. Denning et al. (2002, p.3) go so far as to suggest that organisations that 'nurture communities of practice and let passion permeate the workplace offer a work environment more attractive to the best talents while retaining the knowledge workers they already have'.

Communities of practice are ascribed to have a number of benefits for organisations that encourage their development (Mitchell, Wood and Young (2001). In particular they have the capacity to:

- ◆ encourage the sharing of ideas
- ◆ use knowledge management to drive strategy
- ◆ enable the transfer of expertise
- ◆ provide a spark for innovation
- ◆ facilitate rapid responses to customer problems
- ◆ shorten the learning curve for new employees
- ◆ identify talent in workgroups (Mitchell, Wood & Young 2001, pp. 21-22).

In parallel with these organisational advantages there are positive outcomes for individual community participants, such as the opening up of access to new knowledge and the fostering of trust and a sense of common purpose (Mitchell, Wood & Young 2001; Hildreth, Kimble & Wright 2000). Furthermore, in this process of team learning, participants:

...listen, publicly acknowledge mistakes and learn from them, share perceptions, participate in discussions that raise conflicts to the fore and thereby help to resolve them, connect one

another to the organization, and become partners in helping the organization reach its goals (Hill 2000, p.85).

Exit interviews

The exit interview has been expanded from its early form of gathering employee feedback and human resources information from departing employees - often done by questionnaire, telephone or internet survey.

It has become a knowledge management tool capturing, in a face-to-face interview, information on what it takes to do a job, what would be helpful to the next person in the job, or to others doing similar tasks. Skyrme (2001b) contends that exit interviews are particularly important for organisations that have minimal processes for regular knowledge capture. The steps involved include starting early, developing a planned process of hand-over, and eliciting tacit knowledge on key work tasks. Exit interviews determine 'how they go about those tasks – especially any pitfalls, identify what knowledge they need to succeed in what they are doing... and find out what/or who they felt were reliable sources of knowledge they needed for their job' (Skyrme 2001b, p.3).

Both organisation and leaving employee can benefit from this transfer of knowledge. The organisation gets to retain vital knowledge inexpensively, and can shorten induction of new employees. Departing employees can articulate the unique contribution they have made to the organisation, and leave with a more positive view of both their contribution and the organisation (National electronic Library for Health 2001).

Identifying and sharing best practice

In many organisations this knowledge management approach starts with sharing common practices through instruction manuals or 'how to' guidelines. The next step is identifying and sharing best practices (internal or external) – that is, practices that have been proven to work well, produce good results and can therefore be recommended as a model.

Two complementary processes are used – connecting people with explicit knowledge (information) for example by a best practices database, and sharing tacit knowledge (between people) for example in communities of practice. The processes do not provide a quick fix, and they need to keep up with constantly evolving practice (National electronic Library for Health 2001).

This approach is useful in organisations where knowledge and experience has been accumulated, but where an organisation is dispersed. Its benefit is to improve services to clients by raising performance, avoiding duplication and repeated poor practice, and by creating efficiencies.

Skyrme (2001a) provides a six step process for sharing what he prefers to call 'good' practice in organisations. The process involves determining who can most benefit from better knowledge and understanding of good practices, seeking out good practice, documenting it, validating the effectiveness of the practice, followed by disseminating and applying it (National electronic Library for Health 2001).

Dixon (2003), however, warns against placing too much faith in the documentation of good practice as a means of effectively transferring knowledge. She reminds us of the vital role played in knowledge sharing of social processes that allow the development of relationships and offer opportunities for reflective practice and in-depth questioning (Dixon 2003, p.3). Further, Dixon notes the importance of those who are suppliers of the good practice being able to make sense of the lessons they have learned in order to translate it into a form that might allow the re-use of their knowledge. Those who are seeking the knowledge need to have an understanding of how to scan for good practice, how to evaluate and how to adapt it in a manner that works for them.

Then ‘once these underlying lessons have been developed from the analysis, the lessons need to be translated into an actionable format in order to become a significant part of the organization’s knowledge’ (Dixon 2003, p.18).

Two critical aspects, however, that Skyrme (2001a) highlights as crucial to effective uptake of good practice relate to stimulating thinking and action rather than providing solutions, and encouraging the establishment of networks to support the process. He suggests that ‘it is through people-to-person knowledge exchange that the deep knowledge of best practice gets transferred’ (Skyrme 2001a, p.3). There are various ways to share best practice knowledge including communities of practice, process improvement working groups, visits to groups who are recognised as demonstrating good performance and forums and fairs where examples of good practice are presented and explained (National electronic Library for Health 2001).

The sharing of good practice is a knowledge sharing strategy that is well entrenched in the VET sector, particularly within programs such as LearnScope and Reframing the Future.

Mentoring

Broadly defined, mentoring involves ‘one person helping another with their personal development, in a real learning situation, with a specific end point, goal or outcomes in mind (Stockdale 2001, p.1). Perhaps more importantly, mentoring is about sharing knowledge and skills both formally and informally (Hay 1997 cited in Stockdale 2001).

George and DeAngelis Peace (1997, p.1) suggest that in a teaching environment mentoring may be described as:

- ◆ informational (questions about procedures, rules, general requirements)
- ◆ personal
- ◆ management (issues about time demands and organizing)
- ◆ consequence (concerns about teaching)
- ◆ collaboration (interest in sharing ideas with colleagues)
- ◆ refocusing (ideas expressed for more universal benefits).

For organisations, the major benefits that accrue from mentoring are that it develops staff and helps to generate and sustain an environment in which people feel motivated and appreciated, thus building and maintaining a learning culture (Stockdale 2001). Kajs (2002) contends that for novice teachers effective mentoring not only increases their retention, but it also develops essential networks and provides a greater understanding of organisational culture, power relationships and what is needed to ‘get on’ in the organisation. More importantly, mentoring helps new teachers to ‘develop an appropriate body of practical professional knowledge (experiences and concepts) with which to frame teaching situations...[and] encourages teachers to develop deeper and more complex understandings of the assumptions they are making in that practical professional knowledge’ (Furlong & Maynard 1995, p.180).

For the mentors, the benefits gained include improvement in their own professional competency, recognition, renewal and revitalization, and an opportunity to validate the experience that they have gained over their teaching lives (Martin 2000; Huling & Resta 2001). Thus, there are mutual benefits for those mentoring and those being mentored (George & De Angelis Peace 1997; Boyle & Boice 1998). More importantly, ‘mentoring is one strategy in a workplace learning model of teacher professional development that has the potential to respond to change in a constructive and critical way, to initiate change and thus contribute to school development’ (NSW Department of Education and Training 2002, p.1).

Networking

Portrayed as being markedly different from communities of practice, networks are variously described as simple to organise, driven by mutual needs, designed to gather and disseminate knowledge, less focused and often enduring (Wenger & Snyder 2000; Cohen & Prusak 2001; Mitchell & Young 2003).

Cohen and Prusak (2001, p.59) contend that the formulation of networks occur 'because people need one another to reach common material, psychic and social goals. Mutual aid and generalised reciprocity are common to all functioning networks'.

Identifying the benefits of networks, Mitchell and Young (2003, p.2) suggest that 'networks provide an interlocking web of connections and help people develop their identities. Networks also increase an organisation's social capital'. In line with this thinking, Brown and Napier (2004) suggest that, in their informal form, networks represent constructive pathways for knowledge growth.

The same authors also describe the role that rumour and gossip – the informal grapevine – play in enhancing knowledge transfer within an organisation, noting that such networks may not be officially endorsed, but can also be an on-demand version of that which is codified in explicit knowledge. Brown and Napier (2004) also suggest that such social networks require a level of trust and involve a continual building of knowledge. Furthermore, organisations that are engaged in knowledge management will actively utilise social networks as part of that process because they are an effective way of sharing knowledge.

Peer assists

The multi-national company, BP-Amoco, coined this term. While seeking help from peers is not new, BP-Amoco pioneered the formal use of this process as a knowledge management tool to learn from the experiences of others before commencing an activity or project. Based on the concept of 'learning before doing', the process is one in which a team of people working on a project or activity calls a meeting or workshop to seek knowledge and insights from people in other teams to help solve specific problems (Skyrme 1998b). Peer assists do not require special resources or new and unfamiliar processes, but an external facilitator is useful to help the process to collect options and insights rather than answers (National electronic Library for Health 2001).

Benefits of peer assists include quickly realised learning directed to specific tasks or problems, the re-use of existing knowledge and experience, and the development of strong networks among people.

Storytelling

This ancient art has long been a means of exchanging information and generating understanding. In organisations it has been known as 'the grapevine'. More recently it has been used as a management tool for sharing knowledge in a meaningful and interesting way.

Haghirian and Chini (2002, p.4) define an organisational story as 'a detailed narrative of past management actions, employee interactions, or other intra- or extra-organisational events'. Common forms of stories are anecdotes, myths, fables and metaphors all of which disclose organisational experience, values and culture (Davidson & Voss 2001; Gill 2001).

Snowden (1999 cited in Haghirian & Chini 2002, p.4) identifies two forms of storytelling – storytelling as a knowledge disclosure mechanism and storytelling to create meaning and broader understanding.

Storytelling as a mechanism for disclosing knowledge can be a helpful tool to get hold of the valuable tacit knowledge of members of the organisation. It creates a self-sustaining,

low cost means by which knowledge can be captured on an ongoing basis. Storytelling to create meaning and understanding creates metaphors to transfer knowledge in a more transparent way.

Snowden (2001) makes the point that the process is not simply about eliciting, constructing and telling stories, but it is about permitting the patterns of culture, behaviour and understanding that are revealed by stories to come out. Denning et al. (2002, p.3) reiterate the importance of organisational storytelling by suggesting that ‘institutions are finding that the marriage of narrative and abstract communications provides a more powerful tool for sharing knowledge, than merely abstract communications’.

Stories that are classified as ‘good’ are those determined to have the following attributes:

- ◆ Endurance: good stories may change a little, but the key lessons remain the same.
- ◆ Salience: good stories are relevant to their audience, they have a point, and they have emotional impact.
- ◆ Sensemaking: good stories explain something, make sense of something. They show how to behave in a particular situation, how to solve a problem or why something happened the way it did.
- ◆ Comfort level: good stories ring true.

(Prusak cited in National electronic Library of Health,
http://www.nelh.nhs.uk/knowledge_management/km2/storytelling_toolkit.asp)

The Innovation Systems Research Network (2000) also suggests that for a story to be effective in transferring knowledge within an organisation, it needs to be told by a storyteller who believes it, it needs to have a degree of strangeness about it, it needs to have a happy ending and needs to entice the listeners into the ideas presented so that they can then draw their own conclusions about how the story might apply to their own environment.

