

Leaders' Conceptualisation of Learning and Innovation, and their Strategies of Implementation

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ABSTRACT

To be successful in a competitive environment, business organisations require the capabilities to solve authentic problems relevant to their respective business or industry. These capabilities are consolidated in policies and programmes of corporate learning and innovation. As will be developed in the thesis, learning is solving problems that other people have solved and innovating is solving problems that no other people or entities have solved. Leaders' active role in implementing and enacting these policies and programmes is a crucial factor in the processes of learning and innovating. This research explored the knowledge and understanding of people in leadership roles in Australian organisations and their strategies to facilitate learning and innovation among employees. It aimed to discover organisational leaders' conception of the acts of 'to learn' and 'to innovate' through a qualitative and exploratory methodology. Data were collected through semi-structured interviews, a questionnaire survey, and an analysis of publicly available documents of the participant organisations. Results of the analysis showed that few of the interviewees (in organisational leadership roles) demonstrated clear conceptual understanding of the 'how to' or the 'mechanism of action' aspect of the 'to learn' and 'to innovate' acts. Second, participants generally envisaged 'knowledge' to be related to external objects, which could be transacted as a commodity.

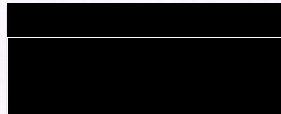
This research also found that the leaders' perspective of 'innovation' is diverse, spanning a range of possible expressions or interpretations; therefore, there was not a standardised or generally accepted view of 'innovation'. To enable innovation, some leaders suggested that an approach using Action Learning or Action Research could have a practical impact for establishing a collective problem solving capability, with learning iteratively growing as a collective 'core competence.'

The research concluded that regardless of the leaders' knowledge and understanding of learning and innovating, in the absence of an impetus to generate new knowledge, typically, there was not a sustained focus on creating new products or services. The implications of the findings for organisational learning are discussed.

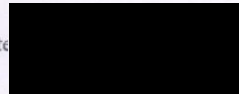
STUDENT DECLARATION

I, Richard Shue-Tak Yu, declare that the DBA thesis entitled "Leaders' Conceptualisation of Learning and Innovation, and their Strategies of Implementation" is more than 65,000 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any academic degree or diploma. Except where otherwise indicated, this thesis is my own work.

Signature



Date



Richard Shue Tak Yu

DEDICATION

This thesis is dedicated to my grandchildren, Lily Jade, Adam, Charli,
Sabrina, Kira, and Fenn,

my wife Miu-Ling,

and the memory of my parents, Mrs. Kit-Yee Chan Yu and Mr. Chin
Yu

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Chapter 1

General introduction

1.0 Introduction

To survive and sustain business growth, companies (organisations) need to continually produce new products to satisfy their customers. Producing new products (as goods or services) requires knowledge, especially new knowledge; and generating knowledge and new knowledge originates from learning and innovating activities in human communities. Thus the learning and innovation acts are critically linked to the business survival and growth of organisations. It follows that organisations, more appropriately the people in organisations who are responsible for the establishment and development of learning and innovation capabilities in their organisations, need to have a precise knowledge and understanding of what these acts are and how they operate in their organisational settings. A lack of knowledge and understanding of these acts may impede the desired resultant learning and innovation in the organisation. My earlier work and media reports have shown that people believe that they know generally what learning and innovating mean but their knowledge and understanding of these acts are not sufficiently clear and defined to benefit the establishment and development of learning and innovating in the organisation. This lack of clarity around people's knowledge and understanding of learning and innovating is a gap in business survival and growth strategy scholarship. Addressing this gap is the focus of my thesis.

1.1 Scope and intention of thesis

This thesis set out to explore with employees, such as executives or senior managers nominated by the participant organisations, their personal knowledge and understanding or conceptualisation of learning and innovation. The word 'leaders' used in the title and text of this thesis was for brevity of description only, replacing the

phrase 'executives or senior managers'. The use of the word does not imply any innate and/or acquired qualities and characteristics attributable to the role or functions of being a leader in an organisation. In this respect, the word 'leaders' as used in this thesis excludes nature and style elements of leadership, as the act of leading and/or management of employees was not the focus of this research. The word is used solely to denote an employee(s) in an organisation who has been nominated by his/her organisation to participate in an interview in this study and has the authority, input, control, or impact over corporate policy setting or allocation of corporate resources for the purpose of learning and innovating. This project also explored the implementation regimes that 'leaders' put, or plan to put, in place to facilitate learning and innovating in their respective organisations. The aim was therefore to address the knowledge gap by examining what 'leaders' believed to be appropriate strategies, policies and programmes to support organisational learning and innovation based on their own knowledge and understanding of what those terms mean. Their perspectives were sought through the following research questions:

1. What is the knowledge and understanding of 'learning' of leaders of participant organisations in Australia, particularly the learning that would afford the capability or potential to create new knowledge leading to innovation, and the leaders' attitude towards learning and innovation?
2. What are the visions/policies and appropriate educational structures and programmes that the organisations' leaders have in mind or in place to enable all their fellow employees to learn and learn in the manner that would enhance capability and allow them to contribute collectively and continually to their organisation's new knowledge creating effort?
3. How would the implementation regimes that the leaders envisaged or put in place, as reported by the leaders, be consistent with and reflective of their own conceptualisation of learning and innovation in organisations?

1.2 General context for the research

Like many countries in 2008 and 2009, Australia was experiencing an economically difficult time, with the perceived floundering of industries and export of jobs overseas.

Australia's Federal Minister for Industry at that time, Senator Kim Carr, admitted that acute stresses throughout the western world made it hard to safeguard anyone's job. To survive in this difficult time, Senator Carr also emphasised that Australian workers needed to learn to be smarter, invoking the notion of a 'clever country'; only innovation could offer Australians security and prosperity (*The Age*, 27 February 2009). The word innovation has often been bandied about in the press, yet arguably not much has been acted on in Australian industries. But it appeared that any strategy to survive and prosper in difficult times would hinge on innovation. So it is imperative to know and understand what it is and how to innovate. Necessarily the quality of outcomes in an innovation strategy would depend on people's knowledge and understanding of the word innovation as well as how it is implemented for maximum benefit (Haavind 2007; Price 2007). To remain in business, companies have to satisfy the needs of their customers. That means they have to continually clarify and identify their customers' needs and provide new products (goods and services) that their customers desire (Porter 1990). To do that means to incorporate more new knowledge into their products (Porter 1990). For companies to achieve this outcome, naturally they need to have a continual supply of new knowledge. One approach to facilitate a continual supply of new knowledge would be for companies to embrace the practice of research as a workplace routine.

Generating new knowledge in human societies can only come from human beings by learning activities (Kong, Chadee & Raman 2011). It is therefore important to be clear about and differentiate the meaning of words or terms such as new knowledge, knowledge, information and data, so as to enable us to communicate accurately and advance the generation of genuinely new knowledge.

Another common word closely linked with innovation requiring clarity is 'learning'. People may believe that they know what learning (as a verb or a noun) or the 'to learn' act is operationally, but when observed in practice they do not demonstrate such consistency in their understanding. Some people might find it hard to articulate coherently their concept or theory of learning and how their process of learning would lead to the generation of new knowledge. Anecdotal evidence from my past research

(Yu 2006) suggested that people from a non-academic background seldom have coherent concepts of learning or consistent images of how to relate learning sensibly to the generation of knowledge or new knowledge. Many can perform the 'to learn' act or learn, but may not actually be able to articulate how they learn. In that respect, we may regard the 'to learn' act or 'learning' as our tacit knowledge (Polanyi 1967; Harlow 2008; Teerajetgul & Chareonngam 2008).

In the course of my research (Yu 2006), I found that employees in some Australian organisations (including the general staff, supervisors, and lower middle-level managers) were often unclear about the meaning of some commonly used English words, such as: know, learn, understand, think, or reflect. This has been commented on in newspaper editorials, which argue that in conversation people tend to use words trivially, such as innovation, hero, miracles, and legend. While this might be a sign of the social evolution of the English language, relaxed usage of words and trivialisation of concepts could also lead to a 'dumbing down' or confusion around the real significance of these words/concepts (Rowley 2000; Hyland, Gieskes & Sloan 2001; Sense 2008).

This lack of clarity of understanding of the 'to learn' act and the operation of new knowledge generation is highlighted in Darryl Burner's report in the *Business Review Weekly*, which states that this deficiency exists amongst senior administrators and experts in public organisations or institutions, such as the Victorian Government's Innovation Insights Program (Burner, *Business Review Weekly*, 16 June, 2004). Thus, I considered this issue to be sufficiently significant to warrant further exploration. With no clear understanding of what new knowledge and innovation actually mean, misguided goals and visions related to learning and innovation may develop as a consequence.

An observation was uncovered relating to the attitude of leaders of organisations towards learning and in particular learning for inventing or innovation. Their attitude informed by their knowledge and understanding, particularly towards the latter kind of learning, would be crucial to the realisation of what is known as 'being a Learning Organisation' (Senge 1990; 1992; Smith 2007) or, similarly, Guns' idea of 'learning

faster' (1996) for the strategic positioning of their organisations to gain and sustain a competitive advantage (Porter 1990).

In this research, I explored these issues with the leaders of participating Australian corporations. The justifications for exploring this with these leaders were: (1) they have control of the resources and authority to provide educational programmes and facilities; (2) what they know and how they feel about learning and innovation would affect and determine their organisation's emphasis on, and attention to, learning and the provision for learning; (3) they are entrusted (Farrar 2005; Colley Jr., Doyle, Logans & Stettinius 2005) with the task of positioning their organisations through the acquiring and sustaining of a competitive edge (Drucker 2002); and (4) they should model the values that they hope their colleagues in the organisation would observe and adopt (Drucker 2002).

1.3 Contribution to knowledge

I envisaged that this research would clarify the state of knowledge and understanding that the leading employees who participated in this project would have on learning, particularly learning that would lead to new knowledge generation and/or innovation. As mentioned earlier, there have been a number of media observations and commentaries questioning: do people in organisational leadership roles really know what effective learning and innovation is? It has been recognised and sometimes reported in the press that many people in the apex of organisations are unclear and unsure in their understanding of the nature, the process, and the need for innovation in business competition. It is often considered, for instance, that a company that adopts a new technology is innovative. An example of this was the Victorian Government's Innovation Insights Program that encouraged companies to copy from, or 'benchmark', the best by giving manufacturing companies grant money to visit so-called best-practice manufacturers (Burner, *Business Review Weekly*, 16 June 2004). This may be considered by some to be adopting new technology, rather than innovating and the literature is equivocal about claims of innovation adoption being innovative. On the one

hand West and Anderson (1990) suggest that innovation is something new to the unit of adoption, whereas others argue that it is not. According to Rogers (1976), Kimberly and Evanisko (1981), and Damanpour and Schneider (2006), adoption or adaptation of innovation, such as that which the Victorian Innovation Insights Program encouraged, was not innovation. Vince Chadwick reported that “According to the Innovation Barometer ... only 28 per cent of Australian executives said research and development corresponded to their personal definition of innovation” (‘Australia lagging in innovation’, *The Age*, Business Day, 19 January 2012, p. 21).

Arguably, if professionals or experts, especially those in leadership roles and/or those holding the purse strings of organisations, are unsure of the meaning and deeper understanding of learning and innovation, they might not necessarily have the knowledge or attitude to develop and implement requisite policies and educational programmes to cultivate and nurture the creative potential of their employees. In that respect, it could be argued that they might not have the right ideas of how to prepare and position their organisations or community so that they could strategically be winners and survivors in business. This thesis undertook to explore this critical issue.

1.4 Statement of significance

From the perspective of business praxis, this research was concerned with the operationalisation of the ‘Learning Organisation’ ideal (Senge 1990, 1992; Smith 2007). The thesis examines rhetoric against the reality of learning in Australian organisations, but this aspiration required a number of conditions to be in place. First, leaders should acknowledge the need and significance of learning and establish learning policies and procedures. Second, leaders should implement programmes and set examples by modelling behaviours consistent with what they espouse (Yu 2006). Third, achieving this aspiration would be contingent on the leadership having consistent and coherent theories of learning and innovation. Finally, leaders’ informed attitudes towards learning and innovation should create the context within which others may experience the foregoing.

How would this research be different from others? Admittedly, in terms of range (that is, the degree of novelty of an invention), new knowledge generation would arguably span from one end of the spectrum to another. This would be reflected on the one end as a mere adoption or adaptation of new knowledge (Goldsmith & Matherly 2001; Rogers 1976; Kimberly & Evanisko 1981; Damanpour & Schneider 2006), commonly known in the organisational learning literature as adaptive learning in practicing or coping organisations (Senge 1990; Smith 2007), through to the other end of discovering authentic breakthroughs or disruptive innovations (known as generative learning in practicing or learning organisations) (Senge 1990; Smith 2007). This range also represents the degree of difficulty to replicate or emulate the corporate core competence (Hamel & Prahalad 1991), which is the supposed uniqueness and inimitability of the organisation's innovativeness. Organisations with corporate core competence, which is practised by all their employees, would be at a distinct competitive advantage (Porter 1990); being capable of generating new knowledge continually offering new products to their clients/customers. Organisations with competence in adaptive learning might still be able to improve their business operations and products in accordance with changes in their business environment. However, positioning organisations exclusively at the adaptive end for a long term would probably condition them to compete on cost and quality improvement most of the time, if not always (Porter 1990).

Previous research reported in the literature has been principally focused on the basis of the theoretical constructs of organisational learning and learning organisations (Kofman & Senge 1993; McGill, Slocum & Lei 1992; Nonaka 1991; Pedler, Boydell & Burgoyne 1989; Merriam & Caffarella 1999; Weick & Sutcliffe 2001; Dodgson 1993; Fiol & Lyles 1985; Argyris & Schon 1978; Argyris 1977, 1992; Stonehouse & Pemberton 1999), and identifying and describing the attributes constituting what a learning organisation or organisational learning is (Tobin 1997; Guns 1996; Kolb, Rubin & Osland 1991; Senge 1990; Hesselbein 2002; Vaill 1996; Hutchins 1995; Rylatt 2001; Brockband, McGill & Beech 2002; Argyris & Schon 1974, 1996). To date, there has been a scarcity of empirical studies that specifically focus on determining what organisations would need to do to facilitate and enable their

employees to learn in a manner that would enable their continual contribution to the innovativeness of their organisation. This thesis focuses on this aspect by exploring how to fill this gap with the leaders of participant organisations.

1.5 Conceptual framework of the study

As mentioned earlier, the meaning of some words and terms has evolved, or perhaps degenerated, through common usage. In reviewing articles from the business and management literature, I observed that words, phrases, or terms have been used without adequately defining what they were supposed to mean. A number of other authors have also commented on this lack of definition (Bierly III, Kessler & Christensen 2000; Neely, Fillipini, Forza, Vinelli & Hill 2001). Therefore, to avoid further ambiguity or misunderstanding whenever and wherever I use crucial terms or words in this thesis, I define them in a 'conceptual framework' and use this framework to make sense of the outcomes of other studies as well as my observations in this research. In that respect, the following exposition represented the lenses through which I examined the way knowledge and experiences have been understood in the context of this thesis.

I use the verb 'know' to mean to acquire data, information, or disciplinary/domain experiences and the verb 'understand' to integrate the acquired data, information, or disciplinary/domain experiences into a person's neural network of concepts in the brain, to establish its relevance or relationship to other knowledge stored in that person's memory. The verb 'understand' means making connections between the acquired data, information, domain experiences with existing concepts in a person's neural network or, colloquially, memory. The richer or denser the person's neural network connections, the better the person understands or has a more meaningful recognition of the acquired data, information, or domain experiences; what has been acquired is more closely related or integrated with other concepts in one's memory. By making these neural connections, the acquired material becomes one's own knowledge. The bank or repository of one's own knowledge may be categorised into declarative (propositional), procedural, and metacognitive (or executive, managerial) knowledge (or concepts, schemes) (Slavin 1997; McInerney & McInerney 1998; Berliner & Calfee 1996; Howard 1987; Rumelhart & Ortony 1977; Rumelhart 1980; Gardner 1985; Alexander

1992; Biggs & More 1993; Salomon & Perkins 1989; Maltby, Cage & Berliner 1995; Yu 2000).

The verb 'learn' is used in this thesis to mean to acquire data, information, or disciplinary or domain experiences, integrate it (so as to understand), and then use or apply the acquired data/information to accomplish a task effectively. Thus, a person only *knows*, but has not *learned*, the material acquired, if he or she fails to use the material to accomplish a task effectively. This perspective is consistent with that of other authors, specifically Guns (1996), Tobin (1997, 2000), and Yu (2000, 2006). Also, the definition for 'learn' or 'learning' (as verbs) has been recognised to be a mirror reflection of the definition for, and operationally the same as, problem solving, which is the application of one's knowledge to effectively accomplish a task and Soden (1994), Robinson (1995, 2002), Anderson (1993), Anderson, Bothall, Byrne, Douglass, Lebiere and Qin (2004), Michalewicz, Falkner and Sooriamurthi (2011), Ash, Jee and Wiley (2012) and Yu (2000, 2006) have adopted this as their definitions. In the education domain, the act of learning has been acknowledged to subsume that of problem solving (See the Venn diagram, Figure 1.1); and so a person could be considered to have learned when he/she solved a problem (Soden 1994; Yu 2000). In common usage in education, 'learning', as a noun, means the experience of a person solving a problem (Soden 1994; Yu 2000).

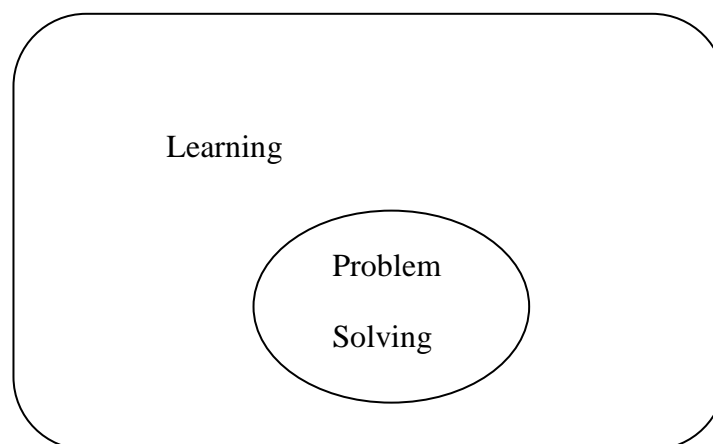


Figure 1.1 A learning and problem solving relationship

In terms of the mechanism of action (or 'how to') for solving a problem (that is, removing an obstacle to achieve an end or objective), how well one solves a problem depends on filling in or bridging the gap of knowledge required to effectively accomplish the task and how much personal knowledge the person has in store in his/her head or memory (Salomon & Perkins 1989; Stevenson 1991; Mayer & Wittrock 1996; Shulman & Quinlan 1996; Soden 1994; Yu 2000). When the gap is large or one's personal knowledge is grossly inadequate, the problem is said to be very hard to solve. The person then needs to acquire from somewhere (a source) the requisite data, information, or experiences to subsidise his/her original knowledge in formulating or composing a plan of action to accomplish a task. Sometimes the gap might be so wide that there is not enough existing knowledge available. Under this condition of communal ignorance, when sufficient knowledge is not available to effectively accomplish the task or solve the problem in hand, one might have to rely on one's ability to assemble a partial scheme or approximation to fit the task by arranging the data, information, and knowledge. This situation resembles the pieces of a jigsaw puzzle imagined in one's mind (or working memory space), like forming various patterns by turning a kaleidoscope (Howard 1987; Rumelhart & Ortony 1977; Rumelhart 1980; Gardner 1985; McInerney & McInerney 1998). Nonetheless, all the pieces together may not fully constitute a complete set of the requisite knowledge or generate a *gestalt* to form a 'completed' picture or closure. This form of abstract reasoning may still involve some missing jigsaw puzzle pieces - a creative thinking process or a creative act - but generation of a solution occurs nevertheless (Perkins 1990; Foster 1996; Jewell, 1996; Osterman 1993; Parnes 1967a; 1967b; Bloom & Broder 1950).

If the approximation could overcome the obstacle, that is, accomplish the task or solve the problem, then one is said to have invented a solution to a problem. The experience of solving that problem, using an available but incomplete set of knowledge, is called new knowledge or knowledge creation (Tobin 1997; Guns 1996; Argyris & Schon 1996; Soden 1994; Burgoyne 1995; Buckler 1998; Reynolds & Ablett 1998; Cullen

1999; Massey & Walker 1999; Yu 2000; Robinson 2002). However, that solution remains tentative; it is not an absolute answer to the problem. In the natural sciences this remains a hypothesis requiring proof to demonstrate its universal validity or otherwise. The solution remains not a true representation of the reality. Similar sorts of possible approximate solutions to problems could be conceived as tacit knowledge, which in effect simply means 'it works (thus a solution to a problem) but I don't know why' or 'I know how to do it but I can't explain how I do it or why I can do it' (Polanyi 1967). Solving a never-before-solved or *de novo* problem is knowledge creating or inventing (Perkins 1990; Foster 1996; Jewell 1996; Osterman 1993; Parnes 1967a, 1967b; Bloom & Broder 1950). But solving a problem that has already been solved because one does not know enough is not creating new knowledge. Applying or using new knowledge or invention in generating marketable or saleable goods or services is innovating (Amabile 1988; Daft 1978; Damanpour 1991; Gopalakrishnan & Damanpour, 1997; West & Farr, 1990; Zaltman, Duncan & Holbeck 1973). Inventions or new knowledge may remain dormant when they are not utilised to generate new products. In this respect, innovation can be differentiated from invention.

As an entity, an organisation, like a person, can learn or solve problems because the human beings inhabiting the organisation's workplaces learn and solve problems collectively as groups, teams, or in communities of practice (CoPs) (Argyris & Schon 1996; Guns 1996; Hutchins 1995; Lave & Wenger 1996); and like the situation with individual humans, learning by an organisation as an entity (or organisational learning) is synonymous with collective or organisational problem solving (Robinson 1995, 2002). In the framework developed for this thesis, 'inventing' and 'innovating' involve the same activities whether applied by individuals or organisations as a whole.

1.6 Empirical work undertaken to support this thesis

A qualitative methodology was chosen for this thesis because this project did not involve testing of a theory or hypothesis. The thesis focus was to explore with leaders their perspective on the issues encompassed in the three research questions described in Section 1.1. It was anticipated that three or four leaders from four or five private companies would be interviewed, preferably from different industries with different

aspirations for organisational learning and innovation. Recruitment of organisations for this research project was to be negotiated with industry and direct contact, recruitment and negotiation of participation were to proceed after the University Ethics Committee approval was granted.

A qualitative approach (Bryman & Bell 2007), adopting an interpretive-descriptive style (Belenky 1992), was undertaken. Data collection included the use of semi-structured interviews (with leaders nominated by the participant organisations); a questionnaire survey (Bryman & Bell 2007); and a document analysis (Bryman & Bell, 2007). The semi-structured interviews constitute the principal source of primary data in the form of self-reports (Reissner 2005).

To complement and supplement interviews with leaders, an abbreviated questionnaire covering the main points developed as the Interview Guide (discussed in Chapter 3) was administered to the human resources (HR) managers of the respective companies. The HR managers were requested to respond because, in accordance with their roles and functions, they would have comprehensive information about employees' learning and innovation capabilities, as well any corporate strategies relating to learning policies and programmes. They would also provide a source of confirmation for what the leaders discussed in their interviews (Torraco & Swanson, 1995; Lado & Wilson, 1994). As much as permissible, the company's official documents, provided by participant organisations or procured from public records/sources, were also analysed with respect to the research questions. The three methods of data collection then served to triangulate (or validate) the data collected.

1.7 Structure of the thesis

This thesis began with a general introduction and a summary of the underlying rationale as well as the significance of the research undertaken. Chapter 2 provides an analysis of the diverse perspectives regarding the principal issues, and matters relevant to the principal issues, of learning and innovating, as well as core competence and competitive advantage. Chapter 3 describes the methodology and methods undertaken to explore the aims or seek answers to the research questions with the participants.

The next four chapters present the analysis and interpretation of the empirical data collected. Chapters 4 and 5 present the leaders' perspectives on aspects of learning and innovation respectively; Chapter 6 outlines their perspectives on implementing strategies around learning and innovation in their organisations; and Chapter 7 reports on other sources of data that were considered to provide documented evidence or records regarding the actual state of organisational implementation of their learning and innovation strategies.

Chapter 8 provides an integrated interpretation and discussion of the results of the empirical work and the conclusions based on the empirical outcomes.

1.8 Connection to Chapter 2

In this chapter I have described briefly the 'what and why' of my research. The focus was the relevance and inter-relationship between concepts of 'to learn' and 'to innovate' or 'to invent', to the issue of business survival or sustainability and growth. The crucial link between the learning and innovation on one side and the other business survival and growth strategies was the acquisition and sustaining of core competence, which would afford organisations their unique corporate competitive advantage. This crucial linkage was considered, in effect, to be the functional mechanism, the 'how', that would be needed to connect learning and innovation with business survival and growth. A review and discussion of this crucial aspect constitutes the substance of Chapter 2.

Chapter 2

Literature review

2.0 Introduction

“When the going gets tough, the tough innovate” (Razeghi 2008)

In tough economic times, such as the global recession we have just experienced, Andrew Razeghi (2008) suggests the adoption of innovative practices as a corporate survival strategy.

A.G. Lafley, Chairman and CEO of Proctor & Gamble concurred, explaining the innovative action his company took:

... it's more essential to innovate through a recession, and certainly what we're trying to do ... is to continue to bring sustaining and even disruptive new brands and products for our consumers ... (Quotation cited in Razeghi 2008)

The sentiments Razeghi and Lafley expressed agreed with the comment of Senator Kim Carr, as outlined in Chapter 1, regarding the ‘innovation imperative’ (Barden 2008).

Doing business in the 21st century, and especially in economically difficult times, companies and indeed all organisations need the capability to innovate. The acquisition of this capability, and the sustained state of being capable, has been referred to by numerous management scholars as core competence. It is believed that core competence would provide its organisation with a competitive advantage (Achanga & Shehab 2006; Audretsch 2003).

As described in Chapter 1, the focus of this research is to explore with ‘people-in-authority-to-influence’, the knowledge and understanding of the ‘to learn’ and ‘to innovate’ acts and to examine their perspectives on implementing policies and programmes to effect fellow employees’ learning and innovating in their organisational setting. In other words, this research sought to find out leaders’ thoughts on ‘learning’ and ‘innovating’ and how these might be effected, what is the ‘learning and innovating’

that would provide organisation's 'core competence', and then what organisations need to do with their specific corporate core competence, and how, to gain and sustain their 'competitive advantage'. To appreciate how these four principal concepts (to learn, to innovate or invent, core competence, and competitive advantage) are interrelated, other relevant or associated concepts were reviewed to assist in the integration. The rationale underlining the integration is shown as follows:

*For continual performance and growth, business organisations need to gain and sustain a **competitive advantage***



*By developing and maintaining the readiness of its problem solving expertise pertaining to its business, i.e. to constitute its '**core competence**'*



*An organisation can constitute its 'core competence' through '**organisational learning**'*



Organisational learning is to acquire and understand data, information, and experience, and use them to tackle a task, or overcome an obstacle blocking a goal, effectively



*This 'organisational learning' is equivalent to '**organisational problem solving**' as learning subsumes problem solving*



*Learning generates two types of knowledge: knowledge and new knowledge. Knowledge is generated when the task tackled is not new and new knowledge generated when the task tackled is new. **Solving new problems generates inventions or innovations***

This chapter will show that the 'to learn', 'to invent', or 'to innovate' acts share a common mechanism of action. Mitra (2000, pp. 228-238) considered this relationship to be so close that innovating is part and parcel of collective learning. The differentiation between learning and innovating is that innovating or inventing necessarily involves the generation of new knowledge whereas learning might not (Mitra 2000, pp. 228-236) (Venn diagram, Figure 2.1)

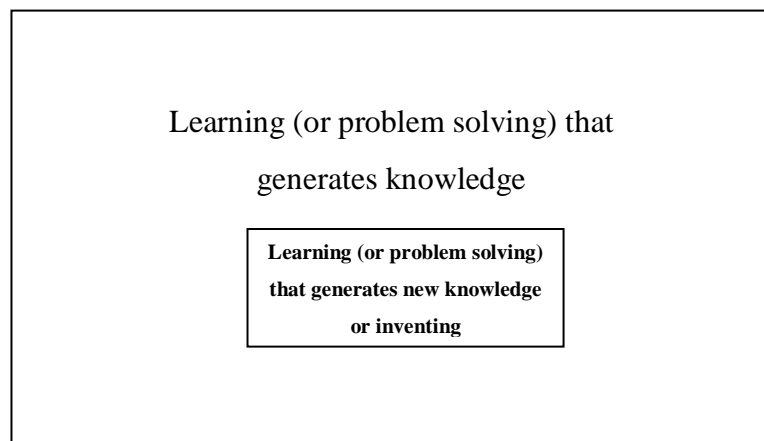


Figure 2.1 Relationship between learning and knowledge.

Figure 2 shows the relationship between learning that generates knowledge and learning that generates new knowledge or inventing and that the former subsumes the latter.

On the premise that 'to learn' or 'learning' and 'to innovate' or 'innovating' share a common mechanism of action (that is, problem solving), it would make practical sense that the more people engage in finding and solving problems, the better the innovative outputs from a group, team, or organisation. Thus more people scanning the horizon looking for new things for commercialisation would be more beneficial to the company than solely the Research and Development (R&D) or marketing professionals generating new knowledge in their laboratories or offices. This point of learning and innovating at the individual human level and collectively at the organisational level leads to the concept of core competence.

Core competency is a concept in management advocated by Prahalad and Hamel. In their view core competencies are particular strengths relative to other organisations in

the industry which provide the fundamental basis for the provision of added value. Core competencies represent the collective learning within organisations, and involve the ability to coordinate diverse production skills and integrate multiple streams of technologies. Established core competence implies a level of communication, an involvement and a deep commitment to working across organisational boundaries. According to Prahalad and Hamel, few companies are likely to build world leadership in more than five or six fundamental competencies (Prahalad & Hamel 1990; Javidan, 1998).

A review of literature on the concept suggests that an organisation's core competence relates to its readiness or preparedness to tackle expected or unexpected challenges through acquired capabilities of collective learning and innovating, or problem solving. Acquiring the capability is one thing, maintaining it so that it is always ready and prepared is another; the business environment changes constantly. This leads further to the issue of sustaining the competitive advantage. How an organisation could sustain its competitive advantage becomes the last topic for review and discussion in this chapter.

As an outline, the five main sections of this chapter are:

- 2.1 Adult learning and learning in the workplace,
- 2.2 Organisations acquiring the requisite learning abilities,
- 2.3 Innovation,
- 2.4 Core competence, and
- 2.5 Competitive advantage, which includes a subsection relating the review of literature on these four principal concepts (Sections 2.1, 2.2, 2.3 and 2.4) to the research questions of this thesis (in Chapter 1) and the empirical work undertaken (in Chapters 4, 5, 6 and 7).

2.1 Adult learning and learning in the workplace

We all learn something throughout our lives. Biologists regard that to learn is to live, and learning can mean many and very different processes to different people.

According to Illeris, four different main meanings can be recognised when the term learning is used in non-specific (or non-academic, or non-theoretical) everyday language:

1. Firstly, it (as a noun) can refer to the outcomes of the learning processes that take place in the individual learner. It is used to mean what has been learned or a change has taken place.
2. As a noun, it can refer to the mental (or physiological) processes that take place in the learner and can lead to such changes or outcomes as depicted in point 1. It may be considered as the learning process proper.
3. Thirdly, it can refer to the interaction processes between individual learners and their material (or physical) and social environment, which are either directly or indirectly preconditions for the internal mental or physiological processes of learning mentioned in point 2.
4. Fourthly, it is often adopted not only in everyday language, but also in official and professional contexts, more or less synonymously with the term teaching. Thus, often we can hear people speak of teaching and learning as two sides of the same coin (based on Illeris 2007, pp. 2-3).

It is often difficult to determine which meaning of 'learning' is being referred to. To overcome these uncertainties, Illeris proposed a general definition of 'learning' as: "any process that in living organisms leads to a permanent capacity change and which is not solely due to biological maturation or ageing" (2007, p.3). It means that in living organisms, learning results in a permanent change of its capability to act. Illeris' definition, though conceptually precise, is not quite suited specifically to describing adults' learning processes. I adopt Guns' or Tobin's definition of learning (Guns 1996; Tobin 1997), which is to acquire data, information, or disciplinary or domain experiences, integrate it so as to understand, and then use or apply the acquired material to accomplish a task effectively. This definition has direct application in developing my thesis's arguments that learning encompasses problem solving, which Soden (1994) and Robinson (1995 and 2002) consider to be learning; and Tobin's or Guns' definition

is consistent with the argument that learning as problem solving is the practical capability needed for innovativeness.

In a similar vein, Jarvis defines learning as “the transformation of experiences into knowledge, skills and attitudes” (Jarvis 1987, p.8), which he has since expanded (Jarvis 2006). My adoption of these concepts of learning does not imply that I exclude numerous good concepts or definitions that other eminent scholars in the education and management domains have developed (notably, for example, Tidd 2007a).

Also, for the purpose of this thesis, I will focus on concepts that have played a part in extending the dimension of learning beyond the narrow confines of knowledge and skills content. From my perspective, learning, especially with respect to adult learning, encompasses other contents and dimensions besides knowledge and skills. These include, for instance: what and how should adults learn to enable them to become more capable of generating knowledge? Under what environment should adults learn to enable them to become more capable of generating knowledge?

2.1.1 Adult learning

Learning, for an adult, always has some purpose that might relate to managing one's life or the challenges one faces at work or elsewhere. According to Rogers (1951, 1961), we do not just learn to acquire and accumulate a collection of useful and factual information; we need to learn to always and constantly check on and question our own thinking, that is, our mental models, or our frames of reference, so as to make better sense of our experiences. This leads to the issue of what adult learning should really be aimed at and what adult learners should expect from the ‘to learn’ act. A number of theorists' models of learning are reviewed in the following sections as part of my approach to building a framework of what adults should learn to enable them to be more capable of generating new knowledge, or inventing.

2.1.2 Effective learning

Carl Rogers considered that learning should make a real difference to the learner. His concept of 'significant learning' involves 'a change in the organisation of the self' (Rogers 1951, p. 390), and he defined it as follows:

By significant learning, I mean learning ... which makes a difference - in the individual's behavior, in the course of action he chooses in the future, in his attitudes and in his personality. It is ... not just an accretion of knowledge, but which interpenetrates with every portion of his existence. (Rogers 1961, p. 280)

Significant learning, according to Rogers, is something one becomes engaged in when faced with situations or challenges beyond one's personal experience, but which must be conquered in order to progress (i.e. a crisis, difficult problem, or issue that is often existential in nature). In other words, when faced with a difficult problem, one needs to learn significantly. All significant learning to some degree is stressful and can be disruptive in one's life, within the individual and within the system or organisation, as it involves confronting and resolving challenges or difficult situations. According to Rogers, since the 1960s and 1970s human society has developed in a way that leads more people into such existential crises and significant or effective learning thus becomes a focus, perhaps even a necessity of adult learning programmes (Rogers 1969).

2.1.3 Transformative learning

It has been recognised that there is another aspect of learning - especially in connection to the requirements of lifelong learning and the adult developmental programmes - that is also far-reaching in nature. This is learning that would result in a paradigmatic shift or change (see later sections for further explanation) at the time of learning.

Jack Mezirow defines transformative learning as follows:

Transformative learning refers to the process by which we transform our taken-for-granted frames of reference, to make them more inclusive, discriminating, open,

emotionally capable of change, and reflective so that they may generate beliefs and opinions that will prove more true or justified to guide action. (Mezirow 2000, pp. 7-8)

Transformative learning concerns learning that implies a restructuring or reforming of the organisation of the self and thereby also a coherent restructuring and coupling of a great number of mental schemes that lead to change in the individual's personality (or simply a re-organisation of one's mental framework). Implicitly, transformative learning is extremely demanding and a strain, and only takes place when the learner is in a situation with no other sustainable way out. In some cases, such learning can take place with breakthroughs as the resultant outcomes, but perhaps more often and commonly through a lengthy process in which social relationships and interactions play a significant role. Under all circumstances this is what one more familiarly would call crisis resolution and what is typically experienced mentally as a release. One can feel 'born again' as a new and better person. It is often and to a high degree driven by the learner's own efforts and tenacity. In training or practice, to effect transformative learning, individuals need to solve really hard problems or tackle challenges (that is, be put at the deep end of things) to trigger the transformative learning in themselves (Sipos *et al.* 2008).

2.1.4 Significant characteristics of adult learning

According to Mezirow's theorising (1990, 1991, 2000), we organise the understandings that we build up throughout our lives, partly in a series of meaning schemes (the groups or categories of related concepts that embody one's understanding of something in context) for different areas of content, and partly (more generally) in some meaning perspectives (the framework of mind one uses to make sense of the world, or our world views, or mindsets). This constitutes the key frames of reference for our creation of meaning. We develop most of our meaning perspectives through childhood and youth, and they then function both consciously and, to a high degree, subconsciously as governing our attitudes and modes of understanding (Mezirow 1990, 1991, 2000). The transformative aspect of adult learning is about being conscious of, considering and reviewing one's meaning perspectives and the habits of mind (customs, traditions) that follow from them. This typically occurs when one discovers in one or other

connections that the meaning perspectives do not fit with what one experiences or does. Then cognitive dissonance (Festinger 1957) or a dilemma arises (a conceptual irritation, like grit in one's eye), which one feels one must resolve. This takes place first and foremost through reflection, leading to a revision or transformation of one's meaning perspective resulting in a paradigmatic shift (i.e. through transformative learning).

Another advocate for the transformative dimension of adult learning is Brookfield (1987, 1990a, 1990b, 1995, 2000a, 2000b, 2005). Brookfield's approach to adult learning closely resembles that of Mezirow, but Brookfield emphasises and makes more explicit that transformative learning involves critical reflection or thinking. He maintains that it is critical thinking that effects the transformation. Brookfield explains the relationship:

In terms of Mezirow's transformational theory, it is clear that transformative learning cannot happen without critical reflection being involved at every stage ... Critical reflection is certainly a necessary condition of transformative learning, in that the existence of the latter depends on the presence of the former. However, it is not a sufficient condition; in other words, just because critical reflection is occurring does not mean that transformative learning inevitably ensues. An episode of critical reflection on practice does not automatically lead to transformation. As Mezirow acknowledges, the assumptions one holds can be exactly the same after critical reflection as they were before. (Brookfield 2000a, p. 142)

Thus Brookfield believes that critical thinking or critical reflection is something that is very important to promote, even if it does not lead into the onerous transformative learning. For Brookfield, being able to think critically and getting accustomed to critical thinking is central to adult learning, while transformative learning is something that might occur only under certain circumstances.

According to Brookfield, critical reflection or thinking is something different from, and more than, reflection (or just thinking further or harder about something) in general. It is about:

- Identifying challenging assumptions;
- Challenging the meaning and the context;
- Trying to use one's imagination and exploring other possibilities and that these notions and explorations lead to reflective scepticism (considered doubting or questioning). (Brookfield 1987, pp. 7ff)

Thus, Brookfield regards critical reflection or thinking as fundamental in a democratic society, which should always be included as crucial in any programme to educate adults or for adult learning (2005).

Also, Brookfield regards the key task for teachers of adult education to be encouraging adult learners to practice critical reflection, and that teachers themselves must therefore master and practice such an approach (Brookfield 1990a, 1995). Brookfield suggests that adult learners should practice critical reflection through their analysis of situations that they themselves have experienced and considered important (Brookfield 1990b).

What is always crucial for Brookfield is that one constantly questions one's own problems and reasoning, that one questions the assumptions and reasoning of others, and that one questions the contexts that set the stage for the situations and matters to which one relates (the theoretical background behind it being that all learning by human beings is situated and contextually-based; one cannot learn in total isolation and insulated from one's environment). This is discussed further in the following sections.

2.1.5 Reflection and metacognition

In connection to what dimensions adult learners should acquire by the 'to learn' act so as to render it more useful or effective, some other relevant concepts may be included: the method of working in teams (cooperative, collective learning; Illeris 2007, p. 121, p. 227; Yu 2000), the dimensions of reflection and learning how to learn, or metacognition (Flavel 1976, 1987a; Baird 1986). Moreover, important personal qualities, such as independence, self-confidence, responsibility, the ability to cooperate,

and flexibility of thinking are also elements that can be developed and strengthened to a high degree through adult learning in the workplace or society.

Reflection

Reflection is a popular topic of discussion in the education domain. In recent years there has been increased awareness that what is learned in school and education programmes must be of practical use, especially in working life, and it is now clear that reflection plays a decisive role in this context (Salomon & Perkins 1989; Yu 2000). Very often it is only through reflection and mental processing that understanding and integration take place, contributing to the transferability of learning, that is, the applicability of what is learned to other situation(s) in question (Salomon & Perkins 1989; Yu 2000). For this reason, the instructional structure of educational programmes must ensure that such reflection takes place in a community as well as in the individual learner, and that what is learned in this way is linked to relevant practice situations. Recent studies recognise that reflection is needed in the workplace to encourage innovation (e.g. Nilsen & Ellstrom 2012).

In the management field, Donald Schon describes two modes of reflection: reflection-on-action and reflection-in-action (Schon 1983, 1991). One concerns afterthought: one reflects on or gives further thought to something, perhaps an event or a problem (that is Schon's reflection-on-action). The other, Schon's reflection-in-action, is a process in which one immediately reacts to a problem or a situation by finding new potential solutions, drawing on one's familiarity with the field in question. Schon's reflection-in-action can also include the situation where one stops in the middle of an action, thinks, and finds out how to continue, and then goes on. There is naturally a brief shift in time but nevertheless within a certain process/activity it may be more precise to speak of reflection-in-action as a process where action, experience and reflection more or less confluence simultaneously together, as argued by David Boud (Boud, Keogh & Walker, 1985; Boud & Walker 1990; Hutchins 1995). Passila, Oikarinen and Vince (2012) examined the relationship between reflection-in-action, learning, and practice-based innovation and found that reflection-in-action is an important organisational or

collective process that can create spaces for generative learning (or learning that generates innovations).

Metacognition

With respect to the concept of metacognition, there are two different understandings of the word. One is about what has popularly been termed 'learning how to learn' (i.e. an idea that learning today is so important that one must also learn the approaches of how best to tackle it). From an academic perspective this popular phrase, learning how to learn, can be traced back to the observation within learning psychology that if an individual constantly applies him- or herself to learning within a given field, there will typically be a gradual increase of learning speed, presumably because one gradually has more and more relevant presuppositions at one's disposal and a closer net of structures is woven or relevant concepts hardwired together (Yu 2000; Wittrock 1994; Cardelle-Elawar 1992; Swanson 1990; Flavel 1976; 1987; Baird 1986).

The other understanding of metacognition, which is more important to this thesis discourse, is about accustoming oneself to thinking critically about one's own learning, (i.e. placing one's own learning in a personal and societal context and, in practical terms, familiarising oneself through habitual practice) (Flavel 1976, 1987; Baird 1986). In another study, West III and Meyer (1997) argued that organisational learning capabilities are embedded in organisational communication systems and processes that are related to knowledge creation and articulation (thus, sources of competitive advantage) and horizontal organisations favour communications systems and processes that promote rapid responses to changing environments. Firms that understand the need to build their communications capabilities may be characterised as metacognitive.

2.1.6 Learning to know oneself

It is human nature to try to make sense of, or create meaning in, what we experience. Our desire for this aspect of cognition increases as human society is becoming more and more complex. Thus, it is important that the dimensions of learning also include acquiring a general readiness to understand, follow and critically relate to the world around us. Following on from this it is understandable that reflection is increasingly

more significant for learning. Another increasingly important focus for learning would be learning about ourselves (e.g. getting to know oneself, understanding one's own reactions, inclinations, preferences, strong and weak sides of one's personality and mental framework). This would be a prerequisite for making meaningful decisions, and thus to a certain degree, participating in managing one's own life course, that is, self-awareness. Consequently, emotional intelligence is also becoming a key learning dimension of major significance (Goleman 1995, 1998a, 1998b, 2000; Goleman *et al.* 2002; Wheatley & Crinean 2005).

2.1.7 Mechanism of action for adult learning: Kolb's model of experiential learning

Regarding the mechanistic basis of the 'to learn' act, Kolb envisaged it to be a process including four hypothetical steps or adaptive learning modes arranged in a cyclical manner, from concrete experience through reflective observation, abstract conceptualisation, experimentation or action, and then back to a new round of the cyclic process (Kolb 1984, pp. 30, pp. 32-33). It should be recognised however that, in practice, learning does not proceed methodically according to a streamlined and systematic sequence as depicted by Kolb's learning cycle. In practice it is often the case that learning starts off with what is known and what a person regards as important or striking, whether it is a question of experiences, observations, knowledge, understanding, conjectures, or problems and from there is an attempt to make progressive sense. This is achieved through a combination of an acquisition and clarification process, labelled as reflective observation, abstract conceptualisation, and experimentation or trial and error.

2.1.8 The condition or climate favouring adult learning in the workplace

Related to how one learns, it has been recognised that all learning is contextual or situated, that is, it takes place within a certain situation or learning space, which determines both how to learn and the 'what' or content nature of the learning. This characterises the learning process (Brown, Collins & Duguid 1989; Brown & Duguid 1991; Damarin 1993; Lave 1997; Lave & Wenger 1991). The situated nature of

learning can be located at different levels or layers and the social and societal conditions influence the learning that takes place and how one can relate to it.

Situated learning

Situated learning is concerned with the interaction and interdependence between the learner and environment, at the social and societal levels for their impacts on the characteristics of that learning. This consideration thus shifts the emphasis from the human being's inherent constitution (or genetic makeup) and its individual and societal development in connection to the society's historically developed structures and customs, of which the individual forms a part. From the 'to learn' act perspective, the necessity of including the environment as an element of learning lies with the acknowledgement that the situation or context where the 'to learn' act takes place not only influences, but is also an integral part of the 'to learn' act (Lave & Wenger 1991; 1996). This 'situatedness' has a dual dimension. The learning situation can always be considered to encompass both the immediate situation that the learner or learners find themselves in (e.g. at a school, a workplace or leisure-time activity), the social situation and a societal situation that is more generally influenced by the norms and structures of the society concerned.

In today's society this influence is so predominant and visible that it is practically impossible to find a learning situation or space of untouched nature where the social and/or societal influence is completely absent. Viewed in relation to learning, this means that mankind's mental condition (or mindset and attitude) is always that of a social being reflecting its immediate environment and psychological functions. In other words, thinking or cognition, learning, and knowledge generating, can only develop and be nurtured in a social space and are a representation of the immediate social milieu; thus a person learns from the surroundings where he/she is situated (Brown *et al.* 1989).

Learning in a situated context

Peter Jarvis is a strong advocate for the school of social learning; he believes that learning occurs in a tension field between the individual and the social space. He asserts that:

The process of learning is located in the interface of people biography and the socio-cultural environment in which they live, for it is at this intersection that experiences occur ... When children are born, they are born into a society whose culture preceded them and will almost certainly continue after their lives are over. Culture, therefore, appears to be objective and external. But the children have inherited no, or minimal, instinct to help them live within society and conform to its culture; thus they have to acquire that culture. In the first instance, then, learning is a matter of internalizing and transforming something that is apparently objective to the individual ... However, there comes a time when they begin to think for themselves, ask questions, and generally experiment ... Children gradually become more independent; they usually develop a mind of their own and then process the external cultural stimuli and respond to them in a variety of ways ... Individuals begin to act back on the social world that has formed them. (Jarvis 1992, pp. 17, 22 and 23)

The social 'embeddedness' of learning

The close social or interpersonal interaction processes play a direct and highly significant role in learning with respect to the learning context. Albert Bandura's work on the significance of close social ties for learning is exemplified by his theories of model learning and learning through imitation. In these, Bandura and his associates came to the conclusion that learning is influenced not only by the behaviour of the model, but also the positive or negative response the model receives to his or her own behaviour, as witnessed by the learner. The implication is, therefore, that employees learn from others in their workplace and this is a major and highly influential avenue of learning. Unprofessional behaviour tolerated or condoned by management would spread quickly and establish itself as an organisation's norm or culture. Based on this observation and insight, Bandura and associates developed the theory of vicarious learning, which describes how the behaviour of the leadership of an organisation

perceived or observed by general employees could have a serious impact on them personally, and thus on their learning (Bandura & Walters 1963; Bandura 1977).

Communities of practice for effective learning

In the context of the dimension of social interaction in learning, the concept of a community of practice (CoP) accounts for the comprehensive learning taking place in a specific situation. This situation has been considered highly significant for the nature of the learning process and for its results. Lave and Wenger thus write that the concept of a CoP is:

... of a general theoretical perspective, the basis of claims about the relational character of knowledge and learning, about the negotiated character of meaning, and about the concerned nature of learning activity for the people involved. That perspective meant that there is no activity which is not situated. (Lave & Wenger 1991, p.33)

Thus, according to Lave and Wenger, it is not simply that the concrete or actual situation (or the concrete experience in Kolb's learning cycle) influences the learning that occurs, but that it also has significance for determining which existing learning results (knowledge/concepts in one's memory) are activated. When the learning occurs in an interaction between existing mental structures and new impulses, the environment and the learning situation influence not only the learner's perception of the new impulses, but also which existing mental structures would be involved in the internal elaboration processes.

2.1.9 Individual adult learning and new knowledge generation

As discussed, learning allows someone to acquire and accumulate parcels of knowledge and experience that constitute pieces of an emergent pattern or solution in one's working memory. Moreover, learning is related to inventing or innovating, in that learning is in effect problem solving and the experience of solving an original problem is new knowledge generating or inventing.

We cannot do everything by ourselves; we need to rely on other people's knowledge and skills as well as their labour and efforts. It is important to note that although individuals come up with good or novel ideas, perhaps even inventions (or new knowledge) that they might register or patent as their own intellectual property, novel or original ideas do not always lead to a commercially saleable product. Translating good or original ideas into new marketable outcomes efficiently, or the commercialisation of inventions, involves a collaborative, cooperative, and productive effort. It is therefore important to focus on organised activities beyond the individual, such as collective problem solving or team-based problem solving activities, or organisational learning/innovating. This issue is discussed in the following sections.

2.2 Organisations acquiring the requisite learning abilities

Bessant (2007) contended that for organisations, competence (the potential or unexpressed ability to effectively solve problems) has to be learned and accumulated over time. There is a growing interest in the 'what and how' that firms can adopt or absorb to enable this capability to develop in their organisations (Common 2004). Hence the focus is on how firms can build this competence. For instance, Senge (1990), Leonard-Barton (1991) and Garvin (1993) provide different integrated models (or theories) of pro-active learning in organisations, indicating the set of capabilities that might be required to learn effectively.

It should be noted, however, that from the literature there is no generic solution that works for all firms. Instead, each firm has to discover its individual approach; their abilities to learn are as firm-specific as their individual corporate identities. But there is arguably some commonality of experiences - certain approaches to learning are used regularly. This means there could be general knowledge and skills acquired to enable people to learn effectively in collective situations. Collective learning situations could include benchmarking, collaboration, structured project review, and staff development through training courses (Bessant, 2007). All these team/group activities can be mapped on Kolb's learning cycle (or the experiential learning process for individual persons), which, as described earlier, identifies learning as involving the integration of elemental activities of experiencing, reflecting on the experience, hypothesising or

theorising, and experimenting. Effective learning involves the complete integration of these elemental activities; incomplete integration does not and would not constitute effective learning. This is, in effect, equivalent to the learning model I adopted for this thesis, as explained by Guns (1996), Tobin (1997, 2000), Soden (1994), Robinson (1995, 2002) and Yu (2000, 2006), and outlined in Section 1.5 of Chapter 1.

2.2.1 More on adult learning in the workplace

Guns and Tobin believe that adult human beings learn at their workplaces through experiences that contain all the necessary perceptive cues, such as sensory data and information encompassing those experiences. According to Guns and Tobin, the internalised experiences are uniquely processed into personal knowledge by each individual (on account of the social and societal environment/background in which they have been brought up, as discussed in earlier sections). Thus, according to Tobin's and Guns' theorising, learning entails acquiring knowledge through experiencing and then applying the knowledge acquired to effectively accomplish a task or remove an obstacle to an objective. In this respect, Guns' or Tobin's model of learning is very much akin to Kolb's cycle of experiential learning.

According to Guns' and Tobin's models, the critical aspect of adult learning, particularly in the workplace, is the applying of acquired information, or knowledge, to a task. This also resonates with the theorising of Argyris and Schon (1996) around individual learning within organisations. Further reflection of Guns' or Tobin's model of learning also suggests that their models are in fact equivalent to the model of problem solving in the vocational education and training (VET) field (Anderson 1993; Anderson *et al.* 2004; Ash *et al.* 2012; Michalewicz *et al.* 2011; Soden 1994; Burgoyne 1995; Buckler 1998; Reynolds & Ablett 1998; Cullen 1999; Massey & Walker 1999; Yu 2000; Robinson 2002). These authors in the VET field also reported that people apply acquired information or knowledge to accomplish a task or remove obstacles to a task. They consider problem solving as part and parcel of learning; some learning is wholly and truly problem solving in terms of actions or activities. In that respect, as indicated earlier, learning subsumes problem solving. Thus, whenever an entity solves a problem, the entity learns. As a corollary to that statement, the entity's experience of solving a problem is the entity's learning or knowledge.

2.2.2 Organisational learning

Organisational learning from the perspective applied in this thesis represents an organisation (or a structured group of individuals pursuing a common purpose) acquiring new or additional competencies or capabilities to perform work through the 'to learn' act.

Learning is a characteristic of an adaptive system. But an organisation is not a living thing as such; it is nevertheless an entity that can sense changes in the environment in which it is situated and adjust itself in response to that environment. Organisational learning is an area of knowledge that studies models and theories about the way an organisation learns and adapt. Argyris and Schon were the first to propose models that would facilitate organisations as entities to learn and they paved the way for others to follow in the field of organisational learning. There are three central concepts of organisational learning attributable to the pioneering work of Argyris and Schon: Theory of Action and Theory-in-use, Model I and Model II, Single-loop and Double-loop learning. Argyris and Schon (1996) observed that within an organisational context, individuals tend to promote one set of behaviours, and use another set in actions. In explaining this disparity, they defined two kinds of theory of action: espoused theories and theories-in-use. Based on their observations of the theory of action in organisational praxis, they further theorised Model I and Model II for peoples' behaviours within organisations. Of the three central concepts which Argyris and Schon proposed and developed for organisational practice, their concept of single-loop and double-loop learning is the more relevant to the discussion here. Argyris and Schon (1978) distinguished between Single-loop and Double-loop learning. In single-loop learning, entities (individuals, organisations) modify their actions according to the difference between expected and obtained outcomes. Single-loop learning is equivalent to a feed-back loop.

In double-loop learning, the entities question the rationale, such as values, assumptions and policies, that led to the actions taken in the first place; if they are able to view and modify those, then double-loop learning has taken place. Double-loop learning is akin to metacognition in the education field of knowledge.

Individual human beings in an organisation or a community learn, as already discussed in earlier sections, and an organisation as an entity can learn (Argyris & Schon 1996). When an organisation learns, it is more complex, because it involves more people and each person has his/her own individual mind and informed attitude and his/her individual knowledge repository. The learning outcome of an organisation might not necessarily be an arithmetic sum of the learning outcomes of all its constituent members. Nevertheless, it has been theorised to entail the same basic operational steps akin to the Kolbian experiential learning model. It is figuring out what works and what works better; and Guns defines it as a process of acquiring and applying knowledge, skills, values, beliefs, and attitudes that enhance the maintenance, growth, and development of the organisation (Guns 1996). Knowledge, the outcome of learning or the experience of a problem effectively solved, is acquired through the organisation encountering experiences; and organisational learning is the effective application of the knowledge the organisation has acquired. In the workplace, people learn in group or team situations and so teams, according to Senge (1990) and Senge, Kleiner, Roberts, Ross and Smith (1994), are arguably the basic units of learning in organisations, not individuals.

