Knowledge sharing as a key driver of professional learning and development for an ageing VET practitioner workforce and for VET organisations

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Abstract

This paper reports on one section of a larger research study conducted in 2007 in a major metropolitan TAFE Institute. The focus is the professional learning and development environment of an ageing vocational education and training (VET) practitioner workforce.

Recent literature indicates that knowledge sharing is a key driver for maintaining professional and industry currency leading to quality educational outcomes in VET. The study employed both qualitative and quantitative methods including focus groups, semi-structured interviews and questionnaires. Contributions were received from approximately 60% of the Institute's teaching staff.

Key outcomes showed willingness to share, linkage to organisational culture, values and goals, and collaborative knowledge sharing to enhance teaching and learning quality. The findings also reveal barriers to and strategies used for knowledge dissemination that underpins a strength-based approach to workforce capability building.

The findings confirm critical elements of success in contemporary best practice models for knowledge sharing and transfer in knowledge based and service industries. They also indicate options for VET organisations responding to the multiple challenges of an ageing workforce operating in a competitive and dynamic environment.

Introduction

Knowledge sharing is widely recognised as a key driver of organisational professional learning and development. The need for effective sharing of knowledge and business wisdom is apparent in contemporary VET, where a strength-based approach to workforce capability development emphasises the values of collaboration and reciprocity.

This research explores the realities of facilitating knowledge sharing at Southbank Institute of Technology (SBIT), Brisbane and compares the findings with the literature and commonly held beliefs about this process. Examination of the age profile of the SBIT workforce shows a potential loss of as many as 50% of full-time employees within five years, resulting in an urgent requirement for effective sharing of knowledge and business wisdom.

Not all the findings at SBIT can be generalised to other TAFE Institutes or worksites. Nevertheless, strong themes emerge and some popular views about an ageing workforce are challenged.

Literature Review

Defining Knowledge
A literature review in knowledge management, strategic and human resource management, organisational theory, education, information systems and related disciplines has revealed a diversity of definitions, overlapping terms, and differing opinions. Terms such as *information*

and *knowledge* appear to be used almost interchangeably by some researchers and practitioners (Hedlund, 1994; Kogut & Zander, 1992; Lehner, 1990; Stewart, 1997). Moreover, Snowden (1997) asserts that definitions to delineate the terms would not be productive, useful or accurate. Davenport, De Long and Beers (1998) too suggest that practitioners would not benefit from conceptualising such terms. Consequently, this debate has added to some confusion and epistemological conflict in the study of knowledge (Nunes, Annansingh, Eaglestone, & Wakefield, 2006, p104).

Interestingly, the literature review has strongly confirmed that conceptual definitions are developed and that *information* and *knowledge* albeit related, are conceptually and operationally distinct constructs. For example, DeGreene (1982, p.65) adopts a hierarchical approach to differentiate information from knowledge and describes that information consists of data organised for some useful purpose, whereas, knowledge can be thought of as the actual application of information to fulfil a purpose. Working from this model, Chennamaneni (2006) notes that data represents raw numbers, factual measurements and simple observations and therefore, it has no context and is not directly important (Zack, 1999). The next characteristic information, involves data being positioned in a significant and organised context (Zack, 1999). In other words, when data is analysed, classified and explained, it then becomes information (Seng, Zannes, & Pace, 2002). Finally, knowledge is progressively developed through the exposure of meaningful information; or the understanding, consciousness, awareness acquired through learning, investigation, examination or experience over a lifetime (Zeleny, 2000).

Whilst there is general agreement on the hierarchical approach of knowledge, Tuomi's (1999) analysis is sufficiently provoking to caution us from being unduly enthusiastic about its merits. Specifically, he advances the notion and states that knowledge is an antecedent to data and information and thus, questions the positioning of knowledge at the top of the sequence. Upon closer examination, he contends that knowledge must be present before information can be conceived from it, before data can be collected from it and that raw data does not exist, since all data is influenced by knowledge processes and thoughts that lead to its identification and collection (Chennamaneni, 2006, p.10). This no doubt reflects the proposition that knowledge is created and resides in the minds of individuals and that data and information is shared when knowledge is processed by individuals and expressed and organised in a variety of forms (Bender & Fish, 2000; Alavi & Leidner, 2001).

Further, alternative definitions of knowledge are offered in this literature. For instance, Davenport and Prusak (1998, p5) 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. Based on this definition, knowledge is developed through information that is validated and profoundly meaningful within a prescribed framework of experiences, values and insights (Davenport & Prusak, 1998). Also, Nokaka and Takeuchi (1995, p.58) define knowledge as a dynamic human process of justifying personal belief toward the truth. Although broad in nature, they regard information as a flow of messages and knowledge is developed when the flow of messages is anchored on the cognitive abilities, beliefs and commitment of the person who holds it (Nokaka & Takeuchi, 1995, p. 58 -59).