The benefits of storytelling are numerous. It can facilitate learning by making abstract analysis, complex situations and complicated ideas and concepts easier to understand. It can humanise situations by providing feelings as well as thoughts, and by dealing with tacit knowledge that might be difficult to articulate as easily as evidence-based knowledge. It can encourage interaction and build a sense of community. A story simply ‘takes the listener into the idea’ (Innovation Systems Research Network 2000, p.15).

These aspects of storytelling make it an important tool for igniting change, innovating and dealing with new and unexpected situations. Storytelling is enlivening and entertaining – but it is not a panacea. Snowden (cited in Haghirian & Chini 2002, p.1) even warns against the dangers that can attach to storytelling – the presentation of what he terms ‘viruses’ that transfer knowledge of a nature that brings no value to the organisation.

TAFE knowledge sharing practices

Throughout the literature on professional development in the Australian VET sector there is considerable evidence of active and extensive knowledge sharing. As suggested by Symons (2001, p.3) ‘there has traditionally been a culture of knowledge sharing between staff in Australian TVET providers, with staff seeking opportunities to engage in professional dialogue’.

In her small-scale study of training providers Symons (2001) asked participants to describe the mechanisms being used to share knowledge within their organisations. She describes the typical sharing activities as inter- and intra-institute forums for staff at all levels, networks, meeting and planning sessions, mentoring programs, action learning groups, electronic chat groups and video conferences as well as ‘informal networks based on common interests’ (p.3).

Outlining the importance of these interconnections within organisations, Mitchell and Young (2003) stress 'because much knowledge resides in groups, networks are the basis of knowledge sharing and, through trusting relationships, networks increase the level of knowledge'. Informal networks based on trust and a united desire to learn were also identified as being highly effective in a study of Victorian training providers (Office of Employment, Training and Tertiary Education 2001).

In particular, discipline-specific networks and assessor networks provide teachers with the opportunity to exchange ideas and good practice in the delivery of training. Equally important are the networks and personal connections that teachers have with employers and more broadly with industry, for they ensure connectedness with the world of work.

In evaluating the effectiveness of these activities, Symon's participants identified that forums and networks worked particularly well in sharing knowledge because:

...staff members were usually keen to participate and tended to learn a lot about others' work and the organisation in general...staff often left the formal forums and networks with new ideas about how to approach their work or things they wanted to try out. In doing so, they formed project teams with people with whom they had not previously worked (Symons 2001, p.3).

Given this willingness within the sector to work together to create, share and re-use knowledge it is unsurprising that networking and communities of practice have been successful components of nationally funded and managed professional development for practitioners. Often implemented through the Reframing the Future staff development initiative, the goal of these activities has been to develop professional skills, facilitate workplace learning, encourage collaborative activities between training providers and industry and transfer knowledge (Mitchell, Wood & Young 2001).

Knowledge sharing is also the key in practitioner projects funded under the other goals of Reframing the Future – staff development, strategic management and change management, policy engagement and applying information and research (<http://www.reframingthefuture.net>). The various components of the Australian Flexible Learning Framework - NET*Working, Flexible Learning Leaders, LearnScope and Australian Flexible Learning Community (<http://www.flexiblelearning.net.au>) - have also been designed to encourage and empower teachers in developing and exchanging new ways of working in the knowledge economy.

However, while there is evidence of strategies clearly designed to support knowledge sharing in the sector, there is also extensive evidence of barriers that impede effective exchange of knowledge. Participants in the study undertaken by Symons (2001) noted that some organisational cultures, the dearth of information technology support and poor staff engagement militated against knowledge sharing.

Barriers to effective sharing and transfer of knowledge

Commentators on knowledge management describe a plethora of factors that can impede the effective sharing of knowledge within an organisation. Some of these impediments attach to individuals within organisations and are therefore, dispositional or cultural in nature. A number of other barriers are an outcome of what O'Dell and Grayson (1998) describe as management practices and organisational structures that discourage rather than encourage sharing. In confirming this view, Shivakumar (2002, p.129) notes the deleterious effect that multi-layered organisational structures can have on knowledge flow and suggests that 'such structures do not nurture knowledge sharing'.

O'Dell and Grayson (1998) describe six common barriers to knowledge transfer. They are:

Hidden knowledge

In this case, people within organisations do not know what they actually know, nor do they understand that it might be beneficial for somebody else.

Blindness

With blindness, good practice and useful knowledge may reside within an organisation, but those who might usefully benefit from receiving the knowledge do not know of its existence.

Locked-up tacit knowledge

Generally located in the heads of individuals within an organisation this category of knowledge can best be described as personal technical or organisational know-how that has been built up from experience and intuition. O'Dell and Grayson (1998, p.109) suggest that this 'is often 80 percent of the valuable knowledge in a process'.

'We're different' blinders

In this instance, knowledge and practices are not transferred because individuals focus upon the differences that exist rather than on the similarities, even when there is potential application across diverse functions, enterprises and industries. Interestingly, O'Dell and Grayson note that even sectors like education choose not to take on effective strategies and knowledge because they are seen to be 'different'.

'Sorry - I'm too busy'

Seen to be a common barrier to effective knowledge sharing and transfer, this involves individuals rejecting transferred knowledge because they do not have the time to engage in the transfer process. O'Dell and Grayson (1998, p.109) suggest that 'even if the transfer would save them time, they don't have the time to save. The transfer never gets a hearing'.

Implementation is hard

Here the authors suggest that even if all of the previous barriers are overcome within an organisation, the effective transfer of knowledge is quite difficult, and although the transfer may take place, no positive outcome is achieved because the knowledge is not put into action.

In a study of a large, distributed, information-intensive, multi-national company Hazel Hall (2002a) found yet another set of important barriers that impact upon effective knowledge sharing. These included:

- ◆ withholding of confidential information limits knowledge that can be shared – with confidentiality sometimes being used as an excuse for not sharing
- ◆ withholding of 'bad news' stories limits knowledge that can be shared, even though the potential for learning from failures is likely to be significant
- ◆ withholding of 'intellectual' property limits knowledge that can be shared
- ◆ the fewer knowledge exchange partner relationships an individual maintains the lower is the opportunity for knowledge sharing
- ◆ a lack of organizational commitment to knowledge management undermines attempts to encourage knowledge sharing
- ◆ under-utilisation of organizational systems set up to support knowledge transfer restricts the potential for knowledge sharing activities

- ♦ operational priorities and associated practices for knowledge management can mitigate against knowledge sharing
- ♦ 'distance' between people in a distributed organisation inhibits effective knowledge sharing
- ♦ knowledge that could be beneficial to large groups can become trapped in closed groups and work teams
- ♦ systems set up to support knowledge sharing are circumvented by personal networks and cliques.

Martin (2003), Truch (2001) and Lancaster et al. (2003) contend that internal competition within organisations discourages collaborative behaviour and erodes the effectiveness of knowledge sharing activities. In emphasizing this point Eisenhart (2001, p.2) comments: 'successful knowledge gathering and sharing cannot take place in an adversarial, competition-oriented environment where people feel that they would be jeopardizing their own status and job security by giving up knowledge'. Perhaps unsurprisingly, Truch (2002, p.103) suggests that a major barrier to building a culture of knowledge sharing in a company is 'the belief that 'knowledge is power', and regrettably this is often reinforced in the behaviour of senior management'. Supporting this Shivakumar (2002, p.129) notes:

Most organizations have employees who over a period of time have developed this mindset of 'ownership of knowledge'. Most managers tend to treat their departments as their 'kingdoms' and the knowledge that they have as the skill to manage their 'kingdoms'. They are over protective of their expertise and jealously guard it, hesitating to share it with anyone. One of the main reasons for this kind of behaviour is their belief that they would become powerless if they share their knowledge, since in their perception, knowledge is power.

Another significant barrier to effective knowledge sharing is that it is not seen as a priority within the organisation. Knowledge transfer cannot occur if there is no money, time or management support committed to ensure that knowledge is captured, transferred, studied and applied to improve practice (Lancaster et al. 2003; Szukanski, 1995 quoted in O'Dell & Grayson 1998). Further, in describing 'the eleven deadly sins' that work against effective knowledge management Fahey and Prusak (1998, p.1) contend that placing a low priority on knowledge is evidenced by organisations:

...not seeing knowledge as predominantly outside people's heads, failing to see that managing knowledge must also be about creating contexts for sharing, not heeding role and importance of tacit knowledge and replacing human contact with technological contact.

On this latter point, Huysman (2003) found evidence of what she describes as the 'the ICT trap' in a study of knowledge sharing practices in ten large European companies. This trap or barrier to effective knowledge sharing is based on the common assumption that information technology positively supports and improves knowledge sharing while discounting the important role played personal interactions in the process. Stressing the importance of active involvement and interaction between people Huysman (2003, p.3) comments:

People want to know from whom they learn as this provides important 'meta-knowledge'. Knowledge only has meaning if it can be related to people...Aids to knowledge-sharing such as Intranets and knowledge bases that are geared towards codifying knowledge are not effective enough. When sharing experiences, people prefer to look for support from personal networks rather than electronic networks...What is needed is the support of social networks and knowledge connections to enable transfer.

Hylton (2002a, p.6) reiterates this point by suggesting that people naturally want to share knowledge and in circumstances where the opposite is the case, there is an underlying reason for their reticence: '... the desire not to share knowledge is unnatural and artificial, a situation

brought about by fear, lethargy, and a feeling of being insignificant, inconsequential or undervalued?.

The place of culture in knowledge sharing is very much the focus for Hendriks (2004) who proposes that cultural impediments can impact upon the various facets of the knowledge sharing process. These facets he identified as:

- ◆ the recognition of the value of knowledge (awareness)
- ◆ the donation of knowledge to be shared by others (bringing)
- ◆ the selection of a method for sharing knowledge (transfer)
- ◆ the acceptance of knowledge from others (receiving)
- ◆ the application of knowledge to different content and contexts (usage).

As an example, he proposes that the association of knowledge with power may deter individuals or groups from offering their knowledge to others for fear that it may undermine the basis of their power. Or, in a different cultural environment, it may prevent people from gathering knowledge from outside the organisation because that may be perceived as a 'sign of weakness and lack of power' (p.18).

Hendriks also claims that various aspects of group culture can be negative influences for knowledge sharing. He suggests, for example, that the closed nature of a *bureaucratic culture* that is characterised by rules and fixed modes of working may preclude active knowledge sharing across and between departments. A *clan culture* likewise involves allegiances, solidarity and teamwork that may generate an inward orientation not open to sharing with others. In an *entrepreneurial culture*, the high value placed on individuality, independence and innovation can militate against open and ready acceptance of the need to share. And finally, in a *market culture* 'knowledge sharing will take place if it results in rewards that are stated in the contract' (Hendriks 2004, p.13).

Given that each of the cultures described by Hendriks are likely to be present in TAFE institutes because of the work that they do and the way they are structured, these barriers to knowledge sharing are likely to be replicated in TAFE environments across Australia.

