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Knowledge Management in the Context of  
an Ageing Workforce:  
Organizational Memory and Mentoring

A thesis submitted in partial fulfilment of the requirements  
for the Degree of

Doctor of Philosophy in Psychology

by

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### **Dedication**

This thesis is dedicated with love and gratitude to my parents. To my father, Owen Smith, a chartered accountant who finally fully retired in 2009 after a long and happy career; and in memory of my mother, Shirley Smith, who once worked as a talented designer and dressmaker of glamorous gowns (later transferring her skills to making dresses for her three daughters), but who didn't even get a certificate to say she was qualified to do so.



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Please note:

University of Canterbury Ethics Committee approval for research involving anonymous questionnaires requires inclusion of a statement of informed consent by participants. It was outlined to the participants in the questionnaires used in each of the studies in this thesis that by completing the questionnaire it was understood that they consented to participation, and consented to publication of the results with the understanding that anonymity would be preserved.

## Abstract

Organizational memory has significant potential for companies' competitive advantage, with mentoring considered a particularly effective method of transferring this knowledge. Older workers are often considered ideal mentors because of their experience and alleged willingness to pass on their knowledge. There is an associated assumption that these workers anticipate and experience positive outcomes from mentoring others. This thesis tested if these assumptions hold up in 21<sup>st</sup> century workplaces - some discriminatory practices towards older workers and a career contract that no longer guarantees employment, may discourage knowledge sharing.

An organizational memory scale was constructed to help test the assumptions and an exploratory factor analysis involving 143 employees from eight companies resulted in 21 items and five correlated factors including socio-political knowledge, job knowledge, external network, history, and industry knowledge. Two confirmatory factor analyses, the first involving 287 employees and the second 115 retirees, found support for five correlated first-order factors and a second order factor, organizational memory.

In a third study involving 134 employees, support was found for a model of organizational memory and empowerment. Age was found to relate to organizational memory but this relationship was mediated by organizational tenure. In turn, organizational memory was found to relate to psychological empowerment and the frequency with which participants were requested to share knowledge at work. Organizational memory, empowerment and request to train and mentor others also positively related to organization-based self-esteem.

In the fourth study, an organizational case study involving 78 employees, support was found for a model of organizational memory and the intention to mentor within the context of an aging workforce. Generativity and the expected cost of the time and effort involved in mentoring mediated the relationship between organizational memory (specifically, socio-

political knowledge) and the intention to mentor. Furthermore those participants with high scores on both organizational memory and occupational self-efficacy anticipated more cost in time and effort, and indicated less intention to mentor, than those with high organizational memory but low occupational self-efficacy. These findings challenge the assumption that experienced workers are, as a matter of course, willing to mentor others.

In a final study involving 96 retired individuals, there were no significant differences found between retirees with and those without experience as a mentor, in career satisfaction and unwelcome work ruminations. However notably, the study showed that participants did experience unwelcome work ruminations even (as in the case of some) well into retirement. The thesis concludes with a summary of findings as they relate to the assumptions under examination, an outline of the overall implications of the findings for future research and for organizational practice, and closing remarks about the overall research contribution of the thesis.

## **Introduction**

A survey of human resources directors by IBM last year concluded: “When the baby-boomer generation retires, many companies will find out too late that a career’s worth of experience has walked out the door, leaving insufficient talent to fill the void.”

Special Report: The Ageing Workforce, *The Economist*, February 18<sup>th</sup>-24<sup>th</sup>, 2006, (p.61).

### **An Aging Workforce and Risks to Knowledge Management**

There is a potential threat to an organization’s knowledge management strategy whenever an experienced employee leaves, in terms of the potential loss of organizational memory and the subsequent competitive advantage this knowledge represents for companies. According to Johnson and Paper (1998) through organizational memory, companies have the potential to enhance learning from history (e.g., Neustadt & May, 1986), by avoiding repetition of past mistakes and adopting practices that were successful in the past. Both actions are a means of sustaining competitive advantage. When employees retire from an organization, it may be straightforward to replace their job-related knowledge, skills and abilities, but it is much more difficult to replace the organizational and industry related knowledge gained from experience (Strack, Baier, & Fahlender, 2008). Organizations are slowly waking up to the implications of an aging working population, but there is a fear (as indicated by the above quote) that this frequently occurs only after experienced workers have “walked out the door”.