However, Tsoukas and Vladimirou (2001) and Gourlay (2001) contend that there is little discussion in the preceding definitions of how information is processed or transformed into knowledge, or when does information acquire meaning and is established as a belief, and how information is constructively mixed with experience and insight and then what structure does knowledge take, nor how individuals draw on knowledge. Moreover, Tsoukas and Vladimirou

(2001, p.974) believe that Davenport and Prusak have grouped too many concepts into knowledge and is devoid of identifying their relationships and thus, have risked making knowledge an all-encompassing and, therefore, little-revealing concept. Despite their view, most of the published research to date has adopted the Davenport and Prusak (1998) definition of knowledge (Chennamaneni, 2006).

Categories of Knowledge
Largely through the work of Polanyi (1966) who classified knowledge into the categories: explicit and tacit, Nonaka and Takeuchi (1995) state that explicit knowledge, is knowledge that can be formalised, well-known, captured, categorised, stored, codified, and can be easily communicated or disseminated between individuals. It can be expressed in words and numbers and shared as data, scientific formulae and specifications (Nonaka & Konno, 1998, p41). Also, explicit knowledge is commonly referred to as theoretical, propositional, or articulated knowledge (Nonaka & Takeuchi, 1995). Some examples of explicit knowledge are found in commercial publications, organisational policies and procedures, work instructions, manuals, guidelines, process models, collaboration, e-mail, internet, intranet, database and groupware technologies (Srikanataiah & Koenig, 2000).

In contrast, tacit knowledge is highly personal and hard to formalise, making it difficult to communicate and share with others (Nonaka & Konno, 1998, p41). Additionally, tacit knowledge is referred to as hidden or non-verbalised, intuitive and unarticulated knowledge (Cavusgil, Calantone & Zhao, 2003). The most salient example of tacit knowledge resides in an individual's experience and actions, hunches and intuitions, values and ideals and therefore cannot be easily codified and is not readily transferred from one to another (Chennamaneni, 2006). Intuitively, Polanyi (1966, p4) encapsulates the fundamental nature of tacit knowledge in the phrase 'We know more than we can tell'. Further, tacit knowledge comprises of two dimensions: technical and cognitive (Nonaka, 1994). The technical dimension refers to 'know-how' and includes information, and expertise in crafts and skills that apply to specific contexts, while the cognitive dimension consists of schemata and mental models, deeply embedded beliefs, values, ideals and viewpoints which influence the way we view the world (Nonaka, 1994; Gore & Gore 1999).

Also, some critical discussions of tacit knowledge in this literature highlight the ongoing debate between tacit and implicit knowledge. According to Wilson (2002), implicit knowledge is expressible, whereas tacit knowledge is not. More importantly, Nunes, et al. (2006, p106) suggest that tacit knowledge can be translated into workplace heuristics and mnemonics that become implicit knowledge, that is, knowledge that is hidden within the organisation's policies and procedures, management and work practices. It may include human experiences and informal representations, such as images and visions and formal inferences from explicit knowledge. Schacter (1992) claims that in an organisational context, implicit knowledge is revealed in task performance without corresponding phenomenal awareness and is often unintentionally expressed and indirectly tapped. A literature review has established that the concepts of implicit knowledge and explicit knowledge are quite similar in meaning to unconscious and conscious knowledge and often are interchangeable.

Nonetheless, knowledge can also be viewed as individual, group and organisational (De Long & Fahey, 2000; Nonaka, 1994). Generally, knowledge exists in the individual's mind and physical skills, while knowledge from the collective actions of individuals resides in groups and organisations (Chennamaneni, 2006; Lam, 2000; Nonaka, 1994). Accordingly, one way to examine organisational knowledge is to say that the organisation's knowledge is the sum knowledge of the individuals. This is consistent with Nonaka's (1994) 'knowledge spiral', where he states the creation of organisational knowledge occurs from interactions among

individuals and the continuous exchange of explicit knowledge to tacit knowledge and vice versa. For instance, a simple, illustrative example of sharing explicit knowledge is via verbal or written communication, whereas tacit knowledge is shared through socialisation, for example, social interactions and shared experiences, story telling, analogies, metaphors, models and concepts (Nonaka, 1994; Nonaka & Takeuchi, 1995; Zack, 1999).

While the explicit-tacit dichotomy of knowledge is extensively cited, other types of knowledge have also been presented. For example, the Quinn, Anderson and Finkelstein (1996) classification of knowledge has three components: system understanding and trained intuition (know-why), cognitive knowledge (know-what) and advanced skills (know-how). Similarly, Lowendahl, Revang and Fosstenlokken (2001) categorised knowledge into subjective and experienced based (know-how), task related and objective in nature (know-what) and personal, which includes talents, aptitude and abilities (dispositional knowledge).