Enablers of knowledge transfer

With such an extensive list of barriers, what then does it take to facilitate effective knowledge transfer in an organisation? O'Dell and Grayson (1998) propose culture, technology, infrastructure and measurement as the four major enabling factors. Leaving aside technology and measurement to be considered within the extensive area of knowledge management, it would appear that an organisational culture that values knowledge sharing, the establishment of a supportive infrastructure and a system of rewards that encourage employees to participate in the activity are most likely to engender effective knowledge transfer.

The role of culture

There is general consensus in the literature that culture is the key factor in establishing effective knowledge sharing within an organisation (O'Dell & Grayson 1998; Bishop 2000; Truch 2001). Organisational culture encompasses the values, attitudes, norms and behaviours of an organisation and is described by Smith & Keen (2002, p.4) as 'how we do things around here'. Extending the definition further O'Dell and Grayson (1998, p.71) include such things as unwritten rules and the 'underlying beliefs that, while never exactly articulated, are always there to color the perceptions of actions and communications'.

A number of factors are seen as essential to the establishment of an organisational culture that encourages and supports the transfer of knowledge. Pivotal in engendering a knowledge-sharing

culture are providing support and clear leadership at the management level (O'Dell & Grayson 1998); facilitating productive collaboration and partnerships (Bishop 2002; O'Dell & Grayson 1998); fostering attitudes of knowledge sharing, trust, innovation and lifelong learning (Bishop 2002) and encouraging an environment conducive to tacit knowledge exchange (Bishop 2000). Also seen as important are instilling personal responsibility for knowledge creation while sharing creating a collective sense of purpose (O'Dell & Grayson 1998).

Encapsulating many of these views, Truch (2001, p.103) offers the following as critical activities in the knowledge sharing enculturation of an organisation:

- ◆ engagement – winning the hearts and minds across the company led by the top management team
- ◆ empowerment – providing people with the authority to act
- ◆ entitlement – enabling open access to information across the organisation
- ◆ enablement – providing support systems such as intranets and knowledge tools
- ◆ environment – developing workplaces that are conducive to meeting and sharing.

Bishop (2000, p.3) also sees as essential 'empowering people to influence organizational strategy and be part of "the big picture", by pointing out how valuable their knowledge is, and how it might contribute to organizational success'.

But what might such an organisation look like? The following outlines the views of informants in a study undertaken by Smith and McKeen (2002, p.6):

Participants described a knowledge-sharing culture as one where people shared openly, there is a willingness to teach and mentor others, where ideas can be freely challenged and where knowledge gained from others' sources is used. Ideally...knowledge-sharing should be a corporate value which defines how work gets done and how everyone thinks. In short, a culture of knowledge-sharing goes deeper than superficial individual behaviors and captures the hearts and minds of people in the organization.

Perhaps unsurprisingly, however, a number of authors call attention to the fact that embedding knowledge sharing in the culture of any organisation requires extensive time and effort (O'Dell & Grayson 1998; Smith & McKeen 2002). Given that cultural change is inevitably a long-term activity, Smith and McKeen (2002, p.9) note that 'it is not unusual to find that knowledge-sharing efforts are incubated first in small niches in an organization before gaining widespread senior management attention and support'.

The highly influential impression that culture has on knowledge sharing is best expressed by Smith and McKeen (2002, p.16) who conclude:

Because culture is difficult to pin down, it is often underestimated in efforts to change how firms work. This is a mistake...Past efforts have often assumed that implementing technology alone will be enough to promote knowledge-sharing. While this has been consistently demonstrated as an ineffective practice, frequently the majority of an organization's knowledge resources are devoted to technology and not to other factors which stimulate knowledge-sharing. Until organizations make a concerted effort to refocus their efforts on these, they will find it extremely difficult, if not impossible to grow a true knowledge-sharing culture.

The role of infrastructure

A good deal of the literature on knowledge retention emphasises the role of technology in managing knowledge technology. Although O'Dell and Grayson (1998, p.108) consider that technology is one of the major enablers they also suggest that infrastructure is equally critical.

This relates to the establishment of supporting systems within organisations that provide the environment for knowledge to be shared. They note:

Infrastructure includes the transfer-specific mechanisms put in place to ensure best practices flow throughout the enterprise. These include technology, work processes and networks of people. Infrastructure also includes the organizational structure surrounding the processes: the essential line and staff roles that must be played to support the new initiatives of knowledge transfer.

The same authors describe three different approaches to infrastructure – self-directed, knowledge services and networks, and facilitated transfer (O’Dell & Grayson 1998, p.110). Included in the first infrastructure category are databases, yellow pages, intranets and dissemination mechanisms. Within the second category are such things as information services, communities of practice, help desks, knowledge managers and people networks. In the final infrastructure category are people who have the particular role of facilitating the transfer of knowledge - knowledge brokers, coaches, mentors and change agents.

The blend of technology and people in O’Dell and Grayson’s description of supportive infrastructure is expressed in similar way by Hazel Hall (2002a), although she uses the terms ‘social, ‘technological’ and boundary’. The following table sets out each of these infrastructure categories and describes both conditions and examples.

Table 6: Infrastructure for supporting knowledge sharing

| Infrastructure category | Condition | Examples |
|-------------------------|--|--|
| Social | Create a sense of community | Promotion of openness, cooperation, loyalty, trust; provision for social interaction: co-location of staff, social events |
| | Make knowledge sharing an explicit responsibility regardless of the originator’s position in the organisational hierarchy | Senior management buy-in |
| | Relegate status | Promotion of the idea that everyone is a knowledge contributor, regardless of their organisational rank |
| Technological | Encourage experimentation | Provision of autonomy, permission to fail |
| | Provide user-friendly systems | Ease of use; usefulness of use obvious |
| | Ensure that systems integrate with communities | Systems used in conjunction with ‘human’ interaction |
| Boundary | Generate critical mass | Value of system seen to be monitored |
| | Provide for artefacts, people or spaces that can act as common points of reference for different work group constituencies | Provision of shared repositories; provision of taxonomies and classification schemes; shared social space; opportunities for staff to become networked |

Source: Hazel Hall (2002a) Sharing capability: the development of a framework to investigate knowledge sharing in distributed organisations, p.3.

It is evident from the studies by Hazel Hall and Richard Hall that people are at the heart of knowledge sharing and that technology provides the tools to assist in the capture, transfer and dissemination of knowledge. In case studies of knowledge sharing strategies in Australian companies, Richard Hall (2002b, p.5) notes the significant role played by people whom he describes as ‘key employees’, ‘market facing employees’ and ‘boundary spanners’. This latter group of people is ‘outward looking, conscious to developments in relevant industries and markets, attuned to trends and developments and able to communicate back into organisations insights, intelligence and information’.

Given the informal nature of much of the transfer of knowledge within organisations, Davidson and Voss (2001, p.4) offer two suggestions for strengthening the process – the first is ‘to put the

knowledge 'poor' in touch with the knowledge 'rich' and create the optimum conditions to ensure that learning occurs' and the second is 'to become aware of how and where those transfers occur, and create the conditions to encourage and support them'.

The role of incentives

There is a need, however, to engage people in the process and to motivate them to be active in sharing and transferring knowledge. Hazel Hall (2002a) emphasises the important role that rewards play in supporting effective knowledge sharing. Categorised as 'hard' and 'soft', these rewards are designed to provide incentives to individuals to actively engage in the sharing of knowledge across the organisation. In the 'hard' category are economic rewards, access to information and knowledge and career advancement or security. In the 'soft' category are enhanced reputation and personal satisfaction. Similar views are expressed by O'Dell and Grayson (1998) who note that reward and recognition can come from being seen as an 'expert', from celebrating best practice success stories and by allowing employees the time and space to use and create knowledge.

But even with a supportive culture, a supportive infrastructure and incentives, it is still possible that effective knowledge exchange may not take place because of individual attitudes to sharing what they know. In this regard, van den Hoof and Hendrix (2004, p.2) outline the differences between a person's *willingness* to share knowledge and a person's *eagerness* to share:

Willingness is defined as the extent to which an individual is prepared to grant other group members access to their individual intellectual capital. Eagerness, on the other hand, is defined as the extent to which an individual has a strong internal drive to communicate their individual intellectual capital to other group members.

These authors suggest that simply being willing to share knowledge with others is a passive approach to transferring knowledge whereas eagerness to share demonstrates a positive attitude to 'actively donating knowledge' (van den Hoof & Hendrix 2004, p.4). Understanding these fine differences will assist those responsible for knowledge sharing activities to direct incentives to the individuals who are most likely to play a prominent role in knowledge exchange.

Simply overcoming the barriers to knowledge exchange, setting up an appropriate environment and implementing knowledge strategies, however, will not make knowledge sharing work effectively. As with any other process, knowledge sharing strategies need to be monitored and evaluated to determine if knowledge is being valued, assimilated, modified and applied. As Hazel Hall (2002a) suggests, without follow-up and support, knowledge can be diffused and simply not used.

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Appendix B

Letter to chief executive officer

26 September 2003

Dear Chief Executive Officer,

Re: Participation in research project Sustaining the skill base in Australian RTOs

The National Research and Evaluation Committee (NREC) has commissioned a study of the strategies Australian RTOs are currently implementing in order to maintain the technical currency of their teaching staff and to ensure that corporate knowledge and skills are transferred. This important research is being jointly conducted by the Centre Undertaking Research in Vocational Education (CURVE) at the Canberra Institute of Technology and the Centre for Research in Education, Equity and Work (CREEW) at the University of South Australia.

I am seeking your RTO's participation in this project, whose aims are detailed in the attached Information Sheet.

The project will entail conducting semi-structured interviews with you, two senior education managers, and a Staff Development or Human Resources manager. These five interviews with senior managers will be followed with an invitation to your organisation's middle managers and senior teachers to complete a questionnaire. We hope to achieve 16 responses to the questionnaire from your RTO.

Further details such as the interview schedule and questionnaire questions will be supplied as arrangements for your organisation's participation are confirmed. Meanwhile, if you have any specific questions about the project, please do not hesitate to contact me on the phone number or email address below.

If you agree to take part in this research, please complete the attached RTO Consent Form, and return by mail or fax.

We welcome your participation, and look forward to your organisation's contribution to this important and timely study.