2.2.3 Theories of organisational learning

As already highlighted, although a distinction has been made in describing learning as individual learning when one learns or solves problems alone as against team learning or organisational learning when people learn in groups or teams, no one really learns in absolute isolation. There is arguably no sharp demarcation between individual learning and learning in a social setting. Hence, with respect to the learning model adopted for this research (Section 1.5, Chapter 1), whenever or whatever an individual learns (or problem solves) within the confines of an organisational or community setting it is inevitably *organisational* learning, contributing and integral to the learning accomplished by the organisation as an entity. At this point of the literature review, I conclude that organisational learning is when a person learns or solves problems within their organisational setting or workplace.

Much of the research in the areas of technology management and organisational change has focused mainly on the learning phenomenon but not sufficiently on the collective nature of the organisational learning act. It has focused on learning by individuals in organisations. For instance, Bessant *et al.* comment: "... it is important to recognise that organisations do not learn, but rather the people in them do" (Bessant *et al.* 1996, p.67). Likewise, Simon states: "... an organisation learns only in two ways: (i) by the learning of its members; or (ii) by ingesting new members ..." (Simon, 1996, p.176). But organisations as entities do learn, as Hutchins (1995) demonstrated through examples and as it has been argued in an earlier section (Section 2.2.2). From their perspectives, Bessant *et al.* and Simon have been concerned more with learning by individuals in an organisation, not with what should, and how would, an organised assembly of individuals learn collectively in a situation (as outlined in the discussion on situated learning in Section 2.1.8).

Individuals do learn within organisations in a socially interactive and collective manner. This contextual, situated nature affects their learning which, in turn, affects the performance of the organisation (Brown & Duguid 1991; Napier & Nilsson 2006; Bakker, Boersma & Oreel 2006; Styhre 2006). Individual human beings without an organisation can learn; but an organisation without human beings cannot. Thus, organisational learning is necessarily based on human learning. What a group of individuals learn in an organisational setting collectively might often exceed the arithmetic sum of learning achieved by the individuals in isolation.

Organisational learning (according to Elkjaer, 2004) can be viewed in terms of two perspectives of learning: the acquisition metaphor and the participation metaphor. Almost all teacher-directed teaching and learning can be described as acquisition by individuals of knowledge, skills and attitudes; whereas the participation metaphor requires no teaching, and learning is derived from the social processes of participation such as in apprenticeship learning or CoPs. When literature on organisational learning is read through these two metaphors, the issue of the relationship between the individual and the organisation suggests that organisational learning should be understood within the participation metaphor. This is because learning as participation

reaches out and embraces the organisation. Organisational learning is not primarily tied to teaching and individuals or skills and knowledge acquisition, but to learning in the social and institutional environment that makes up an organisation (Elkjaer 2004). Cook and Yanow (1993) reported that traditionally, theories of organisational learning have taken one of two approaches that share a common characterisation of learning but differ in focus. One approach focuses on learning by individuals in organisational context; the other, on individual learning as a model for organisational action. Both base their understanding of organisational learning on the cognitive activity of individual learning. However, there is something organisations do that may be called organisational learning, that is neither individual learning in an organisation nor organisations employing processes akin to learning by individuals. Cook and Yanow illustrated this form of organisational learning through the case of three small workshops that make the “the finest flutes in the world”; and they used their understanding of this case to propose a perspective on organisational learning, drawing on the concept of organisational culture. In another article, Cook and Yanow (1996) highlighted that existing theory and research on organisational learning has been dominated by a human metaphor of individual learning and cognitive development. These inadequate characterisations of organisational learning have contributed to confusion within the organisational learning literature.

Also, in terms of new knowledge generation in organisations, evidence suggests that perceiving or recognising the importance of new business knowledge or opportunities and their potential for commercial exploitation emerges through a gradual accumulation of a corporate-wide process of trial and error. This involves experimentation or experiential learning by solving problems collectively with respect to knowledge-building in its strategic positioning (Buckler & Zein 1996; Bessant 2005; Tidd 2007b; Holman, Totterdell, Axtell, Stride, Port, Svensson & Zibarras 2012). For example, this is how Ericsson's new competence in mobile telephones first emerged (Granstrand, Bohlin, Oskarsson & Sjöberg 1992), and also how Japanese firms like Canon developed and exploited their competencies in optico-electronics (Miyazaki 1994).

Various theories have been put forward by authors from different academic backgrounds or disciplines regarding the nature of organisational learning (e.g. Robinson, 1995; Clarke 2001; Nonaka, Toyama & Byosiére 2001; Marsick & Watkins 1990; Garrick 1998). Theories of organisational learning have been described as analogous to a group of blind men describing their impressions of an elephant while touching different parts of the animal.

Easterby-Smith (1997) and Stewart (2001) provide an excellent summary/review of the different opinions regarding organisational learning with reference to the authors' disciplinary perspective; Easterby-Smith argues against attempts to create a single framework for understanding organisational learning. He reviewed organisational learning (OL) relevant literature from six disciplinary perspectives: psychology and OD (organisational development); management science; sociology and organisational theory; strategy; production management; and cultural anthropology. His review identifies that each discipline provides distinct contributions and conceptions of problems. And he noted that there is a basic distinction between OL and the new idea of the LO (learning organisation); whereas OL is discipline based and analytic, and LO is multidisciplinary, emphasising action and the creation of an "ideal-type" of organisations. Due to the diversity of purpose and perspective, Easterby-Smith suggested that it is better to consider OL as a multidisciplinary field containing complementary contributions and research agendas. In a similar vein, Stewart examined the theoretical and practical development of the LO concept. She noted that some theorists used the term LO interchangeably with OL, while others have drawn distinctions between the two. She provides a brief review of the current LO literature in the context of learning and organisational learning, and the theoretical tensions existing between these concepts. Stewart treats the LO as a metaphor and establishes narrative as a focal point to all human endeavours and that every organisational aspect is anchored in narratives. She suggested that LO needs to be re-interpreted in the context of power relations and Bourdieu's social theory. She also claimed that the use of metaphors, narrative and social theory enhance our thinking about the LO conceptually and will open up practical possibilities for practitioners and consultants. I concur with the views of Easterby-Smith and Stewart that the different opinions in the literature

regarding organisational learning might be rationalised with reference to the authors' disciplinary perspectives of what is contained in their respective contribution.

2.3 Innovation

As mentioned earlier in Chapter 1, the verb 'innovate' has been used to mean different things. It is appropriate therefore to review some recent concepts of the 'to innovate' act in the literature.

Innovation has been reported as imperative for business competition (Barden 2008). Mitra (2000) considers learning is innovating and innovating is learning, but has not clearly explained the linkage between learning and innovating as collective processes in the workplace environment. Vakola (2000), Vakola and Rezgui (2000), Chang and Lee (2008), and Hellstrom, Jacob & Malmquist (2002) reported a link between innovating and collective new knowledge generating in business organisations. Wilson and Stokes (2005) discuss the difference between the notion of creativity and innovation, with creativity being the outcome of individual thought and innovation a collective act. They conclude that people in a workplace situation generate their own new ideas, new knowledge or inventions individually, but it is the team or community efforts in exploiting these new ideas that produce innovations. In terms of being an individual act, McLean (2007) describes the art of 'thinking outside the box' as a more creative approach for people to problem solve. Likewise, Rawlinson (2007) considers that thinking laterally will enhance one's thinking and productivity and believes that one can become more creative by practicing the de Bono's thinking systems. This would make a difference to one's organisational creativity and innovativeness. Mustafa and El-Masry (2008) provide further insights into the factors affecting organisational creativity and therefore innovativeness. They point out that to be innovative, the organisation needs to identify really new problems and solve them in an expert, creative manner. McAdam and McClelland (2002) review the literature and critique the role of individuals and teams in generating ideas through the organisation's creative and innovative processes. Their review provides an excellent report on the current state of knowledge (both for individual and collective creativity) and highlights the lack, or inadequacy, of our knowledge on how to generate new ideas and new knowledge. It

emphasises an identifiable need for organisations to enable employees to increase their creativity and innovative capabilities.

In business strategising, innovation is the application of inventions or new knowledge to goods and services (Porter 1990; Maria & Watkins 2003; McAdam, Keogh, Reid & Mitchell 2007; Dorenbosch, van Engen & Verhagen 2005). This leads to the question: what do experienced and practical people in this knowledge domain (Damanpour & Wischnevsky 2006; Byrne, Mumford, Barret & Vessey, 2009; Shipton, Fay, West, Patterson & Birdi 2005; de Leede & Looise 2005) consider authentic business or industrial innovations to be? Who would actually do the innovating or the processes leading to innovation? What does one need to learn to be capable of inventing or innovating?

Invention or innovation require someone to notice, recognise, or predict the unexpected - the things that we have neither bothered to think about or to make explicit, or to bring up the 'obvious' things from one's subconscious into the conscious mind. Recently the CEO of Dyson, James Dyson, explained in his company's TV advertisement the secret of his company's success in the vacuum cleaner business: "Solve the obvious problems others ignore." How would one ascertain that Dyson's innovation has the value that other people crave or desperately want (Moorcroft 2007; Concept Auction 2008)? Who in the company could and would do such things? This is the crux of the matter. The actions that would actually operationalise the phrase, applying inventions or new knowledge to products, and the real issue regarding learning faster than the competition for a competitive advantage (Guns 1996) determines an organisation's 'business success' (Hill, Jones & Galvin 2004, pp. 132-133). This is discussed further in later sections.

As touched on briefly earlier, inventing or innovating needs someone to simultaneously have the insight (depth of knowledge) and the big picture or total picture of a situation. This is analogous to Michelangelo's explanation of needing to see the finished sculpture inside the big chunk of marble before he could chisel out all the unwanted bits to reveal his creation - the statue of David.

2.3.1 Acquiring the capability to invent or innovate

Well-established human cognition theories generally agree that you need to know, acquiring more extensive information on a subject matter, and reflect or think intensively to mentally re-configure/re-arrange the information acquired to gain an understanding or insight. This means making more connections with other knowledge and concepts you built up in your life to establish more contextual meaning of what you just acquired. The density of this knowledge connectivity affords you deeper or more intense understanding of the subject matter. In making these connections, you might begin to notice discrepancies, conflicts, misfits, or difficulties in connecting concepts or experiences (or something 'does not gel'). This is when you begin to ask questions. You might begin to question your frameworks, models, or paradigms used for your actions, operations, or making sense of situations or events encountered; you would experience what is called a cognitive dissonance (Festinger 1957) or disorienting dilemma in your meaning perspective (Mezirow 1997).

Under this situation, often the more a person reflects on the subject matter, the more irregularities or misfits (that is, uncertainties or questions) would emerge. Also in creating ideas, you must have the need, the enthusiasm or passion, and cooperation from other human beings (as explained earlier, no one can learn or solve problems in complete isolation) to evaluate the idea one generates. Hence, innovation, originality, or creativity starts with questions in response to an unsettled or inquiring mind. However, one needs to know the subject matter well before one can ask a question. People have nothing relevant or in context to ask when they know little or nothing in a knowledge domain, and the quality of the question one can ask depends on how well one knows the subject matter (Yu 2006, pp. 36-37).

Also, in many ways questions are answers, and asking a question is often the beginning of an end to the subject matter in doubt or issue in hand (Osterman 1993). In this respect, Anthony Robbins has been quoted as saying: "Successful people ask better questions and as a result, they get better answers" (www.earlytorise.com, Wednesday, June 22, 2005; message no. 1447).

Innovating like learning is also an inherent human trait (see Section 2.1). That means people can innovate because of a need or necessity but they might not necessarily be able to describe how to proceed to innovate when asked to do so. So how would any entity innovate? What would the mechanism of action be for the process of innovation?

2.3.2 Generating new ideas that lead to new knowledge

The word new is crucial here, because what is new to one person might not be new to another. This point leads to the issue of generating authentically new knowledge or creativity (Foxall & Hackett 1994; Herbig & Jacobs 1996; Riquelme 2000; McLean 2005; Ramamoorthy, Flood, Slattery & Sardesai 2005; McAdam 2005).

For the purpose of developing this thesis' arguments, I limit the discussion of generating new knowledge or creativity to these thoughts: (1) that new knowledge does not emerge from a void; and (2) the characterisation that new knowledge generating is a novel recombination of old or existing knowledge and experiences with the emergence of a never-before, nascent outcome. On that basis, one needs to learn to accumulate knowledge as Thomas Edison said: "To invent, you need imagination and a pile of junk" (cited in Hargadon & Sutton 2001, p. 60). By learning, one builds up a repository of relevant knowledge/concepts, the bits and pieces that would, when called upon, constitute an image, scheme, or plan in one's memory. At the same time, for a productive action of creativity that would provide a new solution, one must have a real goal, or a truly new problem to fix the coordinates in guiding one's mental process for assembling the requisite novel solution. But how would one ascertain this set of coordinates to be a real goal? This would call for the capability of critical thinking or reflection that has been discussed earlier (Sections 2.1.2 to 2.1.5). So, to create something new - both the ability to assess and assure the accuracy of a goal and the ability of one's mind to assemble various schemes or plans to fit or match that goal - critical and creative thinking abilities must work together. Creativity without critical or accurate thinking is wasteful; and critical/accurate thinking without a rich repository of relevant knowledge is also a wasteful exercise devoid of a practical outcome.

2.3.3 Solving a new problem: the Eureka moment

Where or how could and would 'new ideas' evolve in an organisation? This question represents an intensely researched area concerning organisational learning and innovation, evidenced by the multitude of reports in the literature (as reviewed earlier in Sections 2.3, 2.3.1, and 2.3.2). Examples of recent work include Bessant (2005), Harryson, Kliknaite and von Zedtwitz (2008), Johnson and Weiss (2008), Mariano and Pellergrini (2007) and Matthyssens, Vandenbempt and Berghman (2008). Based on these reports, a simple answer to this question is: new ideas or creativity come from people in their workplaces by the process of collective problem solving. For example, in the mid-1990s, innovation researchers at 3M realised that they lacked a systematic approach for creating breakthroughs or innovations. They then discovered a way to generate innovations, which they called the Lead User Process (von Hippel, Thomke & Sonnack 2001).

According to von Hippel *et al.* (2001), the crux of this process is the realisation that many commercially successful products are initially conceived, perhaps even prototyped, by lead users or expert users. These lead users are entities (individuals, companies, or organisations) that are well ahead of the prevalent market trends, or professional individuals or teams. Their needs are so far ahead of ordinary users that they create what they want to achieve on their own initiative for their purposes. This may subsequently contribute to commercially successful innovations (as discussed earlier in this section on identifying a problem or question). 3M's lead user approach operationalises the task of inventing or generating new knowledge into a systematic activity of identifying lead users and learning from them. The lead user approach apparently has its roots in the adage that 'necessity is the mother of all inventions'. In support of this idea, one only need watch the Australian Broadcasting Corporation (ABC) TV programme "The new inventors" to appreciate the veracity of this adage. The lead users are people who have had to develop tools or ways to meet their professional needs.

This insight on generating new knowledge thus translates to a systematic approach to identifying the lead users who have already developed some elements of commercially

significant and attractive inventions or experiences. One rich source would be scientists who often have the need to generate new theories/knowledge because of the cognitive dissonance that old theories produce. The lead user's process is one powerful approach for organisations to acquire the 'how to' of becoming creative or inventive (von Hippel, *et al.* 2001).

Thoughts or mental schemes generating ideas for products often begin with information collected from users (among them, for example, the consumers' wish list). However, what distinguishes and differentiates entities or companies in their competitiveness is the quality of information they collect and from whom they collect the information. Acquiring accurate and meaningful or useful data or information requires the critical thinking skills of the collecting agents. James Watson and Francis Crick could not have envisioned and developed the double helix model for the universal structure of genetic material, deoxyribonucleic acid (DNA), had they not been able to collect relevant accurate data and information from other lead users or leading scientists regarding the chemistry and spatial dispositions of the atoms that make up the genetic determinants of all living things (Watson 1968). Also, authentic or genuine lead users are rare; to locate them, organisational product development teams would need to network with experts who are presumably on the leading edge of their target markets. That knowledge is therefore necessary. Networking is an effective approach because people with serious interests in any topic/subject matter tend to know of others who know even more about the topic than they do - people who are further up the pyramid of expertise, who might reside in research institutions and universities. Through networking, teams in organisations may find lead users in markets and fields or domains of knowledge that face similar problems but in different, perhaps more intense, forms. Those experts could and would help teams to discover truly important needs and novel solutions in the target marketplaces identified by their professional market researchers (von Hippel *et al.* 2001).

On further reflection, however, this approach of learning from lead users could only be considered a commercial exploitation of new ideas or adaptation or adoption of inventions generated by the lead users. Nevertheless, it could still be regarded as an

innovation by nature of the possible novel business model that the adoptee organisation might or would need to create or invent to transform the adopted invention into a marketable, or commercially viable product. In that respect, this method is really adopting new ideas or knowledge generated by lead users outside one's organisation. It is not strictly speaking providing an explanation for how human beings generate new knowledge either singularly or collectively *in situ* within the organisation (Ames & Runco 2005; Birdi 2005; Ekvall 2000). Therefore, there is still the need for knowing how to generate new knowledge internally.

As mentioned before, new knowledge is, in fact, often based on old (or existing) knowledge through the recombination and amalgamation of ideas. Skilled innovators use old ideas as a starting point to collect the ingredients for new ideas, that is, to acquire further knowledge or experience and solve problems. Also, nowadays inventions often emerge from groups or teams because of the complex nature of problems and issues in today's business world. As mentioned before, innovation requires at least three organisational functions. Individual employees singly may come up with good ideas or ingenious thoughts; but teams/groups translate good ideas into new knowledge or inventions, which then lead to innovations. Nowadays, creating or generating new knowledge or inventing requires ample networking, in the form of CoPs in a collaborating environment of creative thinking or collective brainstorming (von Hippel *et al.* 2001; Hislop 2007).

Another approach to facilitate the generation of new knowledge is the knowledge brokering process (Hargardon & Sutton 2001). This approach involves several stages. The first is the capturing of good ideas (intelligence in the form of data, information and/or experiences) from a wide variety of sources (for instance, the lead user networks). The second stage involves keeping those ideas alive by playing with them (that is imagining or fantasising about them), discussing them (reflecting on and critiquing them), and using them (for instance, applying them to solve problems). Imagining new uses (pinning them down to a goal and developing an action plan to achieve the goal) of old ideas is the third stage – some knowledge brokers encourage cross-pollination by creating physical layouts that allow, or even force, people to

interact with one another (by breaking down barriers to enhance diversity of ideas and insights in developing and assessing ideas collectively). The fourth stage is turning promising concepts or ideas into real services, products, processes, or business models (Hargardon & Sutton 2001). Again, reflecting on this approach further it appears that the knowledge brokering process can readily be mapped onto Kolb's experiential learning cycle, thus identifying it as a form of collective experiential learning through experimenting in an organisational setting/context.

Chan Kim and Mauborgne (2001) suggested mapping the consumption chain as another way to capture the customer's total experience of a product or service for innovation. They believe that one way of doing that would be by analysing the customer's experience at each step in the consumption chain. This way they could elicit various ways of differentiating their company from others by collective brainstorming at each step (Chan Kim & Mauborgne 2001; Kristenssen *et al.* 2002).

Also, innovation researchers have found that virtually every company that has been studied has within it employees of considerable inventive talents. Unfortunately, all too often, the company seldom benefits from them because these employees are not appropriately directed or channelled to the task of inventing. Guided brainstorming by an analysis of the consumption chain, for instance, which serves as the anchor for guiding thought generation, might constitute one way of unlocking the inventiveness or creativity of employees in any organisation. This way their insights, their deep and extensive operational knowledge or experiences, through interacting with customers at the 'coalface', can contribute to a shared understanding of the company's customers. Companies that can do this successfully become deeply attuned to their markets and can learn more of the accurate market situation for innovating products (Chan Kim & Mauborgne 2001).

Having discussed organisations' capabilities to learn and innovate, the following sections deal with how these attributes would relate to the core competence of organisations in their pursuit of gaining and sustaining a competitive advantage.

2.4 Core competence

Core competence might simply be considered to be market- or target-focused, continual learning of an organisation. The rationale for this interpretation is reviewed and discussed in the following subsections.

2.4.1 Conceptualising core competence

Prahalad and Hamel (1990) introduced the concept of core competence and considered competencies as the collective learning of the organisation.

Core competence has also been referred to as strategic competence (Hall 2007) and as how organisations define and differentiate themselves (Hall 2007). Tidd (2007a) considered that it is rather unusual to use the word competence for an organisation. He thinks it would be better represented simply by knowledge and skills or capabilities (Tidd 2007a). Capabilities refer to the operational abilities of a firm to deploy resources and represent the capacity to perform some tasks, while competence is used to describe the intellectual or mental resources and/or the unexpressed capacities or potential to perform some tasks (Tidd 2007a).

According to Tidd (2007b), core competence needs to have a focus (that could be the business enterprise or industry that the organisation is in) and he quotes Prahalad and Hamel, as follows: "Few companies are likely to build world leadership in more than five or six fundamental competencies. A company that compiles a list of 20 to 30 capabilities has probably not produced a list of core competencies." (Prahalad & Hamel 1990, p.84). What Prahalad and Hamel (1990) are saying is that it means that core competencies are not just organisational strengths; they represent coherent clusters or aggregations of assets, knowledge and skills for solving specific categories of problems, issues, or tasks. Prahalad and Hamel defined core competence as the collective learning of the organisation, which implicitly means the intrinsic organisational capability to solve problems in their specific business or industry. So, taken together with the proposition developed in the earlier sections that organisational learning is, in effect, organisational collective problem solving, Prahalad and Hamel's definition of core competence could be identified as the collective problem solving

capability of an organisation. On this basis, their definition of core competence establishes a functional relationship between the core competence of an organisation and its innovating capability.

2.4.2 Conceptualising the nature and constitution of core competence

Hamel and Prahalad (1994) detail their core competence hypothesis as an integration of skills and technologies. They argue that a core competence is unlikely to exist in a single skill or an individual team. Rather, they exist at an aggregate level: typically in the order of 5 to 15 skill sets in any large firm. Second, a core competence is a product of learning in the sense that it incorporates both tacit and coded knowledge. Core competencies are, therefore, not physical assets in the usual sense of the word. Third, core competencies deliver a fundamental customer benefit. Fourth, core competencies have longevity: they are sustainable because they are difficult to imitate. Fifth, core competencies must enable access to new markets through the incorporation of inventions into a range of the firm's products and services. The implication of Hamel and Prahalad's description of their hypothesis is that core competence (Prahalad & Hamel 1990) is *ipso facto* the organisation's enabler of innovation.

Hamel and Prahalad (1994) further refine their core competence concept into three intelligence types: market access, integrity related, and functionally related and they consider that functionally related competencies confer distinctive - as opposed to incremental - customer benefits. Thus, they consider distinctiveness or uniqueness to be relatively more important for success in business competition. The rationale for their contention is that globalisation results in business consolidation and all companies are progressively moving to uniformly high standards of quality and service.

My understanding of Hamel and Prahalad's concept of core competence in relation to the adopted framework described in Section 1.5 is that the core competence of an organisation represents a comprehensive, corporate collection of effective learners. This in turn creates skilled or expert problem solvers who bring their problem solving capabilities to new problems in the organisation's respective business. This understanding is reflected in my framework, focussed on how organisational learning

and innovating relates to the core competence of an organisation, as Prahalad and Hamel define it (1990, 1994).

2.4.3 Other views on the concept of core competence

Numerous other scholars have studied the concept of core competence and held slightly different views on the subject. Barney (1991), for instance, argues that it must exhibit four attributes: value, rarity, inimitability and sustainability. It must be valuable in the sense that it exploits opportunities and/or neutralises threats in a firm's environment; it must be rare among a firm's current and potential competitors; it must be imperfectly imitable, and there cannot be strategically equivalent substitutes for it. In other words, core competence is a resource or asset of the company that is absolutely unique, or authentically new.

Klavans (1994) broadly recognises two trends or views in the core competence literature: the technological and the institutional. The technological view treats core competencies as "objective capabilities" (or scientific capabilities). The technological focus is on the ability of the firm to create and then capture the scientific and technological knowledge. The institutional view focuses on the socio-political factors (such as teamwork, motivation, learning culture, the way we do things, and other human factors like emotional intelligence), which influence the firm's definition of what it is. These two views, Klavans believes, can be accessed from the firm's strategic language statements (or vision or value statements), which can be interpreted as revealing the firm's image/recognition of its competency: a sort of rhetoric reflecting their own perception of reality.

Knott and associates (1997) propose a holistic model of core competence, which states: "competence is an attribute of organisation, influenced by the external environment, organisational factors, and individuals, that delivers output of value ... competence is not a subset of the organisation, but holistic, common property of it" (Knott 1997, pp. 499).

Other views on the core competence of organisations include King *et al.* (2001) and Jones and Tilley (2003) describing and discussing the characteristics of organisational

competences. Furthermore, Jones and Tilley argue that networking and sharing knowledge are particularly significant for generating and developing ideas for inventing and innovating. Chen and Chang (2011) identified core competence as organisational capabilities that create organisational competitive advantage. Others, like Tippins and Sohi (2003) and Marino (1996), describe the development of employees as a way of enhancing organisational learning and the organisational leadership's ability to strategise and commit to implementing organisational learning. Becoming a learning organisation is a crucial element of organisational core competence.

What would be the common denominator for all these studies on core competence? Is there any conflict with Prahalad and Hamel's conceptualisation of core competence being an alternative expression for organisational learning? Can it be considered that core competence is an alternative term describing the potential of an organisation to solve problems collectively and collaboratively? The following sections explore these issues further.

2.4.4 Identifying and assessing the core competence of organisations

Ways or methods to identify and measure core competence are growth areas in the strategic management literature but despite all the efforts and attention, core competence remains elusive in practice according to Coyne, Hall, and Clifford (1997). They wrote (cited in *The McKinsey Quarterly*, 1997):

Few managers we have talked to could claim to have utilised core competence to achieve success in the marketplace, and even fewer to have built a core competence from scratch. Indeed, most were uncertain as to exactly what qualifies a core competence ... it is like a mirage: something that from a distance appears to offer hope ... but turns to sand when approached.

The implication of what Coyne *et al.* (1997) say in the above quote is alarming; that having the collective capability for solving problems may not really be an advantage or benefit to the organisation. Furthermore, when you ask business people about core

competence they would not necessarily know or understand exactly what you are talking about.

From their own experience of working on the concept of core competence, Griffiths and Boisat (2007) support Coyne *et al.*'s view. They believe that at least part of the problem rests with the process and consequences of accessing and exposing tacit knowledge. Tacit knowledge, almost by definition, is difficult to capture. Capturing tacit knowledge will almost certainly render it explicit. Rendering tacit knowledge explicitly means writing it down, or explaining it as coded experiences or in terms of existing theories. It should be noted there is a distinction between capturing and acquiring tacit knowledge. They may not be the same process. Acquiring tacit knowledge to me means learning it by observing and practising; thus a firm or a team can acquire or learn the tacit knowledge without necessarily having to express it in a coded form. Also, rendering tacit knowledge explicitly creates two potential problems: it either under-represents the knowledge or renders it liable to be captured by imitation through description. Together these two issues have highlighted an empirical indicator approach to competence identification, as presented by Hafeez and Zhang (2002).

How would an organisation or a person know they had gained or established the organisation's core competence? It is a difficult question. My understanding of core competence is that it is the organisation's potential of solving authentically new problems in the organisation's specific industry. On that basis, I believe it might be analogous to the raising of a country's defence force. How good the defence force is, one would never know with certainty until one uses it in battles. An old Chinese saying is: "you raise an army for a thousand days but you only need to use it for a day to know". Thus, one would not know if one has the capability of solving authentically new problems until one actually encounters and solves a new problem effectively. This difficulty is compounded by the issue in social science of causal ambiguity (Bryman & Bell 2007, pp. 48-49), which describes the difficulty or ambiguity in defining the relationship between a cause and an effect. In an analogous manner, it would be difficult to resolve the question: what specific competency would produce a particular competitive advantage?

In this respect, one can only prepare, build it up, and wait for the time to use it in order to know if one indeed has what is called core competence. It would be a journey rather than a destination, but this would not keep people from trying, as outlined by Hafeez and Zhang (2002).

I am not as pessimistic as Coyne *et al.* (1997) in relation to their earlier comments about recognising an organisation's core competence. The Prahalad and Hamel approach is more acceptable, defining and characterising core competence as the ability of the organisation to learn and use the acquired knowledge collectively to solve its business or industry problems. As discussed earlier, there are numerous approaches organisations can adopt to enhance their abilities to learn to solve their problems more creatively and effectively (Brown *et al.* 1989; Lave & Wenger 1991, 1996; Jarvis, 1992; Bandura 1977; as reviewed and discussed in Section 2.1.8). How well an organisation can attain the status of expert or skilled problem solver (Bessant 2007; Common 2004; Senge 1990; Leonard-Barton 1991; Gavin 1993; and as discussed in Section 2.2) depends on its preparation.

In conclusion, it may not be productive to devise a measure of progress or characterise the milestones of the journey towards acquiring a core competence with a relatively high degree of certainty. Nevertheless, one might empirically be able to gain some ideas from historical records, mock or simulated battles or war games, or enlightened experimentation (Thomke 2001), as described in the following section.

2.4.5 Pathways to develop core competence

Prahalad and Hamel (1990) contend that establishing the firm's core competence depends on its strategic architecture, which they defined as: "a road map of the future that identifies which core competencies to build and their constituent technologies ... should make resource allocation priorities transparent to the whole organisation ... Top management must add value by enunciating the strategic architecture that guides the competence acquisition process" (Prahalad & Hamel 1990, p.89).

Tidd, Bessant and Pavitt (2005) query Hamel and Prahalad's approach saying: "... this begs the question of how an organisation identifies which competencies will be

relevant to the future and how it might develop or acquire them.” They raise a number of questions related to Prahalad and Hamel’s approach (Tidd *et al.* 2005), which basically concern the issue of: how would an organisation determine what specific abilities would be needed for tackling future problems, and how would the organisation propose to prepare for the abilities required, or deemed to be required, to meet these future challenges? Their concerns resonate with the argument presented in Section 2.4.4 regarding causal ambiguity (Bryman & Bell 2007, pp. 48-49) in social sciences research and my comments on the Coyne *et al.* (1997) quote. In turn, Tidd *et al.* (2005) pose three questions:

1. How are competencies identified and measured? My understanding of the question that Tidd *et al.* asked is: how is core competence defined? Or how would core competence be characterised?
2. How are competencies translated into new products, services and processes? My interpretation of this question is: what are the mechanics of innovation?
3. How does an organisation acquire new competencies? My interpretation is: how do organisations continue to learn and innovate?

Tidd *et al.* (2005) propose to resolve these three questions or issues by integrating them into their model of a competence cycle that is their pathway or strategic architecture to develop a firm’s core competence.

Recently Bessant has proposed another approach for acquiring a firm’s core competence (2007). He believes that firms should be concerned with knowledge management because this could constitute the firm’s core competence. While this thesis is not concerned with the knowledge management domain, I believe that the term knowledge management itself is a misnomer and can be expressed better as intellectual property or asset management or learning and innovation management. From my perspective on learning, one can manage the learning and innovation processes or activities, but one cannot and may not manage or manipulate what is personal knowledge. To do so would be tantamount to controlling other people’s mindsets or colloquially, brainwashing. If indeed knowledge needs to be managed, it would be

more appropriate to manage the ingredients or inputs for producing knowledge, that is, data and information or coded experiences, as explained in the framework (outlined in Section 1.5).

Bessant (2007) acknowledges that people need to learn to be competent and it would take time for what is learnt to accumulate. Like Prahalad and Hamel (1990) he believes that competence is the result of the 'to learn' act, which is a time consuming process. However, Bessant does not define or explain what he meant by the 'to learn' act and 'competence'. The need to clearly express the meaning of these words is pivotal because they are directly related to Bessant's assertion (Bessant 2007) that: "... thus, there is growing interest in the mechanisms which firms utilise to enable this process"; that is, as I understand it, acquiring the competence (Pavitt 1990). This process constitutes the 'how to' or mechanism of action for acquiring the firm's core competence.

Bessant (2007) recognises that there is no generic solution to the issue of mechanisms (how to acquire firm-specific core competence). The implication is that each firm or organisation has to work out its own way. However, he did identify some common approaches that have been used by firms as mechanisms, such as benchmarking, collaboration, structured project reviews, and staff development through training. These human activities are typical workplace learning activities, akin to experiential learning, and can be mapped onto Kolb's learning cycle (Kolb & Fry 1975). Thus, regarding the 'how to' acquire core competence according to Bessant, it is implicitly the firm's ability to learn from the experience of solving problems.

As explained in earlier sections, Kolb's learning cycle (1975, 1984) as the mechanism to acquire capabilities or competences is consistent with Guns' (1996) and Tobin's (1997, 2000) models of learning, as well as Soden's (1994) model of problem solving. While I do not disagree with Bessant (2007), he has not clearly explained what he meant by 'to learn' or 'learning' and what was to be learnt so as to constitute the firm's core competence.

Essentially, with respect to the mechanisms in which organisations acquire competencies, Bessant has focused mainly on continuous improvement (CI) and how to sustain employees' enthusiasm in order to boost productivity gains. In that respect, he is more concerned with improvement than innovation. Bessant's discussions about learning and innovating are therefore not explicitly directed towards the breakthrough or radical innovation, which is the focal point of this thesis, and Bessant's discussions differ from the functionally-related core competence that Hamel and Prahalad (1994) contend (in Section 2.4.2). Thus, according to the conceptualisation of innovation adopted in this thesis (Amabile 1988; Daft 1978; Damanpour 1991; Gopalakrishnan & Damanpour 1997; West & Farr 1990; Zaltman, Duncan & Holbeck 1973), which is the application to products of new knowledge or invention, conceptually Bessant's idea of innovation appears different.

On the other hand, regarding Bessant's advocacy of CI as a vehicle to acquiring core competence (2007), it should be noted that CI relies on problem finding and problem solving in the workplace by individual employees. The merit of this approach towards innovation depends very much on the definition of what the problem is. The problem identified by employees could relate to minor faults and Bessant's term of problem finding and problem solving might refer to nothing more than fault finding, or trouble shooting by employees. How Bessant's 'problem finding and solving' would account for innovation (the generation of authentically new knowledge that results in the production of new goods or services) was not clearly explained.

Another theoretical issue is that Bessant contends that there is a common pattern of developmental stages for organisation's gaining their strategic advantage/performance (akin to a journey with recognisable milestones along the way); and that the extent of the development of a CI practice (or the organisation's core competence) in the organisation is proportional to its strategic performance or advantage. The issue therefore is: do organisations have to go through these stages of the CI practice development sequentially in order to establish core competence? And how would they be causally related? Bessant has not clarified this issue. In addition, Bessant's core

competence developmental journey seems to be at odds with the comment that Coyne *et al.* (1997) made (see Section 2.4.4).

According to Bessant (2007), CI is a generic term used to designate routines that engage a significant proportion of the workforce in incremental problem finding and solving on a continuing basis. In his article, Bessant did not define the terms incremental problem finding and incremental problem solving. Bessant also proposes to look at CI as a potential strategic capability, which firms are increasingly using to help them develop and sustain competencies. But it is not clear if CI, which Bessant sees as continuing improvement of an *existing* product, by its nature can be a strategic advantage in terms of the innovation concept of this thesis. In this respect, it may be important to note that Bessant's CI *per se* and CI as a strategy to develop the organisation's core competence appear to be at odds with the theme of Prahalad and Hamel's core competence concept (1994) as discussed in Section 2.4.2.

2.4.6 More on continuous improvement

Bessant *et al.* (1994) define CI as "... an organisation wide process of sustained and focused incremental innovation ..." which has its root in the Japanese model of Kaizen or product quality improvement programmes. But what is meant by incremental innovation and how would incremental problem finding and solving be differentiated from incremental innovation? In the absence of a clear explanation of these terms, it can be considered that incremental innovation might not be innovation; it might simply be quality improvement for product upgrading.

Kaizen evolved over an extended period to become a keystone of Japanese manufacturing success. Toyota is a typical exemplar of the success of the Kaizen model for product improvement. But a car or a vacuum cleaner remains a car or vacuum cleaner irrespective of how much its quality has been improved. Therefore, in terms of the conceptualisation of innovation advocated by Porter (1990) and Prahalad and Hamel (1994) as a growth strategy, CI or incremental innovation as outlined by Bessant *et al.* (1994), might not be the innovation that Senator Kim Carr envisaged for Australian businesses, as described in Chapter 1.

However, irrespective of the terminology or labelling used to identify a firm's core competence, the key question is: in an economically difficult time or even in good times for that matter, is CI, as a quality criterion (i.e. an upgrading of existing product lines), or CI as an approach to gain and sustain the organisation's core competence, sufficient to assure a firm's survival or sustained competitiveness?

Arguably it may be pragmatic to adopt CI as an approach to establish the firm's core competence. This would help educate, prepare, and develop employees to become accustomed to problem solving practice and thus lead them toward greater innovation as elaborated further in Section 2.4.7.

2.4.7 Adopting CI to build organisational problem solving capability

According to Bessant (2007) the merit of CI is that it embeds a high-frequency learning opportunity across the organisation. For example, Bessant rightly points out that in producing their millions of suggestions every year, the employees of Toshiba, Toyota and others are involved in problem finding and solving on a daily basis. The underlying learning behaviours associated with CI have thus become rehearsed and reinforced to the point where they are now 'the way we do things around here'. It has become a habit, a traditional practice, or perhaps a culture, as suggested by Schein (1984). The habit of CI practice might translate to acquiring the organisation's core competence for innovation. In that sense, learning is integral to the culture that is then embedded in a cluster of CI routines. According to Bessant, in particular:

1. CI mobilises more learners across the organisation in a formal sense. Instead of innovation being primarily the domain of a few specialists, it now becomes the responsibility of many, if not all, employees—therefore it is consistent with Senge's idea of being a learning organisation (Senge 1990).
2. It embodies a standardised learning process, usually involving some form of explicit problem finding, problem solving and review of methodology, which can be shared and adapted. It can be considered a form of action research or action learning (Avison, Lau, Myers & Nielsen 1999; Reason & Bradbury 2008;

and as extensively reviewed and discussed in Sections 2.1 and 2.2) often used to develop adult learners for problem solving expertise.

3. It deals with easily digestible increments of learning that can be absorbed through many frequent, small cycles repeatedly rather than occasional, singular disruptive big ones. It is therefore consistent with contemporary adult learning principles (Blunden 1997).
4. With its emphasis on display and measurement (but also on an understanding of those measures by users), it formalises and makes available knowledge that was hitherto in the tacit domain, such as critical process variables. This has close links with the management model suggested by Nonaka (1991).
5. Through the involvement of non-specialists, it opens up the possibility for challenges to the accepted specialist's solutions. Novice or non-specialist, but often penetrating questions can enable 'unlearning' to take place (thus encouraging and raising a diversity of thoughts).

There is some empirical support for the view of CI as an approach to develop organisational learning. Although CI focuses on the formal development of problem solving skills through tools and techniques, it also emphasises the importance of individual thinking as well as doing, and seeks to develop this through formal skills training, personal development and so forth (Bessant 2007).

However, on the other hand, the examples in support of the approach that Bessant (2007) provides relate essentially to quality upgrading/improvement rather than authentic inventions or innovations. In this regard, it is not consistent with the learning organisation idea of continual innovation (Senge 1990; 1992).

At this point, I want to emphasise strongly that I am not in any conceptual conflict with Bessant and his associates. I highlight their work as an illustration and point of discussion because it has been at the forefront of the field and is far more comprehensive and encompassing in conceptualisation than other works. Problem finding and solving as an approach could be the generator-cum-incubator of new knowledge or invention, but problem solving can span a wide range, from the very

minor or even trivial to the very radical or revolutionary inventions, as discussed earlier in this chapter. So, I have used the work of Bessant and associates not to criticise but to illustrate the common issues found in material in the innovation management field.

2.5 Competitive advantage

In contrast to Porter's view (1983, 1985, 1990; see also Kitson, Martin & Tyler 2004 for the definition of competitive advantage and competitiveness of organisations), Prahalad and Hamel (1990) argue that the sustainable competitive advantage of firms resides not in their products, but in their core competencies. They state: "the real sources of advantage are to be found in management's ability to consolidate corporate-wide technologies and production skills into competencies that empower individual businesses to adapt quickly to changing opportunities" (1990, p.81). To me as a biologist, what they say is very much reminiscent of the fundamental characteristic of all living things, that is, responsiveness to the environment by adaptation and change. And because competences or capabilities have to be accumulated gradually over time, it would be hard for others to copy. This would constitute the firm's strategic advantage and is thus more defensible (Kay 1993; Prahalad & Hamel 1994).

Extending Prahalad and Hamel's argument, Bessant expressed a view that firms should seek to identify what they are distinctively good at and then develop and deploy this talent to gain a competitive advantage (Bessant 2007). In a similar vein, Tidd (2007b) proposed a model, the competence cycle, of how firms could gain their competitive advantage. Similar views have been expressed by Rindova and Fombrun (1999), Rice (2000), Wiggins and Ruefli (2002), Audretsch (2003), and Causa and Cohen (2006).

Guns' explanation of gaining the competitive advantage on the other hand is simply: to gain and sustain a competitive edge is to learn faster than the competition (1996). Guns' explanation therefore resonates with that of Senge (1990). So, reflecting on these theories, the bridge linking core competence with competitive edge or advantage is, in effect, learning and innovation. Indeed, MacKinnon, Cumbers and Chapman (2002) identify organisational learning and innovation as a key source of competitive advantage and explain how these processes would be operationalised in an

organisational setting. To continue the biological metaphor, what links the innate survival potential, responsiveness or capabilities (competences) of a living thing in a changing environment, is its ability to learn and change or adapt.

2.5.1 Ways to sustain an organisation's competitive advantage

Similar to how to seed and cultivate the firm's core competence, ways to sustain a competitive advantage mean the routes, practices, or means of becoming a continually innovative company. A company with a continually innovative capability becomes a learning organisation, as envisioned by Senge (Lee, Bennett & Oakes 2000; Garavan Gunnigie & Morley 2000; Wang & Ahmed 2001).

In traditional business competition, most companies are accustomed to matching and beating their competitors on price and quality; that is they compete based on productivity and quality gains, or on CI. As a result, their strategies tend to take on similar dimensions - competition based largely on incremental improvements in cost, quality, or both. However, more strategic thinking companies, being pro-active self-improvers, opt to break free from such competition by staking out fundamentally new market space. This amounts to creating products or services for which there are no direct competitors, or in Prahalad and Hamel's words, having functionally-related competence (Hamel & Prahalad 1994, as discussed in Section 2.4.2). This approach of creating one's own new market space to enhance the company's value requires a different mindset for competition and a systematic way of looking for opportunities (Chan Kim & Mauborgne 2001). However, to gain and sustain such a competitive advantage, people in the organisation, especially those in authority and control, need to have the mindset of finding and discovering uncharted territories by research and exploitation.

Instead of looking within the traditional boundaries that define how industries compete with each other, workers and managers can look methodically across industry boundaries. By doing so, they can often find new, or unclaimed territories that represent better, real value innovations (Chan Kim & Mauborgne 2001). Rather than looking at competitors within one's own industry, for instance, they can ask why

customers make the trade-off between substitute products or services (Rothberg 2000; James & Roffe 2000; Choo 2001). But asking really insightful questions requires the power of critical thinking (as discussed in Section 2.1.4) and powerful insights are often derived from looking at familiar data or information but from a new perspective. For example, Dyson used the Venturi principle, familiar to every trained engineer, to invent his cyclonic vacuum cleaners.

Similar insights can be gleaned by looking across strategic (or broadly and/or distally related) groups within an industry; across consumer groups; across complementary product and services providers; across the functional-emotional orientation in buying behaviour in an industry and even across time (Boer *et al.* 2001). But again this requires workers and managers to develop a transcendental way of reflection (Chan Kim & Mauborgne 2001), or creative thinking skills, as discussed in Sections 2.3, 2.3.1, 2.3.2, and 2.3.3.

All industries are subjected to external trends that affect their businesses over time. One only needs to think of the rapid rise of the internet or the global movement toward protecting the environment and global climate change. Looking at these trends with the 'right' perspective can unlock new insights or knowledge to create new market space and innovation. All these approaches toward locating new market spaces can be accomplished by managers, indeed all employees, by exercising disciplined or systematic practice or core competence in building scenarios or strategic plans (Chan Kim & Mauborgne 2001).

Cognitive psychologists have shown that the biggest hurdle to solving problems is often not ignorance or lack of knowledge; it is that people cannot access the necessary information at the right time, even if they have already acquired it. Organisational memories are even harder to maintain or retrieve. Companies lose what they learned or acquired when people leave. Also, geographical distance, political squabbles, internal competitions, and bad incentive systems might inhibit or hinder the spread and sharing of information and experiences. Spreading and sharing information is a powerful way to keep ideas alive in-house. Creative answers to hard problems emerge within an organisation when people talk, in an open and frank manner, about their work with

others who might be able to help them do their work better. Company-wide gatherings, formal brainstorming sessions, and informal hallway conversations are just some of the means through which people share their problems and solutions, and generate new ideas and knowledge, thus sustaining the firm's competitive advantage. It is one way of ensuring the firm is poised, ready, and quick to test ideas and promising concepts. For this purpose, enlightened experimentation is one way of testing ideas quickly (Thomke 2001). This has been verified by the Australian advertising industry, as evident in this quote:

Advertising has defied the doom and gloom predictions by being creative ... The industry has also become faster and cheaper. (Robert Morgan, *The Age*, Business Day, 19 November, 2010, www.theage.com.au/business)

Individuals generate or create ideas; organisations or teams develop them. A good idea is just that, a good idea. It is not worth much by itself; it needs to be turned into something that can be tested. Firms that want to have a strategic advantage must be good at testing ideas, at judging them on merit. They focus on finding the best ways to solve problems; enlightened experimentation is one such way (Thomke 2001).

Enlightened experimentation is predicated on the empirical nature of the innovation process. All organisations involved in product development need a systematic approach of experimentation or scientific evaluation in place to help decide whether or not ideas would be good enough to proceed further. The more rapid and efficient the evaluating system is, the quicker the company's researchers and product developers can find solutions to problems, thus producing new products to reach the nascent marketplace first. This is precisely what a competitive advantage means, as highlighted in the following quote:

... the contest of ideas is what drives science forward. It allows us to test, refine and improve our knowledge ... Opinions based on fact and expertise outweighs those based on quackery. (Kim Carr, *The Age*, 19 November, 2010)

Experimentation (objectivistic, scientific testing and evaluating ideas) is mandatory for every company wanting to lead by innovation. Indeed, no product can be a product

without having first been an idea that was shaped, to one degree or another, through the process of experimentation.

Some innovations are cultivated in laboratories by product development teams or groups, passing through a systematic experimentation regime. All organisations with a competitive advantage must have such a system in place to help them choose the right ideas to pursue and then refine that group of ideas into what can become viable product development ideas. Coming up with brilliant new ideas is only a small part of the overall effort of inventing something new or creating a new product.

2.5.2 The climate that sustains an organisation's competitive advantage

Hislop (2007) describes the interrelationship between organisational learning or collective problem solving, innovation, and CoPs in an article entitled: "The complex relations between CoPs and the implementation of technological innovations". At first glance, it is unclear what Hislop meant by the term 'technological innovations', but analysis reveals that he really meant 'technological inventions' and his 'implementation of technological innovations' thus actually means 'putting technological inventions or new knowledge into use'. This can be interpreted to mean the process of innovation or the 'to innovate' act. On that basis, the title of Hislop's paper might well be 'The complex relationship between CoPs and the process of innovation'.

Hislop believes that the CoP concept can provide some fresh insights into the dynamics of innovation processes in an organisational setting. Hislop argued that his 'implementation of technological innovations' involves the blending or amalgamation of new knowledge and artefacts with existing organisational practices, artefacts and knowledge (Clark & Staunton 1989; McLoughlin 1999). Thus, as the CoP literature suggests (for example, Lave & Wenger 1991; 1996), if organisational CoPs both shape the structure of the organisational knowledge base and represent important repositories of organisation wide knowledge, they must surely play an important role in Hislop's 'implementation of technological innovation'. Simply put: the organisational CoPs constitute both the structure and knowledge reservoir for the innovation process in an organisation, and because CoPs play such a crucial role, their existence or presence in

the organisation should therefore be included as a dimension of the organisation's competitive advantage.

Resonating with what Lave and Wenger have said, Baumard defines a CoP as a "community of practitioners within which situational (i.e. situated or contextual) learning develops..." which results in the community developing "a system of relationships between people, activities and the world" (Baumard 1999, pp. 209-210). CoPs thus typically possess three primary characteristics. Firstly, participants in a CoP possess a stock of common, shared knowledge. Secondly, CoPs typically also develop shared values and attitudes. Thirdly, and equally importantly, participants or members of CoPs also possess a sense of collective/group identity (Brown & Duguid 1991; 2001). These characteristics productively facilitate the development of collective problem solving or organisational learning capability.

Dougherty (2001), for instance, suggests that one of the defining characteristics of successful and successively innovating organisations, or of organisations having competitive advantage, is their effective cultivation, use and support of organisational CoPs. Implicitly what that means is: there would be little potential for innovation without CoPs, and learning organisations must have their CoPs in place.

Although nominally concerned with innovation, the empirical data presented in Hislop's paper (2007) do not constitute examples of innovations in organisations. The seven companies he studied were involved in commissioning a new IT system to replace their existing systems. As such, these innovations may not be regarded as *bona fide* innovations; they represent adoption of an innovation (Rogers 1976). This particular aspect of the empirical work, as reported in the literature, is a major concern. Genuine cases of innovation have very seldom been provided; the reported innovations tend to be what I would refer to as continuous improvements of existing products or adoptions of innovations (Rogers 1976).

Other studies in the literature relevant to this review topic of 'climate' or environment include the following examples. Van der Sluis (2004) identifies the climate in organisations as important for learning and innovation, and the factors significantly

impacting on an organisation's learning and innovation are: the organisational climate and resources; managerial support; team spirit, mentoring and coaching; as well as safety and security for experimentation or risk taking.

Loon and Casimir (2008) are more specific in terms of how the organisational climate or environment impacts on employees' learning in their workplace. They argue that enhancing the challenges of an employee's job would enhance the person's motivation to learn more and contribute to the organisation's innovative efforts.

Rose-Anderssen and Allen (2008) argue that sharing knowledge and transfer of learning requires good organisational and good worker communication skills in order to embrace the diversity of the workforce.

Ellstrom, Ekholm and Ellstrom (2008) identify two types of organisational learning - adaptive and innovative. The type of organisational learning that is acquired by an organisation collectively is influenced by the learning environment. The characteristics of these two types of approaches to adopting the learning desired in the workplace are described by Ellstrom *et al.*

Schenkel and Teigland (2008) identify the CoPs in organisations as sites of collective learning and creative problem solving in the workplace; and that these communities exist through networking within and outside organisations. In terms of providing an environment or climate conducive to employees learning more and contributing more to the innovative efforts of the organisation, Stone (2002) argues that 'true forgiveness' or a forgiving attitude strongly supports the retention of valued employees. This approach allows for greater creativity and innovation, thus leading to increased business profitability and generating greater flexibility or risk taking in adapting to changing business and market conditions.

2.5.3 Practices to sustain an organisation's competitive advantage

Distilling what has been reviewed and discussed in this chapter, it may be argued that innovation is solving new problems in product and/or market development and that an innovative firm should be skilled in solving authentically new problems. Therefore, to

sustain competitive advantage, an organisation should be a skilled or expert problem solver, capable of continually confronting emerging challenges or opportunities and bringing forth effective solutions. But that should not be a 'flash in the pan' or one-off event for an innovative company or any company that aspires to sustain a competitive advantage.

As an example, in the industrial revolution, Robert Fulton used steam engines for mining, but he saw an opportunity to use this existing technology to power a sail boat. This resulted in the dawning of a new industry - steam shipping. By way of analogy, old knowledge could be applied to current climate change issues by asking the question: why can't pollution-free electromagnetic levitation be used to move cars instead of petrol based internal combustion engines?

A company with the competitive advantage could and would repeat this kind of quantum leap, using, for example, Tidd's four-stage cycle (Tidd 2007b) as a work practice: acquiring or capturing good ideas, keeping ideas alive by fantasising about ways of capitalising on them, imagining new uses for old ideas, and putting promising concepts to the test. Any organisation that manages to have these work practices established and ready would gain and sustain a competitive advantage (West 2000; Levine 2001; Sumner 2003; Gogus 2003; Love, Huang, Edwards & Irani 2004). However, in order to activate the Tidd's competence cycle, some operational details should be attended to. For instance, among the staff in the organisation, who would be capable of acquiring or capturing good ideas or who is going to generate or know good ideas and how? Who would have the time and space for the critical reflection to assess ideas? Who would have the creative skills and abilities to fantasise or imagine new uses for old ideas? And who would have the skills and time to put good ideas to the test or experiment?

This sort of information is often overlooked by authors, yet these are critical matters in sustaining an organisation's competitive advantage. For this reason, the exploration in this thesis' empirical work focused on organisational leaders' responses to these issues of praxis.

Relevant to the praxis of organisations, it has been observed that large established companies often appear unable to capitalise on opportunities resulting from major disruptive changes or inventions for their commercial exploitation (Christensen & Overdorf 2001). Christensen and Overdorf believe that it is because these established companies have abilities that they also have *inabilities*. This is because they believe that as a company becomes more established, what it can and cannot do becomes more sharply defined and restrictive in certain predictable ways.

Often one of the consequences of initial business success is that as companies grow and become bigger, they lose sight or become disinterested in small emerging markets with initial small profit margins or market sizes. But innovations, at their initial stage, apart from being risky, often tend to bring small returns and/or have small profit margins. This may discourage large companies from pursuing innovative ideas on a continual basis or turning innovative ideas into new products. One way of overcoming this disinterest is to 'spin off' self-standing businesses as independent enterprises with their own budgets and administrative structures, setting them free to compete as individual businesses (Christensen & Overdorf 2001).

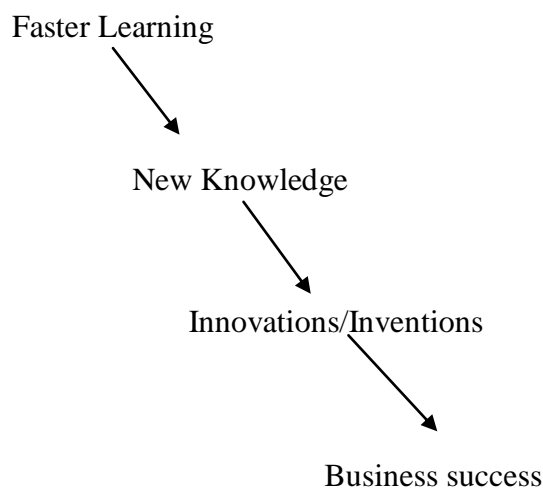
Kanter (2001) described another practice - finding ideas or inspiration for innovativeness from the social sector. Numerous leading companies have come to realise that social problems could also be economic problems. They have learned that applying their energies to solving chronic problems in the social sector could stimulate their own growth and development. This incidentally could be regarded as an expression of Senge's discipline of systems thinking - one of Senge's five disciplines for being a learning organisation - without the organisational confines. In a sense, this could be a form of embedding one's company in its societal environment as an *in situ* learner and in direct and immediate contact with sources of emergent problems. Thus the company becomes ever ready and prepared for problems or opportunities to emerge and capitalise on.