Alternatively, Christensen's (2007) empirical study of a high technology production facility in Denmark, revealed four types of knowledge: professional knowledge , i.e. knowledge that enables an employee to perform a job and has originated from personal experience and formal education, coordinating knowledge, i.e. knowledge that is embedded in rules, standards and routines for how the job is to be performed, object-based knowledge, i.e. knowledge that is connected with a product or object passing through an organisation's service cycle or production line and know-who knowledge, i.e. knowledge about where knowledge exists. Christensen (2007, p43) stresses that the four types of knowledge are preconditions for organisational activities. Without some level of professional knowledge, no activities are performed. Without coordinating knowledge no organisational outcome is produced. Lacking object-based knowledge can lead to reinventing the wheel, and without knowing who knows what, or where the knowledge exists, knowledge sharing will not take place.

Many of this proposition's themes are also key concerns of VET knowledge research. These themes include the loss of professional knowledge (know-how) and know-who knowledge, which cannot be renewed in a short time, but must be developed through experiential learning and workplace interactions (Clayton, Fisher & Hughes, 2005, p13). Given that, reportedly, 90 percent of the knowledge in any organisation is embedded and synthesised by individuals, all knowledge is at risk (Bonner, 2000; Wah, 1999). With a high proportion of VET baby-boomers retiring, unique levels of knowledge, skills and abilities will vanish (Clayton, et al., 2005; Jorgensen, 2005).

Also, the ageing VET practitioner cohort is commonly viewed as possessing corporate memory and having an understanding of the drivers of change due to their endurance and exposure to successive business cycles (Brooke, 2003). Clearly, the previous comments draw attention to the knowledge, skills and experience that will soon be lost, whilst the younger VET practitioners grow and develop. Therefore, for VET organisations to leverage the best practices, knowledge and skills of their VET practitioners, they must establish conditions conducive for people to sharing what they know (Read & Thibodeau, 1999). Moreover, VET organisations need to develop innovative and creative strategies of knowledge capture from their ageing VET practitioners using methods that assist proficient retrieval.

Knowledge Management
A review of knowledge management (KM) literature and empirical studies indicates many KM definitions. Generally, KM is defined as a process of continually managing knowledge of all kinds to meet existing and emerging needs, to identify and exploit existing and acquired knowledge assets and to develop new opportunities (Quintas, Lefrere & Jones, 1997). A comprehensive definition is provided by Eppler (1999, cited in Yao, Kam & Chan, 2007, p53), who describes

KM as a systematic approach that views explicit, [tacit] and implicit knowledge as a key strategic resource, aimed at improving knowledge handling at individual, team, organisation and inter-organisational levels to improve innovation, quality, cost-effectiveness and time-to market. Also, Gersting, Ives and Gordon (2000, p24) define KM as a systematic process of acquiring and synthesising information and using learning, insights and experiences to enable performance. More particularly, Malhotra (1998) asserts that KM caters to the critical issues of organisational adaptation, survival and competence in the face of increasingly discontinuous environmental change. Essentially, it embodies organisational processes that seek synergistic combination of data and information processing capacity of information technologies and the creative and innovative capacity of human beings.

Consistent with the previous definitions, much KM interest is in identifying, formalising and organising employee knowledge in creating a culture of innovation, creativity and competitiveness (Drucker, 1993; Nonaka, 1991; Zyngier, Burstein & McKay, 2004). However, most early KM literature focused on an information technology (IT) perspective. Since then, much of this literature examines the corporate significance and application of KM: different notions of personal and organisational knowledge (De Long & Fahey, 2000; Nonaka, 1994; Hansen, Nohria & Tierney, 1999); strategies for managing knowledge (Davenport & Prusak, 1998; Nonaka & Takeuchi, 1995); empirical analysis of the impact of KM on organisational sustainability and success (Kreiner, 2002; Morey & Frangioso, 1998; Nonaka, & Takeuchi 1995); organisational learning (Huber, 1991; Rowley, 2002); strategy and leadership (Zack, 1999); and corporate culture (Alavi, & Leidner, 2001).

More recently, there has been an emergent interest in public sector applications of KM (Edge, 2005). Although, the potential benefits of KM have been drawn from limited empirical research for public sector adoption, they have strategic significance, for instance: improving organisational quality and efficiency (McAdam & Reid, 2001); reducing costs (McAdam & Reid, 2001); and decreasing interagency fragmentation (Ardichvili, Page & Wentling, 2003). Whilst the findings are encouraging for the strategic use of KM to increase public sector performance, there are numerous widespread challenges that impede most public sector KM initiatives (Edge, 2005). While not exhaustive, these challenges include the isolated nature of most public sector work (Murray, 2001), worker desire to preserve and protect personal knowledge (Murray, 2001), and the seemingly continuous decline of centrally allocated resources (McAdam & Reid, 2001).