Berwyn Clayton
Director/Principal Researcher
Centre for Undertaking Research in Vocational Education (CURVE)
Canberra Institute of Technology, PO Box 826, Canberra 2601

Ph: (02) 6207 4844
Fax: (02) 6207 3322
berwyn.clayton@cit.act.edu.au

Appendix C

Information to participants

CENTRE UNDERTAKING RESEARCH in VOCATIONAL EDUCATION (CURVE),
CANBERRA INSTITUTE OF TECHNOLOGY

and

CENTRE for RESEARCH in EDUCATION, EQUITY and WORK (CREEW), UNIVERSITY
OF SOUTH AUSTRALIA

INFORMATION SHEET

Project Title: **Sustaining the skill base in Australian RTOs**

Principal researcher: Berwyn Clayton (Director, CURVE)

Phone: (02) 6207 4844 Fax: (02) 6207 3322

Email: berwyn.clayton@cit.act.edu.au

Thank you for agreeing to participate in the above-mentioned research project. This research is being conducted by the Centre Undertaking Research in Vocational Education (CURVE), Canberra Institute of Technology and the Centre for Research in Education, Equity and Work (CREEW) at the University of South Australia. The research is funded by the National Research and Evaluation Committee (NREC), and is managed and will be published by the National Centre for Vocational Education Research (NCVER).

This research project will explore two areas of current concern for Australian public RTOs: succession planning and the maintenance of technical currency among teachers and trainers. RTOs are looking for ways of sustaining their skill bases by addressing the two challenges of technical currency maintenance and transference of corporate knowledge and skills. This project seeks to discover what strategies RTOs are putting in place in an effort to address these two issues.

Broadly, the research will ask:

- ♦ What strategies are RTOs implementing to ensure that the vocational competency of staff delivering training is current?
- ♦ What succession planning strategies are RTOs implementing to ensure the effective transfer of corporate knowledge and skills?
- ♦ What do Chief executive officers, senior education managers and HR/SD managers within RTOs see as the major facilitators and barriers to the maintenance of vocational competency and the effective transfer of corporate knowledge and skills?
- ♦ What models from within these organizations or other educational sectors or business may be more broadly applicable within Australian VET?

The project will entail conducting semi-structured interviews with several senior managers and circulating a questionnaire amongst middle managers in each RTO.

Individual interviews may take up to one hour. They will be recorded, and notes will be taken. Information obtained will be published; however, at no time will individuals be identified by name. Questionnaires will take 20-30 minutes to complete, and respondents will not be asked to identify themselves by name.

Any personal details that are provided during the course of participation in the project will remain confidential. All data collected for this study will be retained by the Centre Undertaking Research in Vocational Education (CURVE) at the Canberra Institute of Technology and will be stored for a period of seven years.

Participation in the project is voluntary and participants have the right to withdraw their consent at any time.

Any specific questions about the project should be directed to the principal researcher, on the above number.

Thank you again for your interest and cooperation.

Berwyn Clayton
Director/Principal Researcher
Centre Undertaking Research in Vocational Education
Canberra Institute of Technology, PO Box 826, Canberra 2601

Ph: (02) 6207 4844
Fax: (02) 6207 3322
berwyn.clayton@cit.act.edu.au

Appendix D

Organisational consent form

CENTRE UNDERTAKING RESEARCH IN VOCATIONAL EDUCATION (CURVE)
CANBERRA INSTITUTE OF TECHNOLOGY
and
CENTRE for RESEARCH in EDUCATION, EQUITY and WORK (CREEW), UNIVERSITY
OF SOUTH AUSTRALIA
RTO CONSENT FORM

Project Title: Sustaining the skill base in Australian RTOs

Principal researcher: Berwyn Clayton (Director, CURVE)
Phone: (02) 6207 4844

- ◆ I have read the Information Sheet, and understand the nature and the purpose of the research project. I agree that the Registered Training Organisation named below can take part.
- ◆ I understand that neither I nor my RTO may directly benefit from taking part in the project.
- ◆ I understand that I can withdraw my RTO's participation from the project at any stage and that this will not affect our status now or in the future.
- ◆ I understand that employees of this RTO may be audio-taped during interviews and focus groups.
- ◆ I understand that the tape will be stored at the Centre Undertaking Research in Vocational Education (CURVE) for a period of seven years and that only the researchers directly involved in the exercise will have access to it.
- ◆ I understand that information gained during the project may be published.
- ◆ I understand that neither I nor any members of my staff will be identified by name, only by position, and that all personal details will remain confidential.
- ◆ I confirm that I am over 18 years of age.

Please delete whichever does not apply:

I give consent for the research to use my organisation's name

OR

I would prefer a pseudonym to be used in place of my organisation's name.

Name: _____
Position: _____
Email address: _____
Organisation: _____
Signature: _____
Date: _____

Please return this form by mail or fax to:

Berwyn Clayton
Director
CURVE at CIT
PO Box 826
Canberra City ACT 2601
Fax: (02) 6207 3322

Appendix E

Consent form

CENTRE UNDERTAKING RESEARCH IN VOCATIONAL EDUCATION (CURVE)
CANBERRA INSTITUTE OF TECHNOLOGY
and
CENTRE for RESEARCH in EDUCATION, EQUITY and WORK (CREEW), UNIVERSITY
OF SOUTH AUSTRALIA
CONSENT FORM

Project Title: **Sustaining the skill base in Australian RTOs**

Principal researcher: Berwyn Clayton (Director, CURVE)
Phone: (02) 6207 4844

- ◆ I have read the Information Sheet, and the nature and the purpose of the research project have been explained to me. I understand and agree to take part.
- ◆ I understand that I may not directly benefit from taking part in the project.
- ◆ I understand that I can withdraw from the project at any stage and that this will not affect my status now or in the future.
- ◆ I understand that I may be audio-taped during the interview/focus group.
- ◆ I understand that the tape will be stored at the Centre Undertaking Research in Vocational Education (CURVE) for a period of seven years and that only the researchers directly involved in the exercise will have access to it.
- ◆ I understand that, while information gained during the project may be published, I will not be identified and my personal details will remain confidential.
- ◆ I confirm that I am over 18 years of age.

Name: _____

Position: _____

Email address: _____

Organisation: _____

Signature: _____

Date: _____

I have explained the exercise to the participant and consider that he/she understands what is involved.

Researcher's signature and date:

.....

Please fax this form to: Berwyn Clayton (Director, CURVE)
Fax: (02) 6207 3322

Appendix F

Interview schedule: CEOs and HR managers

Interview overview

This research is looking at two pressing issues facing many TAFE institutes in Australia today. These are:

- ♦ the transfer of knowledge from more experienced, longer-serving teachers to those who are less experienced prior to their leaving TAFE, and
- ♦ the maintenance of teachers' vocational/technical currency given the requirements of the AQTF

The interview will involve a number of general questions about your teaching workforce (Part A), then you will be asked about your organisational approach to the transfer of knowledge (Part B) and your approach to the maintenance of teacher technical currency (Part C).

Please note that additional explanatory notes and definitions are included as an appendix to this schedule.

Part A: About your workforce

1. Approximately how many teaching staff are employed in your institution?

2. Does your organisation monitor the age profile of its workforce? Yes / No

If yes, what use is made of that information?

3. Has your TAFE engaged in scenario planning or other such activities to help anticipate future directions for the organisation and its workforce? Yes / No

What has this entailed? (brief description)

4. What do you anticipate will be the likely impact(s) of the ageing workforce on your organisation?

-
5. At this stage, does your organisation have any strategies in place to manage the consequences of workforce ageing? Yes / No

If yes, what form do these strategies take?

If no, how do you think that you will manage this issue in the future?

6. Given these circumstances, what do you consider are the **three major imperatives** for you with regard to your teaching workforce in the next 5 years?

Part B: Transfer / sharing of knowledge

7. Has your TAFE identified particular knowledge that is seen as critical and should not be lost to the organisation through staff attrition? Yes / No

If yes, under what broad headings would you categorise this critical knowledge?

8. Does your organisation have a knowledge transfer policy? Yes / No

If, yes is it possible to obtain a copy?

9. Are you actively encouraging the sharing and distribution of pedagogical and other organisational knowledge between more experienced, long-serving teachers and less experienced teachers? Yes / No

10. Which, if any, of the following processes are you using to facilitate knowledge transfer?
[Please refer to the explanatory notes for further clarification]

- | | | | |
|-------------------------|--------------------------|-------------------------------------|--------------------------|
| After-action reviews | <input type="checkbox"/> | Identifying & sharing best practice | <input type="checkbox"/> |
| Communities of practice | <input type="checkbox"/> | Knowledge harvesting | <input type="checkbox"/> |
| Knowledge audits | <input type="checkbox"/> | Peer assists | <input type="checkbox"/> |
| Mentoring | <input type="checkbox"/> | Storytelling | <input type="checkbox"/> |
| Exit interviews | <input type="checkbox"/> | White pages | <input type="checkbox"/> |
| Knowledge centres | <input type="checkbox"/> | Social network analysis | <input type="checkbox"/> |

11. How have these strategies been promoted and supported in the organisation?

12. Have particular staff been tasked with responsibilities in this regard? Yes / No

13. What are the **three major barriers** that might impede the effective transfer of knowledge in your organisation? *(Please tick any three)*

- | | |
|--|--------------------------|
| Knowledge not seen as valuable/valued | <input type="checkbox"/> |
| Reluctance to share personal expertise | <input type="checkbox"/> |
| Reluctance to document knowledge | <input type="checkbox"/> |
| Reluctance to accept knowledge of others | <input type="checkbox"/> |
| Lack of reward or incentive | <input type="checkbox"/> |
| Lack of goodwill | <input type="checkbox"/> |
| Work overload | <input type="checkbox"/> |
| Knowledge sharing not seen as a priority | <input type="checkbox"/> |

Other: *(please explain)*

14. What do you consider are the major benefits of creating avenues for transfer of knowledge from experienced teachers to those less experienced?

15. Do you know of any knowledge transfer strategies from sectors outside VET that could be useful in your organisation? Yes / No

If yes, what are they?

Part C: Maintenance of vocational competency

16. AQTF Standard 7 Competence of RTO Staff sets in place the requirement for teachers to possess the relevant vocational competencies, at least to the level being assessed.

What do you consider 'relevant vocational competencies' covers?

17. What strategy(ies) have you put in place in your organisation to address this AQTF requirement?

18. Which of these approaches do you consider give the best value for money?

19. What do you consider are the **three major impediments** that make it difficult for teachers to maintain their vocational competency?

20. Are there strategies for maintaining vocational competency used by other sectors/professions/business that you consider might be useful in your organisation?

Yes / No

Please explain

Explanatory notes

After action reviews

A discussion of a project or an activity that enables the individuals involved to determine what they have learned from the experience.

Communities of practice

Linking people together to develop and share knowledge around specific themes.

Knowledge audits

A systematic process to identify an organisation's knowledge needs, resources and flows, as a basis for understanding where and how better knowledge management can add value.

Mentoring

Using experienced people to provide support, guidance and sponsorship for novices or those less experienced.

Exit interviews

A strategy for capturing the knowledge of people before they leave an organisation.

Knowledge centres

Like libraries, but with a broader sphere of activity which includes connecting people with each other as well as with print-based and electronic information.