Another new model for innovation appears to be emerging: a partnership between private enterprise and public interest that produces profitable and sustainable changes for both sides. The idea of private public partnership in the building of schools or

public infrastructures is a prime example. But this paradigmatic shift requires a change in the corporate governance mindset. Companies need to view community needs as opportunities to develop corporate ideas, demonstrate business technologies, as well as find and serve new markets. It is a corporate hands-on R&D approach of inventing solutions to community needs that, in turn, opens up business opportunities to the company (Kanter 2001; Katsoulakos & Katsoulacos 2007).

2.5.4 Sustaining a competitive advantage and becoming a learning organisation

Guns (1996) envisaged the following sequence of events linking learning or learning faster, innovation, and business success or sustaining the competitive advantage (see Figure 2.2):



Source: Based on the work of Guns (1996)

Figure 2.2 Linking learning and innovation and business success

Intuitively, we tend to believe that genuinely new knowledge, insights, or inventions and innovations are hard to come by; we tend to think that discoveries, inventions or innovations emerge or occur often by ‘serendipity than design or intention’ (Hill *et al.* 2004, pp. 17-22).

Human beings are the only generators of new knowledge or inventions, which lead to innovations. So, it would be more likely for firms to sustain a steady generation of ideas if all employees learn, invent, and innovate (Senge 1990, 1992; Bhatt 2000;

Nieuwenhuis 2002; Zoot 2003; Ng 2004; Chiva-Gomez 2004; Kriegesmann, Kley & Schwering 2005; Bessant 2007). This would mean that more people are looking-out and doing the thinking, rather than just a few at the leadership level or those employed in the R&D and marketing departments of the organisation (Hill *et al.* 2004, p.180).

Generally people also believe that great discoveries often come to the prepared mind (Yu 2006, pp. 8-9). If one were unprepared, one would not be able to recognise and receive them even if they are staring at you. Therefore, an organisation's readiness to meet challenges and opportunities is an element in sustaining its competitive advantage.

It should be appreciated that Guns' theorising of learning faster (1996) refers to the speed of knowledge acquisition and application, and/or focused reflection, and thus it means one can accomplish a task in a shorter time and with a more accurate or desirable outcome. It does not mean that one has accomplished a never-before, new task or solved a new problem, which nobody else has encountered before. Therefore, learning or learning faster *per se* does not naturally or automatically lead one or one's organisation to genuine innovations. Coming up with genuine innovations or originality is about solving authentic, original problems. What would be needed to solve authentically new problems faster than the competition? In other words: what specifically needs be learned to become an expert problem solver in the workplace and sustaining a competitive advantage?

People might consider the need to acquire the knowledge and skills that would help them identify job-unrelated or goal-free knowledge and skills 'to do the right jobs', in addition to the knowledge and skills strictly related to their job or 'to do their job right', (Brockband *et al.* 2002, pp. 10-14). However, in the existing literature (for example Senge 1990, 1992; Hill *et al.*, 2005; Bessant 2007; Tidd 2007b), there are few specific recommendations about what employees need to learn in their workplace as generic knowledge and skills. These might be either stand-alone or embedded curricula to enable them to develop the capability of contributing to the organisation's continual efforts of knowledge creation or inventing. One exception here is Allio (2008) who described: (1) the need for employees to learn to be critical and creative thinkers; and

(2) how organisations need to bring back and maintain an innovative spirit (or climate) for employees to learn and contribute. Similarly, Herling (2000) argues that employees 'being able' or 'competent' is not enough, they need 'expertise' in the form of 'expert problem solving capabilities' because this is considered the most important determinant of the organisation's survival and growth. Castiglione (2008), in his excellent review, clearly defines (but in a more general way) what needs be done and how to facilitate and motivate employees to sustain their efforts to learn and contribute to the competitiveness of their organisation. Wilenius (2008), on the other hand, highlights 'foresight' as a means to sustain an organisation's innovativeness. This entails always 'being prepared' and 'ever-ready' in tackling future challenges by forecasting or 'foresighting' in a manner similar to the planning and preparation for future scenarios that de Geus' strategised for Shell. In his excellent article, Wilenius describes '7-ways to business success' by explaining how to position and prepare one's organisation for the future and providing the guidelines or principles that business should follow in their forecasting activities so as to enhance innovativeness.

Reinforcing the works cited in the last paragraph are those of Martin-Castilla and Rodriguez-Ruiz (2008), who propose the ways in which organisations could sustain their competitive advantage through learning and innovation. Seidler-de Alwis and Hartmann (2008) argue that tacit knowledge within an organisation relates to its expert problem solving skills and is a source of organisational discoveries and creativity. It can therefore be linked to sustaining the organisation's competitive advantage. In order to make sustaining the organisation's competitive advantage possible, Martins and Terblanche (2003) identified elements of organisational culture that would stimulate creativity and innovativeness. Jimenez-Jimenez and Sanz-Valle (2011) examined the literature to establish a relationship between innovation and performance and they asserted a positive relationship between organisational learning, performance, and innovation. Similarly, Pastuszak, Shyu, Lee, Anussomnitisam and Kaewchur (2012) reviewed the literature relating to the relationships between organisational learning, innovation, and performance. They identified knowledge and learning ability to be critical success factors in the competitive advantage of an organisation and that the knowledge originated from both internal and external sources should be transferred to

all levels of the organisation. Increasing the performance of an organisation, they argue, focuses not only on improvement through learning, but also on innovation. Likewise, recent empirical studies also established a relationship between organisational learning, innovation, and performance (Goh, Elliott & Quon 2012; Liao, Chang, Hu & Yueh 2012; Agha, Alrubaiee & Jamhour 2012). Hasgall and Shoham (2008) echo Martins and Terblanche by showing the type of organisational structure and workplace environment, as well as organisational management style, which would be most conducive to sustaining contributions by employees to the organisational effort of sustaining competitive advantage. They show that stringent top-down management control hinders employee innovativeness and creativity, and that it is necessary to let employees do their own thing by freeing them to think and experiment. Similar organisational structure and workplace climates, or culture, as well as management styles that impact on the organisation's effort to sustain competitive advantage, have been reported by Zdunczyk and Blenkinsopp (2007) and Freeman and Engel (2007).

Apart from the specific suggestions of Allio (2008) and Herling (2000), and perhaps Castiglione (2008) and Wilenius (2008), there has been a scarcity of references in the literature that advocate the cultivation and development of critical and creative thinking capabilities, as well as interpersonal skills, for employees. For example, the knowledge and skills of emotional intelligence, within a programme of staff development items as described by Goleman (1995), would enable employees to work together effectively and harmoniously in groups or teams. These three domains of knowledge and skills (that is, the cultivation and development of critical and creative thinking capabilities, as well as interpersonal skills, for employees) would encourage employees in their personal capability or potential to be innovative team members. Learning and practicing these three domains of knowledge would afford employees the openness, attitude, and receptivity to further learning and encourage them to experiment, explore, and take risks. This is crucial to generating new knowledge and insights and generative learning helps create a learning organisation as envisioned by Senge (1990). To date, there is no report in the literature that specifically advocates for the learning of these three elements as a trinity for the employees' learning focus in the workplace. It was therefore my focus in exploring with organisational leaders their knowledge and

understanding of these three intellectual elements and their views on their incorporation into employee learning programmes.

2.5.5 Conclusion and linkage to Chapters 3, 4, 5, 6 and 7

A review of the literature informs what adults should learn and the conditions or climate in which to learn so that they can develop the appropriate capability to solve problems in their workplaces. This would constitute the learning and innovating capability of the organisation, with adult learners bringing the competence to meet challenges and utilise opportunities emerging in their business environment.

The review undertaken identified that adult learning is not just about accumulating factual information but about learning to have important critical reflection or thinking capability, as well as the ability to construct knowledge in a social setting in collaboration with others. It became clear from the review that learning in the workplace is equivalent to people solving problems collectively and cooperatively, and learning or problem solving will result in an invention when the problem equates to new knowledge.

The capability of people collectively and cooperatively learning or solving problems in an organisational setting is therefore the organisation's core competence. This competence, when well established and practiced in the organisation, constitutes and expresses phenotypically as the organisation's competitive advantage.

The review undertaken thus established the interrelationship between the four concepts - learning, innovating, core competence, and competitive advantage - that are central to the survival and growth of modern organisations. Knowing and clearly understanding learning and innovating is crucial to the organisation's acquiring and establishing its core competence, and exercising its core competence to embed it as a way of life. This would empower the organisation to gain and sustain a competitive advantage for survival and growth. The review provides a documented background to support and validate the theoretical framework adopted for this research. This study seeks to analyse, understand, and interpret the data collected from the self-reports of the

interviewees, companies' documents, and returned questionnaires from the HR managers, to provide answers to the research questions described in Section 1.1.

In Chapters 4, 5, 6, and 7, the four principal concepts and other relevant theories are explored through an examination of discussions with organisation leaders in relation to the three research questions generated for this thesis. The research approach, instruments and the rationale for their use in the empirical work are explored in the next chapter.

Chapter 3

Methodology and Methods

3.0 Introduction

In Chapter 2, the relationship of learning and innovation to the core competence of an organisation, and how corporate core competence can confer a competitive advantage to an organisation was reviewed. It is clear from the literature review that an appropriate regime of employee learning and innovation development programmes is crucial to an organisation's business growth and prosperity. Consequently, the intent of this research was to explore with leaders nominated by participant organisations what they know and understand of the concepts of the 'to learn' and 'to innovate' (or 'to invent') acts. By exploring these matters with leaders, I intended also to find out how they might plan to educate and prepare their fellow employees to make them learn more effectively or significantly (Rogers 1969; as discussed in Section 2.1.2) and be capable of contributing more to the innovativeness or inventiveness of their organisations. My intention was therefore to know the 'what, why and how' of learning and innovating in the Australian organisational context through a qualitative study. It was not the intent of this research to empirically prove or disprove a theory, test a hypothesis or preconceived model, or to substantiate a causal relationship that I, or others, had constructed. For this purpose, I chose a data- or information-rich, qualitative methodology to conduct my empirical work (Flick 2007; Lichtman 2010; Bryman & Bell 2007). The objectives of this research have also been described in Section 1.1.

3.1 Qualitative methodology

In the last two decades, qualitative research in social sciences has been challenged by a number of authors simply for being 'not quantitative research', which means data collected by qualitative research are not numbers but text or narratives (Mackenzie & Knipe 2006; Bryman & Bell 2007; Flick 2007; Lichtman 2010). Quantitative research relies on hypothesis testing, cause and effect relationship or correlation, using statistical

analyses of empirical data for verifying or validating an object or phenomenon, whereas qualitative research does not.

As indicated, research methodologies in social sciences studies can be broadly classified as qualitative or quantitative (Onwuegbuzie and Leech 2005); and the difference between these two approaches has been highlighted in many research methodology articles (such as Howe, 1988; Neuman, 1997). Myers (2009, p.8) argues that the qualitative approach or research is an in-depth study of social and cultural issues or phenomena and it focuses on text whereas quantitative looks for general trends in the target population and focuses on numbers. Based on this differentiation, the purists' camp maintain that the two methodologies/approaches should not be mixed as often the research issues/questions are usually designed with apparently singular orientation towards either a quantitative or qualitative approach (Howe, 1988; Smith and Heshusius, 1986). Myers (2009), in his publication 'Qualitative Research in Business and Management', supports the views of the purists (which separate the two methodologies/ approaches) by highlighting examples of research techniques/methods under these two methodologies/approaches for use in research studies. Myers (2009, p.8) argued that qualitative methods include action research, case studies, ethnography, grounded research, semiotics, discourse analysis, hermeneutics and narrative; quantitative methods include surveys, simulation, mathematical modelling, laboratory experiments, statistical analysis, econometric and structured equation modelling.

Pragmatic researchers, however, expose the falsehood of this dichotomous view and have highlighted the similarities between these two approaches (Onwuegbuzie and Leech, 2005; Newman and Benz, 1998). In support of the pragmatists' views, Neuman (1997) advocates that when combined the qualitative and quantitative methods would provide an opportunity to corroborate results from diverse methods of studying a selected phenomenon more rigorously. The pragmatists maintain that the choice of research methodology and methods should reflect the research questions/issues being addressed, although they tend to argue for a mixed methodological approach.

In the organisational learning and innovation field of inquiry, there has been intense discussion on the appropriate methodology - quantitative, qualitative, or a mix of the two - and the methods (instruments or tools) to undertake empirical research.

Nyame-Asiamah and Patel (2009) compared and evaluated the main research methods and methodologies for studying organisational learning (OL), presenting firstly a comprehensive review of literature on OL, learning organisation (LO) and research methods and then reporting on the recent developments in research methods for studying OL. They highlighted both the views of purists and pragmatists on the research methodologies. Nyame-Asiamah and Patel found that the research methods and methodologies for studying OL do not reflect the different views of the purists and pragmatists but rather the convergence of their ideologies. In particular, the results of their study suggest that the choice of method(s) to study OL should be based on the alignment of research aims (or intent) and epistemological philosophy of OL; and for that they encouraged the use of triangulation to assure quality of research. Based on their study, they provided an OL Research Methods Framework to guide researchers in the OL area to select an appropriate methodology and associated methods for research.

To illustrate their approach in selecting the methodology and methods/techniques for their studies in the social sciences discipline, Nyame-Asiamah and Patel described numerous examples of the qualitative, quantitative, and mixed designs. For qualitative design, they included the work of Kira and Frieling (2007), Kim and Kaplan (2006), Pahl-Wostle (2004), Brodbeck (2002), Martin and Matlay (2003), and Harvey and Denton (1999). For quantitative design, they included the work of Mets and Torokoff (2007) and Chang and Sun (2007); and for mixed design, Sharma (2005) and McDougall and Beattie (1998).

The study by Nyame-Asiamah and Patel (2009) established that issues involving OL can be studied through either qualitative or quantitative methodology (or approach) or a combination of the two. A common notable point is that OL research methodologies and methods/techniques are chosen on the basis of the research aims/intent and theoretical basis underpinning the study, as they proposed in their 'OL Research Methods Framework'. In their view, quantitative methods are recommended for studies

intended to establish patterns, relationships and variations in organisational processes; they are also suited for studies aimed at investigating the states/progress/stages of learning processes, which may encompass for example, March's Model of Mutual Learning, Complex Adaptive Systems (CAS), Senge's Five Discipline and Organisational Learning Framework. On the other hand, qualitative methods are more applicable to OL research intended to develop strategies, plan changes, improve performance, manage knowledge and ICT, and examine learning issues; however the selection of particular qualitative techniques/methods is governed by the philosophical bases of the study. The predominant philosophical models identified by Nyame-Asiamah and Patel include: Complexity Theory, Social Learning Theory, Workplace Learning, CAS, Chaordic System Thinking and Model for Internet User. The choice of mixed methods is also determined in a similar way to that of selecting quantitative and qualitative methods. Specific models of consideration here include the Analytical Framework from Literature and the Denison Cultural Survey. Nyame-Asiamah and Patel advocate that no matter what kind of methodology (or approach) is adopted, it is imperative to include triangulation in the process, so as to achieve the requisite quality outcomes as suggested by Onwuegbuzie and Leech (2005) and Neuman (1997).

Based on the guidelines in Nyame-Asiamah and Patel's OL Research Methods Framework, I chose the qualitative methodology for this study because it is concerned with examining learning issues and developing strategies or plans for changes. The qualitative methods applied to collect data were interviews, an email questionnaire, and document analysis. Qualitative methodology is considered more appropriate for this study given that, as described at the beginning of this chapter, the intent/aim was to know and understand the way in which the concepts of learning and knowledge are interpreted and translated into practice by organisational leaders.

In agreement with Nyame-Asiamah and Patel's characterisation of the qualitative methodology, Lichtman (2010, p. 5) also provided some common features of qualitative methodology (or approach/research) with the following quote:

Qualitative research ... is a way of knowing in which a researcher gathers, organizes, and interprets information obtained from human beings using his or her eyes and ears as

filters. It often involves in-depth interviews and/or observations of humans in natural and social settings. (Lichtman 2010, p.5)

According to Lichtman (2010),

... there are many ways to think about doing qualitative research. You can think about what sort of research approach, or plan for conducting research, you might use. Some researchers choose a phenomenological approach, in which they study the lived experiences of individuals with the primary goal of describing the experience. Other researchers choose an ethnographic approach; ... Some rely on doing case studies of a particular event or setting or a particular people. Still other researchers have considered using a mixed methods approach... (p. 69)

Further on Lichtman explains that,

... I want you to understand, however, that you can do qualitative research and not choose one of the approaches you have just read about. If you decide to take that path, you will be following in the footsteps of many others. Although many researchers choose a particular orientation or combination of approaches, others do not make such a choice; rather, they take a generic approach.... If the researcher takes a generic viewpoint, it is not necessary to adopt any one approach to doing qualitative research.... (pp. 87-88).

Doing qualitative research using a generic approach presents a challenge in terms of evaluating a study; however, according to Lichtman,

... the issue of evaluating the worth of a study is certainly not limited to evaluating generic studies ... four areas that could be considered in evaluation of generic qualitative research: noting the researchers' position, distinguishing method and methodology, making explicit the approach to rigor, and identifying the researchers' analytical lens (p. 88).

My knowledge and understanding of qualitative methodology as an empirical approach is that it is intended to analyse the world as experienced *in situ* by actors rather than in specialised, controlled research settings, such as a laboratory, which is usually based on *a priori* assumptions of associations among variables. In such contexts or experimental

conditions, variables can be and are rigidly regulated, analysed and interpreted in a consistent manner. However, to understand and describe individual interpretations of words used in a common lexicon to explain social phenomena from the perspective of the actors requires a more exploratory approach. This is explained as follows:

- *By analyzing experiences of individuals or groups.*
- *By analyzing interactions and communications in the making.*
- *By analyzing documents (texts, images, films, etc) or similar traces of experiences or interactions (Flick 2007, p. x).*

With respect to the tools or methods of qualitative methodology (or research), I used the conventional methods of in-depth interviews (Bryman & Bell 2007), supplemented by an analysis of public documents and/or written materials supplied by the respective organisations, as well as an analysis of responses to an email questionnaire by the participant organisations' HR managers. The interviews were analysed in an interpretive-descriptive style (Belenky 1992), through which I observed and related my observations to my experiences and then described what I had perceived with reference to the conceptual framework I adopted for this thesis.

3.2 Assuring the quality of qualitative research

To date, editors of various journals and examining authorities are still trying to develop criteria to determine what would constitute an acceptable quality of qualitative methodology (or research) (Lichtman 2010). They are, however, now more open and receptive to qualitative methodology.

Lichtman (2010) remarks that one of the most controversial areas of qualitative research is how to validate and evaluate readers' interpretations of the research outputs. There are several schools of thought regarding how qualitative research should be evaluated, what criteria should be used, and who should determine or establish the criteria for evaluating or assessing. These views span a spectrum ranging from the same criteria that govern the quality of traditional, objectivistic or scientific methods of quantitative research at one end to the recent more contemporary criteria and attitudes

towards qualitative approaches (Lichtman 2010). In recent times, there has been a resurgent interest in applying the traditionalist objectivistic view to qualitative research and in adopting scientific experimental designs characteristic of quantitative research (Lichtman 2010).

3.2.1 Different opinions on assuring the quality of qualitative research

A diversity of opinion exists on what overarching criteria should be used to assure the various qualitative approaches. Arguably, qualitative scholars and researchers do not as a collective agree on a set of criteria, measures, or gauges for assessing the quality of qualitative research; instead standards are predicated on those of objectivist, quantitative research. For instance, Patton (2002) suggested that different criteria be used depending on the type of qualitative research being conducted. He argued for a traditional, scientific type of assessing qualitative research that involves the expected dimensions of objectivity, rigor, generalisability, and triangulation, whereas a study that adopts the social constructivism philosophical stance (e.g. Jarvis 1992, 2006) will need to consider looking at trustworthiness, reflexivity, particularity, subjectivity, and multiple perspectives. Despite the diversity of views on the feasibility or desirability of criteria, some maintain that multiple criteria need to be developed, not just one set of criteria that would fit all (Lichtman 2010, p.229).

In support of the foregoing, Morse (2003, p.833) acknowledges what she calls the uncertain exploratory nature of qualitative research and suggests that people who evaluate should look at a number of key factors. That is, firstly the relevance or the worthiness of the questions asked by the researcher and their value; secondly rigour or the adequacy and appropriateness of the method used to answer the questions; and finally the feasibility or the ability of the researcher to conduct the research.

Other views like that of Lichtman (2010, p. 229) ask evaluators to consider rigour by looking at five fundamental aspects:

1. Does the researcher convey reflexivity or the ability to stay open to the participant's experience?

2. Does the researcher show credibility or validity?
3. Is transferability observed or the ability to generalise?
4. Is there an audit trail?
5. Is there confirmability or objectivity?

Of note, three of these five fundamental aspects (credibility or validity, generalisability or external validity, and reliability or reproducibility of results (that is, confirmability) are analogous to the traditional positivistic approach to research.

3.2.2 Triangulation

Another approach of assessing and evaluating qualitative research adopts the triangulation concept.

In general, triangulation refers to the notion that multiple sources of data would bring rigour to the research and more credibility to an investigation (Flick 2007; Lichtman 2010; Bryman & Bell 2007). Guion (2002) elaborates further on the idea of triangulation in qualitative research evaluation and identifies five kinds of triangulation:

1. Data triangulation,
2. Investigator triangulation,
3. Theory triangulation,
4. Methodology triangulation, and
5. Environmental triangulation.

The rationale for triangulation is that if one way of examining something leads to one interpretation, and then examining it from two or more different perspectives leads to the same interpretation. this then makes the data collected and interpretation more acceptable, more legitimate, and/or more trustworthy (Lichtman 2010). As indicated above, Guion (2002) argued that it is possible to have triangulation of different kinds other than data triangulation. However, Guion's view is not universally accepted by

qualitative researchers in terms of what necessarily makes a good qualitative research investigation (Lichtman 2010).

Given the limited timeframe and scope of a doctoral thesis, I drew on a selection of Guion's five dimensions of triangulation (2002), specifically data and methodology triangulations. Guion's investigator, theory, and environmental triangulations were not suited for a regular praxis of a Doctor of Business Administration (DBA) study.

Moreover, it is possible that triangulation strengthens data interpretation in qualitative research, where multiple realities of the object of the research might exist and different preferred ways of looking at these realities would produce different outcomes.

Reconciling different perspectives and sourcing alternative views might not be feasible in the scope of this study.

3.2.3 Ensuring qualitative research rigour

As explained earlier, this research was not driven by a testable hypothesis.

Nevertheless, a conceptual framework has been developed to help the researcher to make sense of and interpret the empirical data obtained. The exploration with certain targeted participants was conducted using standard criteria for assuring the quality of contemporary qualitative research, as described earlier. I have attempted to adhere to these criteria (as operational guidelines or principles) but I found that it was not always possible or practicable to fully comply. This is explained in more detail below.

Trochim (2001) adopts the four terms that Guba and Lincoln (1989, 1994) used to emulate the traditionalist's criteria of assuring the quality of quantitative research. First, credibility replaces internal validity, that is, the degree of control of the research situation through standardisation of the dependable variables (Flick 2007, p. 141). Second, transferability replaces external validity or generalisability, that is, how extensive can the results of a study apply to situations outside the actual research situation (Flick 2007, p. 141)? Third, dependability replaces reliability which is the reproducibility of data, one standard criterion of quantitative research measured by replicating or duplicating a test and assessing whether the results are the same in both cases (Flick 2007, p. 142). Fourth, confirmability replaces objectivity, which is the

degree to which a research situation, the application of methods and their outcomes, is independent of the singular researcher (Flick 2007, p.142).

From the qualitative research perspective, credibility refers to acknowledging the participants as being possibly the only ones to judge the extent to which the researcher would and could capture and explain or interpret the meaning of what he/she heard and/or saw. The process serves to ensure the trustworthiness of the data and findings. This issue was partially assured by the participants' review, authentication, and authorisation of the recorded interview transcripts. However, while preferable, the study constraints did not allow for the participants to review the researcher's interpretation, explanation and/or comments. Of note, Choudhuri, Glauser and Peregoy (2004) also commented that it was not always practical to apply this criterion rigidly to qualitative research.

In terms of transferability, Trochim (2001) suggested that it is up to the readers to decide whether or not the results can be transferred to other situations and he makes no further suggestions on how and on what basis the reader would and should make such a determination of transferability. The outcome of research was as observed, whether the findings are applicable or used by others in their own situation/circumstances has to be verified, as with all research. In view of the fact that this was an exploratory study without a definite set of stringently controlled experimental conditions in the conduct of the empirical work, the transferability of the outcome of this study would necessarily be determined by the discretion of the readers with respect to their individual sets of circumstances. Furthermore, the transferability or transportability as such would depend on the context and level or depth of analysis, as the findings of leadership studies strongly suggest (Yammarino *et al*, 2005).

According to Trochim (2001), the term dependability emphasises the need for the researcher to account for the ever-changing context in which the research occurs. The researcher is responsible for describing the changes that occur in the setting and how these changes affect the way the researcher approaches the study. In the short duration of a doctoral research, the research methods are considered to meet the dependability criterion. A DBA allows two years (full-time) maximum for the empirical work.

During this process, the extent of changes to society and social settings would likely have minimal impact on the variability of data collected between the first and last (16th) interview sessions.

The term 'confirmability' refers to the degree to which results can be confirmed or corroborated by other researchers, assuring the absence of the researcher's bias in the conduct and interpretation of the data. There could arguably be limitations to a rigorous compliance of this criterion because implicitly there is an assumption that an objective reality exists out there. But qualitative research does not presuppose a single reality or objective reality that quantitative research upholds, but multiple realities as constructed by observers independent of each other. Qualitative research approaches are grounded in philosophy according to a large number of authors. For instance, Maykut and Morehouse (1994) point out that assumptions underpinning qualitative research are grounded in ontology being 'what is the nature of the social world and what is there to know about it.' Ontological positions can adopt a realism or idealism perspective and in part this study sought to understand these two perspectives; what people saw as either real or ideal approaches and what policies and practices do or ideally should support learning and innovation. However, this study did not seek to delve into these philosophical underpinnings and it has been clearly stated that the qualitative approach was an accepted methodology, adopting the rigour of an empirical approach to investigate a phenomenon in a human social setting. It is recognised from studying the literature on the historical development of qualitative research as an alternative empirical approach, that people engaged in qualitative research generally have or accept the notion of different 'realities.' As such, this study is aligned with the notion that there is no single physical or objective reality in the meaning of 'to learn' and 'to innovate' across different contexts and people.

Moreover, the same subject matter in social science research grows and changes in the mental framework of researchers over time, thus affecting their narratives and interpretations of events. As discussed in Chapter 2, the mental framework of the researcher also varies along the journey of their lifelong learning, which also reflects the variations in the social and societal environment that the researcher is situated. This

consequently impacts on the researcher's attitude and feeling on that subject matter. This subject matter was explored in Chapter 2, Section 2.1.8. As corollaries of these two theories - situated learning and social constructivism of learning - different people would individually have different perspectives and interpretations of an identical subject matter. Based on my learning in both the scientific and qualitative methodology of study, I have been careful in restraining my personal biases and rendering them explicit whenever there were needs.

I have been cautious of another complicating factor regarding confirmability, which is causal ambiguity in social sciences research (Bryman & Bell 2007). A group of human subjects who are supposedly homogeneous with respect to certain elements or variables in their mental framework can change with time, thus becoming heterogeneous with respect to those elements or variables. Further, typically people cannot respond in exactly the same way on a repeat of the same empirical work because there is no ethical way to control and maintain their mental frameworks uniformly or homogeneously in the course of the experimentation. It is therefore implausible to consistently causally relate or correlate an element or dimension of the human mental framework (that is, how one feels or what one's attitude is about something) to a behaviourally observable outcome or activity. Human beings have their own individual minds, unlike experimental subjects, such as *E. coli*, *HeLa* cells, or *Drosophila*. Thus, individual differences in human beings are not only apparent between individuals but within individuals across different situations and at different developmental stages in life.

In summary, this study made a rigorous and consistent effort to align and comply with the criteria for assuring the quality of the research.

3.2.4 Methods

To explore perspectives on the issues addressed by the research questions, it was planned to invite three or four executives or senior managers from each of the four or five private participant companies. These companies would preferably be of different industries and hopefully have different aspirations for organisational learning and innovation.

A purposive sampling strategy was used (Patton, 2005). targeting participants who had experience and were able to comment as experts on innovation and learning, as well as the alignment (or otherwise) with strategies, policies and practices. People in management roles in organisations of different industries and with aspirations for innovation were invited to participate. Although from different industries and with different aspirations, the people nominated to participate in the interviews held similar roles within their respective organisations. They were also demographically similar in terms of age, tenure, seniority, and education.

Following receipt of approval from the University's Ethics Committee, interview participants and participating organisations were recruited. At the time recruitment was actively pursued, Australia was in the grip of the global financial crisis and thus its economy was adversely affected. Such a downturn impacted on the recruitment of participants in the study, resulting in loss of engagement from previously interested companies. A second wave of recruitment occurred through contacting a peak Australian consortium organisation, widely recognised for its consistently strong advocacy of organisational learning and innovation. However, the members of this consortium organisation did not wish to participate.

The third wave of recruitment occurred through calling 30 selected organisations and a sample of personal contacts. This resulted in the positive responses on which this thesis is based.

In sum, eight organisations accepted the invitation to participate. This comprised five public sector and three nominally private sector companies. Together, these organisations yielded 17 participants who provided interview data. Three of these organisations also completed the email questionnaire.

During the initial contact with the participating organisations, the CEO was asked to nominate senior managers or executives engaged in managing employees' learning and developing employees' capability to create new knowledge or innovate. Those nominated were given an identifying number from 1 to 17 in order of their participation in an interview. In all, 16 interview sessions were undertaken on site in the participant

organisation's offices (one session involved two participants, the remainder were individual interviews). Interviewees 1, 2, 3, 4, 6, 8, 9, 10, 11, and 15 are males and 5, 7, 12, 13, 14, 16 and 17 females. From their physical appearances, I estimated them to be aged between 40 to 60 years.

Details of the data each organisation contributed are presented in Table 3.1.

Table 3.1: Participating organisations

Organisation	A	B	C	D	E	F	G	H
Private (PV) or Public (PB)	PB	PV	PB	PV	PB	PV	PB	PB
Business/industry	Utility	Utility	Local Govt	Build	Utility	Cons	Uni	Govt
Number of Participants	4	1	3	4	1	2	1	1
Questionnaire returned? Yes/No	Y	Y	N	N	Y	N	N	N
Documents provided? Yes/No	N	N	N	N	N	N	N	N
Interviewee identifying number	2, 3, 4, 7	1	6, 16, 17	8, 9, 10, 11	15	5, 14	12	13

Legend:

PB Public organisation
 PV Private organisation
 Build Building industry
 Cons Consultancy
 Govt Government department
 Uni University
 Y Yes
 N No

The four interviewees of Organisation A were entitled:

- 'Manager, Information Services', 'General Manager, Business Transformation and Technology', 'General Manager, People Strategy and Change', and 'Information

Manager'.

The interviewee of Organisation B included:

- 'Workforce Capability and Culture Manager'

The three interviewees of Organisation C were known as :

- 'Coordinator Organisational Development and Learning', 'Learning and Development Advisor', and 'Manager, People and Culture'.

The four interviewees of Organisation D were entitled:

- 'Principal, Practice Manager Management Consulting, Australasia and Member of the SMART Advisory Council', 'Corporate Fellow, Group Board Director and Chair Global Building Practice', 'Principal and Leader Melbourne Office', and 'Director of Organisation D's New Zealand Limited'.

The sole interviewee of Organisation E was in the position of

- 'Learning and Development Manager'.

The interviewees of Organisation F were:

- 'Principal Consultant and Adjunct Professor of a Melbourne university', and 'Principal consultant, organisational performance improvement practitioner'.

The interviewee of Organisation G included:

- Head of School, Faculty of Workforce Development of a university in Melbourne'.

The only interviewee of Organisation H was known as

- 'Organisational Development Manager'.

3.2.5 Data collecting tools

As indicated earlier, the methods of data collection for the empirical work included semi-structured interviews and a questionnaire (Bryman & Bell 2007, pp. 472-508), as well as a document analysis (Bryman & Bell 2007, pp. 554-577). These are discussed in detail below.

Semi-structured interviews

Based on concepts of learning, innovating, and learning organisations, as well as their praxis as reviewed in Chapter 2, an interview guide relevant to the issues addressed by the research questions was constructed to conduct interviews. The interview guide for this research was approved by the Victoria University Ethics Committee as a tool for data collection (see memo confirming approval in Exhibit 3.3 in the Appendices). The approved documents are presented in Exhibit 3.1.

Interviews were conducted for a period of about one hour and recorded with the permission of the interviewees, sought at the invitation stage, as well as at the start of each interview session. Recorded unlabelled copies of the interview tapes were transcribed *verbatim* and anonymously by a fee-charging professional transcription service. As part of the informed consent protocol and a dimension for assuring the reliability aspect of qualitative research (Bryman & Bell 2007, pp. 410-412), the entire *de novo* transcripts were returned to the individual interviewees for their authentication, amendments, and comments. Of the 17 interview participants, 11 reviewed and returned their revised transcripts; the other participants either opted to waive their reviewing rights or found they had no disagreement with the interview transcripts as presented. The participant-reviewed/revised transcripts were thus used as the primary data source for this thesis.

The questionnaire

In addition to the leaders' interviews, a questionnaire (as shown by an abbreviated, representative returned questionnaire in Exhibit 7.1 in the Appendix) covering the main issues or aspects developed for the interviews was sent to the HR managers of the respective companies. In the questionnaire, HR managers were invited to respond by completing rating scales and providing supplementary comments.

The questionnaire to HR managers was grounded in Senge's 5-disciplines and/or Watkins' 7-dimensions that reflect behavioural characteristics of being a learning organisation (Senge 1990, 1992; Watkins & Marsick 1993; Marsick & Watkins 2003; Yang, Watkins & Marsick 2004). Specifically, participants were invited to reflect on

how they would know, or how they would observe/perceive the presence of certain essential elements of being a learning organisation in their organisational environment. Second, they were asked what they perceived to be the observable evidence of such events. The rationale for the design of the questionnaire survey is described in detail in Exhibit 3.2 in the Appendices. Following calls to participant organisations in the HR managers' questionnaire (A, B, C, D, E, G) returns were yielded from half (A, B and E).

Document analysis

Where possible, a company's official documents were either provided by the participant organisations or procured from public records. These documents were analysed with respect to the research questions (Bryman & Bell 2007, pp. 579-601).

Sensemaking

The goal of analysing the collected text data was to derive some common themes. In this thesis, I did not distinguish between theme and concept; I have used them interchangeably. From the collected material, I generated the codes I used (Bryman & Bell 2007, pp. 593-598) by repeatedly and carefully listening to the tapes while reading and reflecting on the text material (the transcripts). I tagged segments of the text with key words, which served as my codes after I had familiarised myself with the statements and the context of the text material. Based on this process, I then organised these tagged themes or concepts into groups that I labelled with another layer of key words or terms. As my praxis with each interview transcript, I began by reading each two or three times to dissect and highlight the meaning inherent in the interviewee's spoken words and sentences. On subsequent reading, each transcript was then coded. This process of coding one transcript was repeated for the next transcript and so forth for the sixteen transcripts of the seventeen interviewees (as indicated earlier, one interview involved two participants), using the same sets of codes. All the codes used were then reviewed for their distinctive connotations so as to reduce the redundancy or duplication of a theme with more than one code. I then grouped these codes into categories, subsuming coded themes or concepts that were considered related to topics of conceptual interest.

In general, four or more readings of the text were required to code and identify themes inherent in the text of the interview transcripts.

The same practice of analysing text for meaning was adopted for the analyses of the collected company documents and text materials as well as the questionnaire returns. Analyses of these collections of data were facilitated by the fact that the wording and statements in the questionnaire and company documents were more sharply focused and defined.

As explained before, this study was not concerned with testing a theory or model but rather exploring the knowledge and perspectives of leaders on the 'to learn' and 'to innovate' acts and their relevance to the gaining and sustainability of their respective organisations' competitiveness. The study therefore was not intended primarily to build a theory from the collected data but to develop a tentative or initial understanding of why certain organisations could be considered competitive in terms of their learning and innovative efforts and/or capabilities, whereas others could not. So, although the means or processes and activities in analysing the collected data resemble and reflect the established 'Grounded Theory Method' in social sciences studies that Charmaz (2000a and b) exemplified to build a hypothesis or reverse engineered hypothesis, the ends were different.

In the subsequent Chapters, 4, 5, and 6 present the findings from interviews with organisational leaders; Chapter 7 reports on the outcomes of examining and analysing published organisational documents and the HR managers' responses to the questionnaire survey.

Chapter 4

Results

Leaders' knowledge and understanding of learning and innovation

According to the Innovation Barometer ... only 28 per cent of Australian executives said research and development corresponded to their personal definition of innovation.

Globally the figure was 41 per cent. (Vince Chadwick, The Age, 19 January 2012, Business Day, p. 21)

4.0 Introduction

This chapter presents the findings of interviews with leaders of participating organisations, exploring their knowledge and understanding of the 'to learn' and 'to innovate' acts, and the relationship of these two acts with respect to a mechanism of action. The chapter contains excerpts of interviewees' responses to the questions asked on these two central concepts, and my understanding, interpretation, and comments on their expressed views or explanations in Belenky's interpretive-descriptive reporting style (1992).

Leaders' conceptualisation of the 'to learn' and 'to innovate' acts, the central focus of this thesis, is a critical determinant of their feelings and attitudes towards providing their fellow employees with opportunities for, or access to, learning. Second, the thesis focuses on the way in which learning is applied to enable contributions to the organisation's innovative effort or innovativeness. Third, the thesis explores leaders' personal knowledge and understanding to help inform and facilitate the formulation and implementation of their organisation's learning and innovation strategies.

As described previously in Chapter 3, the semi-structured interview method was used to collect data and information as self-reports from interviewees of participant

organisations. The interviews were audio-recorded, transcribed, and the resultant transcripts sent to the interviewees for authentication and authorisation. Their authenticated transcript returns served as the primary data to be analysed (Bryman & Bell 2007, pp. 410-412 and as described in Section 3.2.5).

Results reported in this chapter consist of three parts. Part A presents the leaders' knowledge and understanding of the 'to learn' act; Part B the 'to innovate' act; and Part C their interrelationship.

4.1 Results and discussion

4.1.1 Part A: leaders' knowledge and understanding of the 'to learn' act

The question I asked the interviewees to discuss and elaborate on was:

- What is 'to learn' or 'learning' and how would it happen in an organisational setting? That is, what would be the mechanism of action for the 'to learn' act within the confines of an organisation?

Leaders' responses were summarised and grouped under their respective organisations, as follows. Interviewee 2 of organisation A did not provide a response that was related to both the questions asked, and interviewee 3 recognised that people learn from experiences by solving problems at work. Interviewee 4 believed that employees learn by many modes through experiential learning. Interviewee 7 also recognised that 'to learn' means applying acquired information to do a task effectively. As such, she partly answered the 'how to' aspect of the question but then went on to describe the different ways in which employees in the organisation could acquire information and the materials that employees could use to learn.

Specifically, with respect to the issue of the mechanism of action or the 'how to' for the 'to learn' act, their responses were as follows. Interviewee 2 did not respond relevant to the question asked to the how to part of the question; interviewee 3 recognised that 'to learn' is to tackle problems and issues at work but did not elaborate on how it would

occur; and interviewee 4 did not provide any sort of mechanism but instead interpreted mechanism to be ways or avenues where 'to learn' could take place in his organisation.

In their conversations, the interviewees of organisation A also touched on an interesting concept relating to learning. Interviewee 2 mentioned the avenues and opportunities through which people could learn in the organisation, and elaborated incidentally on people's different learning styles. Such notes are reminiscent of Howard Gardner's multiple intelligence theory (Gardner 1983), suggesting an apparent need for having different learning ways or modes for people in his organisation. With respect to his response to the mechanism of action part of the question, his exposition on different learning styles might be taken to also represent his thoughts on the 'how to' as the way that his fellow employees could and would learn in his organisation.

Interviewee 3 acknowledged that an organisation as an entity can learn and he considered that developing a better organisation is a learning activity and represents organisational learning.

My overall impression of interviews conducted in organisation A was that two of the interviewees explicitly recognised 'to learn' as meaning applying acquired information to tackle a task effectively and learning comes from experiences or experiencing things being performed. Therefore they recognised that learning is experiential. They might not, however, recognise the experience of performing the task; resolving an issue, or solving the problem is operationally the mechanism of action for the 'to learn' act. Consequently, they responded to my question regarding how a person learns in an organisation in light of the various ways or avenues in their organisation that are available to employees to learn or, alternatively, how their organisation as an entity would and could learn.

As shown by his elaboration in the transcript excerpt (provided in the next section of this chapter), interviewee 1 of organisation B knew what the 'to learn' act is and its mechanism of action.

The interviewees of organisation C (6, 16 and 17) recognised 'to learn' as experiential; but they were unable to describe the mechanism, perhaps because they interpreted my question to mean the various ways available or offered by an organisation to its employees. But one of the interviewees (Interviewee 17) seemed to express in her explanation what the mechanism of the 'to learn' act is.

Interviewees of organisation D knew the 'what is' and 'how to' of the 'to learn' act as did the interviewee of organisation G. Interviewees of organisations E and F recognised that 'to learn' means to experience by doing, and that it also involved solving problems; but they did not elaborate further on the mechanism part of the question to show their comprehensive knowledge and understanding of the 'to learn' act.

Excerpts of their responses are provided in the following section. Not all of the relevant parts of the interviewees' transcripts are presented in the body of the thesis. One or two representative excerpts from each organisation are presented to illustrate the points made.

Excerpts of representative interviewees' transcripts on the 'to learn' act and how it would occur as the mechanism of action are presented under the interviewee's organisation grouping. My analysis and interpretation of the main points made in their responses to the questions follow immediately after each excerpt.

4.1.2 Excerpts and interpretation

Organisation A

Interviewee 3

... learning is essentially an individual concept to me, and it's about building upon your knowledge base ... particularly in a work context, your understanding of how you get things done in an organisation ... In terms of how does an organisation learn ... that's a concept about setting a foundation ... the next part about an organisation learning, is to identify where you want to build organisational confidence ... what are those areas you want an organisation to get better at, for example, you might want an organisation to get

better at process re-engineering ... Working out where you want that knowledge and understanding to be, targeting specific areas of the business that need to know about that and then looking at that area of the business, and individuals and saying what do we need to do to develop competency in the individuals. And that's how you go about having an organisation that's learning ... doing what you need to do to help the individuals learn, and it's the individuals who will take the organisation forward.

In the context of his conversation, interviewee 3 considered learning to be solving problems in the workplace and that it is, as he said, 'increasing one's knowledge of how to get things done at work'. Similar to interviewee 7, he recognised that employees learn from experiencing or by experiential learning. The mechanism of action for a person to learn in an organisational setting was not addressed. I did not ask for his elaboration on organisational learning or how an organisation learns.

Interviewee 7

... learning ... is that you acquire a certain amount of knowledge or skill to enable you to do your work more efficiently and appropriately ... it's the acquiring of knowledge and skill that enables you to do what you need to do effectively.

... there are a number of areas where people learn and acquire knowledge. They learn from their peers, informally, so it's a matter of following and observing what people do. There are also structured training sessions provided in a variety of ways and there is also information and some interactive knowledge dissemination and learning activities on our intranet ... training and learning activities tend to be fairly ad hoc around the organisation, but it depends, I guess, also on the priority of the learning requirement or style.

There are some structured learning activities that staff are required to undertake. So we have an online structured staff learning programme ...

In the first paragraph of the excerpt, interviewee 7 articulated what 'to learn' is in line with the conceptual framework adopted for this research.

With regard to the 'how to' part of the 'to learn' question, interviewee 7 outlined the different ways that people could acquire data and information but did not explain explicitly how (that is, the 'how to' part of the 'to learn' act) they would apply the knowledge acquired to tackle a task or solve a problem effectively. She pointed out different ways that employees in an organisation could and would learn, informally and formally as well as by online self-directed learning, and outlined the sorts of learning materials that were available for employees to learn in the organisation.

My overall comment on the responses of organisation A's interviewees regarding the 'to learn' act is that they knew that 'to learn' is to acquire knowledge to enable a task to be done effectively and that this learning is achieved through experiential learning (i.e. learning in the workplace), but they did not show explicitly that they knew the mechanism of action for the 'to learn' act.

Organisation B

Interviewee 1

... To learn as a verb is either to become aware of new information or new methods or new approaches that allow you to do something whether it's ... a better way or an improved way or to even learn where something may be suboptimal ... you might not necessarily learn the right way but you learn the wrong way. So it's about new insight or new information or new awareness.

... You can learn by experience, just learn simply by doing, both learning by something that has worked and learning by something that hasn't worked ... there's really three main parts, learning by a formal education way, learning from others, interacting with others, and learning on the job, learning by doing.

Interviewee 1 considered 'to learn' to be acquiring information and then presumably using it, although he did not actually say or link the two statements together to do things better. He recognised that learning is gaining experience of doing tasks, thus experientially, and that 'to learn' is to experience doing a task or solving a problem.

Therefore he knew implicitly that the 'to learn' act is problem solving. And in that respect, it might be taken as evidence that he described a mechanism for learning.

Organisation C

Interviewee 6

Learning is about the acquisition of knowledge and skills that you don't have ... It could be you have a knowledge level in a subject of one and you increase that knowledge level to two. It could also be that it is a learning of something that is brand new, for example, you can speak English, but you learn Mandarin, so it's the acquisition of something that's completely different. How does it happen within this organisation? ... It happens through experience of working on the job and the skills that you acquire during that; it happens through formalised training courses; it happens through vocational work, tertiary education, formalised sharing of knowledge about what people do and how they operate, informal gatherings of people who share knowledge and look at ideas ... there's a wide range of activities that occur in the organisation to enable people to learn more.

Interviewee 6 considered learning to be the acquisition of knowledge and responded to the question of the 'to learn' act by identifying it as: learning by doing or experiencing; learning by observing others; learning by interactions in a type of CoP; and through formal and informal learning. In that respect, interviewee 6 did not actually respond to the 'how to' part of the 'to learn' question.

Interviewees 16 and 17 (interviewed together in one session)

[16] *... The process of learning in this organisation is through a number of ways: ... traditional learning which is a type of classroom base where you have a facilitator who enables people to exchange information and imparts their own information to people. It also takes place experientially so they are learning on the job and they are learning from their peers. It also occurs through a desire to learn so where people find themselves facing new challenges, it may impact on them in terms of their job security so they see there is a reason to learn ... people are motivated by a lot of different reasons to learn ... self-directed learning and ... job security or the challenge of expanding their knowledge and experience into other areas of interest.*

[17] ... *learning is that - what you experience and having ... the courage to take that on board because everything that has happened to us in life is not positive so it is about taking the negative things that occur around us as well as the positive things and taking those on board and processing them and making some sort of changes, should we need to. In the organisation we are very cognisant of ... the mentality that we have ... where people still have that, "It's about training, we go to training" and we want to make that a gradual shift that people are looking at alternative ways of learning but also having the courage to learn from their mistakes because that is very important learning as well...*

[17] ... *to see, to observe, to hear; so we're using our senses, I suppose, to take in information and then we process that and then we act on that ...*

[17] ... *we make a decision ... and we take this piece of information and we process it and our action, it might be the same information as interviewee 16's but my action might be slightly different because I have my background and my experience so my action might be a little bit different to interviewee 16's because she has a different background and different experience. But you're processing that and acting on it physically and mentally.*

Interviewee 16 in her conversation indicated that it was a misconception that learning equals training.

Interviewee 17 explained that people take in sensory information, process that internally, and then use it. This is similar to the Guns' and Tobin's versions of learning as described in Section 1.5. Also, significantly, she recognised that because of one's background and experiences, the knowledge one would generate by integrating that input with that already stored would be different for different people, even though the information input might be identical. Thus, she implicitly expressed the impact of situated learning (Brown *et al.* 1989) and constructivism theories (Lave & Wenger 1991; 1996) on a person's personal knowledge base.

Organisation D

Interviewee 10

Learning ... is about becoming more effective, that whole dimension and understanding the environment you're in ... that is an element of understanding ... and an element of applying that understanding I suppose in the way you act.

In the organisational sense ... there are a million dimensions to this, I haven't thought about too much I suppose but certainly around the idea of capturing knowledge, so capturing experience and deploying that around the organisation, training, there's a lot of training for staff, so increasing skills, sharing skills.

Interviewee 10 articulated that learning is applying one's knowledge to accomplish a task effectively. Notwithstanding that, he seemed to have misinterpreted the 'how to' part of the question as the ways his fellow employees could learn.

Interviewee 11

... in this organisation, it happens in three ways: firstly there is self-learning that you do outside of your job, just in terms of your general reading; you might be doing external course-work of some type just off your own initiative for your own education, your own learning which may or may not be related to the work. The key one is probably when you are actually working. So when you're working on a project as part of a team: you're learning through other people you're working with ... you're learning from the other participants on the project so, as a young engineer, you'll learn to do some calculations and that will be reviewed and checked by a senior person ... so learning on the job. And the third way is where you've got formal training inside the organisation so you might have an induction course on health and safety or it might be a training course on the fundamentals of financial management or the project management or it might be technical training in terms of how to design a concrete slab using reinforced steel in different environments and who's the specialist engineer to be aware of ... the main one is learning on the job through experience; that's how you'll learn things and, particularly if you make mistakes, you'll learn from those a lot more than you learn from not making them.

How do you learn from experience? ... you come across a new situation, you deal with it, you'll either deal - have dealt with it positively or it's been successful or not as successful. If it's been successful you sort of store that away in your memory cells ... or it might be something that gave the wrong outcome so again you've learnt from that and therefore you'd have to modify your behaviour the next time a similar circumstance arises.

Interviewee 11 said there were at least three ways employees could learn in the organisation, self-motivated learning, experiential learning (that is, on the job learning through collective problem solving or team learning) and formal in-house training related to their jobs/roles. He explained that experiential learning occurs when a person learns by accomplishing a task. Regarding the new situation that he mentioned, his explanation of experiential learning, although clear, still left the new situation unsettled; the new problem would not be solved even after mistakes had been recognised and the learning process reviewed. Therefore no new knowledge or learning has been generated with reference to the framework adopted. My understanding of organisation D's interview responses with respect to the conceptual framework adopted for the conduct of this research was: interviewees explained that learning is about acquiring experiences for dealing with the next round of tasks, that is, problem solving in terms of operation or the mechanism of action as a process. They understood the term, 'mechanism of action' for the process of learning, or how a person would learn in an organisational setting.

Organisation E

Interviewee 15

... learn or learning is about gaining new knowledge, new skills, new attitudes and behaviour ... acquiring something ... which you didn't have previously. In the organisational context ... we provide some formal learning experiences so we organise training courses; we send people off to conferences; we have structured workshops. We acknowledge that within those structured facilitative sorts of sessions we have an expectation that certain things will be learnt so we have an objective for what some of those things might be. And there'll be lots of other things that they will learn that we

didn't even expect ... within the organisation we provide those structured experiences but we'll have so many others ... by people taking on new roles, by people working in different parts of the business, by working on special projects, just in day-to-day interactions with their managers and other people, they are going to learn new things ... a lot of the best learning in an organisational context doesn't necessarily come from, say, a training course. It might come from what happens just with people trying to work through their daily work and having interactions with other people, making mistakes and so on ... we try and facilitate that and make sure that we provide an environment in which people can learn things.

Interviewee 15 talked about experiential learning as, for instance, doing one's job, by observing others doing their jobs, as well as by solving problems together. However, he did not explicitly elaborate on the 'how to' part of the question.

Organisation F

Interviewee 14

*Learning to me is identifying new information or making connections to old information in a different way ... it is effectively how the brain takes in information ... It means that my brain has processed, catalogued, filed it, linked it with something** ... If somebody says I'm going to learn something, it suggests that they know they don't know something. So they have some level of conscious incompetence and then they are on a quest to identify it. Usually they have questions already formed ... learning is about having a question in the first place.*

... if you are talking about group learning, because group learning is generally in my view ... an outcome really of a series of behaviours and ... it's been learned based on other behaviours ... how learning transpires in an organisation is how people behave in certain situations and certain experiences ... for example, if you are teaching somebody conflict resolution skills, as an example, and that's the outcome you want them to have is the skills to resolve conflict and it's an organisational situation, then you would notice that it is not that there is no conflict, it is just that then people are in a position where they address it in a productive and healthy manner.

Interviewee 14 identified that learning is acquiring more information to fill a gap or uncertainty (a question or problem). She brought the notion of understanding into her first sentence and explained that learning is to gather information to tackle a difficulty, a task, or an issue. What Interviewee 14 said in the first three sentences of the first paragraph (earmarked by double asterisks**) was equivalent to my concept of 'to know' and to understand in the framework described in Section 1.5 of Chapter 1. However, she did not proceed to explain what the 'to learn' act is.

The second paragraph was more related to organisational learning than learning of individual human beings. Interviewee 14 therefore might have misinterpreted my question, how employees learn in an organisational setting, to mean how an organisation as an entity learns rather than the mechanism of action *per se*.

Organisation G

Interviewee 12

... to learn is to acquire knowledge, and skills via knowledge that you could find important in undertaking every day duties ... and within the organisation ... it's about formal learning which people can undertake, or informal learning which they sort of seek through their own, at their own pace, their own time, within their own space of what they need to understand, or what type of knowledge they require.

... on the job learning, where the person starts doing something and requires some knowledge of particular things. Of course it needs to be driven by the organisation as well, through planning processes and understanding the skill set of the person, or educational background of the person, and help and assist that person in acquiring knowledge that could be in some advancement in their performance on a daily basis ... as a human being it's a natural instinct to be exploring things and wanting to learn more, wanting to understand how things work and how the others interpret the same concept for example, in the workplace, interpretations of certain events or certain deeds ... with their understanding of gaps in their knowledge and what type of knowledge they need to apply and then it's about changes, how they go about applying that knowledge, and that would be say asking for mentor coach, someone who can actually demonstrate

how to apply that knowledge and how to use that knowledge. But of course it is formal learning, enrolling into a course, some sort of formal type of informal setting environment and then of course it is informal learning, when someone picks up a magazine, likes the heading of the article and reads it and learns something from it. The other thing is also learning from each other, which is a very important component ... more informal type of learning as well.

Interviewee 12 expressed her belief that learning is about acquiring knowledge, applying knowledge to do a job, or to carry out duties effectively, therefore she recognised what 'to learn' or 'learning' is. Her explanation of the 'how to' part of the question was embedded implicitly in her response. However, she might not have known the mechanism to describe it clearly or she might know but could not express the process verbally. This is perhaps akin to tacit knowledge.

Organisation H

Interviewee 13

... learning ... is something that is a natural thing for human beings ... we naturally respond to circumstances by developing knowledge, skills, awareness Sometimes we do that as a deliberate choice so that's where we might actively engage in a learning experience and sometimes we just do it, like little children who are learning to talk or to walk, it's not an active choice to do it, it's part of that human condition. So that's pretty much my sense of learning, it's almost that evolutionary development that takes place in a human. In a workplace ... people tend to think of the learning that goes on as the deliberate learning, when it is that somebody flags to you, you are now learning something or when you make a choice that says I am now learning something, that I believe that in a workplace as well learning is something that's happening whether we're conscious of it or not. Sometimes we're learning good things sometimes we're learning bad habits but we're always learning, it's part of the natural human condition.

Interviewee 13 regarded 'to learn' as to know, or to be aware, or to pick up or imbibe information. She made the point elsewhere in her conversation that learning is living and vice versa as well as that it is a natural growth and maturation process; we change

in response to the environment. However, she did not answer the 'how to' part of the question.