Over the next 25 years, the working-age population of Europe is projected to fall by almost 50 million due to the retirement of members of the *baby-boomer* generation born between 1945 and 1964 (New Zealand Department of Labour, 2002). The

Organization for Economic Cooperation and Development (OECD, 2006) stated that member countries (including New Zealand) are expecting the numbers of elderly within their populations to grow and their working population to decrease. Falling fertility rates mean that fewer new workers will be coming through to replace retiring workers, and the number of people retiring will soon exceed those entering the workforce (OECD, 2006). Within the United States, the number of workers in the over 55 age group is expected to grow at four times the rate of the overall workforce (Alley & Crimmins, 2007). In New Zealand it is expected that growth in the workforce will decline and become negative around 2020 (New Zealand Department of Labour, 2002). This demographic trend is not necessarily reflected in all companies (Capelli, 2003), and some industries are more at risk than others. One third of the workforce engaged in the United States energy industry for example, are over 50 years of age, and this group is expected to increase by 25 % by 2020 (Strack et al., 2008).

The term *older worker* has been defined chronologically in a number of ways. In the United States, the “Job Training Partnership Act” and the “Older Americans Act” defined older workers as those employees aged 55 years and over, although the “Age Discrimination in Employment Act” regarded age discrimination as applying to anyone over the age of 40 (Rothwell, Sterns, Spokus, & Reaser, 2008). Other chronological definitions of the older worker relate to proximity to retirement age (Fraccaroli & Depolo, 2008), but that approach is problematic in times when governments are abolishing mandatory retirement ages. New Zealand currently has no compulsory retirement age although 65 years still tends to be a target age for retirement for many as this is when the national superannuation scheme is activated for individuals. The term is very relative with one European electronics firm describing those aged between 35 and 50 years as “older workers” (Davey, 2006). However for the purposes of this thesis, it is useful to think in

terms of the members of the baby boomer generation (born 1946-1964) and those born prior, as the cohort of older workers of particular interest.

The aging workforce phenomenon has generated a number of publications in the industrial and organizational psychology, and human resource management, literature. These are aimed at helping organizations encourage older employees to work for as long as possible, together with suggestions on how to effectively harness the knowledge, skills, and abilities of older workers (e.g. Critchley, 2004; Davey & Cornwall, 2003; Hankin, 2005; Hedge, Borman, & Lammlein, 2006; Lahaie, 2005). Some authors have specifically addressed the threatened knowledge management crisis (e.g. DeLong, 2004). In many cases, this literature has advocated mentoring roles for older workers as a way of both ensuring vital knowledge transfer and accomplishing the continued engagement of older workers who will feel valued for their contribution, seemingly a win-win approach for all concerned.

When referring to the “experience” of older workers, researchers, practitioners, and employers are most commonly referring to the job, organizational, and/or industry related knowledge (and skills) that result from long tenure. Generally, several assumptions have been made or implied about older workers in terms of knowledge management (e.g. Beehr & Bowling, 2002; Critchley, 2004; Dychtwald, Erickson, & Morison, 2006; Hankin, 2005; Hedge et al., 2006), including the following:

- 1) Older workers have valued knowledge and experience, and are significant repositories of organizational memory.
- 2) Older workers anticipate, and are more likely to experience, positive outcomes from mentoring others in this valued role.

- 3) Older workers are particularly amenable to passing on their knowledge to others in the organization through their willingness to leave a legacy and/or desire to give back to their organizations.

The purpose of this thesis is to empirically test these assumptions, and discuss if they are still accurate in the workplaces of the 21<sup>st</sup> century. It may be that older workers may not be as amenable to sharing their knowledge through mentoring as often expected. For example, the results of a study by Ragins and Cotton (1993) led them to conclude that “prior experience in mentoring relationships, position and rank may be better predictors of willingness to mentor than simply age or tenure” (p.108).

There may be a number of contextual influences that place conditions on older workers participating as mentors. Workplace cultures have changed considerably since the early publications on mentoring at work in the 1970s and 1980s (e.g., Kram, 1985; Levinson, Darrow, Levinson, Klein, & McKee, 1978). The massive organizational downsizing and restructurings of the 1990s have altered the psychological contract between employee and employer (Harrington & Hall, 2007). In particular, organizations can seldom guarantee life-long employment for workers and this may negatively influence the loyalty and commitment that experienced employees have for their organizations (Barth, McNaught, & Rizzi, 1993). Furthermore, being asked to pass on their knowledge may threaten any sense of job security experienced workers do have, particularly if they suspect that this act will erode their own niche and competitive edge within their organizations (Geisler, 2008).