Identifying and sharing best practice

Capturing best practices discovered in one part of the organisation (or externally) and sharing them for the benefit of all.

Knowledge harvesting

Capturing the knowledge of 'experts' and making it more broadly available.

Peer assists

A tool developed at BP-Amoco used to learn from the experiences of others before commencing an activity or project.

Storytelling

Sharing knowledge through telling stories in a meaningful and interesting way.

White pages

An online resource that allows people to find colleagues with specific knowledge and expertise.

Social network analysis

Mapping relationships between people, groups and organisations.

Appendix G

Interview schedule: Educational senior managers

Interview overview

This research is looking at two pressing issues facing many TAFE institutes in Australia today. These are:

- ✧ the transfer of knowledge from more experienced, longer-serving teachers to those who are less experienced prior to their leaving TAFE, and
- ✧ the maintenance of teachers' vocational/technical currency given the requirements of the AQTF

The interview will involve a number of general questions about your teaching workforce (Part A), then you will be asked about your organisational approach to the transfer of knowledge (Part B) and your approach to the maintenance of teacher technical currency (Part C).

Please note that additional explanatory notes and definitions are included as an appendix to this schedule.

Part A: About your teaching staff

1. What discipline / vocational areas are covered in your delivery area? (*collect documentary evidence*)

2. Approximately how many teaching staff do you manage overall?

3. Has your delivery area engaged in scenario planning or other such activities to help anticipate future directions for the organisation and its workforce? Yes / No

What has this entailed? (brief description)

4. How would you describe the teaching profile for your **established or traditional** areas of delivery, eg trades? *(Please consider age, length of service, other experience, etc)*

5. How would you describe the teaching profile for your **new or emerging** areas of delivery? *(Please consider age, length of service, other experience, etc)*

6. What do you anticipate will be the likely impact(s) of the ageing workforce on your delivery area?

7. At this stage, does your delivery area have any strategies in place to manage the consequences of workforce ageing? Yes / No

If yes, what form do these strategies take?

If no, how do you think that you will manage this issue in the future?

8. Given these circumstances, what do you consider are the **three major imperatives** for you with regard to your teaching workforce in the next 5 years?

Part B: Knowledge transfer

9. Has your delivery area identified particular knowledge that is seen as critical and should not be lost to the organisation through staff attrition? Yes / No

If yes, under what broad headings would you categorise this critical knowledge?

10. Does your delivery area have a knowledge transfer policy? Yes / No

If yes, is it possible to obtain a copy?

11. Are you actively encouraging the sharing and distribution of pedagogical and other organisational knowledge between more experienced, long-serving teachers and less experienced teachers? Yes / No

12. Which, if any, of the following processes are you using to facilitate knowledge transfer?
[Please refer to the explanatory notes for further clarification]

| | | | |
|-------------------------|--------------------------|-------------------------------------|--------------------------|
| After-action reviews | <input type="checkbox"/> | Identifying & sharing best practice | <input type="checkbox"/> |
| Communities of practice | <input type="checkbox"/> | Knowledge harvesting | <input type="checkbox"/> |
| Knowledge audits | <input type="checkbox"/> | Peer assists | <input type="checkbox"/> |
| Mentoring | <input type="checkbox"/> | Storytelling | <input type="checkbox"/> |
| Exit interviews | <input type="checkbox"/> | White pages | <input type="checkbox"/> |
| Knowledge centres | <input type="checkbox"/> | Social network analysis | <input type="checkbox"/> |

13. How have these strategies been promoted and supported in your delivery area?

14. Have particular staff been tasked with responsibilities in this regard? Yes / No

15. What are the **three major barriers** that might impede the effective transfer of knowledge in your delivery area? *(Please tick any three)*

Knowledge not seen as valuable/valued

- Reluctance to share personal expertise
- Reluctance to document knowledge
- Reluctance to accept knowledge of others
- Lack of reward or incentive
- Lack of goodwill
- Work overload
- Knowledge sharing not seen as a priority
- Other: *(please explain)*

16. What do you consider are the major benefits of creating avenues for transfer of knowledge from more experienced teachers to those less experienced?

17. Do you know of any knowledge transfer strategies from sectors outside VET that could be useful in your delivery area? Yes/No
If yes, what are they?

Part C: Maintenance of vocational competency

18. AQTF Standard 7 Competence of RTO Staff sets in place the requirement for teachers to possess the relevant vocational competencies, at least to the level being assessed.

What do you consider 'relevant vocational competencies' covers?

19. What strategy(ies) have you put in place in your delivery area to address this AQTF requirement?

20. Which of these approaches do you consider give you the best value for money?

21. What do you consider are the **three major impediments** that make it difficult for teachers to maintain their vocational competency?

22. Are there strategies for maintaining vocational competency used by other sectors/professions/business that you consider might be useful in your delivery area?

Yes / No

Please explain

After action reviews

A discussion of a project or an activity that enables the individuals involved to determine what they have learned from the experience.

Communities of practice

Linking people together to develop and share knowledge around specific themes.

Knowledge audits

A systematic process to identify an organisation's knowledge needs, resources and flows, as a basis for understanding where and how better knowledge management can add value.

Mentoring

Using experienced people to provide support, guidance and sponsorship for novices or those less experienced.

Exit interviews

A strategy for capturing the knowledge of people before they leave an organisation.

Knowledge centres

Like libraries, but with a broader sphere of activity which includes connecting people with each other as well as with print-based and electronic information.

Identifying and sharing best practice

Capturing best practices discovered in one part of the organisation (or externally) and sharing them for the benefit of all.

Knowledge harvesting

Capturing the knowledge of 'experts' and making it more broadly available.

Peer assists

A tool developed at BP-Amoco used to learn from the experiences of others before commencing an activity or project.

Storytelling

Sharing knowledge through telling stories in a meaningful and interesting way.

White pages

An online resource that allows people to find colleagues with specific knowledge and expertise.

Social network analysis

Mapping relationships between people, groups and organisations.

Appendix H

Questionnaire for middle managers

Questionnaire for Middle Managers

What the project is about

This research, *Sustaining the skill base of Australian RTOs*, is looking at two pressing issues facing many TAFE institutes in Australia today - the transfer of knowledge from more experienced, longer-serving teachers to those who are less experienced, prior to their leaving TAFE, and the maintenance of teachers' vocational/technical currency given the requirements of the AQTF.

The aims of the project are to identify and describe models of good practice supporting knowledge transfer and the maintenance of teachers' technical currency from within Australian TAFE and organisations outside the educational sector.

Who is involved

In total, 16 TAFE institutes across Australia are participating in this study. To date CEOs and senior managers have been interviewed.

This questionnaire, designed for people such as yourselves who are managing delivery areas and teams of teachers, includes a number of general questions describing the teachers you manage (Part A), on your area's approach to the transfer of knowledge (Part B) and the strategies you have in place to maintain your teachers' vocational/technical currency (Part C).

Confidentiality

You are not being asked to provide your name and the information that you provide will remain confidential.

Further information

If you require further information about the project, please contact the project manager, Berwyn Clayton at berwyn.clayton@cit.act.edu.au

Please FAX the completed questionnaire by **20th FEBRUARY 2004** to
CURVE @ Canberra Institute of Technology
Fax no: (02) 62073322

Part A: About your teaching staff

A1. What discipline / vocational areas are covered in your delivery area? *(Please list all that apply, including smaller programs and commercial delivery)*

A2. Approximately how many teaching staff do you manage? _____

A3. What percentage of your teachers are:

Permanent/long term full time teachers? _____

Casual/sessional teachers? _____

A4. Of the teachers that you are managing, approximately what percentage have been teaching in VET

Less than 5 years _____

More than 15 years _____

A5. Have you engaged in activities such as scenario planning to help anticipate future directions for your delivery area and your teaching staff?

Yes

No

A6. What do you consider are the **three major imperatives** for you with regard to your teaching staff in the next 5 years? *(Please indicate importance by numbering 1 to 3 with 1 being the most significant imperative)*

Increasing teacher skills

Retaining able teachers

Managing the ageing of the teaching workforce

Increasing the flexibility of the teaching workforce

Increasing the diversity of the teaching workforce

Other (please explain)

A7. Is the ageing of your teaching workforce going to be a problem for you as a manager in the next 3 to 5 years?

Yes

No

A8. If you have answered YES to Question A7, please explain briefly why the ageing workforce might be a problem for your delivery area. If you have answered NO, please explain briefly why it won't be a problem.

A9. At this stage, does your delivery area have any strategies in place to manage the consequences of workforce ageing?

Yes

No

If yes, what form do these strategies take? (Briefly explain)

Part B: Transfer of knowledge

B1. Has your delivery area identified particular areas of knowledge that are seen as critical and should not be lost through staff attrition?

Yes

No

If YES, what are they?

B2. Does your delivery area have a knowledge transfer policy?

Yes

No

B3. Are you actively encouraging the sharing and distribution of pedagogical and other organisational knowledge between more experienced, long-serving teachers and less experienced teachers?

Yes

No

B4. Which, if any, of the following processes are being used in your delivery area to facilitate knowledge transfer? *(Please refer to the explanatory notes on the last page for further clarification)*

- | | | | |
|-------------------------------|--------------------------|-------------------------------------|--------------------------|
| After-action reviews | <input type="checkbox"/> | Identifying & sharing best practice | <input type="checkbox"/> |
| Communities of practice | <input type="checkbox"/> | Knowledge harvesting | <input type="checkbox"/> |
| Knowledge audits | <input type="checkbox"/> | Peer assists | <input type="checkbox"/> |
| Mentoring | <input type="checkbox"/> | Storytelling | <input type="checkbox"/> |
| Exit interviews | <input type="checkbox"/> | White pages | <input type="checkbox"/> |
| Knowledge centres | <input type="checkbox"/> | Social network analysis | <input type="checkbox"/> |
| Other <i>(please explain)</i> | | | |

B5. Have particular staff been tasked with responsibilities in this regard?

- Yes
- No

B6. What are the **three major barriers** that might impede the effective transfer of knowledge in your delivery area? *(Please indicate importance by numbering 1 to 3 with 1 being the most significant imperative)*

- Knowledge not seen as valuable/valued _____
- Reluctance to share personal expertise _____
- Reluctance to document knowledge _____
- Reluctance to accept knowledge of others _____
- Lack of reward or incentive _____
- Lack of goodwill _____
- Work overload _____
- Knowledge sharing not seen as a priority _____
- Other: *(please explain)*

- B7. The following list outlines some of the benefits that can be gained from creating avenues for transfer of knowledge from more experienced teachers to those less experienced. Which do you consider are the **three most important benefits** of encouraging transfer?