Despite the identified public sector difficulties, which could be addressed by appropriately adopting perspectives from the literature, KM has unsurprisingly limited appeal in public sector organisations (Edge, 2005). There is a scarcity of empirical research and discussion of KM in education as a strategy for improving organisational practice, program and course implementation, teaching and learning (Fullan, 2001; Steyn, 2004). There is also a degree of similarity between the benefits as previously stated and the challenges of implementing KM strategies in education, such as technological limitations; the independent and competitive nature of educational organisations; lack of teachers' time outside the classroom; and ever-worsening budgetary constraints (Edge, 2005, p43). Nevertheless, many authors cited in this paper have advocated the strength of KM research and practice in managing an organisation's intellectual capital. We suggest that KM enhances an organisation's ability to learn from its environment and to incorporate knowledge into business processes and therefore, it creates new value for the organisation by improving its efficiency, effectiveness and competitiveness (Chennamaneni, 2006, p.15).

Knowledge Sharing

The main premise of knowledge sharing is that individuals mutually exchange their tacit and explicit knowledge and jointly create new knowledge to increase their ability to achieve individual and organisational goals (Lin & Lee, 2006; Van den Hoof & De Ridder, 2004). Bartol and Srivastava (2002) provide a precise definition: the action in which employees diffuse relevant knowledge to others across the organisation. Thus, the ultimate goal of sharing employees' knowledge is its transfer to organisational assets and resources (Dawson, 2001), where it is then converted into organisational economic and competitive value (Hendriks, 1999).

Most literature on the antecedents influencing knowledge workers' knowledge sharing behaviour has been conceptual or qualitative with some practitioner papers for anecdotal support. Other studies have employed either laboratory experiments or questionnaire surveys (Chennamaneni, 2006, p17). Collectively, the literature has revealed a proliferation of research efforts focusing on the inhibitors and enablers that are believed to influence individual knowledge sharing behaviours. They range from soft to hard issues. For instance soft issues include:

- individual characteristics such as; ability, motivation, ownership and power, reciprocity, interpersonal trust and relationships and willingness (Abrams, Cross, Lesser & Levin, 2003; Andrews & Delahaye, 2000; Brown & Woodland, 1999; Cabrera & Cabrera, 2002; Davenport & Prusak, 1998; Hendriks, 1999; Jones & Jordan, 1998; Meyer, 2002; Schultz, 2001);
- rewards, incentives and perceived support (McDermott & Dell, 2001);
- communities of practice (Lave & Wenger, 1991; Wenger, 1998) and common identity (Faraj & Wasko, 2001; Brown & Duguid, 2000); and
- accessibility to knowledgeable people in the organisation (Brown & Duguid, 2000).

Other researchers have focussed on hard issues, for example:

- technologies, tools and information systems (Hlupic, Pouloudi & Rzevski, 2002; Cabrera, Cabrera & Barajas, 2001);
- integration of knowledge sharing with organisational strategy and goals (Doz & Schlegelmilch, 1999; Master, 1999); and
- organisational structures (De Long, & Fahey, 2000; Nonaka, & Takeuchi, 1995).

More specifically and relevant to VET, empirical KS research has focused on two critical issues: organisational culture (De Long, & Fahey, 2000; Leonard-Barton, 1995; Pan & Scarbrough, 1999) and the opportunity to share (Bartol & Srivastava, 2002; Brown & Duguid, 1991; Nahapiet & Ghoshal, 1998). The importance of organisational culture for effective KS is highlighted by Ipe's (2003) theoretical model explaining the relationships between the nature of knowledge, individual characterises, opportunities to share and the culture of the work environment that can either inhibit or enable the creation, sharing and use of knowledge throughout an organisation.

However, we know from other research that culture is reflected in the values, norms and practices of the organisation, where values are manifested in norms they influence specific practice (De Long & Fahey, 2000). Accordingly, they investigated a number of factors that influence employees' perceptions of a KS culture. The research findings suggest that organisational values and norms and a caring and trustful environment are significant predictors for encouraging individuals to voluntarily share with others. Other researchers also note that organisational KS is conditional on trust and expectations of reciprocity, which in

turn, is highly dependent on levels of trust (Cabrera & Cabrera; 2005; Lengnick-Hall & Lengnick-Hall, 2003).

Therefore, organisations need to provide a climate of trust built on culture that encourages and supports KS norms. To sustain competitive advantage, economic growth and corporate value, organisations such as Hewlett-Packard, PricewaterHouseCoopers, Shell and Xerox have conveyed and embedded KS norms through socialisation processes, storytelling, rituals, learning, social networks, mentoring, coaching, collaboration and sharing ideas (Cabrera & Cabrera; 2005; Chennamaneni, 2006). Related to the above, empirical evidence for successful KS through formal strategies is emphasised by Constant, Sproull and Kiesler (1996) and Hickins (1999), yet, research indicated that the most amount of knowledge is shared through information settings such as social networks (Jones & Jordan, 1998; Pan & Scarbrough, 1999). Nonetheless, it is agreed that KS and related constructs promote the efficient and effective functioning of an organisation. However, the challenge for researchers in their future work is to explore more fully the knowledge that may be beneficial to share (Clayton, et al., 2005).