4.1.3 Conclusion to Section 4.1.2

From the data presented in Section 4.1.2, it was concluded that the majority, if not all, interviewees of participant organisations recognised that the 'to learn' act is the application of acquired knowledge to tackle a task effectively and thus it is experiential (Kolb 1984) as discussed in Section 2.1.7. However, not all of the interviewees recognised the act of applying knowledge to tackle a task as operationally equivalent to a problem solving act (Guns 1996; Tobin 1997; 2000; and as reviewed and discussed in Section 1.5 of Chapter 1 and Section 2.2.1 of Chapter 2).

Another emergent issue was that interviewees might have difficulty in comprehending the terms used in the question, and thus it might present a generic problem which affects adversely my intention of extracting a targeted response from all interviewees. In other words, it is a problem of communicating a message to the recipients in an unambiguous way, which accurately conveys my intended objectives for asking that question. Thus, with reference to the part of the question I put to the interviewees on the mechanism of action for the 'to learn' act in an organisational setting, most of them interpreted it to mean the avenues, routes, or ways available in the organisation for people to learn.

The results exhibited by the interview excerpts with respect to the 'what is' and 'how to' of the 'to learn' act are represented in Yes/No answer form in Table 4.1.

Table 4.1. Summary of interviewee responses

Org	Interviewee	Did interviewee discuss or elaborate the 'what is' part of the 'to learn' act question? Yes, No, or Maybe	Did interviewee discuss or elaborate the 'how to' part of the 'to learn' act question? Yes, No, or Maybe
A	2	No	No
	3	Yes	No
	4	Yes	No
	7	Yes	Maybe
B	1	Yes	Yes
C	6	Yes	Maybe
	16 &	Yes	Maybe
	17		
D	8	Yes	Yes
	9	Yes	No
	10	Yes	Yes
	11	Yes	Yes
E	15	Yes	Maybe
F	5	Yes	No
	14	Maybe	No
G	12	Yes	Maybe
H	13	Yes	No

Table 4.1 summarises interviewee responses to the questions of the 'what is' and 'how to' aspects of the 'to learn' act. The conclusion of 'Yes' or 'No' indicates whether or not the interviewee discussed his/her ideas in relation to the question; and 'Maybe' indicates that it was not entirely clear what the interviewee said in his/her response related to the question asked.

4.2 Part B: leaders' knowledge and understanding of the 'to innovate' act

The question asked of interviewees was: what is 'to innovate' or what is innovating and how would it happen in an organisational setting? That is, what would be the mechanism of action for the act of 'to innovate' or innovating within the confines of an organisation?

4.2.1 A summary of interviewees' responses to questions on the 'to innovate' act

The interviewees' responses to the question are summarised as an introduction to the excerpts of interview transcripts. My analysis and interpretation follows each excerpt as exhibited in Section 4.2.2.

With respect to organisation A's participants, interviewee 2 did not respond directly to the question. However, he considered innovating to be primarily associated with improvements on what already existed. Interviewee 3 acknowledged that innovating in their organisation means to improve what they do by various means. Interviewee 4 did not fully explain what innovating is; his explanation of innovating meant to improve efficiency. He also highlighted that his organisation had no statutory requirement to innovate. Interviewee 7 considered innovation to be improving on what they are doing.

Interviewee 1 of organisation B considered that to innovate is to improve on what one is doing, probably by adopting new knowledge or inventions that other people had discovered, but also by making use of what one discovers from one's own work. However, he did not articulate explicitly his thoughts on the mechanism of action for innovation.

With respect to organisation C's participants, interviewee 6 considered that innovation could span a spectrum, doing the same thing but in different ways. Based on his conversation, he probably knew what 'to innovate' is, but he could not explicitly describe how it would occur or happen in an organisation. Interviewees 16 and 17 believed that innovating is to bring in new ideas to a situation, but they did not elaborate explicitly on what it means and how it occurs. As an observation, I noted that

interviewees sometimes used the term 'new ideas' in place of 'new knowledge' as if they were the same. However, these two terms should be clearly differentiated, as outlined in Section 1.5 of Chapter 1.

With respect to organisation D, interviewees 8 and 9 knew what innovating means but they might not be cognisant of its mechanism of action and could not articulate it clearly in their conversation. Interviewee 10 recognised that innovation could span a spectrum and interviewee 11 knew what innovation is and how to invent or generate new knowledge. So, in short, they knew what innovating is, but not all of them could articulate clearly the mechanism of action for the 'to innovate' act.

Regarding organisation E, interviewee 15 knew what innovation is; he knew innovating involves problem solving. Therefore he recognised that learning and innovating share the same operation (i.e. solving problems) and thus they have the same underlying mechanism of action. But he did not elaborate further on the idea that for innovating or inventing, the problem to be solved needs be new to distinguish it from the 'to learn' act.

For organisation F, interviewee 5 did not provide a direct answer about what innovating is, rather she implied that innovation could encompass a range of factors. She did not answer the mechanism part of the question. Interviewee 14 considered that innovating is improving on what exists and does not involve creativity. To her, innovating was a sort of trial and error exercise to see what could and would emerge to find better ways of doing things.

Interviewee 12 of organisation G placed innovating at the end of an innovation spectrum, equivalent to improving on or streamlining what one is already doing in one's job.

Interviewee 13 of organisation H did not respond to what innovating is and how it would occur. She pointed out that 'necessity is the mother of all inventions', and therefore inventing or innovating must originate from a need. Resolving a difficult issue or problem could be regarded as a corporate necessity in her organisation and thus

would be considered a sort of innovation. So, in that respect, she recognised that innovating is a sort of problem solving.

A summary of responses relating to the 'to innovate' act is provided in Table 4.2 below.

Table 4.2: Summary of interviewees' knowledge and understanding of the 'to innovate' act

Org.	Interviewee	Did the interviewee discuss or elaborate the 'what is' part of the 'to innovate' question? Yes or No, or Maybe	Did the interviewee discuss or elaborate the 'how to' part of the 'to innovate' question? Yes, No, or Maybe
A	2	No	No
	3	Yes (To improve)	No
	4	Yes (To improve)	No
	7	Yes (To improve)	No
B	1	Yes (To improve)	No
C	6	Yes	Maybe
	16 & 17	Yes	No
D	8	Yes	Maybe
	9	Yes (A spectrum)	Maybe
	10	Yes (A spectrum)	Maybe
	11	Yes	Yes
E	15	Yes	Yes
F	5	No (A spectrum)	No
	14	Yes (To improve)	Yes (A special form of problem solving)
G	12	Yes (To improve)	No
H	13	No (To improve)	No

Org. = Organisation

Table 4.2 summarises interviewee responses to the questions of the 'what is' and 'how to' aspects of the 'to innovate' act. The conclusion of 'Yes' or 'No' indicates whether

or not the interviewee discussed his/her ideas in relation to the question; and 'Maybe' indicates that it was not entirely clear what the interviewee said in his/her response related to the question asked. 'To improve', when shown in brackets, means that the interviewee's notion of 'to innovate' was to improve on the existing product and 'a spectrum' denotes that the interviewee recognised that innovation could cover a range of elements.

Excerpts of interviews exhibited in the following section were those of interviewees 3 and 4 of organisation A, 1 of B, 6 of C, 11 of D, 15 of E, 14 of F, 12 of G and 13 of H, being representatives of their respective organisations.

4.2.2 Excerpts and interpretation

Organisation A

Interviewee 3

To innovate is to constantly reflect on the way you go about things and to identify things that you might be able to do to get better at certain things, and innovation is about new ways of doing things, and it's not just about coming up with those new ways yourself, it's also about going out and seeing what's available to help you do things better. But it is a process of assessing the things you do at the moment, why you are doing them, what you are trying to achieve by the things you are doing at the moment, looking for alternative ways to do those things, but ultimately more efficiently and more effectively.

Interviewee 3 said that they constantly review what they are doing and change accordingly in order to improve. He implied that the word 'new' is used to indicate 'changed' and thus new ways of doing things is changed ways of doing things or vice versa. But with reference to the conceptual framework described in Section 1.5, to change for the better is not to innovate because the resultant change or upgraded object remains arguably the same.

He also considered innovation to be searching for new ways of doing things from outside the organisation and then adopting them to do their own things. Adoption of

invention is not inventing or innovating as discussed in Chapter 2. And doing things differently is not the same as doing different things; doing things better is not the same as doing better things.

It also emerged in the conversation that organisation A did not have a need to create new things because it was not their job, they could just copy from others as a way of bettering themselves. Clearly what interviewee 3 said was that their aim/objective to enhance productivity was to improve what they are doing but not to create a new way of doing it.

Interviewee 4

We have innovation as a company value ... we very much encourage people to come up with not necessarily new ways of doing things, but the right ways of doing things ... it's probably easier to demonstrate by example ... for instance ... we used to spend a lot of money engaging external recruitment suppliers. That was costing us around about \$12 - \$13,000 per recruitment assignment to do that. What we did was I asked for a 12-month trial on having someone as an in house recruitment coordinator. Within six months it was validated that we would get significant cost savings through that ... That changeover has brought us down to costing us around about \$3500 per assignment ... at a much higher volume of assignment ... that's probably an example of innovation. That sort of thing tends to get replicated around the business just in terms of the processes, what's the best way of going about this particular process? This is an innovation that we see in this particular building ... we had an imperative given the growth of our employment population and wasn't tenable to house all the people ... 12 months ago ... about 405 people onsite per day in the office ... So what was the option ... there were a number of alternatives ... putting together this prefabricated building is the quickest cheapest thing that we could do and given that we have the available land on the site to do it ... that was an innovation.

... we don't have a specific process per se ... to pursue innovation. It's more around a culture of pursuing it.

Interviewee 4 implied that their organisation does not have the statutory requirement to innovate or to be innovative, but nevertheless innovation was a value that their

organisation aspired to. He took the word innovation to mean a changed way of doing things for more efficiency, but changing efficiency of production is not innovation with reference to the conceptual framework adopted for this thesis. Thus, interviewee 4 did not provide an explanation of what innovating is, although in the course of his conversation he has implied that innovation might be something re-newed or entirely new. In terms of the example he provided to illustrate his notion of an innovating act, a changed recruitment procedure/process resulting in cost saving was not an innovation with respect to the framework. Neither was building a pre-fabricated building to house more staff.

My overall analysis of the interview excerpts from organisation A was that the organisation did not have the statutory requirement to innovate or to be innovative, although they aspired to be more efficient. The leaders encouraged employees to do their jobs correctly, but the right ways of doing things is not equivalent to the right things to do; neither is the new way of doing things the same as the new things to do.

Organisation B

Interviewee 1

Innovate to me is to do something differently, whether it's something you do, whether it's a process, that to change the way something is done for a better result and typically attached to something that you've been previously involved in. So not necessarily something totally, totally new, it might just be changing the way you do something. So taking new information and adjusting things to do something in a different way that improves the result.

... typically, it happens because of new information; either two people exchanging information that allows one or the other party or both parties to see something. Sharing information in a different way. Equally just an organic idea about how something can be done differently that may occur. Sometimes it occurs by happenstance, something happens in a different way and produces a better result just through chance and people take advantage of that.

Interviewee 1 considered that 'to innovate' is to improve or to have a better outcome of the task you do, but not necessarily totally new or different from what you do. The excerpt shows that what the interviewee meant by innovation is: picking up new knowledge or inventions from somewhere and applying them to one's own work. This is more like adoption to improve rather than innovating to create something new. But in terms of the mechanism of action, interviewee 1 implied that innovating is problem solving. This view is held by others, including Rogers (1976) Kimberly and Evanisko (1981), and Damanpour and Schneider (2006).

Another aspect of the interviewee's notion of innovation is that innovation is making use of new experience/knowledge that emerges from one's work unintentionally or accidentally in order to achieve better results. This could be interpreted to mean that he might have the understanding of applying new discoveries to create new things as ways to invent or innovate.

Organisation C

Interviewee 6

Innovation is really ... to do something in a way that can be different or quite different from what's been done before, or to do something that people have been used to doing in a certain way and they may do an innovation to that, they look at a brand new way of doing it, they change systems, they change procedures. Generally speaking, innovation is around concept; it's a recognition of something being done differently and not necessarily done in a traditional way. It could also be innovation looking at a non-traditional way either for the sector or for the organisation.

How does it happen here? ... We'll use our own ideas; we'll look at what is done by other organisations to see whether we can implement them here; groups will have meetings of work together to try and look at new and different ways of doing things. So innovation is about looking for new, different ways of doing either what you currently do or to do something completely different.

Where it is exactly the same as it is now, I'm not sure if that can be innovation.

.... if you're doing exactly what you're doing, you're not innovating, are you? So it has to be something that is different or is likely to be changed. I'm happy for someone to use an innovative thought. You're talking about innovation as creating something new, but there can be innovative thought that reviews a current process ... you may bring an innovative thought to a process, but leave the process exactly where it is because it works out that you don't need to change it. But if you're actually going to innovate, it has to be different, so the innovative thought is a different thought to review ... but if there's no change or there's nothing different, I don't think you can have innovation.

... for example, you've provided air-conditioning in the past by opening the windows, which was the standard of Australian cars ... and suddenly someone says, "This is not a sensible way to cool cars, we should actually look at something quite different to cool a car" and you end up with introducing an air-conditioning system. Then you've still got a Holden car and you've still got a cooling system, but is air-conditioning innovative? The answer is, I'd say, yes, it is.

Interviewee 6 argued that there could be various ways of doing things; it could be via traditional ways (improving) or via non-traditional ways (innovating). The interviewee referred to innovating as different ways of doing things. It was doing the same thing but in a different way. And he implied that innovation could span a spectrum of being different.

Interviewee 6 also discussed how different things need to be changed so as to qualify as being innovative. He contended that being innovative would depend on the level of assessment or the focus for comparison. Air conditioning in a motor car could be considered innovative, being an innovation with respect to the internal temperature-control function of a car; but it was not an innovation with respect to the motor car as a functional unit for transportation. The in-car air conditioning was a standard accessory in many overseas manufactured cars but a new addition or improvement to an Australian produced car as the unit of assessment. Thus interviewee 6 might be regarded as cognisant of what innovating means, but the example he gave did not clearly demonstrate his knowledge of the 'to innovate' act.

Organisation D

Interviewee 11

... Innovation ... is a step-change from the way you normally do things or your line of thinking. So maybe you do a particular task: step 1, step 2, step 3; an innovative way would be ... you come up with a new way of doing ... to get into the same outcome but using a different approach, different methodology or ... whatever ... how do you innovate?... you need to be exposed to a lot more things than you normally would be exposed to in terms of doing your normal activity ... that do not appear to be at all related to the activity that you're doing which can sort of trigger some of the thinking... to actually draw together disparate things and come up with something which is different and unusual in the context of what you're normally doing.

... for example, people who have multiple places where they've been brought up, where they've been to school or been in different cultures ... they can draw on those different things to bring that to bear in a particular case ... the person who has been exposed to the other ideas, other concepts, other cultures, other behaviours, other experiences is more likely to be able to come up with something different than somebody who ... hasn't had those experiences.

... they may not have actually been looking at the particular issue in those other locations ... but they've been exposed to different things and therefore that lets them ... look at something from a different perspective even though they haven't looked at that particular ...

The exposure ... the exposure to different things, the different things don't have to be at all related necessarily to what the problem is that you're trying to solve it's just that increasing your exposure to a range of things gives you a bigger ... a database in your brain - to draw on to try and come up with a solution to a particular issue.

In the first paragraph, interviewee 11 said innovation is an improvement of an existing thing. The change (improvement) may not follow the same route, but a different path/route to arrive at the same destination or outcome. So, in that respect this is not innovating with reference to the framework described in Section 1.5. The improvement

process he envisaged involved the acquisition of a diverse, broad knowledge base. This underwent a synthesis of the diverse collection of data and information to emerge as a possible solution to generate something that would be different or unusual in the context of what one would normally be doing. This indicated that creativity would be involved and what emerged as a result would be distinctively different from the norm. This would be consistent with the involvement of creativity in the process of inventing or innovating as discussed in Chapter 2.

His notion of innovation was emphasised again in the second paragraph of the excerpt provided, in which he stated that diverse knowledge and experiences would help a person innovate and come up with more liberated ideas by the synthesis of experiences.

The third paragraph shows that the interviewee knew what innovation is. According to interviewee 11's view, innovation was about solving original problems, not about solving the same problems in different circumstances, times, and/or places.

The conversation showed the interviewee's emphasis on the involvement of knowledge and experience in the process of solving new problems, as discussed in earlier chapters.

Organisation E

Interviewee 15

... innovating is to find new solutions, new ways of working, new products or concepts or services that haven't been previously considered.

... we want to facilitate a process whereby people are encouraged and are put in situations where they can find new ways of doing things ... and that we then apply those new ways of doing things, whether it be a new process or whether it be a new technique or new tool or something like that ... it's that process of trying to go from there being a need to solve a problem to get to that way of solving the problem.

Based on the conceptual framework adopted for this research (as described in Section 1.5), my query on interpreting what interviewee 15 said in the first paragraph, was:

what would be a new way? Was it an alternative, a different direction, or a different outcome? The word 'new' required more accurate definition to clarify what it meant. Notwithstanding that, the first sentence seems to provide a sort of qualification for the 'new way' as that which had not been previously considered.

The second paragraph shows that he believed that innovating is a form of problem solving, but he did not proceed to specify that the problem concerned needed to be a new problem in order to make the problem solving an act of innovating or inventing. However, combining what interviewee 15 said in the two paragraphs, it would be reasonable to infer that he knew the 'what is' and 'how to' of the 'to innovate' act.

Organisation F

Interviewee 14

... innovation is taking a different view on something that has already occurred before. It is a modification of an already existing system, product, something. So innovation is finding new ways to do something with something that already exists ... and it's different to creativity, in that creativity is generating something new from nothing. Whereas innovation is taking something that already exists and modifying it, so as that the outcome becomes a slightly different way.

... it's another form of problem solving. But what distinguishes it is the lack of attachment to the outcome ... Problem solving is generally we want x outcome. Whereas, innovation is let's see what we can do with this thing. So the end is open ... there's no key defined solution or modification. It just becomes open ended and you see what you can create. So that's innovation.

Interviewee 14 considered innovation to be changing something for the better, without necessarily involving creativity. In this respect, what she considered to be innovation would be improvement, and not innovation with reference to the conceptual framework adopted in Section 1.5, or according to Rogers (1976), Kimberly and Evanisko (1981), and Damanpour and Schneider (2006).

She stated that innovating is a special form of problem solving where the outcome of the process might be undefined. It was therefore not the same sort of problem solving where the outcome could be clearly defined, such as fault finding and rectifying the faults or quality improvements. Integrating what she said in the two paragraphs, it seemed that her notion of the 'to innovate' act is to apply new ways of doing things to solve problems relating to something that already exists, to find out what would emerge. In this respect, her notion of innovation contradicts that adopted for the conceptual framework of this thesis.

Organisation G

Interviewee 12

... innovation is about not inventing something new. It's really about changing current practices or processes to make the outcomes more achievable in a different way, in a more, could be cost effective way, it could be more reducing the workload but at the same time achieving the same output, the same result ... every individual has ability to innovate and to do it on a daily basis; for example, at any level, it could be an admin person starting to set up the process a bit differently, skipping certain things saying that it saves time, it reduces paper load, we'll do it for example online rather than do it paper based. So in organisations that understand the importance of innovation and providing resources for people, so people can understand what it's all about and they can practice that, I guess people innovate all the time.

Interviewee 12 said to innovate or innovating is modifying the practices currently in use so as to achieve the same outcomes more efficiently. In other words, it is improving the process for productivity gain. The interviewee's idea of innovation was therefore at one end of the innovation spectrum. Interviewee 12 said that just by changing the process slightly would amount to innovation. In her way of thinking, streamlining or modifying the process slightly would be innovating.

Organisation H

Interviewee 13

In general ... there's something innate to humans which is a creative side and a desire to better things that I think we see in the fact that human society has evolved over time, sometimes through necessity, where we have to, where our means is taken away from us we need to feed ourselves and so we have to find a new way of doing it and sometimes simply for the challenge of bringing new ideas to life, so again I think that there's a human drive that exists naturally. I think in some cases it's squashed out of people so I don't know if that's what you're looking for, but that drive to continuously improve or to create something new, or to do things in your own way, slightly different to what others have done before you, I think, is the driver there.

Interviewee 13 did not directly answer the question relating to what the process of innovation is, but identified instead the nature of, and motivation for, innovation. She pointed out that 'necessity is the mother of all inventions' and resolving a difficult issue or problem might be necessary in the organisational context as a starting point for innovating.

4.2.3 Conclusion to the Section 4.2.2

Practically all interviewees recognised that 'to innovate' involved changing for the better in whatever they do. A number of them also recognised that 'to innovate' included the emergence of new or original outcomes. I observed that those who recognised that innovating encompasses a spectrum of new outcomes probably also knew the 'how to' or mechanism of action for the 'to innovate' process.

4.3 Part C: leaders' knowledge and understanding of the link between the 'to learn' and 'to innovate' acts

The rationale for asking the interviewees to elaborate on the relationship between 'to learn' and 'to innovate' was explained in Section 1.5 of Chapter 1. The premise here is that the two acts share a common underlying operation (i.e. solving problems, resolving

issues, or removing obstacles to achieving an objective). The difference between these two human intellectual activities lies in the nature of the problems, issues, or obstacles a person attempts to overcome. In the 'to innovate' act the problems, issues, or obstacles would necessarily be new, whereas they might not be in the 'to learn' act. The objective of Part C was to ascertain if the interviewees could identify the underlying operation of the two focal acts, 'to learn' and 'to innovate', and articulate how they would differentiate between them (as illustrated by the conceptualisation in the Venn diagrams of Figures 1.1 and 2.1).

Questions asked of interviewees were: how would you envisage 'to learn' to be linked or related to 'to innovate'? Also what would be your thoughts on how learning in an organisation would lead to innovating?

4.3.1 A summary of interview excerpts

As an introduction to the data presented in this section, a contextual summary of the interviewees' responses follows. The interviewees' answers in terms of Yes/No to the questions asked are presented in Table 4.3.

For organisation A, interviewee 2 acknowledged that the two acts, 'to learn' and 'to innovate', are linked but he did not explain what the nature or mechanistic basis of the linkage is and how it operates. Interviewee 3 considered that the two processes are linked because for innovation to occur one would need to go and learn new and different ways of doing things in an organisation. Interviewee 4 did not respond to how the two processes are linked. Interviewee 7, like interviewee 3, reasoned that when people learn, they attempt to find out better ways of doing things. To her, innovating was doing things in better ways, creating the linkage or connection between them.

Interviewee 1 of organisation B described the linkage to be applying the outcome of learning to perform tasks better. Accordingly, if the knowledge to be applied is new (presumably that would be the outcome of a new knowledge generating operation or invention) and the tasks that the knowledge would be applied to are authentically new tasks, then he would have identified precisely the linkage. Apparently, based on my

observation, he had those thoughts but did not explicitly articulate them in a way consistent with the conceptual framework described Section 1.5 of Chapter 1 for innovating or inventing.

The interviewees of organisation C (interviewees 6, 16 and 17) did not answer directly the question of how 'to learn' and 'to innovate' would be linked in terms of an underlying mechanism of action.

Interviewee 8 of organisation D did not explain the interrelationship, but he articulated the link, being the emergence of new knowledge for innovation. Presumably new knowledge would emerge from the process of learning, and so that is where the link lies. And interviewee 10 considered problem solving to be the common mechanism linking the two processes.

Regarding organisation E, interviewee 15 knew and explained problem solving to be the common mechanism for the 'to learn' and 'to innovate' acts.

Interviewee 5 of organisation F believed that one can generate new ideas by learning, and under the right environment new ideas could lead to innovation and that, to her, would be the linkage. But she did not explain the common operational basis for the two processes. On the other hand, interviewee 14 apparently knew the linkage and clearly expressed it.

Regarding organisation G, interviewee 12 also recognised the linkage to be problem solving as it is the common operation for the 'to learn' and 'to innovate' acts.

With respect to organisation H, interviewee 13 considered the two processes to be linked because by innovating one also learns as a result. However, she did not explain how they are linked in terms of their mechanism of action. Interviewee 13 reasoned that: whenever one invents or generates new knowledge or solves a new problem, one inevitably learns as the outcome of that experience. On that basis she considered 'to innovate' and 'to learn' to be linked. She related them for what these processes are but not on the basis of how they actually operate.

Table 4.3 details interview responses in relation to the identification of the interrelationship between 'to learn' and 'to innovate' acts and how interviewees considered the linkage would operate.

Table 4.3. Interviewees' responses to their identification of the interrelationship between 'to learn' and 'to innovate.'

Org.	Interviewee	Was interviewee able to discuss or elaborate on identifying the nature of the linkage?	Was interviewee able to discuss or elaborate on the mechanism of action, i.e. how the linkage works?
		Yes, No, or Maybe	Yes, No, or Maybe
A	2	No	No
A	3	No	Maybe
A	4	No	No
A	7	Yes	Maybe
B	1	Yes	Maybe
C	6	No	No
C	16 & 17	No	No
D	8	Maybe	Yes
D	9	No	No
D	10	Maybe	Yes
E	15	Yes	Yes
F	5	Yes	Maybe
F	14	Yes	Yes
G	12	Yes	Maybe
H	13	Maybe	No

Org. = Organisation

Excerpts of interviews presented in Section 4.3.2 are those of interviewees 3 and 7 of organisation A, 1 of B, 6 of C, 8 of D, 15 of E, 14 of F, 12 of G, and 13 of H.

4.3.2 Excerpts and interpretation

Organisation A

Interviewee 3

I think you have to give individuals in an organisation the direction to innovate so there needs to be a culture in an organisation that says this is something that we want to do ... and then you need to give them the tools to innovate, so you can't look at new ways of doing things unless you are out there talking to other organisations, going to seminars, doing academic study, whatever it might be, and having access to science and then encouraging the individuals to take that learning and new understanding and make it come to life within your organisation so that you are doing things differently and ... so you have an outcome that says you do things more efficiently and/or more effectively ...

Interviewee 3 said that people in the organisation are encouraged to learn in various ways and they apply what they learn to do things differently in the organisation. This enhances productivity, as directed by the organisation, but would not necessarily open up new areas of business. Interviewee 3 considered changed ways of doing something as innovation. He did not directly answer the two questions I asked him but he did imply a link between innovating and learning.

Interviewee 7

It is very important within organisations to have as much learning as they require to do their work. When people in organisations have the appropriate training and learning opportunities, they can find and identify areas within those processes that could be improved through innovation ... more learning enables, in my opinion, better innovation.

By observing how things are done currently, you can look at how they can be improved. Particularly if somebody new comes into an organisation or a team or a department and learns the process, they can often find it easier to identify areas where there could be improvement, so opportunities for innovation.

Observation, practical experience and practical applications, so they undertake the same process, they could identify, potentially, areas where that process can be improved. Also by auditing those processes as well, so if you review those processes regularly, there can also be areas where they can be improved and innovation can be applied.

Bearing in mind her notion of innovation as new and better ways of doing the same tasks, interviewee 7 articulated that when people have the chance to learn, they could and would find ways to improve their way of doing things. This presumably would be her view of a linkage. But she did not explain what it is and how it would operate between the two acts.

The second paragraph provides some clues to her reasoning of how the linkage would work. She believed that outsiders would come into the organisation to observe with their fresh eyes and find ways of improving the way things are currently done.

Admittedly, as discussed in Section 2.3.3, lead users (von Hippel *et al.* 2001) from outside could do that and provide some sort of fresh ideas. But she did not actually provide any examples of outsiders who had been able to do that in organisation A.

She reiterated her own view that innovation is simply improving ways of doing things in their organisation. But there was no elaboration on the linkage between the 'to learn' and 'to innovate' acts in terms of the underlying mechanism of action.

Organisation B

Interviewee 1

Learning really leads to innovation when the person chooses to apply the learning to the way they go about their work. So I see it as second nature.

... how it happens as a process, there's a number of different ways that it could happen ... it would involve an individual taking a decision to apply something they now know or apply a new way of doing something to an existing process and then either doing it themselves or discussing it with others and influencing others to take a decision to do something differently.

Interviewee 1, in the context of his conversation, believed that it is human nature to apply new information, new experiences, and new knowledge (that is the outcome of learning) to perform their tasks better. To him, this is innovation, so that would constitute the linkage.

Interviewee 1 identified what he considered the linkage to be. For the 'to learn' act to lead to the 'to innovate' act, someone would need to apply some new information, picked up in the course of acquiring information/data, to an existing process/task to secure a better outcome. However, that was akin more to improvement than innovation. With reference to the framework described in Section 1.5 of Chapter 1, I would consider interviewee 1 to have clearly described the linkage *if* he had said to apply the learning to uniquely new problems or to tackle totally different areas of business that did not exist before. To innovate is to apply knowledge (both new and/or existing) to tackle an authentically new task or problem.

Organisation C

Interviewee 6

If you learn, an individual will operate in the same way ... the individual has no additional knowledge and the process is unchanged ... Where there is some form of intervention, either because there is a need to shift the process ... or someone comes in who happens to look at the process in a different way, then learning, the acquisition of knowledge, means that you have the capacity to then think in another way ... means that you will look at a process in a different way. The way that happens in organisations is that new people arrive with different ways of doing things, existing people acquire new skills either through their own learning or through their own experience and that can be either within the company or stuff they've gained outside of the company ... For learning to occur, there will be a need that generates it. It may just be the individual's personal desire to want to do something different or to learn more, but without learning or the acquisition of new knowledge you are unlikely to get a change.

What interviewee 6 said of the linkage was that one must have a need in order to learn, and gaining new knowledge would lead to changes or improvements in the things that

one does. But changes or improvements are not innovations, as explained in Section 1.5. Therefore, interviewee 6 did not directly answer the questions asked.

Organisation D

Interviewee 8

... I think "Innovation" actually implies learning ... if innovation is about bringing together some disparate insights to bear on a particular problem or need, or opportunity today, the ability to recognise those insights from different fields of activity, is itself a piece of learning ... an oft-quoted definition is innovation happens at the boundary of disciplines ... that's certainly true, that's quite consistent with my observations, so where you push two traditional disciplines of learning up against each other and you force some interaction across that boundary, very often that's where the insights happen, a piece of learning from one discipline can be transferred in some way to another discipline and the result is "Innovation" to a problem that sits at the boundary of those two disciplines, whether it's a couple of engineering disciplines or physics and electronics, or medical science and electronics or ... the insights might be a little bit smaller but definitely I'm of the view that a great deal of innovation happens when you push traditional fields of endeavour together and learn across that boundary of innovation.

Interviewee 8's notion of innovation could be considered equivalent to invention, as described in Section 1.5 of Chapter 1. He equated the emergence of new knowledge to innovation, and for him innovation happened when insights, critical thoughts or intelligence transcended different human knowledge domains. Interviewee 8 said innovation implies learning, which generates new knowledge. He also implied, but did not actually state, that problem solving represents the mechanism of action for the relationship between learning and innovation. This is consistent with the framework described in Section 1.5 of Chapter 1.

Organisation E

Interviewee 15

... when we learn something new, a new skill, a new way of doing something, then that provides access to new ways of doing things. We might then look at a problem we've got in a new way. We might have learnt a new technique or we might have learned some new knowledge, and then we can say: okay, that's something that I could maybe now apply to this problem I've got and so innovation may occur because we've learnt a new piece of knowledge or a new skill ... in a simple way I think that learning new things helps to encourage that innovation process within the business ... that's the simple answer.

Interviewee 15 said that applying new knowledge or technology (or inventions) to tackle tasks or problems resulting in a change is innovating. He thus implied that solving problems was the mechanism or the linkage that joins the learning act with the innovating act. However, theoretically the problem or task to be solved or tackled by applying what has been learned needs be a new problem. This linkage could indeed be identified as a linkage between the learning and innovating acts. That is applying new knowledge to a new problem. He did not elaborate on this aspect. However, he probably had tacit understanding that 'to learn' and 'to innovate' or 'to invent' share problem solving as their operational basis.

Organisation F

Interviewee 14

Learning and innovating are the same except learning is something that an individual does internally, whereas, innovation is the product of the internal being externalised. So learning equals innovation, innovation equals learning. You can't have one without the other ... The only difference is what is the output, what do I do with the learning equals I apply it to modify something which means you see that I've done something with the learning, i.e. I've innovated. But you could equally say that I innovated in my mind to conceptualise a different way. To me that's the same as a process if you like, as learning but one is internal and one is external ... I'm verbalising something that I haven't

actually thought before, so I probably have further ability to articulate certain things about it.

Interviewee 14 recognised that learning is in fact problem solving by nature and problem solving in general is applying what one learned to tackle a problem including new or not-new problems. Interviewee 14 considered that one can create a new hypothesis or mental framework (or paradigm) as an expression of being innovative (that is, new thinking, new thoughts, new ideas, but not only new ways of physically doing tasks or performing something). Thus, reflecting on generating new frameworks of thoughts, ideas, theories, schemes, and plans. is also applying newly acquired information/data to certain tasks and it is thus learning. And if this new framework of mind or thoughts has no precedence or has not existed before, then it is new learning or new knowledge or invention. The application of this invention to constitute a new product is innovating, as explained in Section 1.5, Chapter 1.

Organisation G

Interviewee 12

Absolutely they are linked but it's not to say that the more you learn the better you innovate. It doesn't have that level of correlation. I guess learning provides you with the knowledge, or how things could be done, or a bit of technical background to particular issues. Innovation is about again understanding how your workplace works, we're talking about workplace innovation and how acceptable it could get, or unacceptable, improving your processes or advancing things in certain ways. For example the university, we teach, and of course most teaching innovation, it's really to help learning. Because we are looking at ever-changing environments where the students change, technology changes, we change as individuals as well, because we carry our own personal experiences and that's why innovation's so important – to be able to meet their needs and change in demands that surround us, and you couldn't do that unless you exercise innovation ... the world is so fast for example, if I sit here and wait for my students to come it's not going to happen. Maybe I should go online, maybe I should use my mobile, maybe I should SMS them. Instead of giving them books, maybe I should be saving the materials on a CD or on a memory stick, that type of innovation ... is an

example within the organisation, in particular ours as an educational institution. But as I say there's also innovation at management level. Do I have my performance management reviews that seem to be more of a punitive measure, than actually some good conversations around what we're doing, why we're doing it, and etc. So for that ... you need to improve your knowledge of what's possible, what type of things you could be doing, or bringing together to improve your performances.

What interviewee 12 said was that innovation is basically a coping process, adapting to the changing environment by the adoption of available new technology and innovations. We as human beings change and adapt as the environment changes. We adapt and change through learning (acquiring more knowledge by solving problems) and use our acquired knowledge to fit the changed environment. In other words, we solve problems that emerge (and that amounts to inventing or innovating if the emergent problems are nascent or new). The interviewee's articulation supported her notion that innovation is improving or changing for the better. The interviewee did not directly answer the questions about the mechanistic linkage between the 'to learn' and 'to innovate' acts as such, but she implied that the link is through the problem solving act.

Organisation H

Interviewee 13

... they're related because ... with innovation for a start you're learning what sort of innovation works and makes a difference or not, plus you're learning what sort of innovation is acceptable or not. So if you're in a workplace where the message is no we want things done exactly the way they've always been done then what you're learning then that any creative thoughts maybe you should be putting aside ... in that sense I think the environment dictates the extent to which the human mind and soul is free to be innovative, and as I said with the innovative you learn is it worth trying is it not worth trying, it becomes sort of emulates a sense of who you are too.

Interviewee 13 did not directly answer the questions about the mechanistic linkage between the 'to learn' and 'to innovate' acts. However, she pointed out that

circumstances dictate if innovation could be allowed to happen in an organisation because one would learn (but she in fact meant 'to know' according to the framework described in Section 1.5, Chapter 1) in that situation whether or not it would be appropriate for innovation to occur. The interviewee basically explained the linkage on the basis that by innovating one learns.

4.3.3 Conclusion to Section 4.3.2

In summary, half of the interviewees knew and could somehow explain the linkage between the 'to learn' and 'to innovate' acts in terms of a common process of problem solving. But the majority of them were unable to articulate explicitly how the linkage operates. This result was consistent with the results obtained in Parts A and B, in terms of the individual interviewees' knowledge and understanding of the 'what is' and 'how to' aspects of the 'to learn' and 'to innovate' acts.

4.4 Conclusion to Chapter 4

With respect to the results reported in Part A, it was concluded that among the participant organisations there might be a difference in the leaders' understanding or comprehension of the terms used in the questions asked, such as the mechanism of action or how learning would occur in an organisational setting.

Interviewees from the private companies (organisations B and D), management consultants (organisation F), a university business management specialist (organisation G) and a learning specialist from a state government department (organisation H) appeared to understand the terms and provided a clear description of what 'to learn' is and how it could or would happen in an organisational setting. They described acquiring data and information and integrating them within their internalised knowledge or conceptual framework, and then applying their personal knowledge to accomplish a task effectively (consistent with the adopted conceptual framework described in Chapter 1). They understood this as the process of acquiring knowledge and identified it as learning by doing the job or task in the workplace. In this respect,

they were considered to be cognisant of the concept of experiential learning, either by doing, observing, or emulating others (Kolb 1984; Bandura 1977).

Leaders from the public or utility companies (organisations A, B and E), however, were less direct and straightforward in describing 'to learn' and how it occurs as a process. From my observation, they may know that 'to learn' is equivalent to problem solving and that people learn in an organisational setting through experiential learning, but they were unable to coherently express their inner thoughts in words. To this group of leaders, 'to learn' as a process, appeared to be more akin to tacit knowledge (Polanyi 1967). They knew that they would acquire or gain knowledge from the experience of doing a deed.

With regard to Part B, again there appeared to be a divide between those organisational leaders who clearly knew and understood 'to innovate' and how to innovate, and those who apparently did not know or those who might be a bit unsure of what to innovate is.

The interviewees from the private companies appeared to know and understand innovation and how it occurs. But they acknowledged in their interviews that as private companies competing in business, they needed to operate at both ends of the innovation range (or spectrum), that is, taking on work that was truly innovative as well as other work that could be considered improvements on existing products or processes.

Leaders from the utility companies, however, appeared to attribute improving or changing the existing products or processes in a small way to be innovation.

Regarding Part C, the results presented further support to the conclusion that leaders understand the 'what is' for the two focal acts, but not all of them knew clearly the 'how to' or mechanism of action for the two acts. Again the results showed that they might not understand what the phrase in an organisational setting meant and hence responded to that part of the question obtusely. It was therefore concluded that, in terms of acquiring accurate information for empirical work, this was a significant communication issue. It highlighted a difficulty with the qualitative research tools used in social sciences research involving human subjects, such as interviews and

questionnaires. It seems that the validity or merit of the respondents' self-reports could or would be substantively impacted or even compromised by their misunderstanding of the communicating language, as well as their individual knowledge and understanding of the subject matter or issues which they were asked to discuss. Additionally, their knowledge and understanding of a particular subject matter would vary depending on their social and societal backgrounds as well as change over time (as discussed in Section 2.1.8 on 'social learning').

Also, from the context of their interviews I observed that there could be a perception amongst the leaders that knowledge is something that exists 'out there' and can be procured or captured. Interviewee 1 of organisation B notably even stated that knowledge is a commodity. This perception or conception is contrary to the social constructivist view of knowledge and it could have significant impact on the leaders' strategy formulation of guidelines and programmes to facilitate employees 'to learn' and 'to innovate'.

In view of these results and my intention to assure the quality of the research, it was considered necessary to rephrase the questions or issues raised in this chapter to further clarify the interviewees' knowledge and understanding of these focal matters. This approach, as presented in Chapter 5, serves to supplement the results of this chapter.

Chapter 5

Leaders' perspective on employees generating new knowledge

"I literally jumped for joy ... It's fun to discover things, and important to discover things." (Marshall Nirenberg, Nobel Prize Laureate, discoverer of triplet codons)

5.0 Introduction

Chapter 4 concluded that the majority of the interviewees did not clearly articulate their knowledge and understanding of the 'how to' aspect of the 'to learn' act, or how this act would happen in an organisational setting. Also many interviewees appeared to have a perception that knowledge can be procured or captured from outside their organisation through learning.

Likewise, the majority of interviewees were unsure of the mechanism of action for the 'to innovate' act, that is, how it would happen in an organisational setting. Also few of them appeared to know that the 'to learn' and 'to innovate' acts share the same mechanistic basis, which is the action of applying one's acquired knowledge to accomplish a task effectively or, solving a problem. The point of differentiation between 'to learn' and 'to innovate' lies in the nature of the problem; learning could include something already in existence and therefore not original, whereas innovation is related to being necessarily new, or original.

To support the conclusions of Chapter 4, the questions I asked the interviewees were re-phrased and presented to them for their elaboration. It was envisaged that this reiteration would serve to assure the validity of data and information as reported in Chapter 4.

Briefly, the layout of this chapter is as follows. Four parts, Sections 5.1, 5.2, 5.3 and 5.4, constitute the data collected from interviews with the leaders of participant organisations. Section 5.1 outlines the issue of what is knowledge and how leaders would differentiate knowledge and new knowledge; Section 5.2 presents the interviewees' articulation of how new knowledge would be generated by individuals. Section 5.3 reports on how new knowledge would be generated collectively in an organisational setting; and Section 5.4 discusses the leaders' knowledge and understanding of organisational learning and the concept of Senge's vision of a learning organisation as a behavioural expression of the organisation's competitive advantage.

5.1 Leaders' perspective on knowledge and new knowledge

What was the leaders' understanding of knowledge and new knowledge? That is, how would the interviewees conceptualise and differentiate knowledge and new knowledge? How did they envisage that knowledge or new knowledge would be generated within an organisation or workplace?

The questions I asked were: we often hear people say 'one gains knowledge by learning' would you please elaborate on this statement? What is this thing called knowledge that one gains? And, when you do learn, what sort of knowledge would you gain, new knowledge or just knowledge? How would you characterise new knowledge? How would you distinguish between new knowledge and knowledge?

5.1.1 A summary of interviewees' responses to the questions asked

The text below presents is a summary of the interpretation of the participants' responses to the questions, grouped under their respective organisations. The analysis is subsequently summarised, as Yes/No answers to the questions asked, in Table 5.1 on page 136

Interviewee 2 of organisation A did not elaborate on either of the two terms, knowledge and new knowledge, and how he would differentiate between them. Instead, he

mentioned subject matter peripheral to these two terms. Interviewee 3 seemed to understand what these two terms mean and how to differentiate between them, but he did not articulate explicitly what they were. Also, he could have known implicitly more about the term invention than he could articulate. Likewise, interviewee 4 did not articulate explicitly what the two terms mean and how he could differentiate between them, and he appeared to have a confused conceptualisation of the terms, data, information, and knowledge. Interviewee 7 understood what knowledge is but not new knowledge. She considered new knowledge to be new at the moment when it was acquired and shared across the entire organisation, that is, it would be new when it came fresh to the organisation's attention, or when it was first introduced to the organisation.

My observation of the four interviewees of organisation A was that perhaps one or two of them might clearly know what the two terms knowledge and new knowledge mean and can differentiate between them. This outcome thus reflected, and was consistent with, the results as presented in Parts 1 A and B of Chapter 4 - they knew what 'to learn' is but were unsure of what 'to innovate' or 'to invent' means or implies.

Interviewee 1 of organisation B knew what the two terms mean. He explained that knowledge (which, incidentally, he considered a commodity) could come from one's experience of accomplishing a task. He explained that new knowledge is something no one has ever known before, thus a new discovery or invention.

Interviewees 16 and 17 of organisation C confused knowledge with data and information, and their views reflected the results in Chapter 4, showing that they might not clearly understand what the 'to learn' act means.

Interviewee 8 of organisation D is an experienced patent attorney and is the manager of organisation D's intellectual assets. He has a PhD in Physics and he knew what knowledge and new knowledge mean and how to differentiate between them, although his response was a bit convoluted. Interviewee 9 is an organisation D Fellow (such Fellows are the acclaimed innovation icons with substantial records of achievement in

design and creativity, acknowledged worldwide, and are recognised by organisation D with the honorary title of Fellow. Their role is discussed in more detail in Chapter 7). Interviewee 9 clearly showed his knowledge and understanding of these two terms and how he could differentiate between them in practice. Likewise, interviewee 11 knew what the terms mean and how he could differentiate between them.

As a summary, interviewees of organisation D apparently had the knowledge and understanding of the subject matter in question and their knowledge was consistent with their understanding of the 'to learn' and 'to innovate' acts as reported in Section 4.2 of Chapter 4.

Interviewee 15 of organisation E knew what new knowledge is and how to differentiate it from knowledge. He also understood what inventing and innovating mean, but he explained that, in his line of business, he would also consider adopting other people's inventions to his organisation's business operations as examples of innovation. This again agreed with what he articulated on the learning and innovating acts in Chapter 4.

Interviewee 14 of organisation F considered learning to be an inquiry. In the context of her conversation, I had the impression that she might have equated an inquiry with a search; an exploration to remove an obstacle blocking one's way and the outcome of that inquiry is knowledge. Also she considered the knowledge that emerged to be a constraint, a sort of short-term or premature closure or incomplete answer to an inquiry. In her opinion, the knowledge obtained was not complete or comprehensive and she would not consider it the truth or a real answer, perhaps just a hypothesis to be further disproved and amended in order to reach the truth. With respect to the questions asked, she did not articulate clearly what new knowledge is and how to differentiate between knowledge and new knowledge.

Interviewee 12 of organisation G elaborated extensively but did not actually answer the questions asked.

Interviewee 13 of organisation H believed that through learning one could increase the size of one's knowledge base as well as one's knowledge of metacognition or reflective

practice (Flavel 1987; Baird 1986; Schon 1983; 1991). She also considered new knowledge to be invention but her notion of invention was in effect an improvement of an existing thing, not something newly developed from scratch.

From my perspective, based on the framework adopted for the conduct of this research, inventing or innovating is the process of generating new knowledge by providing the solution to a new problem and the outcome of learning is knowledge. This section thus served as a re-examination of interviewees' ideas on learning and innovating, a method of triangulation (Guion 2002; and as discussed in Section 3.2.2) to affirm the empirical data reported in Chapter 4.

Table 5.1. Summary of interviewees' expressed understanding of the terms knowledge and new knowledge.

Org	Interviewee	Did the interviewee discuss or elaborate on the 'what is' part of the question on knowledge? Yes, No, or Maybe	Did the interviewee discuss or elaborate on the 'what is' part of the question on new knowledge? Yes, No, or Maybe	Did the interviewee discuss or elaborate on the 'how to' part of differentiating between knowledge and new knowledge question? Yes, No, or Maybe
A	2	Maybe	No	No
A	3	Yes	Yes	Yes
A	4	No	No	No
A	7	Yes	Maybe	Maybe
B	1	Yes	Yes	Yes
C	6			
C	16 & 17	Yes	No	No
D	8	Yes	Yes	Yes
D	9	Yes	Yes	Yes
D	10			

D	11	Yes	Yes	Yes
E	15	Yes	Yes	Yes
F	5			
F	14	Yes	No	No
G	12	Yes	No	No
H	13	Yes	Yes	Yes

Org = Organisation

The conclusions presented in Table 5.1 have the same meanings as those described in Table 4.1. The blank spaces indicated that the interviewees were not asked these questions due to time constraints.

Excerpts from interviewees 3 of organisation A, 1 of B, 16 and 17 of C, 8 and 9 of D, 15 of E and 14 of F are presented in the following section.

5.1.2 Excerpts and interpretation

Organisation A

Interviewee 3

... you can't gain knowledge without learning ... There are different ways you can learn, and what you learn, if what you are exposed to is new to you, ultimately it forms the knowledge base that you have as an individual ... Because you see things happen... so that's the learning of observation and learning by doing aspect that is your knowledge. And I also tie knowledge and understanding together to a fair degree.

... why I tie them together because I think they are concepts that are very difficult to separate ... I can only give concrete examples, understanding what makes people tick ... So if you walk in front of a group of 20 people in a business unit, and say we are doing a review of business, if you said nothing more than that, you know that probably 95% of the people in the room are going to immediately become concerned and so you don't do it ... it's knowing what makes people tick ... they are interchangeable terms.

New knowledge is simply something that goes back to learning and it's something you have recently learned. Using medical science as an example there is new knowledge emerging every day as people study scientific phenomena ... all those sorts of things, that qualifies as new knowledge I suppose, but that's a sort of subset, it's all just knowledge at the end of the day ... New knowledge is not a term that gives much to me.

... I would say that invention is new ways of applying knowledge ... an invention is, I watch "The new inventors" every week, it's the sort of thing you would see on "The new inventors". A new medicine that prolongs the life of a cancer sufferer, that's all an invention, that's something that is applying knowledge to produce an outcome and I guess at the same time is building new knowledge, so that probably is a bit inconsistent with what I said earlier, but an invention is about applying knowledge to achieve a new outcome.

Interviewee 3 did not say explicitly but implied that learning is solving problems, and knowledge is the experience of problem solving. He brought up the issue of understanding and equated it to knowledge. His notion of understanding was akin to the knowledge of empathy or the avoidance of conflict and embarrassment, a dimension of emotional intelligence (Goleman 1995; Goleman, Boyatzis & McKee 2002). However, this was not the same as the understanding characterised in the framework outlined in Section 1.5, Chapter 1.

Interviewee 3's elaboration also contained inconsistencies. At one time he stated that new knowledge is the outcome of a nascent problem solved (e.g. examples in the medical sciences that he cited); at another time, he considered new knowledge to be new at the time when it was acquired. Although not clearly stated, arguably he expressed that knowledge emerges from learning or problem solving and new knowledge is the outcome of a new problem solved. Interviewee 3's statement that "an invention is applying knowledge to a new problem to achieve an outcome" was therefore consistent with the framework on the concept of inventing as described in Section 1.5.

Organisation B

Interviewee 1

... knowledge is the commodity and learning is the process to me ... it's not the end point of learning it's something you gain. You gain knowledge but you can apply it and you can learn something but I think it only has value when you use it and then that's another layer of learning to me, by then using it you learn how that works ... you can gain new knowledge.

Either creation of new knowledge by trying something differently or knowledge that someone else has, by gaining it through someone sharing it with you.

New knowledge, I would say something that occurs because it's been done differently and it's not necessarily knowledge that others already had in their heads or in their intellectual assets sitting around ... new knowledge is something that no one knew before.

Packaging up a product in a different way and the knowledge of how that is then received by the market. If that package has never been offered to the market and ... the market has a particular response whether they like it or don't like it ... new knowledge would be an understanding of how that is received.

Interviewee 1 considered that one gains knowledge as a commodity by the process of learning and this commodity can have value/relevance when a person puts it to use and finds out if it helps him/her to accomplish the task he/she wants to accomplish. He considered that new knowledge is something that no one knew before. He therefore knew how to differentiate between knowledge and new knowledge and implicitly how new knowledge could emerge, by providing (as an example) a marketing scheme to generate new knowledge.

Organisation C

Interviewees 16 and 17

[16] *Knowledge is going to be different things to different people and it comes back to what their backgrounds are and how they are wired, I suppose. So a piece of knowledge might be ... something that is written up on the board and it's a new concept but then they may process it a different way and use it a different way to how I use that.*

[17] *... by saying knowledge is achieved by learning is only if you were to make that an equation, that's only a tiny little bit of a very long equation so knowledge would equal learning plus experience plus interest plus emotion plus – I think the equation is much longer than saying knowledge is attained by learning because I think you've got to break down what learning is before you can simplify it to that point.*

[16] *Well, that factual stuff ... it's factual information but it's bigger than that, actually.*

There's a world of new knowledge out there. I think it's new experiences, it's new facts, it's a whole range of what happens over 24 hours a day.

[17] *New knowledge for me is something that I could pick up on and I could use and it would stay in my head because if I'd have learnt trigonometry, it would never have become knowledge for me as such because I would have not seen a use for it, or something like in school where we learnt $X \text{ minus } Y \text{ equals something}$, just completely went past me. It wasn't knowledge that connected with anything else in my head because it was too abstract so I never retained it; I never considered it as knowledge because it wasn't useful to me. But if something was to happen this morning that someone spoke to me about something that had meaning and that was relevant that I could use, I might be able to store that bit of knowledge. I would have considered I learnt something and I would have viewed that as something that I may rethink about on another occasion and maybe I could become a bit more innovative then because I've picked up something that is meaningful for me.*

With reference to the framework described in Section 1.5, a person acquires data and information from outside, but a person constructs knowledge internally. Interviewee 17 asserted that the sort of knowledge that emerges through the learning act would depend

on how a person used the data and information he/she acquired. But she did not elaborate on what that would mean. Presumably when one used the data or information to tackle a new problem successfully, then the outcome of that act would be new knowledge; whereas if it were used to tackle a problem that had been solved, then the outcome would be just knowledge or that person's own new knowledge. This would be consistent with the framework adopted for this thesis.

Also interviewee 16 appeared initially to describe how one would construct knowledge internally from data/information collected externally, but later she has confused knowledge and data or information, saying "there's a world of new knowledge out there ...". In sum, they did not directly answer the questions asked.

Organisation D

Interviewee 8

... In a sense I would see knowledge as being the accumulation of human experience, so whether it's the Arabic numerical system and the difference that makes to arithmetic, whether it's language, whether it's astronomical observations; the accumulation of that experience and probably it's codification, it's probably an essential ingredient, ends up with a body of knowledge and that's what we then teach our children, and I suppose an important distinction is children tend to grow up thinking "Well if that's what I've been taught, then it must be true", but in reality ... it's only tentative ... it might be new ...new to them yes, absolutely.

... it's not necessarily definitive, I mean if it's our accumulated experience then that's based on observations and interpretation at the time, and if we were to discover; or find a new piece of information tomorrow about astronomical behaviour, that may change our concept of the way the world turns today.

... Newton said: "If I've seen further it's because I stand on the shoulders of giants" ... he's recognising from the beginning that nothing happens in isolation and we're perhaps talking observations in science interpretation, so what might be new to my child today may be a differential calculus that's been built up over three hundred years of thinking, so is it new? It's new to that person, is it new to mankind? No.

Probably, again the patent lawyers would say “Well, we have a very clear definition of ‘New’ and it’s all about whether it could reasonably have been foreseen.” Now that’s already interpreting, isn’t it? So in fact “new” has a pretty fuzzy definition ... no matter how deep you dig into it.

... in a sense the creativity of the innovation is, perhaps the problem is quite well-defined, the solution is not at all obvious, and the creativity comes in developing a solution that meets the problem in a better way, or in a more elegant way, or whatever that might be.

... about “innovation” (i.e. creativity happening at the boundary of disciplines) in area’s that I’ve worked; say in the research environment, what strikes me over and over again is whether it’s a problem in physics or whatever, by getting some diverse views in the room, very often you can break through, or break out of your traditional line of thinking to open up some other possibilities which might provide a solution and they then very often need further investigation to see whether they do.

Interviewee 8, being a corporate patent attorney and manager of organisation D’s intellectual assets, was fully aware of the nature of knowledge and intellectual property and what companies can do to increase their output in these areas. He knew how to differentiate between knowledge and new knowledge, and how they are generated.

Interviewee 9

... about innovation, a Spanish artist once told me ... that creativity and innovation are somehow linked, because innovation is often to do with a sort of creative, new way of putting things together. So in our industry at least, for people to be creative, the first thing is they have to want is to be creative, a personal desire. Secondly, they have to have an independent streak ... because if you want to do things differently, then you have to go off in a way and be prepared to think about it, so that’s independence. The third one is you have to have self-confidence. You have to believe when you come up with something that it really is potentially better than what everyone else has done. And you have to have confidence for that. The fourth one ... it didn’t come from the Spanish artist, is you need a supportive environment ... an environment where you are encouraged to do these things ... that gives you time and space, and that rewards the idea of doing things differently ... So the organisation has to allow risk taking within a measured way ...