(Please indicate importance by numbering 1 to 3 with 1 being the most important benefit)

It avoids reinventing 'wheels' _____

Novice teachers are up-skilled more quickly _____

It is the most efficient form of professional development _____

It assists in making personal knowledge both explicit and public _____

Teachers' concepts of 'owning' knowledge are broken down _____

It fosters a learning culture within work teams _____

Other *(please explain)*:

Part C: Maintenance of vocational competency

- C1. AQTF Standard 7 Competence of RTO Staff sets in place the requirement for teachers to possess the relevant vocational competencies, at least to the level being assessed.

What do you consider 'relevant vocational competencies' covers? *(Briefly explain your views)*

- C2. Which, if any, of the following strategies are teaching staff using in your delivery area to ensure that they have current vocational competency? *(Tick all that apply)*

| | | | |
|-----------------------------------|--------------------------|--------------------------------------|--------------------------|
| Paid/unpaid employment | <input type="checkbox"/> | Teacher networks | <input type="checkbox"/> |
| Return to industry | <input type="checkbox"/> | Workshops/forums | <input type="checkbox"/> |
| Industry partnerships | <input type="checkbox"/> | Involvement with professional bodies | <input type="checkbox"/> |
| Practice firms | <input type="checkbox"/> | Judging competitions | <input type="checkbox"/> |
| Job rotation/secondment | <input type="checkbox"/> | Holding industry licence | <input type="checkbox"/> |
| Enrolment in TAFE courses/modules | <input type="checkbox"/> | Enrolment in non-TAFE courses | <input type="checkbox"/> |
| Industry study tours | <input type="checkbox"/> | Retraining programs | <input type="checkbox"/> |

- C4. Which of the approaches set out in Question C2 do you consider give your teaching area the best value for money in ensuring teachers have current vocational competency?

C5. What do you consider are the **three major impediments** that make it difficult for teachers to maintain their vocational competency?

Explanatory notes

After action reviews

A discussion of a project or an activity that enables the individuals involved to determine what they have learned from the experience.

Communities of practice

Linking people together to develop and share knowledge around specific themes.

Knowledge audits

A systematic process to identify an organisation's knowledge needs, resources and flows, as a basis for understanding where and how better knowledge management can add value.

Mentoring

Using experienced people to provide support, guidance and sponsorship for novices or those less experienced.

Exit interviews

A strategy for capturing the knowledge of people before they leave an organisation.

Knowledge centres

Like libraries, but with a broader sphere of activity which includes connecting people with each other as well as with print-based and electronic information.

Identifying and sharing best practice

Capturing best practices discovered in one part of the organisation (or externally) and sharing them for the benefit of all.

Knowledge harvesting

Capturing the knowledge of 'experts' and making it more broadly available.

Peer assists

A tool developed at BP-Amoco used to learn from the experiences of others before commencing an activity or project.

Storytelling

Sharing knowledge through telling stories in a meaningful and interesting way.

White pages

An online resource that allows people to find colleagues with specific knowledge and expertise.

Social network analysis

Mapping relationships between people, groups and organisations.

Appendix I

Additional data on middle manager responses

These tables show results from five of the questions in the questionnaire delivered to middle managers.

Table 7: Percentage of permanent teachers within teaching area identified by middle managers

| Percentage of permanent staff | Middle managers responses | |
|-------------------------------|---------------------------|-----|
| | No. | % |
| 80 - 99 | 11 | 22 |
| 60 - 79 | 10 | 19 |
| 40 - 50 | 5 | 10 |
| 20 - 39 | 15 | 29 |
| 0 - 19 | 10 | 20 |
| | 52 | 100 |

Table 8: Middle manager ranking of major imperatives for teaching area in next 3 to 5 years (n=52)

| Major imperative | Middle manager responses (%) | | | |
|--|------------------------------|------|------|---------|
| | 1 | 2 | 3 | Total % |
| Increasing the flexibility of the teaching workforce | 50.0 | 13.5 | 9.6 | 73.1 |
| Increasing teacher skills | 30.8 | 26.9 | 13.5 | 71.2 |
| Increasing the diversity of the teaching workforce | 26.9 | 9.6 | 21.2 | 57.7 |
| Retaining able teachers | 23.1 | 17.3 | 11.5 | 51.9 |
| Managing the ageing of the teaching workforce | 19.2 | 5.8 | 9.6 | 34.6 |
| Other | 3.8 | | | 3.8 |

Table 9: Strategies used by teaching staff to maintain vocational competency (n=51)

| Strategy | Middle managers responses | |
|--------------------------------------|---------------------------|------|
| | No. | % |
| Teacher networks | 37 | 72.5 |
| Workshops/forums | 36 | 70.6 |
| Involvement with professional bodies | 35 | 68.6 |
| Enrolment in TAFE courses/modules | 33 | 64.7 |
| Industry partnerships | 30 | 58.8 |
| Paid/unpaid employment | 25 | 49.0 |
| Return to industry | 25 | 49.0 |
| Holding industry licence | 22 | 43.1 |
| Enrolment in non-TAFE courses | 16 | 31.4 |
| Judging competitions | 15 | 29.4 |
| Industry study tours | 11 | 21.6 |
| Retraining programs | 10 | 19.6 |
| Practice firms | 8 | 15.7 |
| Job rotation/secondment | 5 | 9.8 |

Table 10: Middle manager ranking of benefits of knowledge transfer (n=52)

| Barrier | Middle manager responses (%) | | | |
|--|------------------------------|----------|------|---------|
| | 1 | Rankings | | Total % |
| | | 2 | 3 | |
| It fosters a learning culture within work teams | 42.3 | 15.4 | 21.2 | 78.9 |
| It avoids reinventing 'wheels' | 26.9 | 23.1 | 17.3 | 67.3 |
| Novice teachers are up-skilled more quickly | 17.3 | 26.9 | 15.4 | 59.6 |
| It is the most efficient form of professional development | 13.5 | 11.5 | 17.3 | 42.3 |
| Teachers' concepts of 'owning' knowledge are broken down | 5.8 | 17.3 | 15.4 | 38.5 |
| It assists in making personal knowledge both explicit and public | 3.8 | - | 3.8 | 7.6 |

Table 11: Middle manager ranking of major barriers to effective knowledge transfer (n=51)

| Barrier | Middle manager responses (%) | | | |
|--|------------------------------|----------|------|---------|
| | 1 | Rankings | | Total % |
| | | 2 | 3 | |
| Work overload | 54.9 | 15.7 | 5.9 | 76.5 |
| Reluctance to document knowledge | 17.6 | 15.7 | 13.7 | 47.1 |
| Knowledge sharing not seen as a priority | 13.7 | 15.7 | 3.9 | 33.3 |
| Lack of reward or incentive | 13.7 | 5.9 | 11.8 | 31.4 |
| Reluctance to share personal expertise | 15.7 | 1.9 | 5.9 | 23.5 |
| Reluctance to accept knowledge of others | 5.9 | 9.8 | 3.9 | 19.6 |
| Knowledge not seen as valuable/valued | 3.9 | 3.9 | 11.8 | 19.6 |

Appendix J

Knowledge transfer in action

In scanning the environment beyond vocational education and training in Australia, a number of models of knowledge transfer in action were identified as having some relevance to TAFE institutes. Largely driven by a business imperative to manage knowledge loss due to ageing, these examples provide insights into the way a range of markedly different organisations are implementing strategies to share crucial technical and corporate, or organisational, knowledge before it walks out the door.

Mentoring

- ✧ Bluescope Steel (formerly BHP) have a mentoring scheme where managers are required to identify three workers from anywhere in the organisation and mentor them.
- ✧ At Fremantle Hospital in Western Australia, preceptorship is a structured orientation process which supports new staff or transferred staff, not just at orientation, but through becoming a welcomed, reliable staff member – part of the team. The process is different to more common forms of mentoring in that it is a structured learning approach. The preceptor offers guidance that covers not just the critical knowledge of how to do the job, to a standard of reliability and trust, but socialisation practices as well. It offers role modelling, which helps to build the learning culture. It depends on people who are keen to teach, keen to share, who know the system and the people in it. These people are in the actual work setting, not outside the system, and they are expected to support both the transfer and capture of knowledge. The aim is that every one in an organisation should be a preceptor. The informant explained:

A preceptor is a mature, experienced person and their role is to help identify learning needs and share knowledge, apply principles of adult education, help plan learning, and resolve issues. They are a role model, socialiser for new employees - they reinforce organisational culture. They also work as a nurse.

Yellow pages

- ✧ In the Public Service Commission of Canada, a ‘yellow pages’ has been developed which is designed to assist people within the Commission to locate internal sources of knowledge on organisational issues. The telephone listing is organised according to the areas of expertise and interests of employees.
- ✧ Statistics Canada has an Alumni Program to engage the services of selected retirees who have specialized skills and expertise. Statistics Canada has established an inventory of qualified retirees interested in sharing their expertise and skills. The inventory provides access to corporate, or organisational, knowledge, analytical skills, subject matter or operational expertise. Typically, employees express their interest in becoming part of the inventory at the time they leave the agency, and individuals are encouraged (or not) to participate. Retirees remain in the inventory for two years, and are asked, periodically, if they wish to remain in the inventory. Retirees are often hired as ‘casual’ employees. The agency finds that casual employment is a good option when managers want to obtain specialized skills and bring back expertise. This approach also has the advantage of not affecting a retiree’s pension. It is well suited to emergency situations and short-term projects.
- ✧ Newly merged BP Amoco, a multi-national company, has set in place a range of strategies for sharing knowledge across the various components of the workforce, regardless of their

location. A key strategy is the company's extended version of yellow pages, a directory of informal technical knowledge and expertise, entitled 'Connect'. Designed to encourage knowledge sharing and collaboration, the web-based directory contains the names of more than 12 000 employees. Its primary aim is to generate ten- minute telephone calls and e-mail help requests that could save tens of thousands of dollars by avoiding 'wheel reinvention'.

This approach focuses on employees learning by doing and clearly acknowledges the importance of human interaction in transferring both explicit and implicit knowledge. Participants voluntarily list their names and expertise, thus signifying their willingness to share their knowledge when contacted by a fellow employee.

Storytelling

- ✧ At the World Bank, a major mechanism for transferring knowledge is storytelling. The knowledge and expertise of people determined to be subject matter experts is elicited through extensive audio-taped or video-taped interviews. They are encouraged to relate stories that clearly describe processes and outcomes, so that others can learn from their experience. Presenting real-life, problem-solving situations allowed each individual in the audience to re-cast the stories into his or her own contextual work environment. Taped information and supporting documentation go onto websites or are transferred to CD-ROMs for targeted distribution to potential users of the knowledge. Follow-up mentoring by subject matter experts is also encouraged by the organisation, where feasible.