Research Methods

Participants
As noted earlier, the unit of analysis for this research is SBIT and the research population comprising of VET professionals and practitioners was selected because of this study's purpose and scope. Initially, to achieve a greater depth and richness of information and a holistic understanding of the research topic, qualitative research methodologies were applied (Berg, 2001). The methods utilised were focus groups and semi-structured.

First, to minimise the risk of random sampling error, the VET practitioner participants in focus groups were selected from the Institute Full Time Equivalent (FTE) staff. VET practitioners on leave were omitted. As a result, an available population of 288 VET practitioners was recorded. Each VET practitioner was then allocated a number that corresponded to their staff establishment position. Next, a random-number table was produced using Microsoft Excel's Data Analysis Sampling Function and sixty random numbers were generated.

Invitations to participate in the focus groups were emailed to VET practitioners whose staff establishment number corresponded with the number listed in the random-number table. The email contained an overview of the research, the research sponsors, confidentiality, date, time and venue for the focus group. The email recipient indicated their acceptance or inability by using the accept/decline functions in the email header. Forty-five acceptances were received, equating to 98% reliability based on the available population size. Distribution of participants for the focus groups was shared throughout the six Faculties and two Educational units. The participants were then sent an additional email with an attachment containing an information package outlining the research purpose, what participation meant, safeguards and confidentiality, research sponsorship, researchers' contact details, informed consent form, focus group questions and explanatory notes. Moreover, informed consent forms were distributed, signed and collected at the beginning of each session to fulfil ethical requirements (Saunders, Lewis & Thornhill, 2003). This consent process was also applied to the semi-structured interviews.

Additionally, the focus group questions were drawn and adapted from literature and research thus achieving concurrent validity (Powell & Connaway, 2004). Representative reliability was enhanced with a focus group pre-test of VET professionals and practitioners who thoroughly

examined and responded to each question (Neuman, 2006). Feedback from the participants was then evaluated and changes were incorporated into the focus group instrument. Reliability was further achieved by using a standardised procedure and checklist for each one-hour session. The researcher recorded ethnographic field notes and captured the focus group dialogue with the digital voice recorder. A final written focus group summary was compiled with common responses grouped into similar themes and, where no common responses were discernable; these were treated as illustrations of particular viewpoints. To further improve reliability, the summary document was distributed to all participants for comment.

Next, semi-structured interview invitations were sent to six Faculty Directors and one Education Unit Manager. The email contained an overview of the research study, the research study sponsors and confidentiality. The email recipient indicated acceptance or inability by using the voting buttons in the email header. Five acceptances equated to 90% reliability based on the population size. A meeting invitation to the interviewees proposed a venue, date and time.

Concurrent validity was established by adopting and adapting interview questions from literature and significant VET research (Kumar, 2005). Further, a pre-test was undertaken through a reference group consisting of an external management consultant, a university lecturer/researcher and two VET professionals who systematically examined the phrasing, readability, interpretation and appropriateness of each interview question. Consequently, participants' recommendations were appraised and amendments made to the interview instrument. Accordingly, the pre-test established representative reliability (Neuman, 2006). A standardised procedure and checklist for each interview improved the interview processes' overall reliability. Ethnographic field notes were compiled and the interview dialogue was captured with a digital voice recorder. For further reliability, ethnographic field notes of the semi-structured interview were transcribed and returned to the interviewees for signing as a true and correct record. In addition, common categorisation of similar themes identified in the interview summaries was performed for further analysis.

Following, the primary method of data collection for the research study is a paper based survey. The delivery and collection survey method was selected for its generalisation ability, cost effectiveness, convenience and timeliness (Neuman, 2006). Survey questions were drawn and adapted from literature and previous studies therefore establishing concurrent and content validity. As a pre-test to validate the survey instrument and to encourage acceptance, the survey was referred to the earlier reference group for review. Next, the reference group thoroughly assessed each item's wording and comprehension, relevance, sequencing and content validity. In accordance with the pre-test feedback, amendments were made to the survey.

As noted earlier, the sampling frame of the research study is SBIT and the FTE staff establishment list was utilised to determine an accurate available population size for the survey. VET practitioners on leave as at October 2007 were omitted from the list. This resulted in 293 VET practitioners available. To minimise random sampling error, all 293 VET practitioners received the survey. Each survey package was individually addressed and contained a covering letter, participant information sheet informing of the research purpose, what participation would mean, safeguards and confidentiality, consent, research sponsorship, the researchers' contact details and the promise of a future report and presentation. Also enclosed was a copy of the Work and the Ageing VET Practitioner Workforce Survey, a survey introduction, marking and general instructions on completing and returning the survey, explanatory notes, and a random prize draw entry form. Two labelled 'Private and Confidential' envelopes were supplied so that participants could enter in the random prize

draw without assigning identifying information to their returned survey. To further maintain anonymity, separate labelled collection boxes were placed in each faculty's administration section - one for the returned surveys and one for the prize draw entry. While participants who received surveys could have entered the random prize draw without completing the survey, more surveys were received than prize draw entries.