... In some fields ... like inventing new drugs ... because the risk of failure doesn't sort of exist, and you test it all before sending out, but in the building industry though, when you have a new prototype ... it has to be correct first time ... And obviously if it's quite an interesting one, the internal drive has to outweigh the society, and clients, and all the people you work with ...

But really, I don't think from an individual point of view that there is any distinction between new knowledge and existing knowledge because they wouldn't know the difference.

... what I'm saying is you wouldn't know whether somebody else has already carved a statute of David or not necessarily, would you? In fact, you can't personally distinguish between something that's brand new and doing something that might be a repeat of what someone else has done.

Any professional person acquires knowledge as they go along ... or get more experienced, you know more and more about not just what you do, but about what everybody else is doing and that's really your reference base.

But the interesting thing ... if I change knowledge into data, which I know is not strictly correct but for the sake of analogy, the more data that is available to you potentially the more difficult it is to assess it.

Interviewee 9 cited what a Spanish artist once told him about a link between creativity and innovation, thus associating the generation of new experience or knowledge with innovating. Creativity was concerned with new ways of synthesising bits and pieces of information by being independent of mind - being oneself and not a follower - and being supported by the circumstance, environment, or an organisation willing to take risks. In the building industry, risk-taking is a critical consideration and interviewee 9 recognised that once anything is built, it is literally set in concrete and there is not much margin for error. Thus builders do not usually take risks or focus on the trial and error experimentation of ideas; people in the building industry tend to be risk-averse and conservative in their approach to change or adopting new practices.

Notwithstanding that business practice, he explained that for him, “better than what he has done before” was fine by him. He therefore accepted improving as well as inventing and was not very concerned with whether something is really novel or new. He would not personally go out looking for absolutely new things. What is new is rather a moot point to him and he maintained that “one may never know everything there is to know.” To him, a person would not even know what is new or not new unless someone else comes along telling them that it is not. Nevertheless he is an organisation D Fellow, renowned for his iconic building creations around the world. I concluded that he knew about creativity and new knowledge generating, although he did not directly answer the questions asked.

Organisation E

Interviewee 15

... new knowledge ... is that we're gaining connections between things that we didn't have previously. So it might be that it's not new knowledge in a sense but that it might be a new way of connecting one piece of knowledge with another piece of knowledge. So it might be more of an understanding of connections rather than necessarily it being something new that I've never heard of before. It might be a new way of getting from point A to point B. I knew about point A, I knew about point B, but I didn't understand there was a different way of getting from one place to another.

When I gain new knowledge I guess there's a sort of the penny drops in a sense of this is something I haven't been exposed to before. I haven't understood that that's a process that could be used, that there's a tool that does that, or that there's a way of explaining something that I haven't been exposed to before. So I guess it's an opening up of new possibilities that I wasn't aware of before. What that knowledge is can be a wide range of things ... that new piece of knowledge ... is actually giving me another way of seeing the world. Another way of seeing the work I do or another way of seeing a particular challenge we have got. So immediately it leads to how can I use that, to do something for me to improve something ...

... what I just said is you gain something which you didn't know before and that is your personal new knowledge.

What would be new knowledge of the world? It would be something that gets created, somebody does some research and finds something out, that is a piece of information or a rule or that is being done for the first time. So suddenly that's something ... for example, how they could actually keep a heart alive the longest so they could make a transplant, so potentially you could have a new heart in northern Queensland, somebody dies but they preserve the heart and they want to transplant it in Western Australia ... that's something that's new in the world. It might be an idea, a process or some way of doing something that's happening for the first time ... new knowledge means having the experience of solving a problem that hasn't existed in the past.

... often within the workplace within human resources or training development we might think we're doing something for the first time; in actual fact it's been done many times before in other places and we might be trying to reinvent the wheel because we're not aware of that somewhere else sometimes.

... in our own world it might be innovation. I mean, we might be completely unaware of something that's being done somewhere else and so we might feel that we're innovating because the boundaries of our existence haven't included that previously. So it might be genuine, it might be an authentic innovation in the sense that we think we might be doing something for the first time in our own part of the world, in our own particular way. I guess there could be a piece of knowledge, something out there that has been in existence before but we might apply it in a different way or it might be applied in a different environment. I think that that can be innovation that you're using something that does already exist but you're using it to solve a different type of problem. So I think that can still be an innovation ... Innovation can be a big innovation and also a very small innovation.

Interviewee 15 expressed his belief that one gains deeper understanding or insights by learning through making more connections between the concepts or knowledge one has already gained. This may also be considered new knowledge due to re-configuring concepts to gain or constitute new understanding or insight. But this new knowledge is a person's own new knowledge only unless this new understanding or insight is

something universally never thought of before. In the conversation, the interviewee explained that every bit of knowledge would be new to you if you were totally and completely ignorant, like a new-born child. Based on what he said, when a person acquires a piece of knowledge that he/she has not come across in his/her experience, it would be new knowledge to that person, and he/she could use it to improve the way he/she does the job. The interviewee recognised what genuinely new knowledge or innovation is, but in his practical world of business, applying other people's inventions to tackle his own business problems in a new/different way is also innovation. It should be noted, however, that to gain new knowledge is not the same as to acquire or capture new knowledge, because a person can gain new knowledge by the learning act but cannot retain knowledge as a commodity. New knowledge can only be generated by oneself internally by the process of learning (Jarvis 2006; and Section 2.1.8) and one doesn't acquire or capture new knowledge from somewhere 'out there'.

Organisation F

Interviewee 14

... knowledge is a set of biases and beliefs and limitations. It's a closing down of possibility. It's a putting a frame around a piece of something that prevents it from being expanded in another way ... if you like it's a paradigm, it's a way of viewing. It is a belief system. It is a visualisation of something.

It is absolutely a framework. For example, I look at a painting over here and my knowledge says that painting is from probably an aboriginal origin. But however, if you had come from somewhere like, perhaps Solomon Islands or Papua New Guinea or even some parts of some of the African countries, you could look at the same structure, the facial structures, the way the individual is sitting and because of your paradigm, your knowledge of a different culture, says that that is from a different culture. It doesn't mean that either of us knows more, it just means that that defines a structure.

... knowledge is what limits us, because if you come back to the question before about learning, learning is an inquiry. Learning is questions and if I know something, then my mind is not likely to go and seek something new because I've effectively put a full stop to

that sentence, which means, I don't need to see it in a different way, because I know, and I do that in inverted commas.

Knowledge is a nominalisation if you like in the context that you are giving it to me. You're framing knowledge as being a box that you can put in a wheelbarrow. Whereas, learning is a process. Learning is something that you continue to add to and you continue to advance to. Knowledge in the context that you define, and how I view it, I guess, it's got a full stop. It's finished. I have knowledge of something full stop. Does it mean I could get more knowledge, or there is more knowledge to have? ... it depends whether I have a learning attitude or not, or whether I have a knowledgeable attitude. If I think I'm knowledgeable, chances are I won't necessarily seek to get additional knowledge, because I've already got it. Learning, however, if I want to learn about a new thing, then that's the process.

In the context of her conversation, interviewee 14 considered that learning is an inquiry that it is seeking an answer to a question, or seeking a solution to a problem. For this inquiry, the person could stop at a point in time because he/she might have found a workable or acceptable solution to the problem, inquiry, or question and terminate the inquiry or questioning process. In her conversation, she expressed her view of learning and knowledge quite clearly. Her learning is like rolling surf: it kept coming. Knowledge to her was a limitation, a constraint, perhaps a sort of premature closure inappropriately packaged up as a finished solution. However, with respect to the questions I asked, she did not actually explain what new knowledge is or differentiate between new knowledge and knowledge.

5.1.3 Conclusion to Section 5.1.2

I concluded for organisations A and C, with respect to the issues addressed, that they were unclear what knowledge and new knowledge are and thus unable to differentiate between them. Interviewees of organisations B, D, and E knew and were able to differentiate between knowledge and new knowledge. Interviewees of organisations F and G knew what knowledge was but not new knowledge and thus were unable to differentiate between them. My conclusion from these observations is that when interviewees recognise what knowledge and new knowledge are and that the

knowledge generated originates from the experience of solving either a problem or a genuinely new problem respectively, then the interviewees could readily articulate the difference between knowledge and new knowledge. The findings of this section were consistent with those obtained in Chapter 4.

5.2 Leaders' knowledge and understanding of new knowledge generation

The question I asked interviewees to elaborate on was: how do you envisage that new knowledge would emerge in an organisational setting by a collective teamwork effort? What I mean is, what would be the actions or activities involved in the process of generating or emerging new knowledge in the workplace?

Based on the framework adopted for this thesis, there were two elements to the objective of this question: (1) how new knowledge is generated; and (2) how new knowledge would be generated collectively by a team or group activity. These questions revisited interviewees' knowledge and understanding of the 'to learn' and 'to innovate' or 'to invent' acts through a triangulation approach.

5.2.1 A summary of interview excerpts

As an introduction to this section, a summary of the contextual content of the relevant excerpts of interviewees' conversations follows. On page 150, Table 5.2 presents this information in the form of Yes/No answers to the questions.

Interviewee 2 of organisation A said that generating new knowledge comes by distilling the best ideas that emerge from brainstorming or consultation with a diverse assembly of people focused on an identified issue or problem. However, it should be appreciated that the best ideas or new ideas do not equate to new knowledge, because ideas are not knowledge with reference to the framework described in Section 1.5 of Chapter 1. Idea is a thought-out plan or scheme for action, whereas knowledge is the experience of a problem solved in which a thought-out plan or scheme to solve that problem has been effectively executed. Interviewee 3 thought that inventing or innovating is about productivity gain; improving what is being done or doing one's job

better. It was not about creating new things in his organisation; and predicating on that, he did not elaborate further on how to generate new knowledge. Interviewee 4 explained that because of the nature of their organisation's business, that is, they were not engaged or employed to invent or innovate, their employees were there to use knowledge to solve their recurrent daily problems (and thereby learn in that process). However, they were not there to tackle any never-before or nascent problems as such and therefore they were not concerned with solving new problems, or generating new knowledge as their job activities. Although he might not be aware of the implication of what he said, I recognised that interviewee 4, in effect, said solving new problems would create new knowledge whereas solving recurrent problems would not. In summary, the interviewees of organisation A substantiated two adages: 'necessity is the mother of all inventions' and 'where there is a will, there is a way'. Thus, where there was not a need there would not be a will, and there would not be much motivation for generating new knowledge or inventions in organisation A.

Interviewee 1 of organisation B explained that new knowledge could emerge within an organisation either by importing and adopting new knowledge from outside or from inventing within the organisation using adopted new knowledge. In that sense he recognised where and when knowledge would be a source of input, but he did not actually articulate how to generate new knowledge in the organisation to answer the question asked.

Interviewee 9 of organisation D recognised that an individual's creativity could generate new knowledge and the organisational leader must model creativity to encourage creativity within the organisation. He pointed out in his conversation that this was one of the reasons for establishing the organisation D Fellows career path to enable people to continue expressing their creative capability and model their creativity to the younger employees. Therefore, I considered that he knew how creativity or inventing can generate new knowledge. Interviewee 11 believed that generating new knowledge would require time, research, and creativity. To facilitate that, he would consider providing these pre-requisites to his employees. Thus, in terms of practice, he knew the process of inventing or innovating.

Interviewee 15 of organisation E described a process of how new knowledge or ideas emerge through collective efforts in an organisation by snowballing an original idea. But he did not clarify how new or original the original idea needed to be so as to make the snowballing exercise valuable in terms of generating new knowledge or inventing. In addition, as I explained earlier, a new idea is not new knowledge. Identifying, distilling and selecting the best or optimal ideas from a diverse collection of people in an organisation is often adopted as an effective way of generating new ideas (that is, selecting the best ideas by bidding in 'idea auctions', as described in Concept Auction, 2008). But this is not generating new knowledge. In that respect, the interviewee did not clearly answer the question.

In a similar vein, interviewee 13 of organisation H considered that ordinary people or employees might come up with new ideas for doing things, or innovative thinking as she called it, but she believed that only the R&D people who are professional researchers or problem solvers should and could generate new knowledge or inventions.

In Table 5.2 (below) the blank spaces or entries indicate that the interviewees were not asked to respond to the questions because of time constraints.

Table 5.2. Interviewees' articulation of how new knowledge could be generated in the workplace

Organisation	Interviewee	Did the interviewee discuss or elaborate how new knowledge would be generated in the workplace? Yes, No, or Maybe
A	2	No
A	3	No
A	4	No
A	7	
B	1	Maybe
C	6	
C	16 & 17	

D	8	
D	9	Maybe
D	10	
D	11	Maybe
E	15	Maybe
F	5	
F	14	
G	12	
H	13	Maybe

Excerpts from interviewees 4 of organisation A, 1 of B, 9 of D, 15 of E, and 13 of H are presented in the following section.

5.2.2 Excerpts and interpretation

Organisation A

Interviewee 4

... in this environment, which is a knowledge based organisation, that generating new knowledge is a critical thing to do ... Typically in our environment, there are certain jobs which are processing jobs and they don't necessarily on the face of it need a whole lot of knowledge to do them. But when you actually dig down into the situations that actually arise, the people that are processing planning applications or build over easements don't often get two exact same fact situations that they have to deal with ... they do have to have knowledge experience in terms of dealing with previous situations to inform them on how to deal with current situations ... there are still grey areas that come up and people have to have the ability to work out what to do in those sorts of scenarios. So without capability to develop the knowledge bases and to be able to resolve those fact situations, people couldn't be productive ... because they need to get work done and to resolve situations with customers, whether they be external customers or internal people that they're working with. So knowledge is really important for people to be able to undertake their fundamental duties.

Interviewee 4 pointed out that organisation A has been using knowledge to solve problems. He contended that people in his organisation need to acquire a broad knowledge base to enable them to solve daily problems in their jobs. In the conversation, he reiterated that knowledge is needed to solve problems and employees generate their knowledge by resolving issues in their jobs or workplaces. The knowledge or experience thus generated could include new knowledge as inventions because arguably they might have solved authentically new problems. But he did not actually elaborate on the 'how to' aspect of the new knowledge generating in his organisation to show that.

Organisation B

Interviewee 1

New knowledge would be ... either that someone from outside the organisation or something from outside the organisation would have to have access to, whether it's an expert or a resource to bring it within the organisation or people within the organisation would have to try something different or do something that hasn't been done before and then new knowledge would be the outcome of that new process.

Regarding how new knowledge could be generated in his organisation, interviewee 1 mentioned that adopting new knowledge from outside or inventing inside were possible avenues for new knowledge to emerge in an organisational situation.

Organisation D

Interviewee 9

Part of that, (referring to how to generate new knowledge) ... is understanding what makes people creative, but I think creative people are often quite sceptical and they are easily bored, they want to feel loved, they hate management, and they want respect from those they respect, and ultimately, and interestingly, I think they don't mind being led as long as they respect the leader who is leading them, and the way the leaders can gain respect, there are a lot of different ways, but firstly they might have a skill in some dimension unrelated to their own, but some skill. So you've also got to give them that independence that we talked about earlier. We try to encourage creativity by firstly

giving people as much autonomy as you possibly can whilst still having an organisation that functions. That's one aspect. Another one is ... not having too many rules, rules for creative people, I think for all people actually, rules should be for manifesting good, everybody should be able to see the reason that they exist and understand that they're ... for the good of the whole ... Another issue to do with autonomy or independence is that every layer of the organisation ... needs to give a degree of autonomy to every other layer ... as much upwards as downwards to get that symbiotic relationship. I think you lead by example, so you have to have examples of creativity and innovation that are cherished by the organisation, so the organisation has to show, demonstrate what it wants ... because a lot of organisations say they want innovation but they actually reward other behaviours ... There are all sorts of bits and pieces; it's a very complex topic, particularly inside an organisation. It's much clearer if you have an individual like an artist who is doing their own work, who doesn't have a client, or they'll find their client when they've finished their work as opposed to an organisation that is conditioned by external clients and we have to balance our client's wishes and our own wishes.

Interviewee 9 explained new knowledge generating or inventing as being partly an expression of personal creativity. His view of creative people was that they are critical, they don't just accept any arguments without questioning, and they want to be free. He commented on creativity in organisations, noting that they like to be assured of results and tend to avoid risks, thus rewarding reliability or the 'sure footers'. He considered it a generally complex issue to motivate people to be innovative in a business setting. But organisation D managed to maintain its balance and sustain its status as an acclaimed innovative organisation. Some important points that emerged in the conversation with interviewee 9 were: to surface new knowledge is to make people creative and enable creative people to do their work in an organisational setting. Another point was the organisational leaders themselves must both cherish and model creativity and innovation. These points were the determinants of whether or not an organisation would be innovative.

Organisation E

Interviewee 15

... we've got an organisation set up with groups, units, including teams ... I guess the reason you put that team together is because you've got people with a related function, related problems to solve, they're working for a particular group, customers, or using a certain body of knowledge, whatever it might be ... so they've got some common focus.

They've got synergy; they've got a similar background of schools or a similar purpose within the business. What we would hope we're doing is that we encourage - and this would primarily or initially be the responsibility of the leader of that team ... is to put activities in place, team meetings, workshops, where they discuss the issues, the problems that they've got. So there's a challenge there to solve problems by virtue of the common purpose of that team but also using the people in that team.

... when you put people with those different backgrounds together and you're trying to potentially brainstorm some solution, one idea that one person has triggers something because of another person's experience, knowledge or their ability, they'll add to that and potentially that sort of very much organic sort of process of people having, from their own experiences and skills, bringing some new contributions together can provide some innovation so they can provide a way of learning from each other and thinking of new solutions to problems. I think that's one of the things from an organisational context that teams can be given the right environment, the right encouragement, being rewarded for doing it in various ways that they can be very good in terms of finding innovation within the workplace.

Interviewee 15 described how new knowledge could emerge collectively in his organisational setting, which included the snowballing of ideas in creating new ideas. A diversity of ideas comes from a diversity of people and varied perspectives on the same problems or issues could shape ideas, perhaps new or better ideas. But 'new idea' is not 'new knowledge', as explained in the adopted framework described in Section 1.5, Chapter 1, so, in that respect, he did not actually answer the question.

Organisation H

Interviewee 13

Most of time in an organisation ... I don't believe there would be new knowledge generating ... it is likely to be abducting what's gone before and so that's applying the human mind to take what's gone before and to redo it. So that's closer to innovation, now that may end up in the public domain as something that gives other people knowledge but I wouldn't define that as being new knowledge.

... it's innovative thinking. Because again, it depends if what you're talking about is that type of defining knowledge that I've called that reservoir of information, unless it is that we've got folk who are working in research roles then indeed they might be generating new knowledge at that formal level as opposed to new knowing about what the circumstances might mean. So I think much more what we have here is likely to be innovative thinking. What is a new way that we could structure a financial management act in this State? So that's new thinking. It might be resulting in others being able to derive new knowledge from it, but at the point of developing it, it's a thinking towards, it's a more active thing, to me knowledge in some ways feels quite passive.

Interviewee 13 believed that R&D people generate new knowledge, whereas ordinary workers or employees might engage in innovative thinking, or from her perspective, new ways or ideas of doing things. She brought in the notion of innovative thinking which was her expression for new thoughts or new ways of thinking about something, such as a problem or an issue. But as I explained before, innovative thinking is not the same as new knowledge. She, in that respect, did not answer the question.

5.2.3 Conclusion to Section 5.2.2

I concluded on reflecting on what the interviewees said with reference to the framework described in Section 1.5, that interviewees of organisation A did not articulate how new knowledge would or could be generated in an organisational setting or in the workplace. They acknowledged that everyone in an organisation can invent or generate new ideas. However, this is not the same as new knowledge. Interviewees of

organisations B, D, (perhaps E, and H as well) could be considered to be cognisant of the process of generating new knowledge in the organisation.

5.3 Leaders' opinions on who should learn, and what should be learned

The issues addressed in this section included: who could invent or generate new knowledge in an organisation? Should all employees learn and what should employees learn in the organisation to enable them to be more capable of inventing or innovating?

The questions I asked the interviewees included: what is your personal belief or attitude regarding employee learning, that is, learning to broaden their knowledge base? What is your personal belief or attitude regarding employees' learning specifically to enable them to be more capable of contributing to the organisation's innovative efforts?

Should all employees of an organisation be offered opportunities and support to learn? If all should learn, what sort of educational programmes, that is, actions or activities, should they learn to enable them to become more capable of innovating?

The relevance of these questions to the theoretical background of this thesis included:

- the impact of significant learning (Rogers 1969) and transformative learning (Mezirow 2000) on adult learning or problem solving in a teamwork situation, as reviewed and discussed in Sections 2.1.2, 2.1.3, 2.2.1 and 2.2.2,
- the relationship of adult learning to collective problem solving or organisational learning which would constitute the core competence of an organisation, and
- the establishment and the expression of the core competence (Hamel & Prahalad 1994) as the organisation's competitive advantage (Kay 1993; Prahalad & Hamel 1994), as reviewed and discussed in Sections 2.4.1, 2.4.2, 2.5 and 2.5.1.

5.3.1 A summary of interview excerpts

As an introduction to the data presented in Section 5.3.2, a summary of the contextual contents of interviewees' responses to the questions asked follows. As before, the summary of the interviewees' responses as Yes/No answers is tabulated in Table 5.3 on page 159

Interviewee 2 of organisation A explained that by providing employees with opportunities to learn, it would make them motivated to innovate. But he did not elaborate on how he arrived at that relationship. Also he did not elaborate on the issue of what employees should learn and how they would use what they learned to invent or innovate. Interviewee 3 explained that a person cannot learn to be smarter or more innovative because this human ability is innate and a person does not need be taught to become more capable of inventing. Thus, it would not be useful to send people off to learn how to be innovative by coursework. He emphasised that what determines the creativity or innovativeness of an organisation is the culture that drives people to continue learning and challenging the norms; only the will to innovate would be needed because the ability to innovate or invent is innate.

Interviewee 4 of organisation A explained that their job or their organisation's job is not so much about inventing or innovating. Consequently, it is not high on their agenda to send people off to learn how to be innovative or creative as such. But if someone had a good reason to learn to become more inventive or innovative, the organisation would consider providing support and facilities for people to take courses either in house, online or to learn through coursework outside. Interviewee 7 echoed what interviewee 4 said, that there was no requirement in their job for inventing or innovating. Therefore there was no provision to include or embed curricula of learning to become more innovative in their learning programmes.

Interviewee 6 of organisation C raised the issue of learning to be creative but he did not elaborate on how and what one should learn that would enable a person to become more creative, or more capable of generating new knowledge. Neither did he clarify what he meant by the phrase 'to learn to do things differently'. Furthermore, he did not

think that there is a broad or generic way to learn to be inventive. He did not show clearly the 'what is' and 'how to' of inventing or innovating. When reflecting on his response as reported in Chapter 4, where he appeared to have expressed his knowledge and understanding of the 'to learn' and 'to innovate' acts, the excerpt in this chapter shows a somewhat different and muddled picture of his knowledge and understanding of these two focal acts. Consequently, revisiting the same theme was useful in clarifying and assuring the interviewees' views/opinions on some subject matter.

Interviewees 16 and 17 of organisation C provided an informative discussion on the subject matter. They advocated that employees adopt an action research or action learning (Avison *et al.* 1999; Reason & Bradbury 2008) approach to learn how to collectively solve problems. Organisational leaders or facilitators could then propagate or percolate the collective problem solving capability throughout their organisation. By learning to solve problems with critical questioning and reflective practice, they envisaged that employees would 'skill up' to become more inventive or innovative - this was organisational learning in practice (Argyris & Schon 1996; Guns 1996 and as reviewed and described in Sections 2.2.2 and 2.2.3).

Interviewee 8 of organisation D interpreted the questions asked to mean the ways or means of generating new knowledge in the organisation. He raised the issue of trust and effective communication for motivating people to invent/innovate. In that respect, he did not answer the questions asked. Interviewee 10 knew about the 'how to' of generating new knowledge, and provided a comprehensive account. Interviewee 11 considered that all employees should learn to become more innovative and he would act to liberate their minds and prepare them by practicing problem solving without constraints. He would like to promote the US company 3M's approach as an exemplar of corporate innovativeness and he personally took the view that organisation D should become a 3M type company in Australia.

Interviewee 15 of organisation E acknowledged that all employees should be provided with learning opportunities. Firstly, he believed that they should learn to broaden their knowledge base and then practice problem solving by setting up action learning activities. He explained his rationale for why every employee should learn - as the

environment changes, their job context changes and they need to renew themselves. Although he considered that employees should learn by practicing problem solving together, he did not specify what type of problems he believed his employees should learn to solve. Without specifically defining the type, these problems could be of the normal housekeeping, minor fault type and not necessarily the authentic new knowledge generating type.

Interviewee 5 of organisation F did not respond to the issues. Interviewee 14 maintained that employees should learn to respect and learn to inquire. She explained: learn to ask questions, and to be critical of one's own points of views. Her idea of respect meant being receptive to other people's diverse opinions. Interviewee 5 considered what should be learned to be prepared to be challenged and be a real scholar in being receptive to criticisms. She advocated that employees learn to be critical and creative thinkers, and capable of doing research.

Interviewee 13 of organisation H considered that new thinking or new ideas were new ways of using knowledge acquired or using knowledge in alternative ways to tackle an issue/problem. In this way, she spoke about improving or learning to do their jobs better, but it was not creating new knowledge because it was not their job. Again, her understanding of new thinking, or new ideas, was not the same as new knowledge. The organisation's job was to improve so as to develop their deeper knowledge.

In Table 5.3 (below) the blank spaces indicate that interviewees were not asked to respond due to time limitations.

Table 5.3 Summary of interviewees' responses to 'should all employees learn and what should be learned to become more innovative' questions

Org	Interviewee	Did the interviewee discuss or elaborate the question: Should all employees learn to become more innovative?	Did the interviewee discuss or elaborate on the question: What knowledge should employees learn to become more innovative?
		Yes, No, or Maybe	Yes, No, or Maybe

A	2	No	No
A	3	Yes	No
A	4	Yes	No
A	7	Yes	No
B	1		
C	6	Yes	Maybe
C	16 & 17	Yes	Yes (action learning)
D	8	Maybe	No
D	9		
D	10	Yes	Yes
D	11	Yes	Yes
E	15	Yes	Yes (action learning)
F	5	No	No
F	14	Yes	Maybe
G	12		
H	13	Yes	Maybe

Org = Organisation

Excerpts from interviewees 3 of organisation A, 16 and 17 of C, 10 of D, 15 of E, and 14 of F are presented in the following section.

5.3.2 Excerpts and interpretation

Organisation A

Interviewee 3

... I think they should be learning to become more capable of innovating ... I think the majority of people have a desire to continue to learn and even if it's not something that will necessarily be directly related to their current role in the organisation or where they might be heading. I think it's still of benefit to demonstrate to the organisation's commitment to them, to assist them in developing themselves, and to help keep them in jobs and happy employees ... I do think that organisations have a responsibility.

... it's very difficult to teach innovation. I think that it goes to building a culture around innovation. I don't think you can send someone off on an innovation course. I think that you can, I am sure there are places that tell you they have innovation courses, but I think

it goes to fostering that sense that continuing to learn is a good thing and fostering that sense that continuing to challenge the way you go about things is a good thing and that's what will deliver innovation to a business, not the sort of targeted innovation training.

Interviewee 3 explained that one cannot learn to become more innovative or inventive *per se*. Therefore it would not be much good to send people off to courses to learn to innovate. What ultimately counts would be to build the right organisational culture that would inspire people to have the aspiration to continue learning and to challenge the norms or the way they are doing their job.

Organisation C

Interviewees 16 and 17

[16] *My feeling about employees being able to learn new knowledge, in some way is dependent on an organisation being prepared to create an environment for people to learn in; and sometimes that is not necessarily giving people a training session, it may be that important aspect, that interviewee 17 touched on before, about allowing people to make some mistakes and being supportive of those. So an organisation that doesn't freak out if someone's taken the wrong track and sees it as an opportunity for that person to learn ... I think an organisation that gives people ... letting someone sit in a 4-hour training session but if you suggested that they give time to people to reflect on what they've learnt and put it into practice and give them time for learning, a lot of organisations probably couldn't see that, they'd say, "We're too busy, we need that person doing their job" ... there is a lot an organisation can do in changing its mind about how it creates an environment for people to learn in.*

[17] *My attitude is that we should be a supportive organisation and we should be supporting the organisation with every opportunity to broaden their and its knowledge. ... I think it's about providing some innovation, providing some different approaches and providing the pointer, I suppose, of some different ways that people can actually acquire the knowledge, apart from the standard training kind of attitude and culture that we have here ... it's about providing those opportunities and providing those different ways of thinking and attitudes before it actually occurs.*

[16] *In some places, there is a good process of action learning where you do enable people to take a bit more control of their own learning, you don't give them a solution, you encourage them to find solutions outside ... collectively you have a group of people with different ideas and different possible solutions and you invite the group to work through those - so that's a lot of brainstorming and, in a practical way, you're getting people to have a look at what some of those things are but you then need to be able to get the people to accept that they are not only responsible for their own learning but for everybody else. And to enable them to do that you have to expose them to some things like critical questioning so that, instead of just accepting something that gets put on the table ... "Is that really - have we gone down another track? Have we asked all the questions of that? Have we really unpacked that solution enough?" So you really start to break things down so that everyone can go away then and take a little bit of that and explore it differently and maybe gain new knowledge and then, when they come back to the group, they then pass on that new knowledge to everybody else in the group and then again you get that process ... they've learnt a little bit more and they take on ... that different knowledge because you've gone away and come back and said, "Hey, listen, I've just found this about this particular problem". So if something that starts to evolve out of a group of people who are working on something collectively but they're going away and bringing knowledge back to the group so it starts to grow something.*

[17] *I'll only add that that questioning process, that then is a vehicle for the innovation.*

[16] *And in a way what we were talking about before is, instead of narrowing the solution down to a group of people saying, "Yeah, we've done that before and here is what we did and that worked" it starts to say - it's really that you keep on putting new problems in there ... if you keep throwing ... And then if we keep on throwing different things in there that may be the new problems around it or the different ways that we need to try and look at it then you start looking for the new knowledge to build.*

Absolutely. All employees in that organisation are afforded support in facilitation, opportunities and resources to learn.

[17] *Yes. I concur.*

[16] *I think it's possible for a lot of people in an organisation to be involved in an action learning group, an action learning environment, so that once they've experienced it and*

learnt some of those techniques, there's nothing stopping them from applying those things to any other situation or problem they may encounter. It has a domino effect ... Initially, though, it needs - again, it needs the organisation to be able to see that as a very real learning opportunity and not just a group of people sitting around and talking about a problem.

- [17] *I think it goes back to giving people that sort of safe environment, the environment in which to do that and, as Interviewee 16 says, to give them the tools because people have different learning styles ... So it's teaching them how to learn before the actual learning, organisational learning, starts to occur.*

Both interviewees 16 and 17 advocated the idea of providing a safe environment for learning, and then setting up action learning groups throughout the organisation (that is learning to collectively solve problems) to learn how to solve problems and propagate or cascade that learning system throughout the organisation (i.e. a practical collective problem solving approach). This path should become a productive process to be executed in an organisational setting for enhancing the employees' capabilities to innovate.

Organisation D

Interviewee 10

... people all the time are doing things in slightly different and new ways and there's a whole lot of little breakthroughs I suppose that aren't even regarded as breakthroughs but which together become that collective knowledge and the value of having a skills network performing with whatever it is.

Then we have really difficult projects or problems which require us to overtly organise ourselves to come up with a solution and a classic example for me is the centenary bridge in London. It was opening day, and it opened up a problem that nobody had ever actually identified before; so the bridge was closed down and so there was this process we went through of actually overtly trying to solve a new problem that we knew had never been identified before and which we did, came up with a solution which was then deployed on a number of other bridges around the world which were under construction

at the same time. So that was organising a project team around solving a problem that we knew had never been solved before.

... What we did wasn't just improvement or what is already in existence. So that's that strain of activity. Then there's another strain of activity where we overtly are looking to drive the idea of thought leadership, so we actually ask people just to think of stuff, to reflect ... to identify new things that could be done and to drive thinking about how you might approach things in a slightly more abstract sense than on a specific project ... It is problem solving through our lives at work ... the way we organise ourselves both physically and organisationally is important ... there's very few levels between everybody and our CEO ... so that then implies the idea that there are teams with people with more or less experience and age and knowledge, that involves the team trying to resolve things and that's then reflected also in our physical arrangements so our open-plan office and just sitting where they're sitting ... it's really important to create a culture where everybody feels they can talk to each other and that everybody's view is valued ... So that's one element that we then need to empower people to express a view and to innovate and to generate knowledge ... the idea that diversity of background is important to come up with the best answer ... the idea that between us, together, we can come up with the best possible answer and that applies in the idea of how we approach a lot of our work, multidisciplinary working, so the idea, that it's valuable to have people with different backgrounds coming together to work on that project ... that people's different life experience coming together also helps ... So it's a matter of having that commitment and understanding at an organisational level but also at a personal level and when I'm recruiting people I would also end up driving that idea all the time.

... I can talk about how my section is organised ... We have a regular programme of presentations by, particularly young people actually, to give them exposure and practice in presentations ... within a planning of the business, but then also we have a series of a different set of presentations where those people present to other parts of our organisation ... there's a presentation programme in which we are encouraging people to stand up and tell them what they are doing. We had an example the other day on a project, we had an activity where we brought people from different backgrounds together and we had a ... discussion session about how we might tackle this project ... brainstorming, to learn from experience. We just involved everybody, as far as possible in all aspects of what we do.

Interviewee 10 explained how to facilitate learning among his employees to enable them to become innovative. What he said was substantiated by the policies and programmes his organisation actually implemented (as will be discussed in Chapter 6) and the evidence documented on his organisation's webpage (to be discussed in Chapter 7).

Organisation E

Interviewee 15

... we accept that people should have an attitude and will generally have an attitude that they want to learn, that they want to make a contribution. My view of people within this organisation ... is that the people are very keen to learn and to apply what they're learning to the work that they do ... But I think as an organisation we understand that learning is a very important part of what we do and that ... the way we're going to solve the environmental impacts of what we do, etc., is going to rely on us try to learn from each other and learning from people outside the business and so on ... What we try to do is to provide as broad as possible practical learning experiences that primarily, in the first place, relate to what their purpose in the business is ... that means that people can learn everything from how to relate, communicate with each other, to have an understanding of what customer service is about, to have an understanding generally about the impact of our business on the environment and so on ... We try and provide a range of learning experiences from ... people doing academic qualifications to people being in interactive workshops ... we provide a lot of learning experiences where we encourage interaction with people, between people, where they are actively involved in trying to solve problems. An example to that ... There's about 30, from different parts of the business. Primarily they're talking about what we see as our preferred culture ... We think that if we provide experiences like that where people from across the business can get together, can form some connections, can listen to each other, can learn about why it is that we believe that this is a good thing to do ... and they can take that into their own meetings and their interactions with other people or with customers and hopefully that means that we become more effective and more efficient in the way we work ... Communication skills, so we've provided a lot of training ... helping people to understand how we listen to each other and how we speak to each other is really important and how we make sure that that is contributing to effectiveness in the

workplace ... another way that we encourage that is to try and develop in the people who are managing people within the business ... that they understand the basic principles of good management practices and good leadership practices, and how ... we can enrol people in the strategy of the business and what's important to the business ... There is a lot of cross-functional, universal skills ... as well as the more specific technical stuff ... we see that as being important.

... I believe all employees of any organisation should be offered opportunity and resources to learn ... because I think people need an opportunity to grow ... there's always going to be a need to learn for every employee.

Interviewee 15 believed positively in providing employees with exercises or practices in problem solving; practicing problem solving collectively on some issues; learning together as a workplace culture; effectively communicating with each other (i.e. some aspects of emotional intelligence); and training managers to deliver the values and mission of the firm to other employees. But all these amounted to only good operational practices and would not necessarily serve to educate employees to become more capable of innovating. He did not explain clearly what learning or learning content would help employees to become more innovative. His response to 'should all employees learn?' was: "because every job changes with time and the environment, everyone must renew him or herself now and then". What he referred to therefore was learning to update employees' on the job knowledge but not learning to become more capable of innovating.

Organisation F

Interviewee 14

My instant response is 'learn respect' because to innovate one must respect what already is and what has already gone and what has already been innovated.

What do I mean by 'respect'? Just an appreciation of what has been before and what has been asked and what has been presented and what has been given.

They must also learn to inquire. In my view ... you cannot be a learner unless you know how to inquire because to me it is the inquiry that is the brain food. So there must be an

ability to inquire there must be a willingness to challenge one's own knowledge and belief of what it is ... and why is 'respect' so important ... is that they will learn things that don't concern (or relate) to what they already know, so they respect enough to be open, in order to disbelieve what they know, to see a new way. So they must also understand that their beliefs and their memories and all of those sorts of things are a construct, so they are made up, they are not real, in order to be able to innovate from a different way. Because otherwise they will find that occasionally they will get caught up in traditional belief structures that prevent them from seeing ... So it is that challenging of your own view. I think those are the key things. It's really they are quite personal and they have therefore I guess, meaning you must have self-awareness there must be some level of self-awareness there to understand how you view the world and not get all precious when somebody challenges your view.

With respect to what employees should learn, interviewee 14 believed they should learn to ask questions and be critical of ideas. It was not clear from what she said whether or not she firmly believed that employees should be involved in reflective learning.

Interviewee 14 contended that people should learn respect and be receptive to other people's diverse opinions. She considered the 'what should be learned' aspect of the question as being prepared to confront challenges and be a real scholar receptive to criticism. This resonates with the discussion on critical inquiry of adult learning by Brookfield (1987; 2005) as discussed in Section 2.1.

5.3.3 Conclusion to Section 5.3.2

Interviewees of organisations A acknowledged that everyone in an organisation can generate new ideas and all should be supported for learning. But they did not make clear what their employees should learn to enable them to be more innovative. They may not believe that some type of learning can actually facilitate innovation. Furthermore, they considered that it is not their organisation's prescribed role to innovate.

Interviewees of organisation C also acknowledged that all employees should be supported for learning, facilitated by the action learning approach to gain and establish

the problem solving habit as an organisational routine for collectively generating knowledge or new knowledge.

Interviewees of organisations D, E, and H acknowledged that all employees should be supported to learn to be more innovative and they knew how to facilitate such learning to create workers who were more capable of contributing to the organisational innovative efforts. Interviewees 16 and 17 of organisation C advocated for establishing an organisational problem solving praxis.

5.4 Leaders' knowledge and understanding of the concepts of organisational learning and learning organisation

Organisational learning or collective problem solving, as reviewed and discussed in Sections 2.2.2, 2.2.3 and 2.4, is the backbone of core competence for an organisation. The collective, integrated capability of an organisation to confront and solve authentically new problems and/or nascent challenges in its industry on a continual basis is conceptualised as its competitive advantage or being a learning organisation (Senge 1990; and as reviewed in Section 2.5). Thus it was envisaged that exploring the leaders' knowledge and understanding of the organisational learning and being a learning organisation would be another approach to ascertain their understanding of the two focal concepts of this thesis: the 'to learn' and 'to innovate' acts. It would also supplement the results obtained in this chapter and triangulate those presented in Chapter 4.

Among the questions asked of interviewees were: What is your notion or understanding of the 'being a learning organisation' concept that Peter Senge proposed? What would be the characteristic features or elements of being a learning organisation? How do you envisage the way, that is, the actions or activities that any organisation must undertake to become a learning organisation?

5.4.1 A summary of interview excerpts

As an introduction to this section, a summary of the interviewees' responses to the questions follows.

The concept that interviewee 2 had of being a learning organisation did not encompass the aspect of continually generating new products but just the improvement of product quality by adapting to the environment with the necessary adjustments or changes. His view on how to become a learning organisation was that opportunities and support for learning be provided to employees, a culture for learning be developed, and suggestions/ideas be welcomed. However, he did not explain how these elements would operationally be integrated to facilitate becoming a LO, as envisaged by Senge.

Interviewee 3 acknowledged that he did not know what a learning organisation is, but maintained that a LO needs to learn and innovate. Interviewee 4 thought that a LO is one that captures learning. He explained that a LO would be an entity that learns, and to become a LO, an organisation needs to develop a disciplined approach to learn and manage how it solves problems collectively. Based on the context of his conversation, what he meant was, as an entity the organisation needs to learn collectively how to learn or to gain a sort of organisational metacognition (Flavel 1976, 1987a; Baird 1986). It appeared therefore that he did not know what a LO is as envisaged by Senge. Interviewee 7 showed her understanding of a LO as a coping organisation (Senge 1990; Smith 2007).

Therefore my conclusion for organisation A's interviewees on this subject matter was that none of them was cognisant of the Senge LO model. Neither were they familiar with the notion of continuous innovativeness for the corporate competitive advantage as the expression of being a learning organisation.

Interviewee 1 of organisation B thought of a LO as a coping organisation (Senge 1990; Smith 2007) capable of adjusting itself to the changing environment like a living organism. However, he did not elaborate on whether this living organism can, when required, metamorphose and emerge as a new business entity.

Interviewee 6 of organisation C brought in concepts of single loop and double loop learning (Argyris 1977) in his exposition of the learning organisation concept. He argued that a LO would adopt the double loop learning mode for its learning. But his notion of being a LO was in effect more like a coping organisation. On further

exploration, he was apparently unsure of Senge's concept of generative learning to generate new knowledge when exercised as an organisational practice and a prerequisite of being a LO (Senge 1990; Smith 2007). Regarding Interviewees 16 and 17, one of them (Interviewee 16) might have some ideas of being a LO and probably knew how to become one.

With regard to organisation D, interviewee 8 did not know what Senge's LO model is. Interviewee 9 explained that he does not want his company to be a LO or a fast company (Guns 1996). It would suit him if his company continued to create and innovate, making a difference to the world just as the founder of the company had hoped. He therefore did not elaborate on what a LO is. Interviewee 10 believed that they would need a goal (a vision of the future) that they could evolve towards, by continually innovating, changing, and learning. So it appeared that what he wanted his company to be was consistent with learning to be a LO. Interviewee 11 did not illustrate his understanding of a LO.

As an overview observation: it appeared that Senge's LO model was not a widely-known concept among the participating organisational leaders. One reason for this could be that there is limited pressure or need in Australia to be a LO as envisaged by Senge. Alternatively, analogous to the situation that the 'to learn' and 'to invent' or 'to innovate' acts being a type of human tacit knowledge, it might be that 'being a learning organisation' (in Senge's definition) is likewise inherently a common praxis of many Australian businesses, by having their own individual organisational tacit knowledge.

Table 5.4 (below) provides a summary of responses. The blank spaces indicate that the interviewees were not asked to respond due to time limitations.

Table 5.4. Leaders' knowledge and understanding of organisational learning and learning organisation concepts

Org	Interviewee	Did the interviewee show knowledge and understanding of OL/ collective problem solving by discussing or elaborating on the subject matter? Yes, No, or Maybe	Did the interviewee show knowledge and understanding by discussing or elaborating on LO and continually innovating as competitive advantage? Yes, No, or Maybe
A	2		No
A	3		No
A	4	Yes	No
A	7	Yes	No
B	1	Yes	No
C	6		No
C	16 & 17		Maybe
D	8		Maybe
D	9		Maybe
D	10		Maybe
D	11		Maybe
E	15	Yes	No
F	5	Yes	No
F	14		Maybe
G	12		No
H	13	Yes	No

Org = Organisation

5.4.2 Excerpts and interpretation

Organisation A

Interviewee 4

... a learning organisation is one that captures learning ... for instance, when I talked before about doing project implementation reviews, they capture what has been achieved and what has been not achieved ... an organisation actually realises and captures those incidents and learns from them in terms of new processes or similar processes, reasons for success or reasons for failure are known and shared and understood.

... The way that an organisation could become a learning organisation? I think it's in large part through the questioning behaviours of people that run the organisation ... Do they ask around the reasons for success and the reasons for failure? Do they try to embed that in a systematic process to minimise risk and maximise success? Do we get involved in looking at case studies, benchmarking processes?... a lot of it (how to become a learning organisation) is around behaviour, a lot of it is around values of an organisation as well, things that are important to get done ... in terms of project implementation reviews ... in terms of regularly reviewing things that do succeed or do fail, traffic light reports or whatever the mechanisms are, then that's all around monitoring and part of the issue is how do you actually capture the learning and communicate the learning.

Interviewee 4 talked about collective problem solving or organisational learning (OL) but did not indicate that he knew about being a LO. He clarified that organisation A is good at capturing and sharing knowledge, which he considered an element of being a LO. He did not articulate that as an entity, being a LO means it is continually engaged in solving new problems and generating new knowledge (Senge 1990).

Organisation B

Interviewee 1

... a true Learning Organisation is one that adjusts and shapes and moves based on the results at hand so therefore if the result is sub-optimal that it will adjust and change to

make it less than sub-optimal but equally an organisation where all members of that organisation understand that any experience can be a learning experience and too, that that organisation uses a lot more reflection time to then apply what they've learnt from doing something differently instead of just doing, that they stop at different times and assess what they've learnt over a certain period of time and then distil from that how to do things differently whether it be based on the knowledge.

Everyone should be learning in an organisation. Not necessarily to gain productivity but to do it in a better way, do it in a way that improves the outcomes for all stakeholders.

... to have the capacity or the potential or the core competence to innovate would be part of it.

Interviewee 1's idea of a LO was in effect a coping organisation (Senge 1990; Smith 2007), which was able to respond to the environment, experiences, or actions taken so as to improve or be more productive. However, I also observed that he might have the notion that a learning organisation should have the core competence to innovate to improve outcomes for all stakeholders, and this aspect is consistent with Senge's vision. Notwithstanding that, he did not explicitly answer the questions regarding the characteristics of being a learning organisation, and how an organisation can proceed in that direction.

Organisation C

Interviewee 6

... it's an organisation that has the ability to adapt and deal with change, that has the capacity to look at what it's doing in different ways. It introduces the concept of things like double loop learning as opposed to single loop learning.

... single loop learning is where you have (A) to do and you learn something and you do (B) in a different way, so you've made the change ... Double loop learning effectively ... it's more about going back and re-addressing what you did and why you did it and what you actually learnt from how you did it, and then making a modification next time round. Single loop learning tends to be, let's say we have problem (A), we need to address it ...

That actually doesn't give you the reason ... because most organisations are doing more with less, they're under pressure, they have less resources and a whole range of other things. Therefore, what tends to happen is that people have an issue, they deal with the issue and they move on, so they're constantly dealing with issues. A learning organisation has to actually take stock and say, "We're dealing with issues; why are we constantly dealing with issues? Should we be building in time to reduce and mitigate those issues? Should we learn from how we solve those issues? How do we increase the capacity of people to deal with those issues and ensure that they don't arise? What are the issues that are going to be coming in the future?" A learning organisation, if you're going to build it in, you have to be prepared to invest in time and money and resources, into increasing people's capacity to innovate, look at things differently, and to learn ... A learning organisation ... is more capable of dealing with a change in environment than a non-learning organisation.

... Generative learning is the learning that's generated by change. It's about what happened ... it's about learning from the experience ...

A typical learning organisation would be an organisation that values ... in terms of rewarding, investing, recognising, the fact that people are reviewing what they're doing and checking, ensuring that it's right, looking at new ways of doing it ... but it's also about culture, about enabling people to acquire knowledge ... In some organisations they value very highly those people that learn new stuff and get qualified and whatever, and they don't value as much those that don't. To me, they're all human beings and they all have different likes and dislikes ... its leadership has to understand how they behave and what they do and how that also helps create the organisation.

You can't say it's a learning organisation and not provide time for people to learn.

Interviewee 6 introduced single loop and double loop learning in his description of characteristics for being a LO. He also discussed organisational constraints that could hinder development of double loop learning and linked double loop learning to the characteristics of being a LO. His conceptualisation of being a LO was that it is more capable of dealing with changes in its environment than a non-learning organisation; in effect, it is a coping organisation (Senge 1990; Smith 2007).

I asked interviewee 6 about Senge's notion of generative learning to explore further his understanding of being a LO. His view of generative learning was that it is the learning that is generated by change or induced by change. Surely learning brings about change and change affords new experience as an outcome, but an organisation of changes is not a learning organisation and Senge's generative learning actually refers to learning or the 'to learn' act that generates invention or innovation, that is learning which generates new knowledge (Senge 1990).

Organisation D

Interviewee 10

... there's a number of elements to it obviously and I think it's ... open, facilitates learning, it's open to innovation ... in order to have that happen, you need to have a number of underpinning elements, things like flexible organisation is important, openness to external, the learning from outside, your own experience, willingness to give this a go, so I guess culture, acceptance of risk on the organisation part ... people accepting that's the case, acceptance to teamwork I think is important. So all those kinds of good organisation elements I think are important to allow an organisation to flourish as a learning organisation. Having an organisation that actually has a goal, so you are aiming at ... a place you're heading for ... the ideal that you are moving ... For us to innovate and to evolve we need to think that ... there is movement, that we are moving and we're heading to a goal and that it's okay to move and it's okay to try things and looking to support each other and all those types of things. You have to have enabling structures put in place to make that happen which requires certain commitment of funding as well as a commitment of intention to make things happen.

Interviewee 10 explained that they need a goal to evolve towards through changing, learning and innovating, so that the act of evolving towards the goal through changing, learning and innovating can be perceived or seen by employees to be moving towards that goal. So, what he said might agree with the shared vision discipline of Senge's five disciplines of a LO (Senge 1990). However, he did not actually describe what a LO is and how to create one. In that respect, he did not answer the questions asked.

Organisation E

Interviewee 15

... within a learning organisation there would be an acceptance, an encouragement right across the business that everybody from the person who works in the contacts centre to the managing director will always have something to learn ... I sat with the managing director in a workshop ... and I could see that ... on a day-to-day basis he understood he had things he needed to learn, that he was benefiting from acquiring new skills and new connections with people and new ways of dealing with things. When you've got a leadership group, from there down, that are going to understand that we all need to do that and that's value and it's important that they constantly reinforce that in the way they speak to people across the business, I think that's one aspect of a learning organisation, that we can't stand still ... we all need to acknowledge that we're all different, that we value diversity and ... that we all have something to contribute ... our experience in the past and our qualifications, and whatever else ... we need to acknowledge that we all learn in different ways ... we try to ensure that we don't rely on one particular way of learning things, that a learning organisation will provide many learning experiences and that people will get some reinforcement and some feedback and some encouragement in terms of the way they're doing things ... everybody is encouraged to have a go ... the important thing is that we learn from what we did wrong ... that can make a difference in the future. I think that's another aspect of a learning organisation ...

... one of the things that we do recognise and reward is where people have learnt new things and applied them in appropriate ways that has made a difference to the business ... we encourage our own teams within the business to recognise when people have learnt things that have been of great value or helped other people learn things that are bringing value to the individual or to the business. When that sort of thing gets recognised or when we've got something in a newsletter which is about learning opportunities or how something that somebody learnt was very useful. If you share that information across the business ... it's showing ... that was important to the business.

... I wouldn't be in this role as a learning development manager if I didn't feel very passionately about the difference that learning can make to the business.

... we have competition by comparison and there are lots of things that we need to do to make ourselves more efficient ... in terms of the way we use the money then the more we can liberate that money for doing things like innovating and providing new solutions for our customers and environment and so on.

Interviewee 15 made a number of points regarding what he believed being a LO meant. But his characterisation of a LO was more closely aligned to the concept of a coping organisation. His description included learning on a continual basis for adaptation to changes; that his learning organisation (lo) (here the abbreviation 'lo' is used to distinguish it from learning organisation that Senge envisions, LO) should value diversity of knowledge and experiences; his lo should be tolerant of people making mistakes because mistakes are resources for learning; his lo should not be afraid of risk-taking. He also pointed out ways that organisations could become a lo by providing opportunities and resources for learning, rewarding and recognising learning. But all of those would fit in to the concept of a coping or adaptive organisation (Senge 1990). It seems that his exposition of being a learning organisation was predicated on the platform that as a business concern his organisation does not have to compete by generating new knowledge. This, in turn, generates new products for their survival, but it only needs to excel in what it does as a business concern in comparison to others.

5.4.3 Conclusion to Section 5.4.2

I concluded that organisation A knew how to collectively and collaboratively work together to solve problems in the workplace and therefore they knew in practice the 'what is' and 'how to' of collectively problem solving as an entity. However, organisation A did not appear to use or have the need to use its collective problem solving ability or organisational learning ability to identify and solve authentically new problems on an ongoing basis for continual generation of new knowledge and innovations. Thus, in that respect, organisation A might be able to respond and adjust itself to its ever changing environment, but it might not be able to metamorphose to generate new business activities to grow in a totally new environment.

The conclusion drawn about organisation A is applicable in general terms to other organisations, with the exception of organisation D. Organisation D managed to continually output innovations, bringing the company international acclaim. This might be because organisation D had the need or motivation to innovate for its survival and growth. It is reasonable to conclude that organisation D qualifies as a learning organisation in the Australian business environment, although none of the interviewees were actually conversant with Senge's LO model or what being a LO actually meant.

5.5 Conclusion to Chapter 5

With regard to the interviewees' understanding of knowledge and new knowledge, interviewees of organisations A, C, F and G appeared to be unclear about what they are and how to differentiate between them. Interviewees of organisations B, D, E and H could. I concluded from the responses that when interviewees recognised that new knowledge originates from the experience of solving a new problem, they could then differentiate between knowledge and new knowledge, and understand both concepts clearly. This result was therefore consistent with those obtained for these two broad groupings of interview responses, as discussed in Chapter 4.

When interviewees were specifically asked to describe how new knowledge would or could be generated in an organisational setting or workplace, interviewees from organisations A, C, F and G were unable to articulate this clearly, whereas those of B, D, E and H could to some degree.

In terms of the interviewees' views on whether all employees should be supported to learn and what they should learn to enable them to contribute to the organisation's innovation efforts, interviewees from organisations A, C and F believed that all should be provided the opportunity to learn. However, they were unable to articulate what and how they should learn to be innovative. Interviewees of organisations D, E and H on the other hand apparently knew what and how to facilitate learning for all employees to become more innovative.

Based on the results presented in this chapter, I conclude that organisational learning or collective problem solving existed and was practiced in all the participant organisations. However, not all of them used their collective problem solving capability to solve authentically new problems on a consistent, ongoing basis that would constitute some form of organisational core competence and result in a continual generation of new knowledge and innovations. Without this they could not qualify as a LO by Senge's definition. Amongst the participant organisations, only organisation D managed to output innovations. Presumably, organisation D managed to achieve that out of necessity for their business survival and growth rather than because their leaders were knowledgeable about Senge's LO concept or diligently applying Senge's concept to their organisational praxis.

Thus the results of this chapter together with those of Chapter 4 provided answers to Research Question 1, showing the leaders' (or interviewees') knowledge and understanding of the two focal concepts - the 'to learn' and 'to innovate' acts.

The next stage was to examine how the leaders' knowledge and understanding of these two concepts, and their informed attitudes, would impact on the formulation of strategies to facilitate employee learning. This is explored in Chapter 6.

Chapter 6

Implementation of strategies for employees' learning

The pace of innovation has stalled in Australia, official data shows, suggesting businesses have some way to go in modernising ... A report, produced by the Australian Bureau of Statistics, showed that just below 40 per cent of business reported engaging in "some form of innovative activity" in 2010-11. (Chris Zappone, The Age, Business Day, Monday, July 2, 2012, p. 5)

6.0 Introduction

This chapter presents an analysis of data collected from interviews and an interpretation of excerpts relevant to the issues encompassed in Research Questions 2 and 3, namely:

Q2. What are the visions/policies and appropriate educational structures and programmes that the organisation's leaders have in mind or in place to enable all their fellow employees to learn and learn in the manner that would enhance capability and allow them to contribute collectively and continually to the organisation's new knowledge creating effort?