Systematic knowledge transfer

- ✧ In Clayton Utz, a legal firm, a knowledge management or transfer system has been built that the solicitors themselves populate with knowledge. It is based on an understanding that the people who own the knowledge have to be the ones to populate the system. Solicitors charge for every second of their day, so spending time to populate their knowledge managements system has to have enormous value. The system is put together so that knowledge transfer becomes part of an automatic process, and so that the solicitors value what they get there so much that they are prepared to make the effort. It was suggested: 'It's about people getting enough value back, whereas at the moment a lot of it (knowledge transfer) is altruistic'.

Appendix K

Integrated knowledge transfer models

A number of organisations have developed integrated knowledge sharing approaches that have some relevance to TAFE institutes. Extended descriptions of these integrated models have been drawn from:

- ✧ Tennessee Valley Authority, United States
- ✧ National Health Service, United Kingdom
- ✧ The Generic Learning and Teaching Centre, United Kingdom
- ✧ Australia Post
- ✧ Transport Canada.

At the time of writing, these were all flourishing approaches to knowledge transfer. They continue to evolve; for example, Health Canada has now taken over the flag bearer role from Transport Canada in the Canadian Government Public Service's efforts in building a collaborative culture for knowledge sharing.

Tennessee Valley Authority, USA

The Tennessee Valley Authority (TVA) claims to be America's largest public power company. Downsizing over a period of years has left the organisation with a median employee age of slightly more than 46. Now attrition, mainly in the form of retirements, is likely to cost the TVA up to 40% of its workforce in the next five years.

This impending loss of knowledge is especially relevant given the nature of the work of the TVA. In addition, some highly-specialised, highly technical employees have emerged over the years – employees whose knowledge is critical to the operation and maintenance of amongst other things the organisation's eleven coal-fired plants, twenty-nine hydroelectric dams, three nuclear plants, and 17 000 miles of transmission lines. Influences on the organisation are:

- ✧ The TVA's ability to retain and grow its customer base in a competitive environment is dependent on maintaining a highly skilled, knowledgeable, well-trained, productive, motivated, diverse and high-performing work force.
- ✧ Long-term success requires that the TVA develop the workforce capabilities to become the energy supplier and employer of choice. To do this, they must recruit, retain and reward highly skilled employees, while maintaining or reducing labour costs.
- ✧ Much of the workforce technical knowledge is undocumented 'tribal' knowledge.
- ✧ There is pressure to shorten the 'time to competence' of new employees.

The TVA knowledge transfer strategy is a simple process to identify at-risk knowledge, assess the risk, and mitigate the impact of critical knowledge loss. It involves answering three fundamental questions:

1. Specifically, what knowledge is being lost? (What?)

2. What are the business consequences of losing each item of knowledge? (So what?)
3. What can we do about each item? (Now what?)

As part of this process to ensure corporate continuity, the TVA surveys its employees about their retirement plans. Although participation is voluntary, in the past, 84% of the workforce has stated their intended retirement date (which they are free to change).

Next, those intending to leave, together with their supervisors, are interviewed to identify both the explicit and implicit knowledge associated with that particular job. By asking a question such as ‘What knowledge will the TVA miss most when you leave?’ answers point to higher-order kinds of knowledge such as problems, analysis and trouble shooting, or deeper understanding of the idiosyncrasies of a piece of equipment.

The next step involves the analysis of the importance of the loss of the identified knowledge by evaluating it against the following set of questions:

- ✧ What is the relative *importance* of the knowledge?
- ✧ What is the relative *immediacy* of knowledge loss?
- ✧ What is the *cost* and *feasibility* of recovering this knowledge, if lost?
- ✧ How difficult is it to *transfer* this knowledge?

Once the focus is on the knowledge and skills that are truly critical, specific plans are established to retain the knowledge/skill or to lessen the impact of losing it. A set of tools has been developed to support the knowledge retention assessment strategy at the TVA. These exemplar materials, which include activities, templates, sets of questions and guidelines, are located on the TVA website.

The Authority’s approaches to knowledge transfer include amongst other things internal best practice sharing, communities of interest, designated experts networks, recording and codification of explicit knowledge and transfer of tacit knowledge through mentoring.

TVA has established a culture of sharing which is encouraged through orientation and training. Jerry Landon, Corporate Tennessee Valley Authority University Senior Consultant, Assessments and Evaluations, who developed and piloted the initial process, outlined the following as key factors in initiating any strategy for retaining and sharing knowledge within an organisation:

- ✧ use a logical process [for starting off] which must involve identifying and prioritising the specific skills and knowledge at risk
- ✧ focus on critical positions where loss is the greatest threat
- ✧ develop concrete, actionable responses to mitigate the loss
- ✧ ensure everyone does their part – management, human resources, supervisors, process owners and knowledge management professionals. (It should not be the domain of human resources alone.)

In discussing the barriers to knowledge transfer, Landon has commented:

I often hear concerns about employees not being willing to share information because ‘knowledge is power’. I’ve not seen that. More often the ‘barrier’ is simply that knowledge retention is not seen as important or urgent. As you might expect, most ‘experts’ are kept very busy with immediate concerns. Unless management stress the expectations (and rewards and consequences) regarding transfer/retention *and* the employees see a high-value payoff, knowledge retention takes a back seat.

Two major concerns impacting on knowledge transfer highlighted by Landon relate to costs and complacency. Firstly he suggests that we may not invest in the capture, management and sharing

of knowledge because we're focused on short-term cost savings. Secondly he suggests that 'as we reduce the worst risks, we think the issue is solved or rather we have management who, because of their own imminent retirements, don't take ownership of the problem'.

In summary, Landon has noted:

I'll know we're doing it [knowledge transfer] well when we stop thinking, worrying and fretting about it! I very much feel that we are in a catch-up mode and are trying to capture knowledge – or mitigate loss – right before it walks out the door

If our culture, processes and tools were really effective, we'd be capturing knowledge at the moment it's generated.

[Further], we'd have a culture that not only rewarded and encouraged knowledge capture and sharing but expected it. Hoarding or being careless with information would be as inappropriate as hoarding or being careless with cash, equipment etc.

We'd value and reward proactive steps to document, map, archive, share and refine knowledge. We'd be better coaches and learners. We'd share experts across divisional boundaries. We'd embrace standardization and 'proceduralization' AND creativity and risk taking. We'd really see knowledge and skill as our competitive advantage.

- ✧ For further information about the Tennessee Valley Authority approach to retaining and sharing knowledge read *Knowledge retention: preventing knowledge from walking out the door -an overview of processes & tools at the Tennessee Valley Authority* located at:
<http://www.tva.gov/knowledgeretention/pdf/overview.pdf>
- ✧ Details of the steps in knowledge transfer and associated tools can be found at:
<http://www.tva.gov/knowledgeretention>
- ✧ A presentation by Jerry Landon entitled *A briefing on knowledge retention: capturing knowledge before it walks out the door* is located at:
<http://www.tva.gov/knowledgeretention/pdf/briefing.pdf>

National Health Service, UK

Since 1997 the National Health Service (NHS) has promoted policies to create a more patient-centred service. The move is similar to that of Australia's vocational education and training sector promoting client-centred education and training.

The NHS decided that in order to move to the patient-centred model, all levels of staff (and their clients) needed the right knowledge, in the right place, at the right time. The ultimate goal was to create a continuous cycle of transferring knowledge in order to provide better healthcare.

To achieve this, in 2000 the NHS Plan mapped out a 10-year pathway to change the health service and its 1.25 million staff. Bringing the plan to life are national, interlinking initiatives that build on past structures and processes, and create new ones based on knowledge management.

Some of these initiatives are a National Knowledge Service that integrates the development of knowledge systems, a NHS Information Authority that supports knowledge management, and the NHS University. However, knowledge sharing is not all on this national level. These large-scale initiatives devolve power and decision-making to the local healthcare level.

For those interested in finding out how to share knowledge NHS-style, in a self-sustaining way, the NHS website leads to a plethora of options including the Knowledge Management Toolbox, the National electronic Library for Health, and the Learning Zone.

Knowledge Management Toolbox

This is an inventory of tools and techniques for knowledge management, plus advice on how to create the right environment for knowledge transfer and how to measure the value of knowledge management. It aims to ‘cut out the hype, clear up some of the confusion, and provide some useful, practical advice’ on knowledge management. Its ultimate goal is to provide knowledge management techniques to help percolate both individuals’ clinical expertise and the best available research through to healthcare professionals.

- ✧ The Toolbox can be found on the NHS website in a ‘knowledge management specialist library’ – a part of the online National electronic Library for Health at:
http://www.nelh.hhs.uk/knowledge_management
- ✧ A range of references to back up the Toolbox is at:
http://www.nelh.uk/knowledge_management/km5/km5.asp

National electronic Library for Health (NeLH)

This is a digital library developed by the NHS to meet the need for better access to and management of information by patients, healthcare professionals and policy makers and managers. It is open to staff, patients and the public 24 hours to provide a gateway to the best current know-how and knowledge. It is a medical and clinical knowledge base structured like a physical library with central ‘floors’ of Knowledge and Know-how, plus 19 specialist libraries. It has a whole section on knowledge management, plus links to other services such as a patient information service. You can take tours, read a newsletter, check out the document of the week, link to partner libraries, or just run a site search or medical dictionary search.

- ✧ The NeLH is at <http://www.nelh.nhs.uk>
- ✧ One of the many interesting links is to the Digital Libraries Network (DLNET) - a virtual community for health librarians, that provides a support network, materials, templates, tools, an online know-how resource, and a further reading section. This is at:
<http://www.hnelh.nhs.uk/dlnet>

Learning Zone

This is a section of the NHS University, a corporate vocational university for the NHS. This university aims to give everyone in the health service, from doctors to cleaners, a chance to develop by moving along a ‘skills escalator’. The Learning Zone is an area of the NHSU which deals with strategies for learning and learning support to help people use knowledge effectively, such as

- ✧ a Learning Needs Observatory that helps the university to tailor programs and services to the needs of healthcare organisations and workers
- ✧ CHAINs, which are interlinked mutual support networks providing contact, help, advice and information. The original CHAIN is a 3,000 strong network of different groups including frontline healthcare professionals, teachers, managers and librarians
- ✧ a Learning Adviser Tutor Development Program that provides a range of accredited pathways to enable NHSU learning advisers to develop their skills. (Learning advisers are all tutors, mentors, facilitators and anyone involved in delivering courses and supporting learners.)

- ✧ The NHS University is at:
<http://www.nhsu.nhs.uk>
- ✧ The Learning Zone (with its links to the Learning Needs Observatory, Chains and the Learning Adviser Tutor Development Program) is at:
<http://www.nhsu.nhs.uk/learning/index.html>

The Generic Learning and Teaching Centre, UK

The Generic Learning and Teaching Centre (GLTC) is a knowledge centre that aims to enhance learning and teaching in further and higher education in the UK. It disseminates and transfers information on good practices and new technologies in learning, brokers information and knowledge, facilitates networks and fosters communities.