Additionally, to heighten the awareness of the research study, institute email broadcasts and survey return reminders were sent to all VET practitioners via email. They were given three weeks to respond. From the 293 surveys distributed, 173 valid responses were received i.e. a 59% response rate. Appendix A summarises the final sample's demographic. Processing and analysis was undertaken using a NCS scanner, associated software and SPSS for Windows software. Qualitative data was manually entered and categorised for analysis in a Microsoft Word document. In addition, the scanner recorded a scanning number, date and time on each survey as it was processed. The data scanning process encountered some minor problems, including missing data sets, multiple entries and incorrect ranking of response options. This was corrected through visual inspection and comprehensive validation aided by SPSS software. The same software was used to produce descriptive statistics and frequency tables of the survey data and Microsoft Excel was used to generate a graphic representation of the aggregated survey data.

Design and Measurements
All instruments, i.e. focus groups, semi-structured interviews and the survey, and items were designed as part of a larger research study and, due to the paper's nature and scope, only the knowledge sharing components and items are discussed in detail next. To avoid the three instruments being a source of error, each was designed using standardised language and common terminology to explain theoretical concepts (Babbie, 1990; Berg, 2001). Moreover, to clarify theoretical concepts in each instrument, construct definitions drawn from literature and previous research studies were attached as explanatory notes (Neuman, 2006).

As noted earlier, items used to operationalise the constructs in each research method were selected and, in part, modified from literature and previously validated instruments used by leading VET (Clayton, et al., 2005) and Knowledge Sharing (Bock, Zmud, Kim, & Lee, 2005; Chennamaneni, 2006; Kankanhalli & Kwok-Kee, 2005; Lee, 2001; McLean & DeLone, 2005; Taylor & Todd, 1995; Teigland & Wasko McLure, 2003; Wasko & Faraj, 2005) researchers.

Using the knowledge sharing interview schedule utilised by Clayton, et al., (2005), the responses from the three focus group items and the five semi-structured items were sorted and catalogued into similar data sets (Powell & Connaway, 2004). Definite data themes emerged and were given conceptual labels, for example, knowledge sharing inhibitors and enablers, critical knowledge loss, benefits of knowledge sharing, best practice and knowledge sharing strategies.

Next, the survey contained a total of 31 data sets with 203 items. Specifically, the knowledge sharing section of the survey contained 22 items, whereas the use of tools and technology in knowledge sharing contained 14. To improve the survey instrument's reliability and validity, the scale used to measure each construct had positively and negatively worded items and was based on a five-point Likert scale (Rea & Parker, 2005). A sample item for knowledge sharing included: 'If given the opportunity, I would share knowledge and work experiences with my colleagues'. The anchor was: '1: Strongly Disagree' and '5: Strongly Agree'. Further, a sample item for usage of tools and technology included: 'I use discussion forums e.g. Blackboard, chat rooms and bulletin boards to share knowledge with my colleagues'. The anchor was: '1: Not a strategy used' and '5: Very frequently – Many times daily'.

Findings and Discussion

Intentions towards knowledge sharing
Almost every SBIT VET practitioner, given the opportunity, indicated a very strong willingness to share with their colleagues knowledge, work experiences, and expertise from education and training. This provides a sound basis for knowledge sharing, consistent with a strength-based approach to building capability in the VET workforce. It contradicts views reported in the literature and held by some TAFE middle managers that individual dispositions and cultural impediments, such as the belief that knowledge is power and shouldn't be given away, are barriers to effective knowledge transfer (Clayton & Fisher 2005 pp 4-5).

Perceived behavioural control
Over 80% of SBIT respondents strongly agreed that they had both the necessary tools and capabilities to share knowledge with their colleagues. However, there was no clear agreement as to whether their work/role allowed them to do so. Just over half thought that SBIT did not promote a culture of knowledge sharing throughout the Institute.

These findings contradict more generally held views that individual staff often lack the technical means or skills required for effective knowledge transfer. On the other hand, they are consistent with the literature and research from TAFE and more generally that identifies lack of organisational commitment, negative management practices and work overload as significant barriers.

Perceived organisational incentives
Almost 60% of respondents believed that knowledge sharing was unlikely to lead to a reward or incentive. This finding appears allied to the view held by a similar proportion of respondents who thought that SBIT did not promote a culture of knowledge sharing throughout the Institute. Since the advantages of a strategic approach to knowledge management for Australian TAFE Institutes were identified some time ago (Symons, 2000, p2), SBIT staff may well benefit from the adoption of an explicit knowledge sharing strategy.