Q3. Are the reported implementation regimes that the leaders envisaged or put in place consistent with and reflective of their own conceptualisation of learning and innovation in their organisations?

The data are presented in this chapter in three sections: Sections 6.1, 6.2, and 6.3. Section 6.1 presents interviewees' personal perspectives on policies/guidelines and/or programmes/activities that enable employees' learning in general, and learning in particular, to allow them to be more capable of contributing to the organisation's innovativeness.

Section 6.2 presents an overview of the policies/guidelines and/or programmes/activities that respective organisations have actually implemented. Section 6.3 presents the leaders' perspectives on their employees learning critical thinking, creative thinking, and emotional intelligence as a trinity of specific knowledge and skills to become more skilful or expert problem solvers for their respective organisation. Section 6.4 presents an overall summary and conclusions drawn from the data.

6.1 Leaders' perspectives on policies/guidelines and programmes/activities

This section focuses on the interviewees' personal thoughts on implementing strategies to enable employees to learn and particularly learn to be more capable of contributing to innovation. Questions asked of the interviewees included: what policies or guidelines would you implement to enable your employees to learn to become more capable of innovating in your organisation? What programmes (i.e. actions and activities) would you implement to enable employees to learn to be more innovative?

6.1.1 A summary of interview excerpts

As an introduction to the results reported in Section 6.1.2, a summary of the interviewees' responses is provided as follows.

Interviewees 2, 3, and 4 of organisation A did not directly answer either the policies or programmes questions. In the absence of their expressed views on these questions, it would not be appropriate to infer if their knowledge and understanding of the 'to learn' and 'to innovate' acts, as reported in Chapters 4 and 5 respectively, had any impact on their attitude towards either providing employees with opportunities and resources or implementing their plans for employees to learn. Interviewee 4 maintained that it was not their role as an organisation to innovate and hence there was no need to educate their employees specifically to be more capable of contributing to innovation.

Interviewee 7 of organisation A explained that her perspective on employee learning policies was based on a sound knowledge management system designed to help people

learn to become smarter. This would be achieved through practicing a project reviews exercise, that is, learning from experiences about tasks performed or problems solved. She therefore envisaged that by experiential learning collectively they would learn to be smarter.

In conclusion, organisation A appears to have no discernible policy or programme envisaged specifically for their fellow employees to learn to be more innovative.

With respect to interviewee 1 of organisation B, he did not elaborate on his view of specific policies or programmes to enable employees to become more capable of contributing to the organisation's innovativeness.

Interviewees 16 and 17 of organisation C commented that organisational leaders should first acquaint themselves with learning and innovation before embarking on anything in their organisation. However, they did not explain what policies or programmes they believed ought to be implemented.

Interviewee 15 of organisation E touched on, but did not elaborate on, policies or programmes. He explained that his organisation had a guaranteed customer base and thus they really had no need to compete for survival in their industry. From my perspective, this observation again highlighted the two adages: 'necessity is the mother of all inventions' and, 'where there is a will, there is a way'. Inventing or innovating necessarily requires an organisational motivation.

Interviewees 5 and 14, as sole-traders of management consultancies, did not elaborate on their perspectives of implementing policies or programmes to educate employees to become more capable of contributing to the organisation's innovativeness. However, interviewee 14 did provide a few interesting thoughts on issues relating to human learning and innovation generally. According to her, what would be needed for human beings to innovate on their own initiatives would be the right organisational culture and a need for inventing or innovating. Again, this emphasised motivation and a nurturing environment as important for gaining and sustaining organisational innovativeness.

Interviewee 12 of organisation G did not clearly express her responses to the questions.

A summary of responses is presented in the third column from the left hand side of Table 6.1. The blank spaces indicate that the interviewees were not asked to respond due to time limitations.

Table 6.1. Summary of results presented in Sections 6.1.1, 6.2.1 and 6.3.1

Org	Interviewee	Did interviewee provide a personal perspective on implementing innovative policies and programmes? A summary of results presented in Section 6.1.1 Yes/No/Maybe	Did interviewee provide their innovative policies and programmes that have been actually implemented in the organisation? A summary of results presented in Section 6.2.1 Yes/No/Maybe	Did interviewee provide a personal perspective on the need for learning the trinity of knowledge and skills of expert problem solving? A summary of results presented in Section 6.3.1 Yes/No/Maybe
A	2	No	No	Maybe
A	3	No	No	Maybe
A	4	No	No	Maybe
A	7	No	No	Yes
B	1	No	No	Yes
C	6		No	Maybe
C	16 & 17	No	No	Yes
D	8			Yes
D	9		Yes	Yes
D	10		Yes	Maybe
D	11		Yes	
E	15	No	No	Yes
F	5	No		No
F	14	No		No
G	12	No		No

H	13		Maybe	Yes
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Org = Organisation

Excerpts from discussions with interviewees 4 of organisation A, 1 of B and 14 of F are presented in the following section.

6.1.2 Excerpts and interpretation

Organisation A

Interviewee 4

... For us it's less about being creative per se. We would be extremely unlikely to run a programme for people to be creative per se. The sort of programmes that we endeavour to do are what people need to do. So our performance development system is orientated around what do you need to do to (1) do your job better; (2) to develop in your particular profession or career. So that is the focus that we really take to that. So in a way it actually depends on what is the person doing, what is their actual comprehension level, what is it that they like to be doing ... we try and come up with the appropriate solution which might be formal course work, it might be mentoring someone, it might be some sort of buddy style so you sit down with someone who is proficient in that particular area, management coaching, online eLearning ...

Interviewee 4 reiterated that it is not their organisation's role to be creative or inventive. Hence, there is no provision for specific programmes offered for that sort of learning. Consequently, the provision of learning programmes is targeted not to innovation or organisational innovativeness that resonates with the concept adopted for the framework of this thesis. Nevertheless, in the conversation he indicated that it is possible for employees to elect to learn to be smarter in their problem solving capability with the eLearning courses available online in-house.

Organisation B

Interviewee 1

I would ensure that the line managers who report to me are tasked with the development of the people that report to them. Make it their responsibility. I would incentivise them to support the development of their employees.

Putting measures into their performance plans that are reflective of people development activities, so whatever that's deemed to be used, of coaching or going to particular learning events or less formal get-togethers onsite ... Obviously investing in architecture and the content for people to access but equally being measured through a range of the items, one of which would be the employees hear of what their learning opportunities are and their ability to grow and I would want to see development plans at an individual level and be able to review them rolling up through the organisation.

Making learning as part of the job ... or trying to be amenable to thinking or innovating as part of the job, not specifically part of the job load. But it would be an encouragement for.

... it would be based on demonstrated behaviours of someone who does look at how they do their work and doing it better and it would have to be assessed by the immediate manager and peers ...

How it would happen here is every person has an 'individual development plan' that's signed off between themselves and their manager, which needs to include all different approaches to learning, not just formal ... and that's attached to our 'performance plan'. So the expectation is that ... our performance plans would rate both behaviours and actions taken, so as we might term it, the 'what they do in their job' and 'how they do in their job' ... we've got a range of different ways that people can access learning and be supportive to a learning organisation.

Interviewee 1 said if he were the CEO he would delegate his role to ensure employees learn. However, he did suggest that he would be 'walking the talk' and modelling learning to all his subordinates. He talked about putting up measures to develop people and highlighted that one of the organisation's values is innovation. But, in the context

of his conversation, what he deemed as innovation was very much job-related innovation or simple improvements, that is, improving employee behaviours with respect to what they do in their job and how they do in their job.

Organisation F

Interviewee 14

... that question presupposes people aren't already doing that and I don't agree with that I believe people are already doing that. I don't think you need policies for people to learn. I don't think you need policies for people to contribute.

... They are learning to become more innovative, to be capable of creating new ideas. I think that people already have that capability I don't think that (referring to her 'to be capable of creating new ideas' issue) that's necessarily needing to be learned. I think what needs to occur if anything, is that the culture needs to be willing to accept diversity and ambiguity. So therefore, it's more about creating the environment for contribution ... But people are contributing all the time, they are learning all of the time ...

... Prime example, I read something the other day about Ian Thorpe doing work in the Kimberley ... he is out there setting up a fund for education. Now he's not following the government's model of what education is. He is effectively innovating by going into communities and telling stories and getting some technology and some books and some pens and papers into a community that the government has chosen not to. Well, that's innovation ... If the benchmark is, are we solving our social issues in ways that are not costing the government squillions of dollars, then we are innovating ... I think innovation doesn't have to be large scale.

Breakthrough is innovation, that's one end of the scale of innovation ... sure that would be nice to have ... if you had so much breakthrough innovation, society to a degree would just be chaotic ... If you're going to have that fully open innovation, then you are going to break down your governments, you've got anarchy ...

... my response to the question was reward the behaviour I want continued. So reward people who have found new ways of doing something that have created more efficient, better in whatever my measures are, they have advanced the performance based on those

measures, including team work and collaboration and knowledge, transferring, sharing ... good at innovation, again I would have to ask you, well what's the definition and the level at which you will tolerate innovation because there is a scale ... that is acceptable and there has to be a scale, because otherwise the level of risk that gets taken might be beyond the organisation's risk appetite ... What we have to do is recreate and stimulate curiosity which in many ways comes back to getting people to be a lot more light hearted and humorous and childlike in their thinking, i.e. inquisitive and open and all those things before we've stifled their brains, squashed their creativity ... You want innovation, you've got to be able to tolerate childish behaviour ... some cultures and corporations and industries just can't.

Interviewee 14 maintained throughout her entire interview that human beings are already creative; people don't need to learn to be creative or inventive. All that would be needed is to create the environment for creativity to encourage it to emerge, as discussed in Sections 2.1.8 and 2.5.2 of Chapter 2. She emphasised that all people are generally smart and they can create or generate new knowledge or invent. She contended that people are contributing all the time as well. Like interviewee 6 of organisation C, interviewee 14 considered that people might be contributing to the pool of human knowledge already by learning and thus expanding it. She gave an example of Ian Thorpe's educational activities in the Aboriginal communities, which she argued were innovative. She believed that innovation spans a spectrum and mentioned that innovation also involves risk taking; how much or what level would be acceptable to a company would determine the novelty aspect of an organisational innovation. What an acceptable innovation would be depends therefore on each organisation's level of tolerance to chaos or disruption to the norm. Because major innovations or breakthroughs can be quite disruptive, too many or too frequent innovations might not be as beneficial to a company as one would envisage.

6.1.3 Conclusion to Section 6.1.2

Reflecting on what the interviewees said with reference to the adopted framework, it is concluded that interviewees of organisations A, B, C, E, F, and G did not respond to the question by articulating their personal views on the plans they would implement to

enable employees to learn and contribute to the organisation's innovative efforts. Neither did they articulate their specific policies /guidelines and programmes/activities to enable employee learning for more capable innovation.

6.2 Policies/guidelines and programmes/activities organisations implemented

This section presents an overview of what participant organisations had actually implemented for employees to learn, and particularly to learn to enhance their capability to contribute to their organisation's innovativeness.

Questions asked of interviewees included: referring to your organisation specifically, what policies are in place and/or are to be put in place to enable employees to learn to become more innovative? What programmes (i.e. actions or activities) are in place and/or are to be put in place in your organisation to enable employees to learn to be more innovative?

6.2.1 A summary of interview excerpts

Interviewees 2, 3 and 4 of organisation A essentially reiterated information about their organisation's staff development programmes. Based on the explanation that interviewee 4 provided, the programmes that his organisation had implemented would probably enable his organisation to become a coping organisation (Senge 1990). However, this would not be consistent with Senge's model of a learning organisation with respect to the organisation's capability to continually innovate products, creating its competitive advantage (Senge 1990).

Interviewee 7 of organisation A also described its implemented employee learning programmes, but they were again staff development programmes/activities targeted to enabling employees to do their jobs effectively. Arguably these would have little impact on employees becoming more capable of contributing to the organisation's innovativeness.

In summary, for organisation A, there was no identifiable or recognisable programme that could contribute to enable innovation.

Interviewee 1 of organisation B explained that his company had a formal structure relating performance to development at both the corporate and individual levels. Within this structure, there was a leadership programme for mid-level and senior-level managers, but it was not clear from what interviewee 1 said if these courses would enable employees (or managers) to be more creative/innovative or simply make them more administratively capable or savvy.

Interviewee 6 of organisation C did not elaborate on the implemented learning policies or programmes that would facilitate employees learning to become more capable of contributing to his organisation's innovativeness. Furthermore, there was little in what he described that could arguably be considered contributory to transforming his organisation as one capable of continually inventing or innovating. Despite this, interviewee 6 aspired to transforming his organisation into a Senge model LO.

Interviewees 16 and 17 explained that there were no implemented policies or programmes that would fulfil what interviewee 6 aspired to be for organisation C. However, the chance of achieving that (a Senge's LO model) would be very slim as employees in organisation C were fully occupied doing their designated tasks. In addition, there was little 'slack' available for employees to think or reflect on the different approaches they would use to do their jobs. More importantly, their bosses were not really good roles models of learning and innovation.

Interviewee 9 of organisation D explained that to maintain the rigour and momentum for learning and innovating as their organisation grows and increases in size, and to prevent it from becoming a burdening bureaucracy or administrative monolith, they opted to create a parallel career pathway (the organisation D Fellowship stream). This allows employees to pursue professional advancement by continual learning and innovation. Also they have established an internal university structure in association with a UK university to foster research activities and award their employees masters

and doctoral degrees by research to invigorate innovativeness. Interviewee 10 concurred with interviewee 9 and claimed that organisation D could be a true learning organisation.

Interviewee 11 of organisation D described how he would encourage and promote his employees to think and generate new ideas in their jobs. He explained that he would allow thinking time as a part of the employee's job, but he conceded that because of prevalent industrial relations in Australia and the business environment, it would be difficult to formally implement such an approach in Australia.

In conclusion, organisation D could be considered an entity that resembles a learning organisation as envisaged by Senge.

Interviewee 15 of organisation E stated that his organisation is like a public service organisation, with structures for implementing policies and programmes to enable employees' learning and innovating built on a public service model. Employees would learn new things so that they could do their jobs effectively; but learning to be more effective in innovation would not be their designated role.

Interviewee 13 of organisation H explained that their employees learn not for organisational innovativeness *per se*. In organisation H, learning and innovating were considered to be separate administrative issues. Learning was part and parcel of staff development or personal learning and development. This meant learning to develop a person's career, by acquiring higher qualifications or becoming more capable through training in generating suggestions, recommendations and/or commentaries for their ministers' attention. Learning was therefore essentially focused on career development or advancement. However, organisation H has also been interested in innovation or, more appropriately, organisational innovation. Essentially an initiative from the top management, the organisation wanted to establish an innovation culture or image exhibiting the organisation's creative side. Their innovation culture or image meant the generation of innovative thinking or new or creative thoughts, but not necessarily the generation or emergence of innovative products. However, this initiative has not been

realised in substance and organisation H is in the process of revisiting it and backtracking to ensure that substantive innovations in the organisation can become fruitful. The foregoing is summarised in the fourth column in Table 6.1 on page 186.

Excerpts of discussions with interviewees 4 of organisation A, 1 of B, 16 and 17 of C, 9 of D, and 15 of E are presented in the following section.

6.2.2 Excerpts and interpretation

Organisation A

Interviewee 4

Our executives around two years ago put together a leadership statement. One of the statements ... was striving to help our people grow. Implicit within that was one of the employee value propositions. This organisation is very much in the learning and development space ... it's in our collective agreement, our enterprise employment agreement, we have a tertiary education assistance for up to 75% tertiary assistance is supported. We have an employee development account where there's certain amounts allocated for development per person per annum. Again, in terms of the way that we structure our training and development budget ... there's a whole lot of different line items ranging from executive development to tertiary assistance, employee professional development, this sort of stuff ... There're structures that embed that process. We report on it, our sustainability report ... in terms of our learning and development schemes versus target and some of those sorts of things ... are some of the ways that we actually structure that sort of commitment to people's learning and development ...

... What we do have is a whole range of programmes which are around learning with more specific outcomes or objectives. So for instance, when we run 'diversity education' every two years, that's with regards to compliance with EEO and other legislation and policies and so forth. With regards to programmes like our technical development programme for engineers, that's for graduate engineers to learn more about engineering, given there's gaps in knowledge, there's a course. What we require our people that are required in the industry ... So we set up a programme where we put together those courses ... Likewise we started a technical officer development

programme, which is again an industry learning programme ... Whilst we embrace learning and I suppose in a sense we are a learning organisation ... We're not interested in knowledge for knowledge's sake ... We're interested in knowledge to the extent that it's useful for our business and useful for the company.

Interviewee 4 mentioned (but without much elaboration) how their educational assistance schemes would support employees to learn to become more capable innovators. However, these schemes, as designed and developed by the organisation's leaders, would probably help employees to do their jobs properly. It would appear that organisation A can acquire and use knowledge to solve problems but there was no evidence or commitment to show that it would create or generate new knowledge. They were organised to do a job that required knowledge acquired through learning. On that basis, interviewee 4 nevertheless considered organisation A to be a learning organisation.

Organisation B

Interviewee 1

... the structure ... I've outlined just before in terms of the 'performance plan' with a 'development plan' included, and there's also a specific requirement for managers to meet at least twice a year to discuss it and an encouragement to meet more often than that with their employees to review how that plan is going. We have a variety of policies such as the education assistance policy, that outline the support the organisation will give to employees, but there's also some parts of other policies, so for example, in the 'leave' policy, there's line items in there about certain 'leave' categories that people can use for when they need to be away from work to learn and then the other part of obviously the funding allocation that occurs each year. We don't have a specific policy on how much is funded but there's a guideline ... the guideline we typically have is \$1500 per employee a year.

... the time? It's up to the manager's discretion as to how that time is allocated ... The main programme in terms of trying to support a creative innovative approach to work is, ... our leadership programme that we've got. We've got three programmes within the

leadership programme. The first one is one that focuses on performance management of all employees ... Within that performance obviously there is a lot of discussion around innovation and how you drive greater results from the employees that report to that manager. Then there's two further programmes, one focussed at mid-level managers and the other focus at senior managers ... over that time they probably do between six to eight classroom days in education but they're also expected to do work based projects and take part in discussion groups along the way as well as meet with their manager as a coach. Then the final event in the programme is to present back the results of their learning journey across the period of the programme, including the outcomes of the learning base project, work based project that they've been asked to complete as part of the programme. So that's probably the main form of programme that would link with creativity and innovation through being driven by managers.

As outlined by interviewee 1, the structure for learning flowed, or cascaded, down from the corporate performance plan to corporate development plan to individual/personal performance plans and then to individual/personal development plans. The leadership programme was mentioned, but without any explanation about whether it contained particular courses relating to how to be creative or innovative. However, based on the context of what he said, it would appear that the courses were for work-related or job-related personal development, aimed at enhancing employees' performance or productivity.

Organisation C

Interviewees 16 and 17

[16] *... you would have to make sure that your management group had a level of training that encouraged that way of thinking as well ... maybe our management group need to experience a similar 'action learning' type of environment that they come up with something that they haven't thought of before and then they see that that is a great way of rolling that out to the rest of the organisation ... in terms of developing policy or a guideline – and perhaps that falls to people like us that implement a certain type of training to think outside of that and to say, "No, we're not going to use that sort of training solution, we're going to try this" it doesn't mean policy though.*

- [17] *... that's a crazy, new idea, if the executives, the senior managers say, "All employees would be afforded time and space, numerically such and such to learn and just to think, 2 hours a week in a quiet room as a part of their job" and ... that's not realistic for this organisation, I don't believe it would work here.*
- [16] *Regarding allowance for personal learning by employees as a component of the job and integrating learning as part of the job, innovation, a corporate value could have something like that in its wording, and development of policy like once a week or once a month people would be encouraged to have 4 hours out to work on something. But I think it would need a lot more structure around that ... if you just said to people, "Have 2 hours out and go and sit in a think tank and do something" I don't think that generates a need for them to learn ... unless people had some sort of vehicle for needing to do that, I don't think they could ... because ... if they needed to devote say, 2 hours to something, a problem, then somebody else has got to step in and do the work so you would need to have things in place that everything else kept going.*
- [17] *So a lot of trust is involved in doing something like that.*
- [16] *People do that nearly already here. I was really impressed ... for example, we have someone on our team who leaves work every Tuesday afternoon because she's embarking on social psychology. Now she doesn't need that to do her job but the organisation is supporting that ...*
- [17] *It's interesting that something such as innovativeness, go and spend 4 hours in a think tank a week ... we don't see that is going to happen ... but we support people to go off and do non-job related study.*
- ... but everyone is so full of busyness ... when you are busy, you cannot generate ideas; your mind is already occupied.*
- [16] *I think ... it's very easy to get into that trap of thinking, "I need to get this work done and it takes me an awful lot of time" but then not having the time to step back and say, "How could I do it differently?"*
- ... perhaps our process of inducting people into a new job should be different ... try and think of innovative ways to have people introduced to their job and then looking at their*

learning opportunities later on. But as I say, that's got to be supported by people who are under pressure to make sure that their teams are working on things that they need to do so it is sometimes a luxury for people to have the time for talking about; but it's not impossible, either. But it needs that shift of valuing that time. Because what we're talking about is something that is in the future that a person, given time to think through a different process or how they do their job or how they approach a problem, we might be able to give them that time so in the future that they do it differently.

Interviewees 16 and 17 did not describe implemented policies and programmes but highlighted time constraints and workload or busyness issues that might hinder people in learning to become more innovative. Their issue regarding setting policy for learning thus became focused on: what are the chances for innovation when people are fully occupied doing their jobs, have no available time, and there is no 'slack' for stepping back and thinking of different approaches to doing other work?

Organisation D

Interviewee 9

There are very few specific action programmes, because again we would profess that it's part of our core culture ... it's something that is built into the organisation, and it's reinforced maybe at times ... as I said, 'we shape a better world', which is based on a foundation of freedom to learn, so we enforce it if you like over time ... I can give you one example of an action programme. In 2001, we sensed ... that as the organisation gets bigger and bigger, and more complex and diverse in its range of business activities, there is a tendency for it to become more corporate, bureaucratic, more like a civil service in terms of management structure. There's always a logical way to have ... the management of the business becomes more important than the leadership of the business. ... we were worried that our best 30-year old engineers would see that their career prospects were going to be enhanced only if they became a manager of people, as opposed to maintaining their brilliance in their chosen design/creative profession. So we instigated ... that we would appoint a certain number, somewhere between 10 and 20, Fellows, who are recognised for their design or technical or creative ability and ... that they would be equally remunerated and respected and rewarded as the members of the

group/board that run the firm. The idea was to have another body of individuals, not a body as a council or a board, but individuals, somebody aged 30 who thought ... I could aim to be a member of the board, or I could aim to be a Fellow. So there's an action programme.

Interviewee 9 was concerned that the administration and management of the business would become dominant and be perceived as more important than the actual operation of the business. This would not be quite what the founder of the business had in mind, but the approach somehow managed to afford the organisation many successes. So, there has been action taken to maintain the vigour of the organisation's innovativeness, with the establishment of an alternative path for employees who aspire to remain creative and innovative, and the establishment of a corporate university.

Organisation E

Interviewee 15

... in regards to our strategy ... part of the '2013 strategy' is about learning and development ... at the strategic level in terms, we've got some things we're trying to achieve by 2013 ... we have some measures in place ... which are really focused on people developing themselves, improving themselves. We ... also know learning contributes to every one of those other areas. We had a little workshop in HR where we actually looked at what are we doing for every aspect of the strategy and ... from the learning and development point of view by creating learning opportunities and putting on general training courses and so on ... that we are helping by making those learning opportunities come to life. We have a number of HR policies. We've got a learning development strategy and within that there are some important things about leadership and so on, so there is a whole range of aspects of that strategy that we see as important. We've got some that we call ... work systems ... within HR we've got ten systems. There are a few related to learning. One is called the "Development System" and it's really ... to provide learning development opportunities, everything from training to secondments and rotations and so on. Then within that system there's links to other documents that might be guidelines about how certain things could happen. But there are other systems related as well so we've got an induction system ... A lot of that is about learning new

things. We've got a 'Performance Effectiveness System', which really feeds in to development. We've got systems about career development and succession planning ... Each of those systems has very important development components to them, learning and development components. Then we have a whole set of nuts and bolts procedures about ... if somebody wants to go to a conference so how do they actually put in that request to go to a conference, that the appropriate person signs off, approves that and how do we make it happen. If somebody wants ... to go and do a graduate diploma or an MBA or something, how do we make decisions about who gets that assistance to do that? How do we sponsor them? How much do we sponsor them to do that? Or a secondment opportunity becomes available with a water body in America or in England or something, how do we make that decision? There is a whole range of procedures and processes in place to make those sorts of things happen. The organisation has a whole lot of things that contribute to that.

What interviewee 15 talked about amounted to adapting and improving, rather than innovating according to the framework as described in Section 1.5 of Chapter 1. As he explained elsewhere in the interview, their business was not aimed at competition but just doing things right or better. It was therefore organised to provide employee learning to do their jobs right and was not specifically focused on innovation. The systems that interviewee 15 mentioned were, in effect, rules and regulations or protocols and procedures for employees to apply for support, as set out in any public service departments.

6.2.3 Conclusion to Section 6.2.2

Interviewees of organisations A, B, C, E, F, and G did not articulate what policies and programmes had actually been implemented or were to be implemented for enhancing employee learning related to innovating. On the other hand, interviewees of organisations D and H provided some policies and programmes that their organisations had implemented. Organisation H, however, had nothing specific to show evidence of innovative effort, unlike organisation D.

6.3 Leaders' views on learning the knowledge and skills of expert problem solving techniques

Sections 6.1 and 6.2 have presented an understanding of the implementation of policies and programmes to facilitate employees' learning; particularly learning to become more capable of contributing to their organisation's innovative efforts. The objective of the implementation is arguably related to the organisation's goal of competitiveness by establishing its core competence (Hamel & Prahalad 1994), and to gain or sustain a competitive advantage (Kay 1993; Prahalad & Hamel 1994) as discussed in Sections 2.4 and 2.5 of Chapter 2.

This section presents the leaders' views on their employees learning the trinity of knowledge and skills (critical and creative thinking and emotional intelligence) to enable them to become expert problem solvers for establishing their organisation's core competence. The relevance of expert problem solving capability to an organisation's core competence, which in turn supports the sustainability of an organisation's competitive advantage thus creating a learning organisation (Senge 1990), has been discussed in Section 2.5.4 of Chapter 2.

Questions asked of the interviewees included: what programmes are in place, or are to be implemented, to facilitate employees becoming more skilled or expert in solving problems? Would you consider including subject matter such as critical thinking, creative thinking, and emotional intelligence knowledge and skills in employees' learning programmes to enable them to become more capable of innovating or solving new problems?

6.3.1 An overview of interview excerpts

Interviewee 2 of organisation A explained that his notion of problem solving is basically ironing things out, which in the context of the conversation means finding faults and rectifying them. Initially he did not elaborate on whether he would want his employees to learn the knowledge and skills of problem solving, including critical and creative thinking as well as emotional intelligence. However, on my prompting and

explaining further the orthodox meaning of the term problem solving, interviewee 2 recognised and appreciated the need for learning the trinity of knowledge and skill for expert problem solving.

Interviewee 3 also considered that problem solving is finding faults in the system and rectifying them. He thought that learning to become skilled problem solvers would only be for the purpose of advancing a person's career (presumably he believed a person only needs to solve problems as a top manager in the organisation) and that learning to be more skilled in problem solving perhaps could be just another management 'fad'.

Interviewee 4 did not consider problem solving to be a behavioural expression of effective learning (Rogers 1969 and as discussed in Sections 2.1.2 and 2.1.3). To him it is just rectifying faults. He did not appear to be aware of the requisite trinity of attributes for problem solving in the workplace environment, but when they were explained to him, like interviewee 2, he came to appreciate the need and agreed that the trinity of expertise was appropriate and necessary.

Interviewee 7 was the one who recognised and advocated for the need of the trinity of expertise for proficient problem solvers, and thus effective learning in an organisational setting.

In summary, it appeared that leaders (interviewees) in organisation A recognised that because there was no identifiable need for innovation, there was no one to consider the necessity of establishing an expert problem solving capability as organisation A's core competence.

With respect to organisation B, interviewee 1 explained that his organisation's managers were probably aware of the benefits and need for acquiring the trinity of expertise to become skilled problem solvers. But, because of the organisational structure, different managers might not be prepared to budget for their staff to go and learn this sort of specific expertise. Nonetheless, organisation B has actually sent people off to learn to become more skilful problem solvers in some formal courses, but with unremarkable practical outcomes. Interviewee 1 considered that the reason for this

was probably because learning is one thing and practicing or applying that learning is another. Problem solving expertise requires constant and continual practice for it to remain sharp and honed (Bessant *et al.* 1994; Bessant 2007; and as discussed in Sections 2.4.6 and 2.4.7).

Interviewee 6 of organisation C maintained that to develop employees' capability to be expert problem solvers, there needs to be the freedom for them to express themselves without the fear of risk-taking and experimenting. They should also be rewarded for their ideas. Having that culture, environment, or climate (Hislop 2007; Lave & Wenger 1991, 1996; and as discussed in Sections 2.1.8 and 2.5.2) was important in the first instance; they should then be provided with the expertise to enable them to think differently. However, interviewee 6 did not elaborate on the nature or meaning of 'thinking differently'.

Interviewees 16 and 17 of organisation C agreed that they would not doubt the value of providing employees with opportunities to learn the trinity of problem solving skills, but they conceded that they did not know much about the subject.

Interviewee 8 of organisation D agreed with the idea of learning the trinity of problem solving skills. Interviewee 9 explained that to train employees for professionalism, and provide them with real challenges, the organisation needs to exercise their employees' minds to be more creative. He considered that establishing the university awarded masters and doctoral degrees system was an indication of organisations D's commitment to developing their fellow employees' problem solving capabilities. He also explained that the setting up of the Fellows career path was an attempt to maintain their research rigour and their organisation's problem solving and creative competence. Furthermore, he reported that his organisation was keen to adopt the approach of breaking up the organisation into small units in order to maintain innovativeness and competitiveness, analogous to the suggestions of Christensen and Overdorf (2001) and as discussed in Section 2.5.3 of Chapter 2. I considered that organisation D could be an example of a learning organisation among Australian companies.

Interviewee 15 of organisation E agreed on the need to acquire the trinity of expertise to become a specialist problem solver. His response showed that he probably knew more about problem solving needs than the others interviewed in this research.

Interviewee 5 of organisation F did not express herself clearly on what would constitute innovation as she was more concerned with quality improvement. She did not answer the questions asked or indicate her knowledge of critical thinking. Similarly, interviewee 14 did not answer the questions around acquiring the trinity of skills for problem solving.

Interviewee 13 of organisation H thought that analytical thinking equated to critical thinking. She agreed however that the trinity of expertise would be needed for developing problem solving skills and competence. This summary was represented in the last column of Table 6.1 on page 186.

Excerpts of conversations with interviewees 2 of organisation A, 1 of B, 6 of C, 9 of D, and 15 of E are presented in the following section.

6.3.2 Excerpts and interpretation

Organisation A

Interviewee 2

What's the good in critical thinking? ... I guess in my particular area, IT, a lot of what we do is problem solving ... without the ability to be a critical thinker and to be a problem solver you'll have very, very limited success ... it's particularly important in the information services because you do get faced with unique problems almost on a daily basis that you will need to analyse, pull apart, challenge and then try to solve ... without the continued knowledge and training ... you're not fostering that ability to pull apart problems, you're not arming people with the skills and the equipment that they need to actually take that apart. Without that ... you keep reinventing the wheel ... trying to solve the same problems over and over ...

Regarding what employees would get out of learning creative thinking skills and knowledge, I think satisfaction for one. The ability to crack a really hairy problem is something that brings the individual an enormous amount of satisfaction or to be able to think laterally and change gears and think, what is this problem really about? How can I avoid it? Or how can I overcome it or get around it?

In terms of how one would emerge a satisfactory or workable solution to a problem or how would one create something or create a plan of doing something, it is slightly different for everyone ... One is that they generally have developed the knowledge they need to tackle the problem in the first place. If you're working with incomplete knowledge, particular expertise ... then you're going to struggle for a start ... if you're not armed with the right tools you're not going to be able to solve the problem anyway. Developing critical thinking is one aspect.

But often one hardly gets a complete picture of all the information needed ... there's a certain requisite level in knowledge you need to get to before you can tackle the next challenge ... you need to be forearmed with a certain amount of knowledge in order to tackle some problems.

You also bring hopefully experience, and the other important thing in the exercise ... is judgement. So what's the best way to tackle this problem, what's the best path? So based on knowledge and experience you can sometimes develop judgement which will allow you to critically analyse the situation.

... You would need emotional intelligence or interpersonal skill in a collective problem solving situation or teamwork situation.

... if you're working on a particular contentious project you need to have an ability to set aside what you think of a situation or a proposed solution and examine it dispassionately if you like ... You need to be able to set aside all the anger and the emotion and just concentrate on the issue and move forward. Consider all the ideas, even if someone who you don't particularly like sort of comes up with the right solution.

Interviewee 2 believed that the outcomes of acquiring creative thinking knowledge and skills would be the ability to solve difficult problems, described as 'hairy problems' (interviewee's words), leading to a sense of personal satisfaction or self-pride. I was

anticipating he would elaborate on the elements/dimensions one would acquire from learning creative thinking skills (e.g. the synthesis of diverse ideas), but he did not.

I observed that he might not have understood some terms that I used and he needed to be prompted to respond to questions specifically. For instance, I had to provide him with an explanation of the terms so that he could elaborate on such things as the creative thinking aspect. When prompted, his answers suggested that he knew what critical thinking is, and understood its significance in problem solving.

Organisation B

Interviewee 1

Regarding, generic or general knowledge and skills necessary for anybody to become skilled problem solvers ... I think there's a range of models and approaches ... it's one thing to be exposed to it, it's another to be actively encouraged by the authority above you ... and then to be given time and space outside of your normal work to practice and learn and understand those things. So we've certainly had a few groups through a programme on problem solving and decision-making ... that's been very useful for people to apply those approaches to their work.

What sort of things does it cover?... it's called problem solving/decision making and it has on their website ... an outline of what's in them, so they have a range of different models and tools depending on what the situation is, to enable people to structure their thinking around a particular problem and to seek new ways of looking at it.

... Especially at the senior ranks ... before we hire them, we actually run them through psychometric testing ... aid to understanding about how they work and where their strengths are going to be ... we certainly do value an appraisal of critical and creative thinking skills ...

We don't have any programmes on creative thinking capability at the present time. We haven't typically promoted that on our own but if a particular manager feels it's necessary for their team or for their subordinates then they have the money to go ... But we haven't done it as a central approach.

Also regarding educating employees to be more emotionally intelligent in an organisation setting ... we've certainly included some aspects of that in our leadership programmes. As much as we haven't specifically pushed emotional intelligence as a learning area for the wider population, it's not discouraged and it's up to the discretion of managers if they wish to choose to spend their budget in that way. I think our organisation is becoming a bit more enlightened about the value of it but we're not further enough down the track for that to be the core part of it.

In terms of 'would there be any more intense education of these employees about how to work together and create knowledge in the collective teamwork situation?' the answer is no. Not unless the line manager in question chose to spend time and money on it.

Some line managers do ask for this sort of educational programme, but we don't as yet have a really good understanding across the organisation, what happens is that we're a very disparate business, we're quite different from end to end, so we haven't had, up until now, with our recent learning management system, a central way to capture what people are doing their learning on. I think it will take us another year or two before managers do record it in a single consistent way ... There's no centralised programme or policy and action to consolidate or to enhance the core competence of an organisation such as this ... Not specifically on an innovation and idea generation focus.

Interviewee 1 talked about elements of creativity as flexibility and multiple perspectives and about learning to share experiences and knowledge in order to streamline the company's business operation. He talked of sending groups of employees to attend formal courses on problem solving skills with the hope that they would become skilled problem solvers, but he did not elaborate on the general skills contained in these courses. He talked about psychometric tests, such as the California Personality Profiling, but did not relate this psychometric test to the individual's innovativeness or creative capabilities in the context of the question put to him. There was no organisation-wide plan or strategy to prepare employees to be creative thinkers. For organisation B, money has been budgeted and spent but it has not produced any substantial evidence collectively for the corporate innovative effort.

Organisation C

Interviewee 6

... the first thing I believe you have to do is actually create an environment where they can talk about the problem ... you have to create an environment where you encourage people to be able to talk about doing things differently.

The next thing you have to do is give them the skills to look at it differently ...

The work groups themselves very often have the capacity to know that something could be different. Sometimes they don't have the skills to analyse it, so you need to give them the analytical skills. ... the opportunity to look at things in a different way ... Often people actually have the knowledge; you have to give them the capacity to use the knowledge rather than just do what they do. I think for me it's a lot about creating the right environment, then enhancing skill ... To me, its environment, then knowledge, culture, and making sure it happens.

... I think people are contributing anyway and they contribute in different ways ... For them to contribute in a different way ... an understanding about yourself and the emotional intelligence side I think is actually extremely important.

... accommodating and understanding and accepting ... I didn't understand some of the earlier questions, so I answered as best that I could, but I had to tell you I didn't understand. Now you have an option to either explain more, think I'm an idiot, or whatever, but it's in your hands. Then you can say, "Oh yeah, if I need this information I've got to reframe it", which you did on a few occasions for me, which was really helpful. So that is important: people need to know how to reframe. So in order to be able to contribute in different ways, whether that's an increase in contribution or a change in contribution, they may need planning skills, and if you're not prepared to invest in them then I think an organisation misses the point ...

Interviewee 6 explained that employees should have the freedom to voice their opinions. They should be presented with challenges, with problems to solve in order to practice and experiment. And they should be rewarded for risk-taking. Then the next step would be to provide them with the skills to look at things differently. Interviewee 6 hoped to educate employees in critical and creative thinking skills, but he did not make that explicit in his response. His colleagues (interviewees 16 and 17) thought it would

be hard to find the right providers to deliver the learning programmes (discrete packages of information on the trinity of knowledge and skills). Interviewee 6 maintained that they should be creating an accepting environment for people to make suggestions and changes.

Organisation D

Interviewee 9

... In terms of problem solving knowledge and skills, there's a layer of activity which is quite broad and diverse, which is, if you like, professional training.

... That's one layer of stuff ... On top of that ... we have things called design schools, that we run all around the world, they are aiming at again, the recently qualified professionals ... And getting to expand their mind about thinking about design, about creativity and they do it differently in each region, because it depends on the person running them, what contacts they have, but can be setting challenges to individuals, teams or pairs. For example ... I got involved with one group here. The ultimate challenge is, if you are the world government, what new laws would you activate to make the world a better place ... Or going outside in the Blue Mountains, have a look at this valley, is there any way you could improve on it ... We are doing similar things for presentations. Skills about creativity and communication. Because we increasingly recognise, it's not just being creative, it's about how you use that. Very important, we are always in a creative environment, working with creative people ... we are just formalising the whole thing, in September this year 2009, we will start what we call the organisation D University ... it will be about stuff we are talking about, but there is an ambition for that university to be based around learning, sharing and research. And also to provide ultimately a place where people can maybe take a sabbatical ... get themselves completely out of the work environment ... and do what they want to do. But we are launching it with professional training ... where when you do 4 modules, you get a masters degree and ... you have to do 2 of those to get an engineering doctorate. It's a UK degree from the 'University of M' ... but we haven't yet really got the thing you are talking about ... which is simply about encouraging innovation and creativity into our system.

... We were talking about the fellows, between 10 and 20 of them, not a vast number, to be holding master classes ... to the firm as a whole about their careers to date, what they've done, what's exciting, what they've enjoyed, what they haven't enjoyed, and I've been encouraging people to think about this idea that you said, having a mentee. Each one takes on one person for 6 months and another person after that, just to be with them.

I'm not sure we want to be a fast company, that's the most interesting thing. One thing I didn't talk about a little bit, within our organisation, the toughest thing actually is to have a creative culture, you also have to tolerate a high degree of chaos.

Organised chaos is a very good thing for organising an organism. But a lot of people, particularly engineers, do not like the idea of loss of control ... the toughest thing is to continue to have chaos and to believe in it sufficiently - you've got to believe that the motivational basis of giving individuals freedom is a greater power for better outcomes if you like, than trying to control them.

... it's possible organisation D as an organisation will die ... it is unlikely that you can have 100,000 people and keep them motivated, and keep them individual and so on. One of our old chairmen reckons ... we should pick on a size that we think works and by the time we get to twice that size, we should split the firm in half and make 2 independent companies. Let them go their own way.

Interviewee 9 mentioned training for professionalism as training or exercising the mind to be creative, not just to do the job right. He also mentioned that they have an internal structure, organisation D University, which could confer masters and doctoral degrees to employees completing research studies in conjunction with a UK university. Their organisation has indeed been focusing on encouraging their employees to learn and innovate and be creative by doing research. To keep the organisation competitive, strategically they would be prepared to break it up into smaller competing companies that have to stand alone, rather than growing too big, inefficient and potentially becoming an un-competitive hierarchy or bureaucracy (Christensen & Overdorf 2001; and as discussed in Section 2.5.3). However, interviewee 9 did not answer the questions asked.

Organisation E

Interviewee 15

Regarding the organisation providing the actions or activities to enable employees to become more skilful in solving problems, what we prefer in terms of helping people to develop that problem solving skill is that we will provide ... training in a particular field ... the actual activity would give people the opportunity to solve problems, simulated problems, as part of that activity in the first place ... You might be in a workshop where you're actually having a role play or there might be a problem solving exercise as part of the activity where you would try and play what you've just learnt, we wouldn't just provide a learning opportunity, or a course on problem solving. It would be more that the actual course would involve problem solving opportunities.

... effective training opportunities, for example, will try and incorporate that opportunity to practice your skills there to try and solve problems, as close to the real thing as possible during that actual activity.

We have provided some of those opportunities (meaning critical thinking, creative thinking and emotional intelligence knowledge and skills), and I'll give you an example. We have this activity we run four times a year which we call ... the Management Team Meeting, and the focus ... is to actually focus on some area of learning which is primarily of importance to the managers across the business ... for example ... creative problem solving. We brought in an external person to provide and lead some activities which showed people how they could work together and work with their teams, some ways of actually trying to solve problems ... There were some discussions and so on but it was primarily to try and give them some tools to use within their own private workplace ... It was a very similar thing in terms of the innovation and problem solving. Part of that was about the brain and ... the way people think and so on, and part of it was about providing some tools and techniques for how can we go about that problem and mainly about problem solving, creative thinking sort of ways ... Then from time to time people do things - my manager every time Edward De Bono is out here, for example, she will go along to one of his workshops. So people will learn about some of those techniques from various people, like Edward De Bono ... So there'll be tools from time to time that people will use and I guess we pick up from skilled facilitators who come into the business who have their own ways of approaching problem solving and brain storming and whatever

else might be. We'll all pick up on those things and try and apply them to our own situation.

... I don't think critical thinking would be systematised in terms of that's one of numerous competencies, capabilities we would hope to gain/develop ... the word 'critical' I don't think you could ask everybody in the business and that they would give you the same explanation of what that is. But what you're saying is certainly something we would value and would be inherent in lots of things that we do and lots of discussions that we have ... You've used the word 'authentic' quite a bit; we have a monthly seminar, a workshop for our senior managers and the word 'authentic' and I think what you're talking about in terms of critical thinking comes into that quite a lot ... almost in every workshop we would be thinking about what is critical thinking. For example, the general managers might be talking about the water industry broadly whereas the divisional managers might be talking about their part of the business. They will be certainly dealing with what are the core issues and the core needs and the core objectives of their part of the business and how we solve those really difficult issues ... the facilitator will try to coach people about how they identify the key aspect of what they're doing but there is a lot of people setting an example in terms of talking about what they've done in their parts of the business and how they've identified critical issues and how they worked through those problems and what's worked and what hasn't worked. A lot of it's about being terribly honest and authentic about what they're doing ... I would say it (critical thinking) would be something that we're trying to do as part of a number of things but we don't separate it out.

I think all employees of this organisation should be given the opportunity and resources to learn these sorts of problem solving skills that we have just talked about so as to enable them to become more innovative.

I certainly agree that not just the top people can contribute to the innovation but everybody from the organisation ... So I think there's a significant aspect to everybody's role which is about problem solving and thinking of better ways to do things. So absolutely yes ... Yes, that's absolutely a common theme to so much stuff. I think that would be one of those things where when you think of the core competencies of everybody in an organisation, they're going to need to work with others as a team. They need to be able to communicate but they absolutely need to be able to solve problems;

depending on your level of authority in the business then to make decisions about those things. I think in terms of solving day-to-day problems within your particular role, everybody has that authority to make decisions about those things ... the problem solving certainly is a very important core theme to all the staff.

Interviewee 15 had his ideas regarding developing employees' problem solving capability. He spoke of providing employees with problems to solve as practice (so in a way he was referring to an action research approach, or action learning, or a type of learning focussed on reflective practice, or developing metacognition). He thought that they might have learned the theories or concepts of creative thinking but have not actually had opportunities to do so because their business was not tasked to invent things (Bessant *et al.* 1994; Bessant 2007; as discussed in Sections 2.4.6 and 2.4.7). Regarding critical thinking, he suggested that different people would have different notions of what critical thinking is. This incorporated critical thinking in their management problem solving training regimes but did not actually identify it as an individual training subject for the general staff.

6.3.3 Conclusion to Section 6.3.2

Responses by interviewees of organisations A, C, F, and G did not demonstrate a recognition of the need or significance of learning the knowledge and skills of expert problem solving techniques for establishing the organisation's core competence. Interviewees of organisations B, D, E, and H, however, recognised and acknowledged the need and significance of expert problem solving skills as the critical element of the organisation's core competence.

6.4 Conclusion to Chapter 6

When asked, interviewees of organisations A, B, C, E, F and G did not articulate their personal plans for implementing strategies for employee learning. It should be noted that some interviewees were not asked to respond to this issue because of time constraints (i.e. not all participants from organisations D and H).

When asked, interviewees of organisations A, B, C, E, F and G did not articulate policies and programmes that their organisations actually implemented or planned to implement. On the other hand, interviewees of organisations D and H provided some details of specific policies and programmes that their organisations had implemented. However, interviewee 13 of organisation H did not provide any evidence to document her organisation's innovative achievements.

Interviewees of organisations A, C, F and G, when asked to elaborate, did not appear to appreciate the need and significance of learning the knowledge and skills of expert problem solving techniques in order to establish their organisation's core competence. On the other hand, those in organisations B, D, E and H appeared to recognise the need for the trinity of expert problem solving techniques.

It may be concluded from the results presented in this chapter and Chapters 4 and 5, that the leaders' knowledge and understanding of, and their attitudes to, learning and innovating did impact on policies and programmes designed to enable their employees not just to learn or train to do their jobs effectively, but to learn to become more innovative. Interviewees from organisations that had policies and programmes implemented to facilitate employee learning relating to innovation, seemed to have a better understanding and deeper appreciation of new knowledge generating or innovating.

The next chapter (Chapter 7) presents data and information collected from official organisational documents and the questionnaire survey responses of participant organisations' HR managers. This information provided further details on the policies, programmes, and outcomes of their implementing strategies on employee learning and innovating.

Chapter 7

Data and information from public documents and questionnaires

7.0 Introduction

Chapters 4, 5 and 6 presented the findings from discussions with leaders of participating organisations about the 'what is' and 'how to' of the 'to learn' and 'to innovate' acts, knowledge and new knowledge and their generation, collective problem solving or learning, as well as the establishment of an organisation's core competence for corporate competitive advantage. It was considered that using a data triangulation approach by addressing participants with a reiteration of the key points would supplement and affirm the quality of the results.

This chapter presents data and information from the questionnaire responses from participant organisations' HR managers, as well as public documents from their organisation's webpages. An analysis of the public documents, with respect to their policies or guidelines and programmes on learning and innovation, and the information provided by the HR managers helped align public statements and questionnaire responses with the interviewees' accounts.

Not all of the participant organisations returned the questionnaire. Those that did were organisations A, B, and E (these are identified in this chapter by two asterisks). Their questionnaire responses are reproduced verbatim in the Appendices as Exhibits 7.1, 7.2, and 7.3.

Information on the organisations, where available from the public domain, are presented under the headings: 'organisational mission, vision, and goals or aims', 'organisational values and aspirations', 'organisational statements on staff learning and development', 'organisational statements on organisational development, learning and

innovation', and 'organisational history of achievements in organisational development, learning and innovation'. Data and information presented in Exhibits 7.1, 7.2 and 7.3 were interpreted and are discussed under their respective organisational heading in the subsection entitled 'returned questionnaire'.

Organisations F and H were not included in this chapter for the following reasons. With regard to organisation F, the two participants (interviewees 5 and 14) were, in effect, separate 'sole-traders' of two management consultancy companies without any organisational structure. There was no information on their 'company' websites relevant to the objective of this chapter. In addition, they had not provided public/official company documents for analysis and did not return the questionnaire.

Organisation H is a state government department and its policies and programmes for staff learning and development were similar to other public service instrumentalities described in the respective sections for organisations A, C and E. These were, in effect, government instrumentalities operating under a corporation structure, essentially under the public service employment rules and regulations with respect to employment conditions. Importantly, the sole participant (interviewee 13) of organisation H remarked that her participation was as a private citizen and her views should not be taken to represent an official statement of organisation H or used to describe the organisation's operations. She had not officially consulted organisation H or been granted permission to present the organisation's views on any of the issues described at the interview. On that basis, it would not be appropriate to correlate her personal views with those expressed officially by her organisation in the public domain.

7.1 Results and discussion

7.1.1 Organisation A

Data and information recorded on organisation A's webpage were examined and those relevant to the thesis extracted for presentation as follows.

Mission, vision, and goals

Organisation A's mission statement is to “contribute to the environmental, economic, and social well-being and growth of the State of Victoria through the operation as a commercial organisation, and the distribution of dividends to the Government.”

Its commitment was related to the declared vision statement of becoming a truly sustainable business, and the collective commitment of its employees to their four corporate values.

Values and aspirations

Their corporate values are integrity, leadership, innovation, and respect. However, organisation A had not defined or qualified what these values actually mean and how they were formalised into organisational policies/guidelines for operations. Neither had they articulated in documents accessible as public information how they were operationalised into employees' learning programmes as actual learning contents and activities.

Staff learning and development

As a utility company, wholly owned by the State Government of Victoria, Organisation A's recruitment policies, procedures and conditions of employment are similar to and reflect those of the Victorian public service.

Regarding employee learning opportunities, organisation A professed on its webpage that it is committed to “creating an energised and stimulating work environment for our people. We provide excellent development opportunities, and offer flexible, family-friendly arrangements.”

Relevant to the development opportunities of its employees, organisation A was proud of its Technical Officer Development Program (TODP) which gives high-school-leavers and people with pre- or post-trade qualifications the opportunities to pursue an exciting career in the industry in which the company operates. Thus, in its public

statement, it highlighted: "Imagine getting hands-on experience and training in organisation A's business - and getting paid for it". Arguably this might have provided employment or better employment opportunities for the citizens of the state, thus fulfilling its mission. However, in terms of the focus of this thesis, it was not clear how this learning and development opportunity would have enhanced the capability of employees to contribute to the organisation's core competence, and consequently its competitiveness, in terms of innovativeness and creativity. Information provided on the webpage has not illuminated this issue.

In terms of contributing to the development and wellbeing of its employees, organisation A declared that it would recruit the right people for the right job so as to secure the right outcomes with absolute safety in their workplace. Again organisation A declared implicitly that its employees' job roles were highly structured, rigidly regulated, and stringently prescribed, as well as tightly managed. Arguably, it would be strongly focussed on compliance with a job description and presumably there would be little possibility for flexibility, freedom, risk-taking, or self-expression for organisation A's employees.

However, in organisation A's webpage section 'Our People', it was stated that "sustainable management of people was a critical factor in the management of the overall organisation". Relevant to this is the declaration that it was "committed to providing a flexible and fair workplace with opportunities for people to develop their skills and contribute to the overall performance of the organisation". This might be so in terms of the social aspect of the employee's work and home balance. But there was no explicit reference to the acquisition and development of employees' knowledge and skills specific to enhancing their ability to learn and generate new knowledge for new business or growth.

Organisational development, learning and innovating

In relation to organisation A's activities in generating new knowledge, 'Item 11: Research Involvement', of organisation A's 2009 Annual Report, as exhibited on its webpage, recorded that it maintains "an awareness of and responsiveness to emerging

issues in its business” and “in 2008/2009, it continued to be involved in activities (outlined in the following) aimed at better understanding and improving” the core issues of its business. It did this through its membership of a Cooperative Research Centre (CRC), a form of industry-university networking and CoP arrangements* (see page 222 for explanation). This CRC comprised some 30 partners from its industry, research organisations, universities, and government agencies; the CRC provided a national strategic research capacity for this Australian industry. The benefits that organisation A believed it would derive from the membership include:

- Access to expert knowledge at both national and international levels;
- Involvement in the planning and operation of national research relevant to the industry;
- Involvement in the formulation of the industry's policies and regulations; and
- Contribution to the development of industry-specific professionals.

Despite these obvious benefits relevant to the focal issues of this thesis, there was no explanation of how organisation A as a member would have utilised or capitalised on these benefits for the development of its employees to learn and specifically enhance their capability to generate new knowledge for organisation A. Nor was there any elaboration of how organisation A would have used this source of information or network as a ready access to lead users (von Hippel, *et al.* 2001; and also discussed in Section 2.3.3) for their own research on generating new products or new business models for growth.

Organisation A recently joined another CRC, which is at the forefront of applied, innovative research into new biotechnologies. As well as having CRC membership, it was also a member of a number of other industry-related organisations for the advancement of its specific industry.

Because of the scarcity of details about organisation A's actual participatory activities in the CRCs from its Annual Report, it was unclear what specific role organisation A played in its involvement. This raises a number of questions: how many and who among organisation A's employees would have been engaged or involved in the CRC

activities? How would organisation A's participants have transferred their research knowledge and skills to organisation A's other employees who have not actively participated in the CRC's activities? What research activities would be undertaken physically within organisation A to facilitate the research work undertaken in the CRCs? There was neither any direct mention/statement from the four interviewees (interviewees 2, 3, 4 and 7) nor in the public documents on these issues, and there was nothing relevant to these issues in the returned questionnaire.

History/evidence of achievements in OD, learning and innovating

Organisation A recorded on its webpage that its performance indicators would be gauged by its contribution to the economic wellbeing of Victoria based on its "efficiency and growth", with particular emphases on its "financial strength to deliver sustainability", "services enhancing new business and growth in the community" it serves, "maximising triple bottom line return to the State Government", and be "prudent and efficient in its business operations". In organisation A's public statement on its webpage, there was no explicit announcement regarding how it has operated to match these declared performance indicators, especially the provision of services that would enhance new business and growth in the community it serves. Nor were there verbal statements or comments volunteered by the four organisation A's interviewees in terms of elaborating what and how new business and growth would have been affected, although they were not specifically asked to elaborate on this aspect. As discussed in this thesis, generating new business and growth in the commercial sphere would normally require creativity, the generation of new knowledge, and innovation. This aspect appeared missing or was not elaborated on in any of organisation A's declarations.

Relating to its aspired contribution to social wellbeing, the performance indicators for supporting customers in the community it serves are: right product, right price, right way. Essentially this means providing services matching what its customers need or want. This means that organisation A has been reactive rather than proactive in its provision of services to its customers (perhaps, this might have been taken to mean

what organisation A has referred to as new businesses or growth). However, there was no elaboration on how organisation A would have acted to secure accurate information or knowledge regarding what its customers want or need. How would they proceed (presumably by research or exploratory work) to generate new marketing knowledge? This was not explored either by the interviewees or on their webpage (except that in the paragraph under the *OD, learning and innovating* heading earlier earmarked by *). More specifically relevant to this thesis was organisation A's lack of elaboration on how it provided its staff opportunities to research for the purpose of generating new information on new products and how to access envisaged new marketplaces as their business models for growth.