It is part of the Learning and Teaching Support Network (LTSN) that was established in 2000 to promote high quality learning and teaching in higher education. The network consists of 24 subject centres based in higher education institutions throughout the UK, and a single generic centre, the GLTC. The LTSN is funded at over seven million pounds sterling per year over its initial five-year period, and is managed and co-ordinated by an executive.

The GLTC works through partnerships, strategically building links across the LTSN and making connections with other academic networks and communities. Its website shows the extent of this knowledge centre. It connects users to:

- ✧ projects – which have a range of outputs such as conferences, databases, discussion groups, publications and web resources. Most projects are in four main thematic areas: assessment, employability, e-learning and widening participation, but there are many others
- ✧ resources – which include three searchable resources: a database of materials produced for the GLTC, a project finder and a glossary
- ✧ news, briefings and listings of GLTC events
- ✧ the means to become involved by joining project network groups, contributing case studies / practitioner reports, joining the contact database and mail list, or becoming an Associate.

People who are concerned with sustaining the skill base of their organisations, despite the drains caused by an ageing workforce, can consult the website to see how a knowledge centre functions to help do this: <http://www/ltsn.ac.uk/genericcentre>. Of particular relevance are two projects on supporting new academic staff and on providing portal services.

Supporting New Academic Staff project

This is a resource database that aims to meet the needs of new academic staff for subject specific resources and for guidance on how to use generic resources in specific disciplines. It provides an opportunity for experienced academic staff to hand on their knowledge to new and/or less experienced staff. The database is intended to support systematic, on-going and self-directed learning as a recognised part of planning or managing the whole of one's working life.

The project team has identified themes, developed resource lists of discipline-specific and generic resources, and established an easily searchable online database. The piloting stage of the project will test the database for usability and seek feedback, to be followed by populating the database, launching web pages and advertising.

- ✧ Information about the project is at:
<http://www.ltsn.ac.uk/genericcentre/index.asp?id=18365>
- ✧ Links to sample resources can be found at:
<http://www.ltsn.ac.uk/genericcentre/index.asp?docid=19398>

Learning and Teaching Portal Services project

This is a collaborative project to build and pilot services designed to foster and promote good practice in learning and teaching in further and higher education in the UK. The portal services aim to provide a web-based gateway to information on many aspects of learning and teaching. As internet resources of educational value have been funded and developed, learners and teachers have expressed the need to be able to search across many of these resources to discover and retrieve information that is not always easily accessible.

Its first phase is 'Connect' - a service which includes a funding opportunities database, an organisations database and a search facility that enables users to locate learning and teaching support materials and resources from a wide range of sources. Searches are targeted at URLs specifically related to learning and teaching.

The LTSN is partially funding this collaboration between primarily the Institute for Learning and Teaching in Higher Education, the British Educational Communications and Technology Agency and the Higher Education Staff Development Agency. The target audience is staff and educational developers, curriculum developers, educational technologists and higher education/further education researchers.

The first portal services were launched in January 2004, allowing users to retrieve relevant information from across a range of resources via a single interface without having to search each one individually. It is not intended for the Portal to become a 'super' portal replacing existing communities of users who currently interact with their 'own' web-sites which have tailored resources and services. It is intended to add value to existing services through providing extra embedded services and to reach new audiences to enhance the quality of learning and teaching.

- ✧ First phase services of the portal project are available at:
www.connect.ac.uk

Australia Post

Australia Post undertook major change programs to improve performance and profitability during the 1990s. This was brought about by its corporatisation in 1989, when it became a government business enterprise, committed to both commercial operations and community service obligations.

The enterprise now operates with this dual commercial/community focus with more than 35,000 full-time and part-time staff. Its 4½ thousand post offices service 1.09 million customers and 9.4 million delivery points every business day.

A new People Management Strategy (2002-3) set the direction for ongoing change, with an emphasis on matching human resources to business requirements. This has resulted in special policies and processes for Indigenous workers, those with English as a second language, women – and the ageing.

The Australia Post workforce is ageing. Its average age is 41.7 years. The largest cohort of female employees has moved from being the 25-29 age group in 1990 to the 40-44 age group in 2003. For males the largest cohort has moved from 35-39 to 40-44 in the same period. Declining birth rates and overseas poaching of skilled workers are expected to exacerbate the effects of an ageing workforce.

Several parts of the People Management Strategy deal with the ageing workforce and how to sustain an organisation's skill base. They include:

- ✧ collaboration with Swinburne University's Research Centre for Business Work and Ageing in which research aims to help develop practical methodologies to manage the impact of significant retirement levels within senior management and the consequent loss of organisational experience and knowledge
- ✧ a succession management program - management of corporate leadership which includes co-ordinated recruitment, assessment of individual potential, development and monitoring of job movements and retention
- ✧ a talent pool - identification of leadership competencies and evaluation of potential (not past) behaviours of 2,000 employees which has resulted in selection of 620 leaders for the talent pool (not a queue, but a pool from which members can come and go)
- ✧ a 'Refresh' program for this talent pool – in which every individual has a targeted development plan; development is undertaken through professional courses, on-the-job training, specific projects, and job movements; change in capabilities over three years is measured; and overall program data is analysed to determine knowledge or skill gaps within the corporation
- ✧ an on-line learning centre – in which a suite of professional development options and activities are provided on-line, including reference materials, case studies and links to relevant external providers in each state
- ✧ an awareness campaign – in which a life-course perspective is to be fostered at many levels, with over 25 topic areas to be turned into training modules or journal articles, eg *Keeping skills alive*, *Using a CV*, *Protecting yourself in your career*, *What do you want to look like when you're 80*
- ✧ a mentoring program – in which knowledge of older workers is tapped and shared by assigning older mentors (usually over 45) to all graduates, as well as to the majority of the promising managers identified in succession planning.

✧ Information on succession management and on-line learning can be found at:
http://www.auspost.com.au/annualreport2003/download_entire.asp

✧ A range of research and publications produced by the Swinburne University Research Centre for Business Work and Ageing can be accessed at:
<http://www.businessworkageing.org/index.html>

Transport Canada

This project is one of a number of initiatives undertaken across the Canadian Government Public Service as a result of research which identified ageing as one of the factors affecting the way the Public Service of Canada carries out its mission.

Transport Canada was chosen for a pilot in knowledge sharing because it faced an 'impending exodus of senior inspectors and executives that threatened to hobble Canada's federal regulatory machinery within a decade'. Projections indicated that 69.2 percent of the regulatory/inspection population in Transport Canada's Safety and Security Group would be eligible to retire by 2008.

The trial was established in 1999 with the Deputy Minister for Transport named as champion, and a small secretariat was established to support it. The goal was to 'safeguard the government's capacity to effectively protect public health and safety through its regulatory/inspection function' by 'testing the effectiveness of various approaches for codifying the tacit knowledge held by inspectors in Transport Canada's Safety and Security Group and rendering this highly specialised and highly contextual knowledge accessible to successors'.

The proposed strategy was to:

- ✧ identify critical people
- ✧ maximise retention of critical people
- ✧ retain their critical knowledge in the event of their departure
- ✧ facilitate transfer of this critical knowledge
- ✧ expose the right people to that critical knowledge.

The first phase of the project identified the employees who were eligible to retire in the next three years and who held knowledge that was critical to the organisation. Eleven individuals were identified.

The second phase sought to test the viability of knowledge capture, codification, display and retrieval methods for use in transferring critical corporate, or organisational, knowledge between incumbents and their successors.

Consultants then helped transpose the captured knowledge into various tools intended to organise, display and store this knowledge for later retrieval. These included stakeholder maps, knowledge maps, task support mechanisms and a single-stop knowledge shop.

A toolkit called *Subject-Matter-Experts: Succession and Knowledge Transfer Planning Toolkit* was developed to assist managers and their Regional Human Resources Director in conducting the trial.

The toolkit provides the steps to be undertaken to identify critical Subject Matter Experts and develop appropriate knowledge transfer processes to ensure that the identified critical knowledge is not lost. It is divided into nine sections under the following headings:

- ✧ incentives for retaining seasoned Subject Matter Experts
- ✧ identifying critical Subject Matter Experts whose departure is imminent
- ✧ describing the critical Subject Matter Expert's position soon to be vacated
- ✧ incentives for attracting new recruits
- ✧ options for bringing in the Subject Matter Experts successor while the incumbent SME is still working
- ✧ options for bringing back retired Subject Matter Experts for knowledge transfer purposes
- ✧ developing the successor's personal learning plan
- ✧ options for knowledge transfer activities
- ✧ retaining newly recruited Subject Matter Experts.

Transport Canada reported that the real value of the project derived from what they learned from the process:

- ✧ It was possible to gather, synthesize and retrieve some of the knowledge held by Subject Matter Experts using computer-assisted tools, but these tools were found to be of limited

utility. They are most likely to be effective if integrated with existing information management structure.

- ✧ A significant amount of critical knowledge does not lend itself to capture, codification and technology-assisted retrieval. Some kinds of knowledge are best transferred person-to-person, a job best left to incumbents either before or after they retire. Hence there is a need to identify critical staff positions, develop plans for replacing key people, develop policies for hiring understudies for key positions and allocate funds accordingly.
- ✧ It was noted that Subject Matter Experts are not always eager to part with their knowledge and in some circumstances this is understandable. It was suggested that managers consider involving Subject Matter Experts in the hiring of their successors to promote the kind of early relationship building that supports successful knowledge transfer.
- ✧ Succession planning cannot insulate an organisation against corporate, or organisational, knowledge loss from unexpected departures of key individuals. Therefore opportunities for structured and unstructured knowledge transfer throughout the organisation should be introduced or strengthened, thus fostering an organisational learning culture.
- ✧ Resources must be devoted to hiring successors well before the anticipated departure of incumbent Subject Matter Experts, implementing structured on-the-job training and training in coaching and mentoring, and warehousing data effectively.
- ✧ 'Selling' the concept of knowledge transfer is a key component for its success.

In response to the lessons learned from the trial the Regulatory/Inspection Secretariat of Transport Canada recently developed a five-pronged strategy designed to circumvent knowledge collapse. The strategy includes:

- ✧ focussed recruitment programs targeting younger workers
- ✧ a broad-based knowledge transfer program
- ✧ a change in the working environment to culturally accommodate all workers and facilitate knowledge transfer
- ✧ the implementation of a multi-generational and diversity friendly management framework that emphasises retention
- ✧ revision of methods and approaches to work to make better use of difficult-to-find skills.

✧ For further information on the Transport Canada approach read *Avoiding knowledge collapse: proactive solutions for regulatory/Inspection organisations and How to prevent knowledge collapse* located at: http://ricommunity.gc.ca/community/link_e.asp?categoryid=10

✧ Information on the toolkit used to support knowledge transfer among Subject Matter Experts in Transport Canada can be accessed at: <http://ricommunity.gc.ca/knowledge/sme.pdf>