Perceived organisational environment
Slightly fewer than half of all respondents believed the appointment of Educational Leaders to be a good knowledge sharing strategy. Ten Educational Leader positions were created at SBIT in 2006 to provide professional leadership to Faculty and Institute educational staff in the provision of high-quality education, learner-centred pedagogical practices relevant to VET and to ensure the highest standard of learning and client satisfaction. While this may appear to be an equivocal finding, it is possible that many staff are unaware of the diverse and somewhat imprecisely defined roles for Educational Leaders.

Approximately 75% of respondents thought that the casualisation of the VET practitioner workforce made if difficult to share knowledge with colleagues. This finding may be particularly relevant at SBIT where almost all new staff appointments in the previous 12 months have been of a short-term or casual nature. At December 2007, 76% of delivery staff were employed on a permanent basis and 24% on a temporary basis (SBIT, 2007, p15). A body of evidence derived from case studies in the tertiary education sector suggests that casualisation of the teaching workforce and increasing use of sessional staff requires different organisational approaches and support structures to prevent detrimental outcomes for assessment, moderation and students' learning experiences (TEDI, 2006).

Respondents were ambivalent as to whether their understanding of the organisational vision and goals enhances their knowledge sharing. This finding may reflect confusion among staff about SBIT's vision and goals, as these have been recently revised as part of its transition to a statutory authority.

Perceived reputation enhancement
Fewer than 30% of respondents thought that Institute management respected or valued their knowledge sharing contribution. This appears to be consistent with their negative views about SBIT's organisational incentives and culture of knowledge sharing. Such perceptions could pose a major motivational barrier to knowledge sharing at SBIT.

Perceived reciprocal benefits
Approximately 85% of respondents believe that their colleagues help them and that it is only fair that they should return the favour. This strong reciprocal commitment supports the strength-based approach to capability development in VET as it embodies the notion that relationships matter and is indicative of the application of positive values such as generosity and goodwill (Staron et al, 2006, p55).

Perceived loss of knowledge power
Respondents overwhelmingly stated that sharing knowledge with colleagues did not result in the loss of their unique value or power base in the organisation. 85% also reported that sharing knowledge with colleagues provided job satisfaction. These finding are consistent with respondents' stated intentions towards knowledge sharing and provides further evidence that individual dispositions are not a barrier to knowledge sharing at SBIT.

Affiliation
Approximately two thirds of respondents believe that colleagues in their teaching team cooperate well with each other. Approximately half disagree that team colleagues are reluctant to document knowledge. About 30% agree that there is a lack of goodwill between their colleagues and institute management to share knowledge.

These results appear somewhat equivocal and suggest that although most members within teaching teams at SBIT believe they get along reasonably well with each other, there is some reluctance to document knowledge and a perception by a sizeable minority that goodwill around knowledge sharing with management is lacking. These two latter findings could constitute barriers to knowledge sharing for up to a half of SBIT's VET practitioners.

Innovativeness
Just under half of all respondents believe their faculty director encourages them to suggest ideas for new opportunities. However, less than 10% agree that their faculty director is predisposed to taking risks. Given that over 40% of respondents indicated they were unsure on this last item, it is difficult to draw clear inferences about innovativeness. Perhaps all that can be concluded is there is scope for faculty directors to encourage greater contributions by staff and to support risk-taking within reasonable parameters.

Tools and technology
About 37% of respondents indicated that whenever they wanted to share knowledge, they could easily access tools and technology at SBIT. These tools include email, websites such as Reframing the Future, Resource Generator, Learnscope, EdNA groups, blogs and wikis. Fewer than 25% thought that at SBIT tools and technology for sharing knowledge were reliable and only 25% were satisfied with the overall quality of tools and technology for sharing knowledge at SBIT. These results seem to partially conflict with the second section

above on perceived behavioural control where over 80% of SBIT respondents showed a strong belief that they had both the necessary tools and capabilities to share knowledge with their colleagues. Nevertheless, in this section only one of the four items focussed on technology.

These findings suggest major Information, Communication and Technology (ICT) barriers to knowledge sharing at SBIT. Respondents reported frequent email and internet outages, some lasting up to three weeks. They further complained about inadequate server sizes (e.g. 40Mb email limit compared with 5Gb on Hotmail), rigid standard operating systems and limited access to contemporary knowledge sharing tools and websites such as MySpace, Facebook, Second Life and YouTube. These popular social networking sites are freely available in universities, (e.g. Melbourne University, QUT, UQ, UNSW), public libraries and private RTOs and are regularly used for educational and knowledge sharing purposes. However, access is blocked in all Queensland TAFE Institutes. Staff requests for access to such sites for legitimate educational and knowledge sharing purposes are denied, despite recognition that these technologies offer the VET sector significant opportunities for teaching and learning (Mitchell, 2008, p14).

Usage of tools and technology
70% of staff reported using email to share knowledge with colleagues, whereas only about 20% indicated the use of discussion forums (e.g. Blackboard, blogs, chat rooms and bulletin boards). About 30% reported sharing knowledge by using an electronic repository/organisational database and only about 20% used the intranet to share knowledge with colleagues.