Returned questionnaire

Information in Exhibit 7.1 shows that organisation A is a mid-size company in the water supply industry. As shown in the exhibit, there is a conspicuous culture of learning and knowledge sharing within the organisation. Across the levels of employment in the organisation, there is an individual customised learning and development plan (ICLDP), which is reviewed and renewed on a yearly basis. However, the enactment of these plans was not apparently an integral element of the management vision or goal for achieving learning organisation status and having a competitive advantage of continual innovating capability in its industry. Exhibit 7.1 shows that for the past five years, organisation A has not considered or planned to achieve the status of learning organisation. It has not been a managerial agenda item for discussion on the strategic directions for organisational development. This result was consistent with the views expressed by the interviewees, as reported in Chapters 4, 5 and 6, that their organisation was not tasked to innovate for business competition.

The impact of implementing the employees' ICLDP was reported to have substantially increased the employees' satisfaction levels and reduced the staff turnover in the organisation. Interestingly, it was also reported that the ICLDP activities had a stimulatory effect on the organisation's new knowledge generation and innovation to the extent that it was "considerable within some groups/areas". However, what these

groups/areas were has not been detailed in the returned HR questionnaire. In terms of the quantitative measures of the organisation's output of new knowledge generation or innovation as a percentage contribution to the profit margin and intellectual assets as patents, organisation A's return provided no information to substantiate any claims. Furthermore, with respect to the information provided by the interviewees of organisation A in Chapters 4, 5 and 6, the statement of a positive impact reported in the questionnaire return was not consistent and conflicted with the interviewees' self-reports.

Another area of the questionnaire findings that conflicted with the interviewees' reports concerned Item 9. Interviewee 7 reported that she hardly observed role modelling of learning by managers as an aspect of coaching or mentoring activity; she was neither coached nor mentored and she did not coach or mentor anyone herself.

The HR manager's replies to survey questions in Items 1 and 10 together appeared to be incompatible with each other. It appeared that the 'very evident' culture/climate of learning and sharing of knowledge in organisation A was not encouraged and promoted by a formal recognition, acknowledgement, or reward. It might be taken that learning and sharing knowledge to facilitate employees doing their work or solving problems might not be a routine practice.

It appeared from the numerical data provided in Item 10, that the 'learning-focussed' programmes were numerous but it was unclear how many or how much of the 340 programmes were for learning or training. Training differs from learning in that it is the acquisition of practical knowledge and skills of performing a routine or task; whereas learning is as explained in Chapter 1. It was likely that the majority of attendances of these programmes might have been for training purposes, roughly a week for each employee a year and this training oriented employee development arrangement would agree with what the interviewees reported in Chapters 4, 5, and 6.

Conclusion

What organisation A's public documents reveal was consistent with the overall observations made by its four participant interviewees. They showed the organisation leaders' knowledge and understanding of the two focal concepts, 'to learn' and 'to innovate' (Chapters 4 and 5), and that there was no substantive policies or programmes planned or implemented that would facilitate employees learning to be more creative or innovative. These observations or conclusions were therefore consistent with the information provided by the HR manager through the returned questionnaire, as shown verbatim in Exhibit 7.1, indicating that there was no record of any innovative achievements.

7.1.2 Organisation B

Mission, vision and goals

Organisation B is one of Australia's vertically integrated utility companies providing essential services to over one million household and business customers throughout the country. Whereas organisations A and E are wholly owned by State Governments, organisation B is a privately-owned business with its parent company listed on the Stock Exchange. The business operation of organisation B includes the generation and retail of two principal forms of energy: electricity and gas. It owns and operates a large portfolio of energy generating facilities, including power stations, gas processing plants, and wind farms for electricity power generation in many states. Additionally, the scope of organisation B's business includes a number of strategic investments as joint ventures for its entry into cleaner forms of energy generation. This encompasses geo-thermal and solar power generation. So, with organisation B's apparent involvement in many contemporary environmental and climate change issues, it was reasonable to expect that there would be ample opportunities for organisation B's employees to contribute to the innovativeness of the company. In this respect, it was interesting to note in the following paragraphs what organisation B has documented on expounding its corporate responsibility to its employees' intellectual development.

Values and aspirations

As a long standing commitment, organisation B would “make every effort to balance their responsibilities as an essential service provider with the environmental, social and economic needs of their stakeholders, customers and the communities”. A professed responsible and reliable business operator, organisation B acknowledged that there were numerous challenges to confront. Among the biggest challenges organisation B faced were those concerning the adaptation to, and management of, climate change and carbon dioxide emission. In this respect, organisation B was proud to acknowledge that it remained Australia's only energy business to maintain the promise and commitment to a multitude of long term greenhouse gas reduction targets in accordance with organisation B's corporate vision, its ‘Climate Change Strategy’. It was therefore reasonable to anticipate with organisation B's declaration of social responsibilities and commitments that there would be ample opportunity for its employees to learn and develop their innovation competence.

Organisational development, learning and innovating

In terms of operational improvements, organisation B claimed that in its diverse business operations, ongoing improvements were taking place almost every day. These initiatives delivered better and more efficient use of resources that increased productivity, reduced man's impact on the environment, and helped to improve the level of services organisation B provided to their customers. But apparently these efforts amounted to continuous improvement and might not result in providing new products or growth or generation of new knowledge as documented in the company's official statements and questionnaire responses.

History/evidence of achievements in OD, learning and innovating

To fuel and sustain organisation B's continual operational improvements, it claimed that it was collaborating with industry colleagues and major research groups, such as the Commonwealth Scientific and Industrial Research Organisation (CSIRO), in many research projects to investigate better and more efficient methods of energy generation. It would be reasonable to expect that these involvements would have strong impacts on

organisation B in terms of providing opportunities for its employees to learn to enhance their capability of generating new knowledge and contribute to the organisation's innovativeness. However, there was scarcely any documented evidence to showcase organisation B's provision of opportunities for employee learning for innovation competence on its webpage. Also, interviewee 1 did not mention any involvement of organisation B's employees in research activities in collaboration with outside organisations. There was also no record of any creative or innovative achievement reported in the questionnaire responses.

Returned questionnaire

Exhibit 7.2 shows that organisation B is a large company in the energy supply industry and has an individual customised learning and development (L&D) plan for each employee, which is reviewed and renewed every six months. The HR manager's responses to the questionnaire showed there was some evidence that a culture of learning and sharing of knowledge existed in the organisation, as reported by the responses to Items 9 and 10. In a few areas of the company and on an *ad hoc* basis, there was a feedback system to employees' learning and a coaching/mentoring system. In addition, there was a formal recognition and reward arrangement to encourage and promote sharing of knowledge to facilitate employee problem solving in the workplace.

Like organisation A, organisation B had no action plan in its managerial meeting agenda to facilitate the development of their company towards being a learning organisation. This information was consistent with what interviewee 1 reported at the interview.

Like organisation A, although organisation B's employee L&D plans have been in place for over five years and it was reported in the questionnaire response that they substantially enhance employees' satisfaction levels with the company and reduce the employee turnover rate, they have only increased or stimulated the company's levels of innovation or new knowledge generation to a small degree. However, this small increase, as reported in response to Item 7 of the questionnaire, was not supported by any reported percentage contribution to the company's profit margin or the number of

intellectual assets registered. This absence of supporting evidence of achievements also reflected what interviewee 1 reported in the interview.

Conclusion

There was no mention by the interviewee or in the questionnaire return of any intellectual outcomes (intellectual assets) achieved from the collaborative research activities or by their own employees' learning and innovation activities.

7.1.3 Organisation C

Mission, vision, and goals

Organisation C is a local government organisation and it essentially operates under the public service rules and regulations with respect to staff recruitment and the staff training and development regime.

Values and aspirations

Notably, in 2008 organisation C made a commitment through its 'Creative Futures Strategy' to support the diversity of cultures and creativity of its constituencies in all forms across the municipality. According to that document, organisation C set a direction for the municipality's library and 'arts and festivals' services, programmes and facilities according to: (1) what the municipality's residents wanted and needed with respect to the outcomes of a consultative process; and (2) what organisation C wanted and needed as an entity representative of the municipality it served (in other words, organisation C's Community Plan and its Corporate Plan as described in the following sections).

Staff learning and development

Organisation C proclaimed that its 'Creative Futures Strategy 2008' was 'a change document' focusing on new initiatives. However, it did not proceed to define precisely what these new initiatives were and how they would be enacted. According to the strategy document, these new initiatives would be supported by the continued delivery

of existing library and cultural services, as well as organisation C's continuing to support existing facilities. Additionally, continued input of support would be sought from a broad range of industries located within the municipality. However, the strategy did not elaborate on what initiatives had been put in place and how these supports and facilities would be utilised.

Organisation C acknowledged that in its municipality, "a creative future means greater cultural vitality and a rich life experience for its people and communities", as a means of community renewal and growth. It recognised that creative municipalities did not just emerge out of the blue, and acknowledged that they were the products of creativity, innovation, and commitments through deliberate policies and resource supports to make things happen. In that respect, organisation C was committed in a general statement to promoting individual and collective wellbeing and enhancing local community identity by facilitating the community's capacity to develop, appreciate and express creativity and vitality. But how organisation C would do that in terms of specific actions or activities remained undefined.

Organisational development, learning and innovation

Under the public declaration of its 'Creative Future Strategy', organisation C presented itself as an "active and creative organisation", where opportunities for people in the municipality and/or employees in the organisation to enrich their mind and body abound. It proclaimed that organisation C is "a place where getting involved is encouraged and the richness of individual experience is treasured". Thus, what it said appeared to echo what Senge (1990) envisaged to be a learning organisation. But how it would express this aspiration practically remained unexplained either in its public record or by its participants (interviewees 6, 16 and 17) at interviews.

Organisation C acknowledged that in order to build its municipality into an active and creative community, it should take on an 'innovative leadership' role. It would commit itself to providing facilities and programmes (via its libraries, websites, festivals, arts and heritage services) to gain and sustain the 'wow factor' for the municipality and by providing opportunities for its people to meet, to experience, celebrate and remember.

In the absence of any explanation in the document, from the webpage, or expressed by the interviewees, it was not clear how this leadership 'role' would be operationalised in practice other than just a statement on the provision of facilities and support. In explaining what 'innovative leadership' meant or what it would be, organisation C pledged that it would support and, where appropriate, partner with organisations, artists, residents and visitors as they seek to contribute to its municipality. It pledged that it would strategically encourage the growth of the arts and creative industries within the municipality. But how would organisation C do that operationally through its employees and people from the constituent communities in terms of learning and innovating? It did not explain, and there were no records of activities undertaken to showcase these pledges.

In relation to the 'Creative Future Strategy', organisation C took pride in its commitment, emphasising on its webpage that:

A creative city is an environment where we can think, plan and act with imagination - where ordinary people can act in extraordinary ways. (Axel Burns, Snurblog, Organisation C's webpage)

Axel Burns' quote is reminiscent of Senge's description of the spirit of a learning organisation (Senge 1990) and thus the quote intentionally positioned organisation C as a learning organisation. However, to date the strategy remains just a vision.

Conclusion

Despite repeated invitations to respond to the questionnaire survey, organisation C's HR manager did not return the questionnaire or provide any official document detailing organisation C's current state of employee learning and innovating with respect to its core competence development. More significantly, interviewees 6, 16 and 17 did not mention anything at all related to the items in the 'Creative Future Strategy' or organisation C's public documents.

7.1.4 Organisation D

Mission, vision, and goals

Organisation D like organisation B is a private company. Its corporate aim is: making a positive difference to shape a better world. It is a firm of designers, planners, engineers, consultants and technical specialists, offering a broad range of multidisciplinary professional services. With its diverse collection of professionals from various academic disciplines, it can be envisaged that organisation D is a fertile mix of progressive, conservative, creative, and prudent mindsets.

Values and aspirations

Founded in the mid-1940s, organisation D with its initial business focus of structural engineering quickly came to international attention with its structural design of a number of iconic landmark buildings around the world and recently with its Olympic Games' buildings. Organisation D has affirmed its generally acclaimed reputation for delivering innovative and sustainable designs that truly renew the built environment. Its successes and achievements in a traditionally conservative, risk-averse building industry have been attributed to its deliberate corporate efforts to bring together broad-minded individuals from a wide range of disciplines. This results in a diversity of perspectives, and encourages these professionals to look and interact beyond the constraints of their own fields of specialisation.

It was claimed in their public document (annual report) that this liberated approach to design work has been made possible by organisation D's flat organisational structure. It operates in a type of collegial setting; the business itself is owned in trust on behalf of all staff. All qualified staff become associates or part owners of the firm. As owners of the business they individually retain an independence or freedom of spirit according to their own initiatives, reflected in the creative work of the company.

Organisation D is proud of the values that the company lives by. As stated earlier, their approach to the projects they undertake adhere to their founder's motto: "We shape a better world". The annual report highlights that they were able to achieve this goal through teamwork, creativity, and a belief in sustainability through their continual

learning and creativity. They recognise the role they and their collaborators play in forming new or renewed environments (or building industry's marketplace) by delivering innovative solutions.

Staff learning and development

As organisation D would be ultimately owned by its employees, its webpage highlights that it has a distinct culture and an enduring set of values that bind the firm together. The organisation has been built by successfully integrating into a large but efficient business a humane, congenial and friendly character. It is an emotionally intelligent (Dulewicz & Higgs 2000) organisation. Thus, the annual report claimed organisation D had an organisational style that delivered results, encouraged initiatives, minimised bureaucracy, cared for its members and associates, and celebrated success together. In the words of organisation D's founder: "Every member is treated as a human being whose happiness is the concern of all". The literature affirms that this sort of workplace environment would be highly conducive to personal dedication and commitment and creating a climate of motivation, passion and trust, which would lead to collective creativity and innovativeness (Goleman 1995; Goleman *et al.* 2002; and as discussed in Sections 2.1.8 and 2.5.2).

In addition to generous and competitive salary packaging and a profit sharing scheme, organisation D offers opportunities for secondment both locally (i.e. interstate) and overseas (on completing the graduate programmes to become a member for their graduate employees). Ongoing development of members or associates is supported through the graduate programme and a structured learning and development framework for staff at all stages of their career. All of these activities are consistent with what the interviewees reported.

In terms of what organisation D actually offered to graduates, its webpage elaborates. Organisation D values the contribution of new ideas and their extensive experience of integrating and incorporating recent graduates into the industry enabled them to quickly introduce graduates to meaningful and demanding roles from the word go. This means that recent graduates would be exposed to real, big, and exciting projects from the

moment they gained employment in the firm, and would be interacting with the firm's clients and using their own knowledge to bring ideas and engineering ingenuity to the consultancy meetings. In that respect, recent graduates would be offered plenty of practical experiences of authentic problem solving at the 'coalface' in the form of action learning, as described by Bessant (2007) and discussed in Section 2.4.7 of Chapter 2. In addition, to develop recently appointed graduates, organisation D provides structured programmes such as:

- Induction weekend and buddy/mentor programmes;
- Professional development (both technical and non-technical); and
- Support for chartership/professional qualifications.

For these learning opportunities, William Spraggon, a Structural Engineer, remarked on the organisation D's webpage: "At organisation D you can go as far as your ambition takes you". Such statements about the organisation's learning opportunities mirror what was reported at the interviews.

Organisational development, learning and innovating

To develop and invigorate employees' passion or motivation for design excellence, organisation D has its internal Design Schools that help the firm's young engineers to develop a wide range of skills while they and their designated personal one-to-one buddies or mentors work together on solving design challenges. A recent outcome of such collaboration was an award winning work of rail engineering excellence at Kings Cross St Pancras, London UK. According to the organisation D's webpage, "The Northern Ticket Hall at Kings Cross St Pancras Underground Station was awarded the Institute of Civil Engineering (ICE) London Infrastructure Award with the citation: for developing engineering excellence through creativity, innovation, sustainability, environmental sensitivity and benefits to the client and wider public".

Evidence provided in the following paragraphs show that organisation D has acquired a reputation for pioneering innovations and fresh approaches to age-old problems and challenges. The firm has attributed its creativity and innovativeness to the ownership

and intellectual independence of its people. The firm believes that its people are self-motivated and driven to discover new ways to turn ideas into tangible outcomes. This aspect contrasted sharply with other organisations studied in this research. Others might putatively generate lots of new ideas, but could provide few examples of turning their new ideas into tangible outcomes or saleable products, or innovating according to the concept adopted for this thesis. It has been generally accepted in organisation D that the passion of its people was behind many of the world's iconic architectural, engineering, infrastructure and planning projects. Its people were also behind organisation D's willingness to invest or take risks in research and innovation for pursuing technical excellence.

It has been considered, as explained earlier, that organisation D's ownership structure would probably account for the people within the organisation retaining their independent spirit, freedom of thought to explore and discover, and seeking ever better ways to imagine, re-imagine and reshape the building industry or built environment in which organisation D operated. Thus for that reason, clients would trust organisation D's people to often question any vision they have and ultimately to help the clients to realise their visions with creativity and ingenuity. This aspect of organisation D's service operation was also reflected in their interviews.

As explained earlier, organisation D has a deliberate company recruitment policy to acquire a healthy mix of people, including university graduates from a wide range of disciplines with very different perspectives and from many cultures. By working together they then learn from each other by sharing their knowledge and ideas. Thus, international teams working on projects have been the norm for organisation D, which takes advantage of the skills networks within the firm to allow easy access and collaboration between colleagues of different disciplines or professions across the globe. Organisation D believes that diversity brings in fresh new ideas and insights and that this leads to creativity. This aspect is again consistent with what the interviewees reported.

I asked an employee of organisation D why he chose to join the organisation. His response agreed with the opinion that talented people join organisation D for the opportunities provided to work on some of the World's most exciting and challenging projects. This allows them to develop their own specialisations and/or simply to find their professional niches to freely express themselves. More importantly, the opportunity to work with some of the world's leading experts or the lead users (von Hippel, *et al.* 2001, and as discussed in Section 2.3.3) would offer more chances for inventions, a range of professional opportunities, and the support and freedom for innovation. This means that organisation D has gained the reputation among graduates as a 'magnet' for many of the world's most talented engineers and designers, forming a critical mass for different sorts of inventions and innovations.

To explain its attitude to creativity and innovation in relation to its business operation, organisation D claimed that it examines and regards each project with a fresh perspective, not as a repeat business of what it has undertaken before, irrespective of its size and complexity. In other words, it deliberately strives to solve new problems and considers routine projects as new challenges. Consequently, each and any project is considered an opportunity for new learning. The firm supported and encouraged its people to adopt that attitude and think laterally on each project to be undertaken. So for that reason organisation D proclaimed that it invests heavily in research and development to enrich and broaden its knowledge base. This then informs the firm's approach to projects and helps them to maintain a sharp focus on 'future-proofing' its designs by incorporating their new learning and knowledge as well as the best practice to date. Organisation D also invested in skills networks and facilitated the constant exchange of ideas between its people, no matter where they were based or what disciplines or profession they belonged to.

According to organisation D's documentation on its webpage, it has a policy specifically on 'Diversity and Inclusion' to reinforce its conviction to promote multiple perspectives and cultural impacts on design, creativity, and innovation. Thus organisation D acknowledged that "to produce work of high quality, to maintain their reputation for innovation and creativity and to understand and delight their clients they

need to fully embrace the skills, talents and knowledge that only a diverse workforce can deliver". To action the 'Diversity and Inclusion' policy, organisation D proclaimed a 'Code of Practice' for its workforce, which specifies:

- "As a global organization, we recognize and respect each other's differences and strive to build a working environment where our different personal values and perspectives are actively harnessed to create the best solutions for our equally diverse client base;
- We will work to ensure that everyone feels their contribution is valued and their successes are celebrated through our processes and through our training and development;
- The diversity and inclusiveness of our workforce is supported by our ethics on sustainability and human rights;
- Our employment and recruitment practices will adhere to, and strive to exceed, local legislation wherever we work in the world; and
- Our principles of diversity and inclusion extend to our clients, our suppliers and all those with whom we choose to work." (Organisation D's webpage)

History/evidence of achievements in OD, learning and innovating

Organisation D recognised that investing and partaking in research and development is one way of making a difference to the world; without such investments, innovation would be stifled. Without the capacity to innovate, that is, without its core competence, their ability to contribute to combating and benefiting from the effects of climate change and other global issues would be compromised. Organisation D articulated clearly that research is crucial to its ability to pursue technical excellence and integral to its business operation. Organisation D takes pride in the fact that almost every project it undertook has been original in some aspects and departed from a standard/routine approach. This made research an integral and necessary part of many projects, from feasibility through detailed design and manufacture to construction and operational performance.

Organisation D actively undertook diverse research projects globally and some collaboratively with other institutions. It has a dedicated research arm whose role is to coordinate external collaborative research and to ensure that the firm makes the most of its investment in research to the benefit of its clients and the industry as a whole.

Two years ago, organisation D conducted an in-house worldwide research project into the future of the built environment, the 'Drivers of Change', which tapped into the perceptions and thoughts of a wide range of people, through conducting workshops globally. The findings pinpointed over 350 separate, although often interlinked, issues to build into their research road-map process and a further six key areas for future research: climate change, energy, water, waste, urbanisation, and demographic change. These findings have since been incorporated and embedded into every aspect of consideration and planning for organisation D's project management operations. This is analogous to the scenario planning for forecasting and preparation for corporation economic situational changes that de Geus (1988) did for Shell but in a more global and social or societal orientation, as described by Kanter (2001). The findings of the 'Drivers of Change' project have been compiled into a set of six booklets, which has been distributed to organisation D's people and external interested parties.

Organisation D attributed its creative energy to the quality of its collective design and technical skills and knowledge of its people. As discussed previously, in recognition of, and to perpetuate, its people's contribution, organisation D has created a separate career path, the 'organisation D Fellowship' scheme, in parallel with its structured organisational management path, to acknowledge and honour the creative excellence and extraordinary innovative ability of the firm's outstanding technical performers. Interviewee 9 is one of these Fellows.

An organisation D Fellow is a life-long honorary title awarded to exceptional individuals in the firm. They are considered role models with world-class vision and initiative. They are individuals who people can turn to when developing solutions that require their unique perception and experience (that is, their problem solving expertise, as reviewed in Section 2.5.4 of Chapter 2). Committed to perpetuating and passing on

their experience and best practice, and modelling the best example of what can be achieved technically, organisation D Fellows inspire, mentor, and encourage innovative thinking within the organisation and in the industry as a whole. In a series of short documentary films, as a motivational tool for others in the organisation, the organisation D Fellows narrate their achievements and what inspired them, and what made the firm unique as an industry innovator.

In late 2009, organisation D University came into existence as a private, formal institution to train and develop its employees to undertake formal course work and research for the masters and doctoral degrees in conjunction with 'University M' in the UK.

Organisation D's business portfolio today has diversified and grown and is now wide-ranging. Many of the world's most iconic sports stadia were built by organisation D including Beijing's Water Cube and Bird's Nest, Melbourne's Rectangular Stadium, as well as the UK's first international high speed railway, known as the Channel Tunnel Rail Link. Organisation D's work goes beyond buildings and infrastructure; it has also collaborated with car manufacturers on the design of the Superlight car, which uses considerably less energy than the petrol equivalent.

Organisation D has developed a 'business continuity and resilience practice' as well as security management tools that are now used globally. It has also developed a range of proprietary computer modelling tools which it sells around the world, as well as innovations such as its 'Sound Lab', an aural-realisation tool which allows clients to hear how different design built options perform acoustically before they are built. This provides a type of enlightened experimentation (Thomke 2001), as described in Section 2.5.1 of Chapter 2.

Conclusion

The analysis presented above affirms the information provided by organisation D's interviewees (interviewees 8, 9, 10 and 11).

Organisation D has acted and provided the necessary resources to create opportunities for its employees to learn and specifically to learn to become more capable of inventing or innovating. I consider organisation D, in many respects, to be an Australian example of a learning organisation (Senge 1990).

7.1.5 Organisation E

Mission, vision, and goals

Organisation E is another utility company similar to organisation A and is wholly owned by a State Government in Australia. According to its webpage, it won a 2009 Premier Award for Large Business. Its business operation is regulated by the State's Essential Services Commission and it "competes by comparison with other companies of the same industry servicing different regions of a capital city".

Although organisation E is not listed on the Australian Stock Exchange, it operates as a limited company with a governing board of directors and established corporate governance. Its recruitment process and conditions of employment are similar to those of State Government public service employees. As a business entity, "established procedures at Board and management level were designed to maintain their operational viability and safeguard their assets and interests and ensure the integrity of their reporting". The business operation of organisation E is therefore managed through a comprehensive set of policies, procedures, constraints and limitations that are subject to internal and external audit reviews on a regular basis.

Under an Essential Services Act, a Statement of Obligation was issued by the responsible Minister of the State to organisation E in 2008. Specifically, in Item 25 of that document, on Research and Knowledge, organisation E was directed to (a) identify its research needs, (b) prioritise the identified research needs, and (c) identify how organisation E proposes to meet its research needs. However, in spite of these explicit instructions from the Minister, there was neither any further statement or record available in the public domain regarding what these identified research needs were, nor

did the sole interviewee (Interviewee 15) mention anything relevant to Item 25 of the Minister's instructions on organisation E's 'Research and Knowledge' obligations.

Values and aspirations

As a business entity, organisation E had a strategic direction, which was "to lead its industry at the global level in serving the customers and the environment, supported by their high performing business culture and continuously improving their efficiency". Organisation E explained that its business focused on achieving objectives around four key areas: customers, environment, efficiency and culture, and it anticipated that by 2013 it would have achieved expected outcomes. With respect to the four declared areas, the following performance indicators were established:

- "Our customers recognize us as their best service provider and are engaged in what we advocate;
- We provide our services within the carrying capacity of nature and inspire others to do the same;
- We have a vibrant workplace achieving exceptional business outcomes successful partnerships and personal satisfaction; and
- We achieve our objectives at the lowest community cost and consistently meet our shareholders' expectations." (Organisation E's webpage)

It should be noted that their sole shareholder is the State Government. Apparently these objectives or aspirations were general, non-definitive, non-committal, and flexible statements, which were susceptible to subjective interpretations, also, there was no explicit statement related specifically to the issues of developing employee learning and innovative competence. These statements simply conveyed the idea that organisation E would fulfil its mission or obligation expressed elegantly in the 'Strategic Direction' by doing their job right. This reflected what interviewee 15 alluded to at the interview.

Staff learning and development

The Human Resources/Employee Relation Policy of organisation E articulated clearly that the organisation recognised that “to fully deliver on their customer, environmental and efficiency objectives, they must employ, develop and retain high calibre employees and cultivate a high performing business culture”. Organisation E then defined “a ‘high performing’ business culture as one in which constructive behaviours and shared values would facilitate the attainment of stretch goals, high quality problem solving and decision making, team work, productivity, and long term effectiveness”. But organisation E did not elaborate on the meaning and nature of the terms: ‘constructive behaviour’, ‘shared values’, ‘stretch goals’, ‘high quality problem solving and decision making’, ‘team work’, ‘productivity and long term effectiveness’. Neither did it document succinctly how it would translate these ideals into routine activities and operations.

Furthermore, the recruitment strategy of organisation E stipulated that they were to employ “high calibre individuals who would strengthen their culture (that is, its ‘high performing business culture’) and assist them in achieving their corporate goals”. To fully utilise the potential of these high calibre employees, organisation E pledged its emphasis on their employees’ ongoing learning and this pledge was further articulated in organisation E’s Learning and Development Strategy statement, which provides a wide range of programmes to all organisation E’s staff. But that Learning and Development Strategy was not discussed further or elaborated on elsewhere on the company’s website. It was therefore not clear what would be expected or anticipated regarding the goals and outcomes of the quality of the learning and development programmes for its staff. A possible hint however might be discerned by considering organisation E’s ‘Quality Policy’ statement. The Quality Policy is to provide a focus (or guideline) for employees to deliver high quality service outcomes; and in order to achieve this objective, it is anticipated that organisation E would commit itself to:

- “Continuously improve customer satisfaction;
- Improve work processes continuously;

- Encourage a culture which supports their commitments via the contribution of organisation E's staff and their suppliers;
- Secure a learning environment to ensure employee development, teamwork, innovation, and creativity; and
- Tailor their Quality System to ensure their customer is satisfied every time.”(Organisation E's webpage)

Of particular relevance to the thesis is that organisation E pledged to secure an environment for employees to learn and develop with respect to teamwork, innovation, and/or creativity to improve their service quality. But what and where was this learning environment and how would it be operated? What would aspects of teamwork, innovativeness, and/or creativity actually mean in organisation E's organisational context? All these issues remained unexplained in the organisation's public documents, and they were scarcely touched on by the sole organisational interviewee (Interviewee 15).

Returned questionnaire

Exhibit 7.3 shows that organisation E, like organisation A, is a company in the water supply industry. It has stated that it has a culture of learning and sharing of knowledge and an ICLDP system operating at all levels of employment in the company. But like organisations A and B, there was no managerial vision or goal to transform the company into a learning organisation as an item in the managers' agenda. The employee ICLDP plan as reported in response to Items 4, 5, and 6 of the questionnaire had a small effect on employee satisfaction levels and staff turnover rates, although it has already been fully implemented for a few years.

With respect to the evident culture of learning and sharing of knowledge, the survey findings from Item 7 indicated that there was some increase of stimulatory effect of the enhanced learning activities amongst employees on innovation and new knowledge generation. However, due to the absence of specific corporate/managerial measures to judge and gauge new knowledge generation or innovation in organisation E, there was

no report on the percentage contribution to the company's profit margin or numerical increase of the company's intellectual assets. This information in the return agreed with what interviewee 15 reported in his interview that new knowledge or learning might have been acquired but had hardly been put into practice or utilised to innovate or generate more new knowledge. Consistent with what interviewee 15 reported, there appeared to be a more systematic arrangement of mentoring and coaching activities permeating generally throughout organisation E when compared to organisations A and B. Also, there are formal programmes for managers to learn problem solving techniques, as interviewee 15 explained, but these acquired knowledge and skills have not generally been put to use to generate new knowledge. In many areas, the company would formally acknowledge and reward employees for sharing knowledge and experience to facilitate problem solving.

Although, as reported in Exhibit 7.3, each employee would have on average six days (or 45 hours) a year available for learning, it was not clear what the specific nature of these learning activities was, especially whether or not learning was clearly differentiated from training or staff induction.

Conclusion

The HR manager of organisation E did not comment or extensively qualify their responses to the questions in the survey. Therefore, the quality and nature of the time (hours and days) and number of employees who were engaged in the learning elements were not apparent. It was likely that it included training, staff induction, and compliance courses, and was not really related to employees' general learning and/or learning to become more skilled in solving problems or becoming more innovative. This conclusion was supported by the lack of a universal and systematic mentoring and/or coaching arrangement for employees' learning in the workplace. The returns also did not show any intellectual property outcomes or any comments on the outcomes by the HR manager, suggesting that innovation was not considered to be crucial for the organisation in terms of close monitoring. All these aspects in the survey responses

were generally consistent with what interviewee 15 discussed, as outlined in Chapters 4, 5 and 6.

7.1.7 Organisation G

Introduction

Organisation G is an Australian public tertiary education institution. Its business encompasses the delivery of educational programmes at the higher education and vocational training levels, for the training of postgraduate research students as well as conducting pure and applied research to generate knowledge. Its customer base would therefore include students, private and public organisations, and governments, at both the state and federal levels for professional consultancies. Its industry competitors would include other tertiary institutions, national and international, as well as other research organisations for grants or funding.

Of specific relevance to the issues of interest and discussion in this chapter was a strategic corporate report, which was effectively an action plan generated by a top-level conference on organisation G's future business operation. In April 2008, 110 of the most senior administrators of organisation G gathered in a resort facility for a 2-day summit conference to identify and deliberate on critical issues perceived to confront organisation G and then develop a comprehensive agenda of guidelines and actions to resolve these issues. The aim of this summit was therefore to collect organisation G's best ideas (presented by the 110 attendees) to enable the generation of the right 'products' to market and assure the quality of those 'products' to meet customer demands. The purpose of this conference was in effect to gather the collective wisdom of organisation G's most senior administrators. These people were responsible for the organisation's formulation of policies and decision making on the 'how' and 'what' to develop a more creative and innovative organisation. They aimed to create a harmonious, trusted place that could agilely (or 'nimble' as one attendee put it) respond to the changing environment. From the management perspective, it was essentially a business plan for gaining and sustaining a competitive advantage in the immediate future, and thus represented the operational basis for organisation G to attain the status of a learning organisation (Senge 1990).

Significantly, as recorded in the summit report of April 2008, there were few amongst the 110 attendees who would or could be regarded as persons who were working at the 'coalface' in their daily contact with the bulk of organisation G's main customers, delivering its educational services to undergraduate and vocational students. The majority of those who attended were the top executives or managerial layer at organisation G's apex. And, according to the recollection of organisation G's sole interviewee (interviewee 12 who attended and presented her ideas at the conference), most of the attendees of the conference in 2008 have since left the organisation or been replaced, less than 18 months after the conference. This begs the question (also raised by interviewee 13): was there any genuine passion and commitment to the aspirations generated at this conference?

Critical issues perceived, identified, and addressed in the 2008 summit report published after the conference and retrieved from organisation G's webpage included these four major items:

1. How to integrate research and scholarship into everything that they do in organisation G? How would they embed a problem solving and critical inquiry approach into all their daily routines at work?
2. What are the perceived inadequacies confronting organisation G? How would they develop and invigorate their core competence to enhance their competitiveness? With respect to developing itself, organisation G must examine its current position/capabilities by assessing itself realistically.
3. In order to progress and develop organisation G, it might be necessary to consider how to enrol/secure staff commitments to making organisation G great.
4. How should they learn from their customer base so as to ascertain what their customers want? (Organisation G's webpage)

These issues were apparently concerned with learning and innovating and developing expert problem solving capability in organisation G. Essentially they were analogous to the questions asked of the interviewees, as reported in Chapters 4, 5 and 6. Indeed, many of the resolutions or conclusions that this summit discussed, proposed, and

generated closely reflected the conclusions and recommendations made for the outcomes of this thesis, particularly in terms of the external generalisation aspect of the study outcomes.

Critical Issue (1)

According to the summit report, research was defined to involve identifying and solving authentic, original issues or problems (in other words, solving new problems), and scholarship was the identifying and generating of new knowledge or concepts. In that respect, the report apparently considered that scholarship subsumes research in the same way that learning subsumes problem solving (as depicted by the Venn diagram in Figure 1.1 of this thesis). According to the summit report, these two human intellectual activities were acknowledged to require a critical, inquiring mind. So, “to integrate both research and scholarship into everything” that organisation G does means that to be successful in its business it must facilitate all its staff and customers to acquire the requisite ‘critical inquiring mindset’ in its teaching and learning activities. As an education services deliverer, organisation G therefore needs to consider incorporating or embedding the knowledge and skills of critical thinking and problem solving techniques into all its educational curricula delivery. Such incorporation or embedding when successfully undertaken would in theory assure and enhance the quality of organisation G’s services. For organisation G’s staff to acquire and be capable of integrating a critical inquiring mind into their workplace routines would also enable them to come up with fresh and flexible approaches to solving problems and/or generating new knowledge in their research. This would enhance the quality of their research or scholarship, as discussed in Sections 2.1.2, 2.1.3, 2.5.2, 2.5.3 and 2.5.4.

Obstacles identified and solutions envisaged

A senior conference participant from organisation G posed these questions: How would the summit attendees envisage such a situation as elaborated in the previous section to be realised? What should they do to develop “a problem solving ‘win-win’ approach to the issues and challenges they are facing” in the education industry? With reference to

summit report, the following sub-issues were identified and discussed which were perceived to strongly impact on Critical Issue (1).

Effective communication

To effect strong and empowering communication between all its staff and to break down barriers between its organisational units, as well as to enhance the sharing of knowledge, experiences and ideas for the purpose of cross-fertilisation, organisation G would need to develop strategies or platforms to enable its constituencies to get to know each other better. Thus the guidelines and actions envisaged to facilitate effective communication included:

- Focusing on defining organisation G's business operations and on better approaches to defining problems which require resolution;
- Developing the mechanisms by which better internal relationships and engagements can be fostered;
- Developing a culture and mechanisms that clearly acknowledge and reward (or recognise) collaboration at all levels of the organisation; and
- Developing mechanisms/approaches to recognise and identify problems that might require collaboration/cooperation across organisation G and/or external partners.

Defining innovation

Another sub-issue brought forth for the summit to resolve was: what do we share regarding an understanding of innovation? To make organisation G more innovative, there should be a shared understanding of what precisely constitutes an innovation. It is interesting to note such a question could be asked in a university setting like organisation G. However, it appeared from the conference discussion that there was a diversity of opinion regarding what innovation was perceived to be. This diversity of opinion clearly vindicates my concern, which motivated this doctoral research, as explained in Section 1.2, Chapter 1. Thus in the summit discussion, it was reported that

innovation could be “new concepts/ideas, old concepts/ideas re-created or re-formed, a change to traditional thinking, and a focus on change”. It appeared that opinions about what innovation is varied. Opinions could be as divergent as the spectrum of innovativeness that I observed among the interviewees. In organisation G's case, innovation has a diverse array of interpretations, and the diversity of interpretation or understanding of innovation would emerge also in different workplace situations, including teaching and learning systems, administrative processes, and governance policies and so on. What would be a unifying or uniform notion of innovation that organisation G could adopt to be consistent with its aspiration of excellence in research and scholarship? There was no resolution on this most critical issue in the report. Thus there was no agreed standard or direction or ‘goal post’ for excellence in research and scholarship or to guide organisation G's innovative efforts. In this respect, it made sense why interviewee 12 was not sure of the exact nature and did not consider innovation to be anything other than improvement of the *status quo* (as explained in Section 4.2.2, Chapter 4).

Instead of focusing their deliberation to arrive at a clear definition or a unifying view of innovation, the sub-issue of innovation was shifted to discussing the facilitation of innovation efforts. However, as things turned out, the discussion was not really concerned with policies, guidelines, programmes or activities to enable learning and innovating. It was, in effect, an opportunity to air organisation G's understanding of the hindrances or barriers to innovation, such as the ‘reins of bureaucracy’ and ‘corporate governance’. Nevertheless, examples of drivers of innovation at organisation G and strategies to support innovation were identified and acknowledged. It was also pointed out that in order for innovation to actually occur, the ‘innovation generators’ in organisation G and their impacts should be properly and openly acknowledged and communicated throughout the organisation so as to demonstrate the unequivocal support and encouragement for innovation by organisation G's leadership.

Establishing a research culture

As a way to enhance its organisational learning and innovativeness, and *ipso facto* organisation G's quality of services, it was resolved that it was imperative to create "a flourishing research environment for postgraduate researchers". The action or approach to strengthen and enrich this environment was to establish a 'research culture'. This has been interpreted by attendees to mean a diversity of things, including: a way of life, a habit of research minds, elements of an inquiring mind, a critical and creative thinking culture, collaboration and a sharing of ideas and knowledge. Based on this recognition, guidelines and actions emerged, including:

- Course work and seminar style series deemed essential "to fostering increased skills in critical inquiry, research methodology debates, and broadening of intellectual and research horizons" are to be instigated;
- "Staff need to take an active role in bringing into organisation G prominent researchers, meaning lead users of knowledge (von Hippel, *et al.* 2001) to make sure the flow of information is two way";
- A collective problem solving approach needs to be fostered because the lone inventor model is no longer tenable (as discussed in Sections 2.2.2 and 2.2.3 of Chapter 2). Thus, as a way of training postgraduate researchers, the operational model of 'student + supervisors + research teams + work-in-progress seminars' needs to be instigated as the norm in its operation; and
- The focus should be on innovative ways of bringing the research endeavours to life as a partnership between students (the customers) and staff across sectors in organisation G and beyond.

Strengthening 'core competence' to safeguard organisation G's future

Research and scholarship are generic competencies as stated in the summit report, universal in terms of their applicability to all human intellectual endeavours. So, "ensuring that market-leading areas in teaching and research are fostered and

communicated into the future” as a sub-issue was raised for action to ensure that organisation G continued to build up and strengthen its ‘core competence’. This was not clearly defined in the report and thus might not be equivalent to the core competence that Prahalad and Hamel (1990) referred to. However, organisation G continued to identify strong products that would ‘sell’ well in the education industry in which it is engaged. For that reason, it was acknowledged in the summit that while “identification of key strengths is needed to help guide future investments ... It was noted that any process of course rationalisation should not stifle creativity, though it was noted that such creativity would typically build around current strategic strengths”.

The current strategic strengths therefore have been designated and deemed to be creative and should be quarantined from any future process of course rationalisation, which might stifle these strategic strengths. Would these actions as the summit decided benefit or energise organisation G’s innovative efforts? In theory, they should. In practice, it remained to be determined. Issue 2 (following) was supposed to clarify this further.

Critical Issue (2)

Having discussed in Critical Issue (1) what would be needed to enable organisation G to be more innovative and the recommended proposals to establish its core competence, Issue (2) dealt with the activities to be undertaken. That is, how would they change so that the entire organisation could become more creative, innovative and trusting in the workplace?

Identifying its future marketplace

First of all, it was considered necessary to ascertain where organisation G’s future positioning would lie in terms of teaching and learning in industrial workplaces. Organisation G would need to develop infrastructure and pedagogies to teach students in their workplaces rather than in campus classrooms. For that reason, staff must be clear about whether or not organisation G would remain a campus-based university and

also whether or not the pursuit of excellence in research and scholarship would remain 'a' if not 'the' principal focus of its business.

Because of the 'industrial workplaces' positioning envisaged for organisation G's future goal, the summit report explained that it would be necessary to recruit the right people with this vision in mind and then develop them in the requisite practices reflecting organisation G's new future. For the professional development of these recruits, industry-related projects including industry consulting work should be utilised as opportunities for the novice consultants or recruits to shadow and learn from experienced mentors. It is imperative to align all teacher development and formal teaching qualifications with organisation G's future direction and growth, thus ensuring that organisation G's staff learn through the pedagogies and practices required to teach in external workplaces. However it was acknowledged that organisation G should not just talk about it, but practice it so as to learn experientially. To grow in that new marketplace, organisation G needs to direct its effort to learn and innovate in the field of workplace learning as well.

Time, space, and support required for staff to innovate

It was noted in the summit report that to facilitate clear thinking, 'space and time' would be needed. Promoting creativity and innovation was thus an important issue. Organisation G has quality staff who have great capacity for innovation and creativity, but they need more thinking time if they are to make a difference to the organisation. Organisation G must provide its staff some 'slack' so that they can sit, discuss, engage, and think in a guilt-free space. As an example, in the Massachusetts Institute of Technology, cross-faculty interaction is formally encouraged and ways have been created for its staff to interact without any guilt. The organisation G summit report recommended that a culture change might be needed to encourage organisation G's staff to mix across the organisation. It might be necessary to establish some common rooms (or hubs) for staff and students to interact. It was pointed out, however, that ultimately this change rests on the participation of all the staff and students, and it is the people who will interact and create the culture, not policies or programmes.

Some guidelines/actions that should be undertaken to drive the changes were identified as follows.

Staff of organisation G should try to gather and share ideas and strategies by making time available for the interaction and quiet thinking free of formal duties. Provision should be made for more pan-organisational conferences to pursue collective critical inquiry and problem solving activities. For encouraging more creative thinking and new knowledge generation, it might be necessary to consider making more physical spaces available for all staff at organisation G and for researchers to reflect in peace and quiet.

In terms of developing all staff at organisation G to become more creative and innovative, especially those who might be deficient in this competence, resource support and study leave were to be provided to enable them to enrol in postgraduate research studies. This would encourage critical inquiry and problem solving competence. All organisation G's staff should be recruited to participate in research activities as experiential learning to enhance their personal learning and innovation competence, and in turn enhance organisation G's creativity and innovativeness. But an obvious difficulty of implementing this would be time available for these activities; as interviewees 16 and 17 of organisation C remarked, staff with saturated workloads would be most unlikely to contribute to organisational innovativeness.

Critical Issue (3)

In response to the rapid changes in its business environment, a question was posed: what would organisation G need to do to bring all staff/employees on board for the strategically requisite changes it is contemplating?

The summit report recorded that policies and programmes should be established to enlist staff commitment to contributing to the organisation's core competence (mentioned but not defined in the report), including environmental scanning. Recommendations for actions/guidelines are outlined below.

Better communication from the apex of organisation G downward

Managers and their equivalents in the corporate area would be required to take responsibility for communicating all aspects of change decisions to all staff. Leaders would need more professional development to focus on effectively communicating with their staff, as these managers are both the agents of change and managers of the change. But what is 'effective communicating'? Again the summit report did not clarify. From my perspective, 'communicating' is not just 'telling'; it is also 'showing', 'demonstrating', and 'modelling' in activities such as mentoring and coaching.

Building trust

There was a need in organisation G for greater trust to be developed amongst staff. Actions would need to be taken to ensure all management and staff understand the essence of trust and empower all faculties and schools to get on with the job of building trust. Building trust requires emotional intelligence (Goleman 1995, 1998a, 1998 b, 2000; Goleman *et al.* 2002; Wheatley & Crinean 2005). The report did not explain how this would be achieved.

The report highlighted that change is about combining the old with new ways of doing things. It should be generally recognised by staff that a lot of change they were going through was actually built on activity and broad directions that were already in place in many parts of organisation G. The credibility of the major change would be enhanced by giving due recognition to existing activity without re-inventing existing practices. So, it might be necessary for those people managing major changes to ensure that they understand what is already in place and whilst they may need to 'tweak' or 'repackage' some of this activity, it is essential that there be understanding and recognition of what has gone before, emphasising that new knowledge builds on existing knowledge. Managers therefore need to know and understand clearly what creativity and inventing mean so that they could be seen to respect inventions and innovations. Once again this begs the question: is there an adopted standard or unified definition for concepts of creativity, inventiveness or innovation?

Upgrading staff competence to a uniform level

It was recognised and acknowledged in the report that staff of organisation G might not be uniformly cognisant and competent in their capability to learn and innovate, consequently, there might be a need for significant capacity or capability building to promote competitiveness. But how would this be achieved? And what specific actions need to be taken? These remained unanswered in the report.

Enrolling staff innovativeness

How does an organisation encourage and motivate or mobilise people to initiate changes at all levels of employment?

In order to encourage innovative behaviour, an organisation might need to provide all staff with the 'right' to go ahead and do things differently on their own initiative. Clear guidelines and procedures must be in place to recognise and reward innovators so as to encourage staff to commit to the change. However, it would be difficult to specify what would constitute an innovative behaviour when there is no uniform definition for innovation in organisation G. Also, the summit report acknowledged that it might need to remove obstacles that stop people from initiating change.

In summary: a possible resolution or wishful thinking?

Most importantly, managers or those at the apex of organisation G must demonstrate their trust of staff to initiate changes and support them irrespective of their own preferences or personal feelings or opinions. But would they be courageous enough to lessen their control and accept responsibility when things go wrong? In other words, have they the courage for risk-taking in the absence of a generally accepted definition of innovativeness?

Making changes to work practices can be a risky activity and often represents 'sticking one's neck out', a possible career limiting action, as the summit report noted. So in order for organisation G to encourage staff to take initiatives for change, it was

considered necessary firstly to create a 'safe working' environment where innovation and creativity can be promoted/tolerated without staff feeling 'at risk'.

In essence, the 'to do' list for Critical Issue (3) would include providing time and space for staff to contemplate for creativity and innovation in peace and quiet without fear or stress. Also it would be unlikely, considering the resources involved for allocating physical spaces, for staff to engage in interaction for creative and innovative thinking and discussions. But most important of all, there was an absolute need to persuade all staff that they have the power and right to put innovative ideas on the 'organisational table' and they could expect that there are structured processes by which their ideas would be actively pursued. How would or could organisation G provide all staff the right, authority and resources support for them to make a difference through creativity and innovation?

The summit report recorded that it should be appreciated that teachers are by nature mostly agents of change and therefore empowered teachers/staff of organisation G would naturally enhance the product quality and service delivery. To enable agents of change to make a difference, there must be a need to 'loosen up' disempowering rules and regulations or procedures that restrain people from expressing themselves freely. More importantly, who would accept ultimately the responsibility for things that might have gone terribly wrong? It should be recognised that there are always creative people around inside the organisation, and they should be allowed to emerge to take on challenges that require creativity and innovation. They should not compare the present with the past glories or disasters but keep looking forward to the future. They should get rid of all disempowering corporate practices in marketing their products and communicating within and outside their organisation. They should celebrate really good success stories so as to enthuse and excite their staff further to make changes. But how to turn these aspirations into practical activities remained undefined in the summit report. These aspirations and sentiments were not made apparent in the conversation with interviewee 13, despite the fact that she was one of the summit conference's participants and presenters. Perhaps she was sceptical of these aspirations ever becoming a reality.

Critical Issue (4)

How could organisation G ensure it would offer the right products to their customers/clients? What would be the right products to offer students? In other words, how could organisation G gain and sustain a competitive edge in the education industry? To pursue these goals of continually offering new products to meet customer demands, staff would need to be constantly vigilant, scanning for opportunities or challenges to explore new territories and/or new marketplaces.

Obviously, from a marketing perspective, one approach is to find out from the customers - the students - what they want and what their expectations are by engaging students in roundtable discussions.

The strategy

As articulated in the summit report, what organisation G needed to do to provide a more customer-oriented approach in their offerings was acquire real/authentic customer feedback. So, how should organisation G develop its products or services through an objective approach?

The actions/activities they envisaged included:

- Adopt a strategic approach—identify and determine what is really in great demand and what is not. Eliminate those ‘not hot’ products but focus on marketing solutions to real industry problems;
- Research to locate niche (growth) areas so as to enable organisation G to ‘fish in its own ponds’. Build the brand to inform the prospective customers that organisation G is not around ‘being everything to everyone’, but specialising and being a leader in specific areas that are related to its core competence;

- Research to anticipate the market (through foresight, forecasting, ascertaining drivers of change), be agile and nimble. Identify skill shortage areas in the Australian workplace and develop products/services in response to the shortage;
- Develop pathways and facilitation to enable, whenever opportunities emerge, organisation G to enter into the international market by partnering with other international institutions as its conduit.

The solution

The summit report recommended that organisation G empower its staff to become capable researchers, innovators and risk-takers. To enhance the quality of the services provided, organisation G should embed the generic knowledge and skills of critical inquiry and problem solving in all the courses and services that it offers. But who would have the time and capability to do that? The report did not elaborate.

Another approach to secure accurate information would be forming connections/networks from which it can derive ideas and information for generating innovations relevant to its targeted markets. This could be done by opening up organisation G's facilities to the communities it serves in the manner that Kant (2001) described, thus embedding itself in its environment and 'having its ears pinned to the ground' for surveillance. Organisation G could achieve this by coupling its library and IT facilities with its municipality libraries and by connecting with potential customers. It could also make sure that its customer service specialists are manning the switchboard so that accurate information is always and consistently delivered to the inquiring customers. Accurate information on demand makes it easy for the community to find out the services that organisation G would and could offer, thus expanding its market share of the industry. So, are these measures presented in the report sufficient to change organisation G into a true learning organisation, one with its established core competence for sustainable innovativeness? They probably would, but to date there has been no record of achievements to substantiate the claims.

Conclusion

Although to date a number of actions have been progressed since the summit, it is too early to assess the outcomes of these actions. However, recent articles in the popular press reported that organisation G has not substantively raised its ranking in the Australian university standing in terms of securing funding for research (*The Age*, Wednesday, November 2, 2011).

7.2 Conclusion to Chapter 7

This chapter discussed information gained from participant organisations' HR managers and/or from documents available to the public from the organisations' websites. Chapter 8 concludes this thesis by addressing the research questions and providing suggestions for future related research.

Chapter 8

Conclusions and outlook

8.0 Introduction

The objective of this research was to explore with leaders of selected Australian organisations answers to the following questions:

1. What is the knowledge and understanding of 'learning' of leaders of participant organisations in Australia, particularly the learning that would afford the capability or potential to create new knowledge leading to innovation, and the leaders' attitude towards learning and innovation?
2. What are the visions/policies and appropriate educational structures and programmes that the organisation's leaders have in mind or in place to enable all their fellow employees to learn and learn in the manner that would enhance capability and allow them to contribute collectively and continually to the organisation's new knowledge creating effort?
3. Are the implementation regimes that the leaders envisaged or put in place, which the leaders reported, consistent with and reflective of their own conceptualisation of learning and innovation in organisations?

In this chapter, an overview of the information obtained and the conclusions drawn is presented. The chapter also addresses the contribution of this work to the research literature and the potential for future research to extend the knowledge in this area of intellectual endeavour.

8.1 Answers to the research questions

The principal concern at this point was: did the research outcomes answer the research questions?

In general terms, the answers to these questions were affirmative. Research question (1) was found to be a complex issue and the answers that emerged appeared to be more complex than a straight forward 'knowing or not knowing' answer. From the results obtained, the answer to question (2) was affirmative for organisation D and negative for all other organisations studied. With regard to question (3), the answer was affirmative for all the organisations studied. Further details of the answers to each of the research questions are elaborated in the following sections.

8.2 Research Question (1)

With respect to the two central issues of this thesis, that is, the 'to learn' and 'to innovate' acts, the results are discussed as follows.

i. The leaders' conceptions of the 'to learn' act

The perspective that interviewees held on this issue in most cases was: to acquire knowledge for use to do their job. In the overall context of their conversations, their notion of 'to learn' implied that knowledge is an external thing, which one can acquire and internalise for use in undertaking one's work. This notion was philosophically at odds with the social constructivist views of learning (Jarvis 1992; Brown *et al.* 1989; Lave & Wenger 1991, 1996; and as described and discussed in Chapter 2, Section 2.1.8). It is interesting to note that the idea of knowledge as an external object versus the social constructivism view to some degree mirrors the dichotomy between the quantitative and qualitative methodology of knowing, as described in Chapter 3. The quantitative methodology maintains an objectivist stance whereas the qualitative is subjective; and quantitative approaches maintain that there is one reality, whereas qualitative implies multiple realities (Flick 2007; Bryman & Bell 2007; Lichtman 2010; and as reviewed in Chapter 3).

Notwithstanding this point of contrast, the leaders' notions of 'to learn' was consistent with adult learning in the workplace (as described and discussed in Section 2.1.1 of Chapter 2) in which learning is considered to have a purpose, that is, to acquire knowledge to do their job right (Rogers 1951, 1961; Blunden 1997).

With respect to the process outcome of the 'to learn' act, the interviewees generally agreed with the framework (Guns 1996; Tobin, 1997, 2000; Yu 2000, 2006) as described in Section 1.5 of Chapter 1, which is the experience of using the acquired knowledge to do a job or accomplish a task effectively. The interviewees in most cases, however, did not proceed to name the experience to be knowledge, thereby demonstrating their comprehensive personal theory of the 'to learn' act.

With respect to the nature of the input to the 'to learn' act, the interviewees held the view that it was also an object, which they called knowledge or acquired knowledge, whereas that of the adopted theoretical framework would be acquired data, information, or experiences (Guns 1996; Tobin 1997, 2000; Yu 2000; 2006; and as described in Section 1.5 of Chapter 1). According to the framework, the 'to learn' act is to connect or relate the acquired data or information with existing concepts in one's memory and thus to understand them and then use this incorporated/integrated data or information, when required, to develop a plan or solution to tackle a task or problem.

Although the interviewees' conception of knowledge or learning being an external object might be a moot point in terms of the common usage of the word, their understanding of how it originates could be of practical importance. Arguably, it could also be significant to the conceptualisation of the term 'knowledge management', which was referred to by a number of interviewees. This issue will be re-visited in later discussion.