Apart from email, there is limited use of ICT tools at SBIT for knowledge sharing. Since it is likely that many staff do not know how to access and use the range of ICT tools available, training may provide a partial solution. However, unreliability of ICT services and restrictions on access to tools such as social networking sites pose further barriers.

Knowledge sharing behaviour
Over 95% of respondents reported frequently or very frequently sharing knowledge through informal face-to-face conversation with colleagues. This is probably the most effective way of transferring undocumented, tacit knowledge (Hammer, 2002, p13). 60% also indicated that they frequently use formal meetings e.g. teaching teams, faculty, for the same purpose.

By contrast, slightly more than 20% reported frequently using internal communities of practice for knowledge sharing and 35% indicated that they never used this strategy. Only 15% reported frequent use of external communities of practice and 45% indicated that they never used this strategy. About 25% of respondents reported using Faculty planning days to share knowledge and approximately 33% indicated the use of collaborative teaching practices, e.g. team teaching, project based learning and classroom visits, for this purpose.

Approximately 30% of respondents agreed that they shared knowledge through internal professional development activities, e.g. annual SBIT Teaching and Learning Conference, faculty seminars, workshops, lunchbox sessions. Only about 15% reported sharing knowledge through external funded projects, e.g. Reframing the Future, Learnscope, industry partnerships. Just over half of all respondents indicated that they shared knowledge from education and training with colleagues.

It is clear that informal professional conversations between colleagues are by far the most frequently used strategy at SBIT for knowledge sharing. Formal meetings are the next most

commonly reported strategy. Communities of Practice, which are much vaunted in the literature, (Wenger et al, 2002) are used frequently by less than 20% of respondents and never used by well over 35%. Despite their high profile, externally funded projects rate poorly with SBIT staff as a knowledge sharing strategy.

Conclusions

Almost every respondent at SBIT reported a strong desire to share knowledge with their colleagues and 80% considered they had the necessary skills and knowledge to do so. Informal conversations with colleagues email and formal meetings were the predominant means for sharing. 75% of respondents considered that inadequate ICT services and casualisation of the VET practitioner workforce were the two major barriers to knowledge sharing. Other significant barriers identified included an absence of explicit organisational knowledge sharing strategies and policies, a lack of incentives and risk aversion among senior managers. Nationally funded initiatives appear to have quite limited impact on knowledge sharing by VET practitioners in SBIT.

Since knowledge sharing is key to developing capability of the VET practitioner workforce, this should be foregrounded in explicit organisational strategies and policies. ICT tools and services to facilitate knowledge sharing are in urgent need of overhaul. In terms of using a strengths-based approach, the proven strategies of informal professional conversations, using email and formal meetings should be supported and further developed. Given the overwhelming desire by staff to share knowledge, it is recommended that management implement relatively inexpensive facilitative measures such as scheduling specific time for sharing activities and providing recognition for those who make extra efforts.

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Appendix A

Table1. Profile of Survey Participants

Measure	Item	Frequency	Percent
Gender	Male	63	36.4
	Female	105	60.7
	Unanswered	5	2.9
	Total	**173**	**100.0**
Age	< 29	4	2.3
	30 – 39	28	16.2
	40 – 49	56	32.4
	50 – 59	67	38.7
	60 – 69	18	10.4
	> 70	0	0
	Total	**173**	**100.0**
Position	Casual Tutor	1	.6
	Permanent, fixed term or contact tutor	21	12.1
	Workplace trainer	12	6.9
	Principal Teacher	10	5.8
	Casual teacher	4	2.3
	Permanent, fixed term or contact teacher	59	34.1
	Leading Vocational Teacher	57	32.9
	Educational Leader	8	4.6
	Other	0	0
	Unanswered	1	.6
	Total	**173**	**100.0**
Faculty	Business & Information Technology	31	17.9
	Communication & General Education	29	16.8
	Colleague of Tourism & Hospitality	36	20.8
	Creative Industries	24	13.9
	Health, Human Services & Applied Science	24	13.9
	Indigenous Australian Peoples Unit	4	2.3
	QSPGA	11	6.4
	Elearn	10	5.8
	Other	3	1.7
	Unanswered	1	.6
	Total	**173**	**100.0**
Organisational Tenure	< 1	12	6.9
	1 – 5	41	23.7
	6 – 10	41	23.7
	11 – 15	30	17.3
	16 – 20	22	12.7
	> 20	27	15.6
	Total	**173**	**100.0**
Teaching Qualification (Highest level)	Certificate IV	33	19.1
	Diploma	17	9.8
	Advanced Diploma	1	.6
	Undergraduate degree	48	27.7
	Graduate certificate	7	4.0
	Graduate diploma	32	18.5
	Masters	28	16.2
	Doctoral	0	0
	Other	5	2.9
	Unanswered	2	1.2
	Total	**173**	**100.0**