With reference to the research questions of this thesis, the conceptualisation of knowledge is significant in terms of how it would impact or inform the organisational leaders' thinking or attitude in formulating policies, guidelines and programmes to facilitate and develop employees' learning, especially learning to enable generating new knowledge. If the leaders think knowledge is external, as a tradable commodity, and thus does not need to be constructed by their fellow employees, such belief would adversely affect the way they would consider the formulation and implementation of policies and programmes to facilitate employee learning to become more creative or innovative (Lee *et al.* 2000; Garavan *et al.* 2000; Wang & Ahmed 2001; Chan Kim &

Mauborgne 2001; Hamel & Prahalad 1990 and as reviewed in Section 2.5.1 of Chapter 2). Presumably, these leaders would simply budget to acquire the requisite knowledge from outside their organisation, analogous to how they would budget to acquire pieces of equipment or machinery. Thus these leaders might opt not to provide resources to support programmes to facilitate their employees to learn and to build up the organisation's internal competence for generating new knowledge.

The interviewees' conceptualisations of knowledge also raised the issue of their recognition of the relationship between data, information, and knowledge in relation to the learning process, that is, the mechanism of action (Soden 1994; Robinson 1995, 2002; Yu 2000, 2006; and as discussed in Section 1.5 of Chapter 1). The majority of interviewees were unable to describe operationally how the mechanism of action worked. The 'to learn' act seemed to be a type of tacit knowledge to them, that is they did it or knew how to do it but could not explain or articulate clearly the process of doing it (Polanyi 1967; Harlow 2008; Teerajetgul & Chareonngam 2008).

Recognising or understanding the 'to learn' act is important for adult learning in the workplace because adults learn for the purpose of effectively accomplishing tasks or gaining experience (Kolb 1984). A person learns by acquiring the record of experience, codified or not, of another person through receiving signals in the form of data and information by their sensory organs (Guns 1996; Tobins 1997, 2000; Yu 2000, 2006). Knowledge for general usage may be used as a substitute for experience recorded in coded form (such as language expression) of a person performing a task successfully or solving a problem or issue effectively (McInerney & McInerney 1998; Illeris 2007).

Thus adult learning in the workplace would involve acquiring another person's record of experience as data and/or information and processing it internally for use to accomplish a task or problem that exists as a routine task, issue or job (Jarvis, 1987, 2006). As corollaries, what this shows is: a person uses or adopts knowledge, either self-generated or generated by other people, to tackle a task so as to learn. Without any prior knowledge, that person could not accomplish a task effectively. If one is new to a job and unfamiliar with how to perform tasks, resolve issues, or solve problems

associated with the job as routine tasks, one learns how to acquire the required data/information to accomplish these routines and generate the knowledge necessary for the job. This knowledge would be a person's new knowledge, but it would not, or could not, be considered new knowledge with respect to others or those workmates who have performed the routines before.

A majority of the interviewees often used the term 'new knowledge'. Interviewees were asked to differentiate between knowledge and new knowledge (as discussed in Chapter 5, Sections 5.1, 5.2 and 5.3) with the objective of determining whether or not they were cognisant of the rationale as explained in the previous paragraph. As discussed, the term 'new knowledge' needs to be qualified in order to make contextual sense. New knowledge would be new to someone if it is knowledge gained by performing a task which that person has not undertaken before, but it would not be new knowledge to others who have experienced it. On the other hand, if a person performs or undertakes a 'never-before performed' task or solves a 'never-before solved' problem (e.g. like Watson and Crick discovering the universal nature of all genetic material DNA, or Nirenberg's discovery of the triplet codons for transcribing DNA), then the knowledge or experience gained by undertaking that problem solving act would be new knowledge with reference to all other human beings. The term used to describe this process of learning, whereby new knowledge is generated by that experience, is to invent or to generate new knowledge (Amabile 1988; Daft 1978; Damanpour 1991; Gopalakrishnan & Damanpour 1997; West & Farr 1990; Zaltman, Duncan & Holbeck 1973).

From the responses interviewees provided (as reported in Sections 5.1.1 and 5.2.1), in terms of their understanding of new knowledge and how to generate new knowledge, it could be concluded that there were two broad groups of opinion.

One group (Interviewees 3, 1, 8, 9, 10, 11, 15 and 13) could differentiate between knowledge and new knowledge, whereas the other group (Interviewees 2, 4, 7, 16 and 17, 14, and 12) could not. Also, the former group could articulate how new knowledge could be generated in an organisational setting, whereas the latter group could not. The results thus show that when interviewees could recognise how knowledge and new

knowledge were generated from the experience of solving a problem or solving a new problem respectively, they could then articulate the difference between knowledge and new knowledge.

It was reasonable to expect that the policies and programmes that the interviewees would implement or have implemented would reflect their understanding of the operational basis of the 'to learn' and 'to innovate' acts. This expectation was confirmed by the results discussed in Chapter 6. Together with results and conclusions discussed in Chapters 4 and 5, it could be concluded that the leaders' knowledge and understanding of the 'to learn' and 'to innovate' acts had an impact on the policies and programmes to facilitate employees learning to become more innovative. Interviewees from organisations that had policies and programmes seemed to have a better knowledge and understanding, as well as deeper appreciation, of new knowledge generating or inventing.

In general terms, the results discussed in Chapter 6 were also consistent with those of Chapter 7, showing a coherent relationship between the leaders' understanding of learning and innovating and the policies and programmes they provided to employees. Thus, on that basis, the answer to Research Question (3) was yes or affirmative. But there were two sides to this affirmative answer: there are the 'pro' and 'con' sides of the 'Yes' answer to Question (3), with organisation D providing a case for the 'pro' and the utility companies the 'con' side. This is explained further below.

It might be further inferred from the results discussed that there was an organisational will to innovate, as exemplified by organisation D. The interviewees who knew and understood the 'what' and 'how' of the 'to learn' and 'to innovate' acts foster employee learning to become more capable of innovating by the learning and innovating policies and programmes implemented. This was the 'pro' side of the 'Yes' answer to Question (3). On the other hand, those interviewees whose organisations did not have the will would not have the perspective of fostering employee learning to enhance innovative capability nor to implement policies and programmes. This would be irrespective of whether or not the interviewees had the right perspective on learning and innovating

(such as interviewees 1 of organisation B and 15 of E). This represented the 'con' side of the 'Yes' answer to Question (3). This inference is reconcilable with the outcomes reported in the responses obtained to the questionnaire, as reported in Chapter 7. There were no clear indications reported of policies and programmes fostering learning and innovating for the employees and there were no outcomes provided of intellectual properties from organisations A, B, and E. This was in contrast to the history or list of creative achievements reported for organisation D.

ii. The leaders' understanding of the 'to innovate' act

The results show that the interviewees recognised that, generally, the novelty or uniqueness dimension of an innovation could span over a range, including the improvement of an existing object to a radical emergence or breakthrough of a 'never-before' outcome. The results presented in Chapters 4 (Sections 4.2.1, 4.2.2, 4.2.3 and Table 4.2) and 5 (Sections 5.1.1, 5.1.2, 5.1.3, 5.2.1, 5.2.2 and 5.2.3, and Tables 5.1 and 5.2) show that interviewees from the public service type utility companies (organisations A and E) considered innovation only as improvements on the nature or process of what they were doing in their jobs. Those from the private companies (organisations D and B), however, considered innovation to be generally, but not exclusively, something newly emerged; for business reasons they included improvements of what existed as well as innovations or breakthroughs. These results illuminated the interviewees' perspectives on the 'what is' aspect of the 'to innovate' act. Regarding the interviewees' understanding of the mechanism of action, results showed that a couple of the interviewees from organisation D, and possibly interviewees 15 of organisation E, 13 of H, and 1 of B, could be considered conversant with the innovation process and could describe how the innovation act could take place in an organisational setting. This resonated what the findings from the literature review (discussed in Sections 2.3.1, 2.3.2 and 2.3.3 of Chapter 2).

I considered that this difference in their conception of the 'to innovate' act could also have a significant impact on the policies or guidelines and programmes that organisational leaders would consider implementing. It should be noted that adopting

knowledge to enhance the performance outcome of an existing task, job or routine (that is, improving the existing thing) (Rogers 1976; Tan & Teo 2000; Bessant 2007) is not equivalent to adopting knowledge to generate new knowledge or a breakthrough in an unexplored or unknown territory (Chan Kim & Mauborgne 2001). These alternatives require different organisational processes, context, and competence to achieve their desired or targeted outcomes.

In conclusion, the outcome of this research shows that the interviewees might have an understanding of the 'what is', 'to learn' and 'to innovate' acts. With few exceptions, organisation leaders might not know sufficiently the 'how to' aspect of these acts in an organisational setting to appropriately inform their strategy formulation for enabling employees to learn and contribute to their organisation's innovativeness.

iii. Interviewees' notions of the link relating the 'to learn' and 'to innovate' acts

Only a few interviewees were able to articulate the linkage between 'to learn' and 'to innovate' (as shown in Sections 4.3.1, 4.3.2, and 4.3.3). The reason could be that they did not understand that the 'to learn' and 'to innovate' acts share the problem solving act as their common underlying operation (Soden 1994; Robinson 1995, 2002; Yu 2000, 2006; and as discussed in Section 2.2.1, Chapter 2). In the case of the 'to learn' act, most of the interviewees did not recognise that learning means solving problems, either new or recurrent, whereas for inventing or innovating, it is necessarily solving authentically new problems. In that respect, they were therefore not cognisant of the categorisation that the 'to learn' act subsumes the 'to innovate' act (as illustrated in Figures 1.1 and 2.1).

Had all leaders recognised that the problem solving act underscores the operation of both the 'to learn' and 'to innovate' acts, they would probably have little difficulty in articulating what innovation or innovativeness represented and, in turn, would demystify the 'what' and 'how' of becoming a learning organisation or the 'what' and 'how' to establish a competitive advantage for their organisation. They would then recognise that to attain the state of having an organisational core competence and, consequently, a competitive advantage would require employees to commit to

continually learning and to learning effectively by practicing problem solving as an action research or action learning routine in the workplace (Avison *et al.* 1999; Reason & Bradbury 2008; and as described in Section 2.4.7). This would be assisted by acquiring the knowledge and skills of critical and creative thinking and emotional intelligence as a trinity of their expert problem solving techniques (Allio 2008; Herling 2000; Castiglione 2008; Wileniu 2008; and as reviewed and discussed in Section 2.5.4). At this juncture, I will elaborate further on the answers to Research Questions (2) and (3).

8.3 Answering Research Questions (2) and (3)

In order to ascertain interviewees' knowledge and understanding of the 'to learn' and 'to innovate' acts, issues addressed in Chapter 4 were re-visited by re-phrasing the questions, as presented in Chapter 5. Results presented in Chapters 4 and 5 show that those who were able to articulate the 'what is' of the 'to learn' and 'to innovate' acts could relate coherently to what was meant by knowledge and new knowledge and could differentiate between them by articulating how to generate new knowledge (represented by interviewees 1, 8, 9, 11 and 15). This was dependent on the nature of their business and, therefore, whether or not the organisation had the need for innovations. One of the participant organisations that had this knowledge and understanding had learning policies and programmes implemented that would facilitate the development of employee innovative capability (interviewees 8, 9 and 11 of organisation D). Therefore this result partially answered Research Questions 2 and 3 affirmatively. Also, the results show that although some interviewees had the knowledge and understanding, their respective organisation might not necessarily utilise this to implement what might be beneficial to the organisation's innovativeness because it was not their organisation's designated role. This was the case with interviewees 1 of organisation B and 15 of organisation E.

8.3.1 Research Question (2)

Relevant to answering Research Question (2), the results show that among the organisations studied in this research, organisation D was the only organisation that had

implemented policies and programmes that would facilitate its employees to learn continually and contribute to the organisation's innovativeness. Organisation D has documented their achievements, providing evidence of their innovativeness (see Section 7.1.4 of Chapter 7). Whereas organisations A, B, and E, as shown by interviewees' responses in relation to implementation (Sections 6.1 and 6.2, and Table 6.1 of Chapter 6) and statements made in their public documents, as well as the HR managers' responses provided to the questionnaire (Sections 7.1.1, 7.1.2 and 7.1.5 of Chapter 7), have implemented policies practices that appear to be targeted essentially towards developing their employees to do their designated jobs and related tasks. They have programmes to enhance productivity gain, rather than aimed at achieving breakthroughs or innovations. This conclusion is supported by their organisation's expressed role as not being innovation-oriented, as well as by contrasting their implemented strategies with those reported in the literature for typically innovative companies, as described by Chan Kim and Mauborgne (2001).

Although leaders of these organisations might have the knowledge and understanding of learning and innovating, their aspirations might not flourish because their business did not sense a need to compete by continually offering their customers new products or services. Indeed, as the interviewees remarked repeatedly, they were employed to do their jobs right but not to invent or innovate. As discussed previously, this result substantiated the two adages: 'necessity is the mother of all inventions' and 'where there is a will, there is a way'. When there is a need to invent for business survival or grow, a person or an entity would have the will or motivation to find a way to build a structure or programme to facilitate learning in order to become more capable of inventing or innovating. Whereas when it was known that there is no need, why would any employee be motivated to do that?

This conclusion would also explain the state of cultivating innovativeness or innovative thinking in organisation H, as highlighted by interviewee 13. Organisation H has spent much time and effort on cultivating a learning and innovating culture but to date tangible outcomes have not emerged from their actions. This organisation might have

the means, the capability or competence, perhaps even the climate or environment, but not the cause or the will to act.

8.3.2 Research Question (3)

The answers to Research Questions (1) and (2) reflect the conclusion that where there is a need for organisational innovativeness, such as in the case of organisation D, there is a positive connection between the presence of leaders' knowledge and understanding of learning and innovating and the implementation of policies and programmes for employees to learn to become more innovative. Conversely, if there were no such need, such as in the case of organisations B, C and E, even though the leaders might have been conversant with learning and innovating, enabling policies and programmes would not be implemented. Any policy or programme that was implemented would only be to develop employees to learn, or more appropriately, train to do their jobs right.

However, the results obtained are still not sufficient to answer 'the flip side of the coin' for Research Question 3 - whether or not the leaders' lack of knowledge and understanding of learning and innovating together with the consequential lack or absence of innovative policies and programmes correlates with innovations emerging in organisations in response to a need. This insufficiency will be further discussed in following Section 8.5.2.

8.4 Quality assurance of the research

Although the results obtained were not absolutely ideal in terms of definitively answering the research questions, the quality of the results has been assured by checks described in Chapter 3 with respect to the four dimensions that Trochim (2001) identified (see Section 3.2.3) and the triangulation process that Guion (2002) suggested (see Section 3.2.2).

With respect to the four dimensions of quality: credibility, dependability, confirmability, and transferability, all have been applied. From the qualitative research

perspective, as explained in Chapter 3 (Section 3.2.3), the credibility criterion was met by the participants' review and authorisation of the recorded interview transcripts. But for reasons of practicality, the participants have not reviewed the researcher's interpretation and explanation of their responses.

Regarding the criterion 'dependability', this requires the researcher to account for the ever-changing context in which the research occurs. Here the researcher would be required to account for the changes that occur in the setting of the empirical work and how these changes affect the way the researcher might approach the study. Realistically, in the short duration of a doctoral project and duration of the interviews (usually about one hour), there was no perceptible change in the social and societal setting of the research that would have any likely impact on the empirical work.

The criterion 'reliability' or 'confirmability' refers to the degree to which results can be confirmed or corroborated by other researchers, thus ensuring the absence of researcher bias in the conduct and interpretation of the data. In Chapter 3, I discussed the practicality or applicability of this criterion to the qualitative research methodology in terms of the limitations to its rigorous compliance. Implicitly, there is an assumption in this 'confirmability' criterion that an objective reality exists 'out there', in which any researcher will have an identical perception. But qualitative research does not presuppose a singular or objective reality, but multiple realities as constructed by observers or researchers individually and independently. Moreover, the same, targeted subject matter in social science research grows and changes in the mental framework of the researchers over time, thus modifying their narratives and interpretations of events, making reproducing identical results or interpretation difficult, if not impossible. As discussed in Chapter 2 (Section 2.1.8), the mental framework of the researcher (or any person for that matter) varies with time and even the stage or journey of their lifelong learning (Jarvis 1992; Lave & Wenger 1991, 1996). This also reflects the variations in the social and societal environment in which the researcher is situated, consequently impacting on the researcher and on the reader's attitude and feeling in relation to the targeted subject matter. As corollaries of these two theoretical considerations - situated learning and social constructivism of learning (as reviewed in Section 2.1.8) - different

people may have individually different perspectives and/or interpretations of identical subject matter. From my perspective, as a person experienced in both the scientific and qualitative field of study, I have been careful in restraining and containing my personal biases and rigorously complying with Trochim's criterion of 'confirmability'.

With respect to Trochim's 'transferability' or 'external generalisability' criterion, which is whether or not the results can be relevant to other situations as a source of reference material, I considered that they can be extended to other situations or areas, such as:

- In situations that require clarification of people's knowledge and understanding of the 'to learn' and 'to innovate' acts, and of people's understanding of what is knowledge and new knowledge or how new knowledge is generated in other communities or groupings.
- If we accepted the social constructivist view, one which considers knowledge as an internally generated outcome of experiencing and not an external object, then we would need to re-assess the validity of using the term 'knowledge management' and consider whether or not the term is accurate and appropriate. Knowledge management might be interpreted to represent one person regulating or controlling another person's knowledge or knowledge-generating process. For the management of knowledge to operate and be effective, it would be necessary to manipulate and control the mental process or mind functioning that generates the other person's knowledge; and that manipulation and control (or management) would amount to interfering with another person's thinking or mental processes. Brainwashing is one form of such interference. But knowledge management, of course, is not meant to be brainwashing. In general terms, it is concerned with managing the organisation's intellectual resources and assets for the welfare of the organisation. Thus knowledge management in this regard might be more suitably renamed as organisational intellectual asset management, identifying it for what it actually is.

- Regarding people's perspectives on innovation, results of this research might be a source of information showing that there is a diversity of opinions in relation to what innovation is considered to be, even amongst the apex of an elite organisation's leaders, such as Organisation G (see Section 7.1.6 (b)). This observation highlights that innovation can be different things to different people at different levels of employment and this could be applicable to situations across a variety of communities or groupings.
- Significantly, results of this research show that people have different interpretations of words or terms in the English language, thus causing non-alignment of thoughts and making accurate communication in dialogues between persons difficult. For accurate or effective communication, people need to adopt and use the precise meaning of words. Differences in interpretation of the meaning of words also make research studies inefficient, especially when they involve 'question and answer' types of empirical work. Also different interpretations of words make it difficult to have a shared vision for organisational development, as was apparently in the case of organisation G (Section 7.1.6). Thus results of this research could be applicable to other situations as elements for consideration where the varied use of words or terms can lead to misdirected strategy formulation, policy setting and programme delivery.

8.5 Limitations of the research undertaken and outlook for future research

8.5.1 A restructured conceptualisation of organisational competitiveness in terms of learning and innovating

As an aid to future development in this knowledge domain, I have provided a deeper and more coherent understanding of organisational competitiveness. To survive, prosper, and grow, firms, companies, or organisations need to have a competitive advantage or edge over their industry's competitors (Prahalad & Hamel 1990, 1994); a

manifestation of the firm's competitive advantage would be the acceptance by its consumers of its continual and sustained delivery of innovative goods or services (Porter 1990).

The characteristic of business viability and success, that is, its competitiveness (Prahalad & Hamel 1990; Kitson *et al.* 2004) is constituted by the firm's readiness or preparedness, denoted by the term core competence (Prahalad & Hamel 1990; Hamel & Prahalad 1994). Core competence is the individual company's unique capability to confront and capitalise on emergent challenges or opportunities by solving problems or issues of its specific industry as they emerge (Bessant 2007; Tidd 2007b).

Core competence is a collective or team characteristic, although it is ultimately based on the competence of its constituencies or individual members. It is, however, a uniquely collective quality and not an arithmetic sum of its constituent's competencies. It reflects organisational learning in its relationship between organisational and individual learning.

Because of the collective problem solving capability and the attribute of uniqueness specific to individual firms, operationally core competence could be closely related to the concept of effective organisational learning and the establishment of core competence by the firm to create Senge's 'learning organisation' ideal (Senge 1990).

Although it is customary to differentiate between problem solving by individuals and people solving problems in groups or teams collectively, problem solving is inherently a social and situated activity, necessarily involving not only capabilities (experiences, knowledge, and skills) of the self but those of others. On that basis, cultivating and developing this core competence or collective problem solving capability would involve more than just the intellectual development of individuals, but necessarily the development of groups or teams in the firm as an integrated, cohesive whole. Indeed, it would be hard to imagine if any individual could singularly solve any contemporary problem effectively without any cooperation or collaboration with others. Gaining this

core competence, firms might need to attend to this social and situated learning action (Lave & Wenger 1991; Jarvis 1992).

In terms of acquiring this core competence or corporate-wide, collective problem solving capability, there can be two prongs to the approach. These two approaches are acquisition by individuals on the one hand and collective acquisition by the organisation as an entity on the other. Following on from this, whatever the individuals gained would need be transferred to the organisation and integrated. In order to do that, the organisation leaders' knowledge and understanding of learning, inventing, and innovating would play a critical role. Leaders need to know what the mechanism of these actions are and how they might be linked with one another; also the leaders would need to be able to identify the climate or environment in the organisation that would facilitate the emergence and development of these competencies such that they constitute the firm's core competence. Senge's learning organisation concept is essentially about the 'what is' and 'how to' of acquiring this collective problem solving capability or core competence in an organisation (Lee *et al.* 2000; Garavan *et al.* 2000; Wang & Ahmed 2001). Fundamental to this acquisition or to becoming a learning organisation (Senge 1990) would be the requirement for organisational leaders to have a clear understanding of the 'what is' and 'how to' of these essential acts, that is to understand fully the 'to learn', 'to invent', or 'to innovate' acts that would be needed to facilitate their acquisition. This conceptualisation might serve as the starting point for a more rigorous testing of its validity.

8.5.2 Limitations of the research undertaken

Further Answering Research Question (3)

The answers to Research Questions (1) and (2) reflected the conclusion that where there is a need for organisational innovativeness, there is a positive connection between the presence of leaders' knowledge and understanding of learning and innovating and the implementation of policies and programmes for employees to learn to become more

innovative. Conversely, if there were no such need, enabling policies and programmes may not be implemented.

However, as indicated, the results obtained are still not sufficient to answer 'the flip side of the coin' for Research Question 3 - whether or not the leaders' lack of knowledge and understanding of learning and innovating together with the consequential lack or absence of innovative policies and programmes can correlate with innovations emerging in organisations in response to a need. The reason for this insufficiency, I believe, is as follows.

Due to the nature of the qualitative research methodology (as discussed in Section 3 and Section 3.1, Chapter 3) used, there was no planned determination of a causal relationship (as reported in Section 1.6, Chapter 1). Consequently, variables or parameters of the empirical study have not been clearly defined and rigidly controlled to secure results that would possibly provide such a correlation for 'the flip side'.

It could also be suggested that an insufficient number of the targeted participant organisations were enrolled. Organisations participating in this research were too divergent in terms of the nature of their business, thus making comparisons untenable (i.e. comparing unlike things). Also, it could be due to insufficient time and resources, as the study emerged and developed, to re-iterate the recruitment drives for participant organisations to secure more appropriately targeted organisations in answering the research questions as well as conducting the research in a more longitudinal manner.

Quality assurance of the research

Although the results obtained were not absolutely ideal in terms of definitively answering the research questions, the quality of the results has been assured by checks described in Chapter 3 with respect to the four dimensions that Trochim (2001) identified (see Section 3.2.3) and the triangulation process that Guion (2002) suggested (see Section 3.2.2). These research quality checks have been elaborated earlier in Section 8.4 and will not be reiterated here.

8.5.3 Future research

This study found that when there was a need for innovation for survival or growth, as is the case with private companies, it is important for there to be a link between leaders' knowledge and understanding on the one hand and the presence of supporting policies and programmes in the organisation for learning and innovating on the other. But my conclusion of this linkage, or the answer to Research Question 2 could only be considered as tentative at the moment, because this study included only one authentic, private company. This means that only one of the participant organisations had to answer to shareholders and the broader range of stakeholders. It is suggested, however, that it was this, which provided that linkage. Further work involving more private companies as originally envisaged, and as discussed in Section 3.2.4 of Chapter 3, is required to substantiate or disprove this conclusion.

It would have been ideal to have involved other companies of a variety of sizes, structures and incorporation types participating in the research, as I had originally hoped. A range of more diverse private organisations of varying sizes, from a range of industries, and at different stages of development would further facilitate this empirical study and help to establish if different scenarios or situations in their respective competitive business environments were likely, such as:

- In the absence of leaders' knowledge and understanding on the one hand, but having policies and programmes to support learning and innovating on the other (this situation or scenario would refute the hypothesis by answering Research Question 2 in the negative thus showing there was no such linkage), and/or
- In the presence of leaders' knowledge and understanding but in the absence of innovative policies and programmes, that there could be other determinants affecting the implementation of policies and programmes for employees' learning and development of skills in innovation or the absence of need for such linkage.

On a positive note, the outcome of this research has clarified the state of knowledge and understanding that the leading employees of participant organisations in this project had on the learning; particularly learning that would lead to new knowledge generation and/or innovation. This research outcome confirmed that many people in the apex of organisations might be unclear and unsure in their understanding of the nature, the process, and the need for innovation in their business competition; and this state may critically impact on the organisations' innovation policies and learning programmes.

From the business praxis perspective, the outcome of this research also clarified the process of operationalising the Senge's Learning Organisation ideal. Firstly, leaders should acknowledge the need and significance of learning and establish learning policies and procedure. Second, leaders should implement programmes and set examples by modelling behaviours consistent with what they espouse. Third, achieving this aspiration of organisational learning would be contingent on the leadership having consistent and coherent theories of learning and innovation. And finally, leaders informed attitudes towards learning and innovation should create the context within which others may experience the foregoing.

To date, there has been a scarcity of empirical studies that specifically focus on determining what organisations would need to do to facilitate and enable their employees to learn in a manner that would empower their continual contribution to the innovativeness of their organisation. The outcome of this research has filled such a gap in knowledge by using self-reports of leaders in participant organisations about learning and innovating and their supporting systems and procedures. However, because of the limitations described above, future research in this area could extend and consolidate these conclusions.

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The following recent publications in the media attest to the need for understanding leaders' conceptualisation of innovation, creativity, and learning in Australian organisations:

- The Australian Miracle: An Innovative Nation Revisited, Book reviewed by Thomas Barlow, Publisher: Picador Pan-Macmillan Australia P/L, 2006.
- 'Innovate or Detonate: Let's talk turkey', by Katie Lahey, in Opinions, *The Age*, May 26, 2006
- 'Innovation debate a must', by Bob Irwin, Letters in Business 5, *The Age*, June 21, 2006
- 'Innovation is not an exact science', by Leon Gettler, in Opinions and Analysis, *The Age*, July 19, 2006
- 'Beware the signs that point to the winner's curse', by Leon Gettler, in *The Age*, February 21, 2007
- 'Education failures hold China back', by Michael Backman, *The Age*, February 28, 2007.

Appendices

- Exhibit 3.1 The Interview Guide
- Exhibit 3.2 Basis for the Questionnaire Survey
- Exhibit 3.3 Memo from Faculty of Business and Law Human Resource Ethics
 Committee confirming ethics approval
- Exhibit 3.4 Copy of a blank Questionnaire survey form
- Exhibit 7.1 Completed questionnaire (1)
- Exhibit 7.2 Completed questionnaire (2)
- Exhibit 7.3 Completed questionnaire (3)

Exhibit 3.1 The Interview Guide

Issues to explore, (not necessarily sequential), with respect to executives' (a) knowledge and understanding of, and (b) belief and attitude to 'learning' and 'innovation':

Section 1

Executives' and/or senior managers' view and understanding on 'learn' or 'learning' and 'innovation', with particular reference to how they reckon 'learn' or 'learning' would lead to 'innovation'. That is, their view/perspective on and understanding/appreciation of 'learning' and 'innovation'. Questions to ask:

Would you mind elaborate on your understanding of the word/verb 'learn' or 'learning'? That is, the process or way of how it occurs.

What is your understanding of the word 'innovation'? How would an innovation occur? What is the relationship between 'learn' or 'learning' and 'innovation' from your perspective?

The objectives are to collect from self-reports: (1) their conceptualisation of the terms 'learn' or 'learning', especially as activities or processes (that is, how they would happen and what are the anticipated outcomes), and (2) their conceptualisation of how the two processes/activities are related.

Section 2 New knowledge or Inventions do not emerge from the R&D and/or marketing department solely.

Innovation requires the incorporation of new knowledge into products or processes. In your opinion, what would constitute 'new knowledge' or just 'knowledge'? How would you differentiate them?

In your experience or opinion, which part or section of your organisation would you expect new knowledge to emerge? Do you believe new knowledge could emerge only from a certain level or part of your organisation? Or would you believe otherwise?

And how would you ensure more new knowledge would emerge from every level or every corner of your organisation? How would you proceed to turn new knowledge generated in your organisation/industry into business innovations?

Section 3 Every employee is a genius given the opportunity and training. Why doesn't organisation make use of all its employees for creativity?

Given the proposition that 'learning' or 'to learn' is the mother of all new knowledge generation and in turn innovations, in your opinion, which employee groups in your organisation should be offered opportunities to learn or to be involved in 'learning'?

To support innovation, what should employees, who take up the opportunity offered to them, learn so as to become capable or competent in contributing to new knowledge generation in your organisation?

How would the sort of learning you just suggested enable/empower your employees to contribute to new knowledge generation?

Section 4 Regarding 'Collective Problem Solving'

Traditionally, people believe that individual geniuses would come up with brilliant, new ideas which could result in new knowledge or inventions. Nowadays, in this complex world however, new knowledge, insights, or inventions often emerge through the collective effort of groups or teams.

Would you like to elaborate or comment on your understanding of the process of 'collective problem solving' and how would you encourage this sort of activities to prevail in your organisation?

As you know, 'innovation' is a rather rubbery word when used in conversations, and it encompasses a spectrum of achievements ranging from 'little innovations' or small improvements to 'big innovations' or breakthroughs.

Could you elaborate/comment on the two extremities of an 'innovation spectrum'? And perhaps discuss your own or your organisation's preference or perspective on them?

Their view and understanding on 'organisational learning', what it is and how it would and could occur in their organisations. This aspect has the theoretical basis in the literature of 'building up the core competence of business organisations' (such as Senge's 5 disciplines and Watkin's 7-dimensions, the building blocks or ideals of learning organisations).

Their attitude and belief regarding the importance and need for continual learning of all their employees. Who should do the 'learning' in their

organisation? If they consider or acknowledge that all their employees should learn, what should they all learn to actualise their potentials, the potential to contribute to the innovative effort of their organisation? That is, besides learning on the job to do their job right (that is job-training to become efficient), what the executives believe would be other subject matters that their employees should learn.

Section 5 Their views on 'Learning and Innovation' as organisational competitiveness.

Would the executives consider their employees' 'learning and innovation capability' a corporate resource in terms of their organisation's competitiveness? If so, what policies and programs would they implement as a corporate strategy to ensure their employees develop their capability to contribute to the competitive edge of their organisation?

In particular, the policies and programs they have implemented or contemplated to implement to facilitate all their employees

- 1. to learn progressively to enrich their requisite knowledge base, and*
- 2. to learn to actualise their potential/capabilities by educating them 'expert problem solving knowledge and skills'?*

Section 6

Regarding 'Implementation'

The actual questions asked at interviews will be based on the Senge's theory of 5 disciplines and Watkins and Marsick's theory of 7 dimensions.

Senge's 5 disciplines: Personal Mastery, Mental Model, Shared Vision, Team Learning, and Systems Thinking

Watkins and Marsick's 7 dimensions (climate/conditions/situations) to enable an cultivate Senge's 5 disciplines:

1. Create continuous learning opportunities (particularly in formal training sessions, using a number of channels ranging from instructor-led to web-based self services),

2. Promote inquiry and dialogue (offering time and space for employees to join informal meetings and discussions with others, who might share common interests, knowledge, and expertise),
3. Encourage collaboration and team learning (collaborating within teams and/or communities of practice to solve business issues),
4. Establish systems or 'routine procedures' to capture and share learning (communicating and sharing experiences with other employees),
5. Empower people towards a collective vision (sharing ideas for services, products, and process innovations),
6. Connect the organisation to its environment (connecting with information/knowledge sources, and experts outside),
7. Leaders model and support learning.

Underpinning or underlying these 7 dimensions and 5 disciplines, there are three generic knowledge and skills which all employees must acquire and practice continually and progressively towards excellence so as to be capable of contributing to innovation. From the Education/Problem Solving domain of knowledge, these are: critical and creative thinking competence, and intra- and inter-personal relational intelligence/competence or emotional intelligence. Without the knowledge and practice of these three generic competence, the 5-disciplines or 7-dimensions would not materialise.

So, the executives should respond to this question: What generic knowledge and skills would they consider necessary to facilitate their employees to learn to become innovative or skilled problem solvers? And what educational programmes are in place that would facilitate all their employees to acquire and master these generic competence/qualities?

Exhibit 3.2 Basis for The Questionnaire Survey

Basis for the questionnaire to the Human Resources managers: Phenotypic expression of Senge's 5-disciplines and/or Watkin's 7-dimensions, that is how do we know, or can observe/perceive that the dimensions or disciplines of 'being a learning organisation' are there in the organisation?

Qualitative Evidence (The Intangibles):

1. 'Culture/climate of learning and information sharing' is evident/conspicuous in the organisation (Is it evident and how evident? Please describe and score 1 to 5)
2. Employee development opportunity—everyone has own developmental plans (Is it really? And how does it occur for everyone? Does it review annually? Or irregularly? How effective? Score 1 to 5)
3. 'Learning organisation work' is a regularly discussed business item (Please give a couple of items of Learning Organisation work that have been discussed. How effective, score)
4. Greater employee satisfaction evident and turnover impact (Please elaborate and score)
5. Encouragement and/or Stimulation for innovation (Describe evidence, how effective as score)
6. Balanced Score card is used as a management process and tool at all layers of the organisation (Elaborate and score effectiveness)
7. Continuous feedback and coaching(or mentoring)is evident (Evidence and score for effectiveness)
8. Sharing and communicating across organisational functions (asking for help in problem solving and giving) is recognised and rewarded (Provide examples as evidence and score)

Quantitative (Numerical Data in company records) Evidence, please supply if available:

1. Implementation success of the 'learning-centred' programmes, numbers offered and attendance, actual vs planned
2. Employee Satisfaction Surveys of courses/programmes offered
3. Turnover related to development and learning factors (contrast 'before' and 'after' programme implementation)
4. Added or perceived value of innovations (Assessments/estimate of corporate profitability attributable to innovations)
5. training days—actual vs planned
6. Knowledge (that is, patents and/or intellectual properties) management survey outcomes.

Exhibit 3.3 Memo confirming ethics approval

MEMO

TO	Dr Beverley Lloyd-Walker School of Management Footscray Park Campus	DATE	25/03/2009
FROM	Dr. Pandora Kay Acting Deputy Chair Faculty of Business and Law Human Research Ethics Committee		
SUBJECT	Ethics Application – HRETH 08/127		

Dear Dr. Lloyd-Walker,

Thank you for resubmitting this application for ethical approval of the project:

HRETH 08/127 Leadership's conceptualisation of learning and innovation and their strategies of implementation

The proposed research project has been accepted and deemed to meet the requirements of the National Health and Medical Research Council (NHMRC) 'National Statement on Ethical Conduct in Human Research (2007)', by the Acting Deputy Chair, Faculty of Business & Law Human Research Ethics Committee. Approval has been granted from 25/03/2009 to 18/07/2010.

Continued approval of this research project by the Victoria University Human Research Ethics Committee (VUHREC) is conditional upon the provision of a report within 12 months of the above approval date (by **25/03/2010**) or upon the completion of the project (if earlier). A report proforma may be downloaded from the VUHREC web site at:
<http://research.vu.edu.au/hrec.php>

Please note that the Human Research Ethics Committee must be informed of the following: any changes to the approved research protocol, project timelines, any serious events or adverse and/or unforeseen events that may affect continued ethical acceptability of the project. In these unlikely events, researchers must immediately cease all data collection until the Committee has approved the changes. Researchers are also reminded of the need to notify the approving HREC of changes to personnel in research projects via a request for a minor amendment.

If you have any queries, please do not hesitate to contact me at Pandora.Kay@vu.edu.au.

On behalf of the Committee, I wish you all the best for the conduct of the project.

Dr. Pandora Kay

Acting Deputy Chair, Faculty of Business and Law Human Research Ethics Committee

Exhibit 3.4 Copy of a blank Questionnaire survey form

Survey to be completed by HR Managers

Ethics Committee please note:

This is a final version of the content of the survey document, however please note that this document may be converted to electronic form so that those desiring to receive it via email may complete and return electronically.

The electronic version would vary only to the extent that instead of circling a response, respondents would click on the space beside the most appropriate answer. Industry –

ABS alternatives:

Manufacturing, Construction, Retail and Wholesale, Hospitality, Transport and Storage, Education, Health and Community Services, Fashion and Multimedia, Business Management, Finance, and Property Services, Computing and Information Technology, Engineering and Mining, Recreation and Sports, Food Processing and Wine.

Size – <100 101 – 500 501 – 1000 1000 – 5000 > 5000

Please indicate, by circling the number or phrase you select (1 or 5 below), the response that appropriately describes the extent which the following conditions or situations exist in your organisation.

1. Is there a culture/climate of learning and sharing of knowledge in your organisation?

1 - not evident

2 - some evidence

3 - evident

4 - very evident

5 - absolutely evident

2. With respect to employees' learning and development opportunities

2.a Everyone in our organisation has his/her individual, customised developmental plans (ICLDPs)

- 1 - no ICLDPs exist
- 2 - ICLDPs exist for a minority only of staff
- 3 - ICLDPs exist only for senior staff
- 4 - ICLDPs exist for most staff, across levels
- 5 - ICLDPs exist for all staff, across all levels

2.b Everyone has their plan reviewed and renewed regularly. How true is this statement?

- 1 - no ICLDPs exist
- 2 - ICLDPs exist for a minority only of staff
- 3 - ICLDPs exist only for senior staff
- 4 - ICLDPs exist for most staff, across levels
- 5 - ICLDPs exist for all staff, across all levels

3. Issues regarding the implementation of the 'Learning organisation' ideal/vision are regular agenda items for discussion in our managerial meetings. How true is this statement?

- 1 - not true
- 2 - sometimes true
- 3 - usually true
- 4 - true most of the time
- 5 - always true

4. In relation to your responses to questions 1 – 3, please now indicate the period of time for which these practices have been in place in your organisation:

Question 1 Beginning year _____

Question 2 Beginning year _____

Question 3 Beginning year _____

5. Have employee satisfaction levels increased in your organisation over the last three years: *(please circle)* Yes No

Can you indicate a % increase/decrease over this period? _____%

6. Has employee turnover in your organisation changed over the last three years? Please indicate the level of change:

Increased _____% Decreased _____ %

7. If learning activities have increased, has there been a stimulatory effect evident on new knowledge generation and innovation as a result of these enhanced learning activities and knowledge sharing amongst employees in the organisation?

(please circle) Yes No

If you circled 'Yes', please indicate the level of increase

1 - very little

2 - little

3 - some

4 - considerable within some groups/areas

5 – a lot across the all areas of the organisation

8. Is the Balanced Score Card used as a management process and tool at all layers of the organisation to indicate employee effectiveness in job performance?

- 1 – Top management only
- 2 – Top and middle management
- 3 – Supervisor level up
- 4 – All but lowest levels in the organisation
- 5 – All levels of the organisation

9. Is it evident in your organisation that there is a continuous feedback to employees, and coaching and mentoring of employees by managers (or role modelling of learning by managers)?

- 1 - No
- 2 – In a few areas – ad hoc
- 3 – Within identified groups within the organisation
- 4 – Across most areas of the organisation
- 5 – All areas of the organisation – it is part of performance requirements

10. Is it formally recognised and rewarded for sharing and communicating knowledge to provide help/assistance in solving problems, or to ask others for help/assistance in solving problems?

- 1 - No
- 2 – In a few areas – ad hoc
- 3 – Within identified groups within the organisation
- 4 – All areas of the organisation
- 5 – All areas of the organisation - it is linked to performance-based rewards

Could you please now provide some numerical data, if available, for each of the following information requests. Please provide figures for the last available period and indicate to which year the figures provided apply.

Related to Question 1, can you Please provide the number of learning-focused programs offered to employees _____ (year)

Number of employees who attended? _____ (year)

Also related to Question 1, can you please provide the number of training days offered to all employee in your organisation _____ (year)

Is this figure established via an organisation-wide policy? Yes No

How many hours, or days, did each employee take up, on average, (during the period stated above)? _____ days _____ hours

Related to Question 5, can you please indicate if your organisation calculates a value, possibly represented as a percentage contributed to profit, attributable to knowledge generation and innovations emerged from your organisation? Yes No

If you answered 'Yes' above, can you please provide the most recent value attributed by your organisation \$ _____ (year)

Also, can you please provide quantitative data on the corporate output of intellectual properties over the last five years?

Patents _____ Trademarks _____ Copyright _____

Other, please explain

Exhibit 7.1

This is a final version of the content of the survey document, however please note that this document may be converted to electronic form so that those desiring to receive it via email may complete and return electronically.

The electronic version would vary only to the extent that instead of circling a response, respondents would click on the space beside the most appropriate answer.

Industry –ABS alternatives: Manufacturing, Construction, Retail and Wholesale, Hospitality, Transport and Storage, Education, Health and Community Services, Fashion and Multimedia, Business Management, Finance, and Property Services, Computing and Information Technology, Engineering and Mining, Recreation and Sports, Food Processing and Wine.

Industry: Water utilities

Size – <100 **(101 – 500)** 501 – 1000 1000 – 5000 > 5000

Please indicate, by circling the number or phrase you select (1 or 5 below), the response that appropriately describes the extent which the following conditions or situations exist in your organisation.

1. Is there a culture/climate of learning and sharing of knowledge in your organisation?

1 - not evident

2 - some evidence

3 - evident

(4 - very evident)

5 - absolutely evident

2. With respect to employees' learning and development opportunities

2.a Everyone in our organisation has his/her individual, customised developmental plans (ICLDPs)

1 - no ICLDPs exist

2 - ICLDPs exist for a minority only of staff

3 - ICLDPs exist only for senior staff

(4 - ICLDPs exist for most staff, across levels)

5 - ICLDPs exist for all staff, across all levels

2.b Everyone has their plan reviewed and renewed regularly. How true is this statement?

1 - no ICLDPs exist

2 - ICLDPs exist for a minority only of staff

3 - ICLDPs exist only for senior staff

4 - ICLDPs exist for most staff, across levels, **(reviewed and renewed annually)**

5 - ICLDPs exist for all staff, across all levels

3. Issues regarding the implementation of the 'Learning organisation' ideal/vision are regular agenda items for discussion in our managerial meetings. How true is this statement?

(1 - not true)

2 - sometimes true

3 - usually true

4 - true most of the time

5 - always true

8. In relation to your responses to questions 1 – 3, please now indicate the period of time for which these practices have been in place in your organisation:

Question 1 Beginning year pre 2005

Question 2 Beginning year pre 2005

Question 3 Beginning year _____

9. Have employee satisfaction levels increased in your organisation over the last three years: (please circle) (**Yes**) No

Can you indicate a % increase/decrease over this period? 27%

10. Has employee turnover in your organisation changed over the last three years? Please indicate the level of change:

Increased _____% **Decreased 10%**

11. If learning activities have increased, has there been a stimulatory effect evident on new knowledge generation and innovation as a result of these enhanced learning activities and knowledge sharing amongst employees in the organisation?

(please circle) (**Yes**) No

If you circled 'Yes', please indicate the level of increase

1 - very little

2 - little

3 - some

(4 - considerable within some groups/areas)

5 – a lot across the all areas of the organisation

9. Is the Balanced Score Card used as a management process and tool at all layers of the organisation to indicate employee effectiveness in job performance?

(1 – Top management only)

2 – Top and middle management

3 – Supervisor level up

4 – All but lowest levels in the organisation

5 – All levels of the organisation

10. Is it evident in your organisation that there is a continuous feedback to employees, and coaching and mentoring of employees by managers (or role modelling of learning by managers)?

1 - No

2 – In a few areas – ad hoc

3 – Within identified groups within the organisation

(4 – Across most areas of the organisation)

5 – All areas of the organisation – it is part of performance requirements

11. Is it formally recognised and rewarded for sharing and communicating knowledge to provide help/assistance in solving problems, or to ask others for help/assistance in solving problems?

(1 – No)

2 – In a few areas – ad hoc

3 – Within identified groups within the organisation

4 – All areas of the organisation

5 – All areas of the organisation - it is linked to performance-based rewards

Could you please now provide some numerical data, if available, for each of the following information requests. Please provide figures for the last available period and indicate to which year the figures provided apply.

Related to Question 1, can you Please provide the number of learning-focused programs offered to employees 340 08/09 (year)

Number of employees who attended? 2100* 08/09 (year)

*training attendances estimate

Also related to Question 1, can you please provide the number of training days offered to all employee in your organisation 2100* (year)

Is this figure established via an organisation-wide policy? (Yes) No

How many hours, or days, did each employee take up, on average, (during the period stated above)? _____ days _____ hours

Related to Question 7, can you please indicate if your organisation calculates a value, possibly represented as a percentage contributed to profit, attributable to knowledge generation and innovations emerged from your organisation? Yes (No)

If you answered 'Yes' above, can you please provide the most recent value attributed by your organisation \$ _____ (year)

Also, can you please provide quantitative data on the corporate output of intellectual properties over the last five years? (**No**)

Patents _____ Trademarks _____ Copyright _____

Other, please explain

Exhibit 7.2

This is a final version of the content of the survey document, however please note that this document may be converted to electronic form so that those desiring to receive it via email may complete and return electronically.

The electronic version would vary only to the extent that instead of circling a response, respondents would click on the space beside the most appropriate answer.

Industry –ABS alternatives: Manufacturing, Construction, Retail and Wholesale, Hospitality, Transport and Storage, Education, Health and Community Services, Fashion and Multimedia, Business Management, Finance, and Property Services, Computing and Information Technology, Engineering and Mining, Recreation and Sports, Food Processing and Wine.

Industry: Energy/Utilities

Size – <100 101 – 500 **(501 – 1000)** 1000 – 5000 > 5000

Please indicate, by circling the number or phrase you select (1 or 5 below), the response that appropriately describes the extent which the following conditions or situations exist in your organisation.

1. Is there a culture/climate of learning and sharing of knowledge in your organisation?

1 - not evident

(2 - some evidence)

3 - evident

4 - very evident

5 - absolutely evident

2. With respect to employees' learning and development opportunities

2.a Everyone in our organisation has his/her individual, customised developmental plans (ICLDPs)

1 - no ICLDPs exist

2 - ICLDPs exist for a minority only of staff

3 - ICLDPs exist only for senior staff

(4 - ICLDPs exist for most staff, across levels)

5 - ICLDPs exist for all staff, across all levels

2.b Everyone has their plan reviewed and renewed regularly. How true is this statement?

1 - no ICLDPs exist

2 - ICLDPs exist for a minority only of staff

3 - ICLDPs exist only for senior staff

4 - ICLDPs exist for most staff, across levels; **(reviewed and renewed 6-monthly)**

5 - ICLDPs exist for all staff, across all levels

3. Issues regarding the implementation of the 'Learning organisation' ideal/vision are regular agenda items for discussion in our managerial meetings. How true is this statement?

(1 - not true)

2 - sometimes true

3 - usually true

4 - true most of the time

5 - always true

12. In relation to your responses to questions 1 – 3, please now indicate the period of time for which these practices have been in place in your organisation:

Question 1 Beginning year 2003

Question 2 Beginning year 2003

Question 3 Beginning year N/A

13. Have employee satisfaction levels increased in your organisation over the last three years: (*please circle*) (Yes) No

Can you indicate a % increase/decrease over this period? Increased by 10%

14. Has employee turnover in your organisation changed over the last three years? Please indicate the level of change:

Increased _____% Decreased by 19.1% in 2007, and 8.9% in 2009

15. If learning activities have increased, has there been a stimulatory effect evident on new knowledge generation and innovation as a result of these enhanced learning activities and knowledge sharing amongst employees in the organisation?

(*please circle*) (Yes) No

If you circled 'Yes', please indicate the level of increase

1 - very little

(2 – little)

3 - some

4 - considerable within some groups/areas

5 – a lot across the all areas of the organisation

10. Is the Balanced Score Card used as a management process and tool at all layers of the organisation to indicate employee effectiveness in job performance?

(1 – Top management only)

2 – Top and middle management

3 – Supervisor level up

4 – All but lowest levels in the organisation

5 – All levels of the organisation

11. Is it evident in your organisation that there is a continuous feedback to employees, and coaching and mentoring of employees by managers (or role modelling of learning by managers)?

1 - No

(2 – In a few areas – ad hoc)

3 – Within identified groups within the organisation

4 – Across most areas of the organisation

5 – All areas of the organisation – it is part of .performance requirements

12. Is it formally recognised and rewarded for sharing and communicating knowledge to provide help/assistance in solving problems, or to ask others for help/assistance in solving problems?

1 - No

(2 – In a few areas – ad hoc)

3 – Within identified groups within the organisation

4 – All areas of the organisation

5 – All areas of the organisation - it is linked to performance-based rewards

Could you please now provide some numerical data, if available, for each of the following information requests. Please provide figures for the last available period and indicate to which year the figures provided apply.

Related to Question 1, can you Please provide the number of learning-focused programs offered to employees **8 separate programs, multiple instances held for each in 2009** (year) **not including individual development delivered outside organisation**

Number of employees who attended? **Approx. 300** **2009** (year)

Also related to Question 1, can you please provide the number of training days offered to all employee in your organisation **2700 days (approx. 3 per employee)** **2900** (year) **includes individual development held outside organisation**

Is this figure established via an organisation-wide policy? Yes **(No)**

How many hours, or days, did each employee take up, on average, (during the period stated above)? **3** days _____ hours

Related to Question 7, can you please indicate if your organisation calculates a value, possibly represented as a percentage contributed to profit, attributable to knowledge generation and innovations emerged from your organisation? Yes **(No)**

If you answered 'Yes' above, can you please provide the most recent value attributed by your organisation \$ _____ (year) **N/A**

Also, can you please provide quantitative data on the corporate output of intellectual properties over the last five years? **No idea-We don't track this**

Patents _____ Trademarks _____ Copyright _____

Other, please explain

Exhibit 7.3

This is a final version of the content of the survey document, however please note that this document may be converted to electronic form so that those desiring to receive it via email may complete and return electronically.

The electronic version would vary only to the extent that instead of circling a response, respondents would click on the space beside the most appropriate answer.

Industry –ABS alternatives: Manufacturing, Construction, Retail and Wholesale, Hospitality, Transport and Storage, Education, Health and Community Services, Fashion and Multimedia, Business Management, Finance, and Property Services, Computing and Information Technology, Engineering and Mining, Recreation and Sports, Food Processing and Wine.

Industry: Utility

Size – <100 **(101 – 500)** 501 – 1000 1000 – 5000 > 5000

Please indicate, by circling the number or phrase you select (1 or 5 below), the response that appropriately describes the extent which the following conditions or situations exist in your organisation.

1. Is there a culture/climate of learning and sharing of knowledge in your organisation?

1 - not evident

2 - some evidence

(3 – evident)

4 - very evident

5 - absolutely evident

2. With respect to employees' learning and development opportunities

2.a Everyone in our organisation has his/her individual, customised developmental plans (ICLDPs)

1 - no ICLDPs exist

2 - ICLDPs exist for a minority only of staff

3 - ICLDPs exist only for senior staff

4 - ICLDPs exist for most staff, across levels

(5 - ICLDPs exist for all staff, across all levels)

2.b Everyone has their plan reviewed and renewed regularly. How true is this statement?

1 - no ICLDPs exist

2 - ICLDPs exist for a minority only of staff

3 - ICLDPs exist only for senior staff

4 - ICLDPs exist for most staff, across levels

5 - ICLDPs exist for all staff, across all levels, **reviewed and renewed 6-**

monthly

3. Issues regarding the implementation of the 'Learning organisation' ideal/vision are regular agenda items for discussion in our managerial meetings. How true is this statement?

(1 - not true)

2 - sometimes true

3 - usually true

4 - true most of the time

5 - always true

16. In relation to your responses to questions 1 – 3, please now indicate the period of time for which these practices have been in place in your organisation:

Question 1 Beginning year **Difficult to state a year that this began**

Question 2 Beginning year **DPs have been used for many years, though 2009 was probably the year where complete participation occurred first**

Question 3 Beginning year _____

17. Have employee satisfaction levels increased in your organisation over the last three years: *(please circle)* Yes **(No; our OCI survey response decreased, but some other indicators of satisfaction increased.)**

Can you indicate a % increase/decrease over this period? **(No)**

18. Has employee turnover in your organisation changed over the last three years? Please indicate the level of change:

Increased _____% **Decreased by 2%**

19. If learning activities have increased, has there been a stimulatory effect evident on new knowledge generation and innovation as a result of these enhanced learning activities and knowledge sharing amongst employees in the organisation?

(please circle) **(Yes; we don't have specific measures that enable us to judge knowledge generation & innovation.)** No

If you circled 'Yes', please indicate the level of increase

1 - very little

2 - little

(3 – some)

4 - considerable within some groups/areas

5 – a lot across the all areas of the organisation

11. Is the Balanced Score Card used as a management process and tool at all layers of the organisation to indicate employee effectiveness in job performance?

1 – Top management only

2 – Top and middle management

3 – Supervisor level up

4 – All but lowest levels in the organisation

5 – All levels of the organisation

Our balanced ('strategy') scorecard is used to indicate the organisation's collective effectiveness in regard to strategy for the key areas of Customer, Environment, Efficiency and Culture

12. Is it evident in your organisation that there is a continuous feedback to employees, and coaching and mentoring of employees by managers (or role modelling of learning by managers)?

1 - No

2 – In a few areas – ad hoc

3 – Within identified groups within the organisation

(4 – Across most areas of the organisation)

5 – All areas of the organisation – it is part of performance requirements

13. Is it formally recognised and rewarded for sharing and communicating knowledge to provide help/assistance in solving problems, or to ask others for help/assistance in solving problems?

1 - No

(2 – In a few areas, possibly many – ad hoc)

3 – Within identified groups within the organisation

4 – All areas of the organisation

5 – All areas of the organisation - it is linked to performance-based rewards

Could you please now provide some numerical data, if available, for each of the following information requests. Please provide figures for the last available period and indicate to which year the figures provided apply.

Related to Question 1, can you Please provide the number of learning-focused programs offered to employees **(no definition—does this mean collective program, the no. Of session of that program, are e-learning courses included etc?)** 536 2009
calendar (year)

Number of employees who attended? 450 2009 calendar (year)

Also related to Question 1, can you please provide the number of training days offered to all employee in your organisation **There is no concept of a no. Of days that will be offered. Needs and opportunities will vary depending on year, position, change requirements etc.**

Is this figure established via an organisation-wide policy? Yes **(No)**

How many hours, or days, did each employee take up, on average, (during the period

stated above)? **Approx. Per person 6 days/ or 45 hours**

Related to Question 7, can you please indicate if your organisation calculates a value, possibly represented as a percentage contributed to profit, attributable to knowledge generation and innovations emerged from your organisation? Yes **(No)**

If you answered 'Yes' above, can you please provide the most recent value attributed by your organisation \$ _____ (year)

Also, can you please provide quantitative data on the corporate output of intellectual properties over the last five years?

Patents _____ Trademarks _____ Copyright _____

Other, please explain