Experienced workers are often (but not exclusively) in their mid to late career when considered suitable for mentoring others, and as such may be subject to less than ideal working conditions that may constrain their desire to mentor. These employees may



be the target of negative stereotypes, for example, that they have outdated skills and are not so eager to learn, and as a result have less access to training (Barth et al., 1993; Hummert, Garstka, Ryan, & Bonneson, 2004; Sterns & Miklos, 1995). Furthermore, their careers may have stagnated as a result of reduced access to and motivation for, training and development activities (Ragins & Cotton, 1993). It has also been suggested that older workers in general prefer a gradual reduction in working hours and responsibilities (e.g., Barth et al., 1993), and this may mean they are also increasingly reluctant to accept extra mentoring responsibilities in the workplace.

The conditions discussed above may contribute to quite a different scenario concerning the older and experienced worker's motivation to mentor others, and there are several costs as well as benefits that these workers might perceive in passing on their knowledge. Furthermore, it has been suggested that western cultures may be particularly at risk as they tend to be characterised by individualistic rather than collective norms, which have the potential to undermine the relational infrastructure that may enhance knowledge sharing (Bright, 2005).

### **Research Aim and Objectives**

The aim of the current research was to test the assumptions regarding older and experienced workers outlined above. This included the following objectives:

- To contribute to the understanding of the measurement issues in this area, including the development of a self-report organizational memory scale.
- To empirically test a model of organizational memory and empowerment. To investigate the relationship of organizational memory to both age and organizational tenure and to examine potential work-related outcomes of organizational memory.

- To empirically test a model of organizational memory and the intention to mentor, testing predicted mediators and moderators of the relationships between organizational memory and the expected costs of mentoring, and organizational memory and the intention to mentor.
- To empirically test predicted differences between those with and without experience as a mentor in achieving career satisfaction and a corresponding reduction in unwelcome work ruminations in retirement.
- To outline the implications of the research findings for organizational practice and future research, with a particular focus on contributing to the literature on the aging workforce, knowledge management, and mentoring.

In addressing the above issues, the thesis also aimed to respond to a call for more research that is relevant to organizational practice. After reviewing the topics featuring in prominent journals (“Personnel Psychology” and the “Journal of Applied Psychology”) from 1963 to 2007, Cascio and Aguinis (2008) concluded that industrial and organizational psychology researchers need to find ways of narrowing the “academic-practice” divide if they are to have more influence. They suggested thirteen current topics that researchers could address to contribute to that agenda, including the need to evaluate approaches aimed at preserving organizational or “institutional” memory with the approaching retirement of the baby boomer generation, the broad aim of this thesis.

The thesis also focuses on the knowledge management function(s) of mentoring that the existing mentoring research, while plentiful in many aspects, has paid comparatively little attention to (Bryant, 2005). It seeks to identify some caveats to the assumptions that older workers are both willing and able mentors. The aim is to go beyond the prescription of mentoring as a general panacea for transferring organizational

memory and the means to engage experienced employees, by testing a wider range of motivations and outcomes that may be operating when employees are called upon to share their knowledge.

### **Thesis Outline**

To achieve these objectives, the thesis has been organized in the following way: Chapter One introduces and defines the concept of organizational memory and locates it within the knowledge management literature. The transfer of organizational memory via mentoring is discussed and a rationale for the development of an organizational memory scale is outlined.

Chapter Two describes the development of the organizational memory scale. It outlines the steps taken in item generation, as well as exploratory and confirmatory factor analyses. The chapter concludes with an evaluation of the scale and its psychometric properties, along with recommendations for further development.

Chapter Three examines for the first time a link between organizational memory and mentoring by investigating the relationship between organizational memory and manager requests to mentor others, among other various requests to share knowledge. The study also investigates the degree to which those with organizational memory also experience psychological empowerment and organization-based self-esteem, potentially positive outcomes of organizational memory.

Chapter Four introduces the concept of workplace mentoring outlining the relevant theory and research background. It examines the assumed link between organizational memory and the intention to mentor, and considers the role of generativity and several potential costs of mentoring as mediators of that relationship. Several potential moderators of these relationships are also tested. This chapter also examines the

proposed differential relationships between the organizational memory domains and psychosocial and career mentoring functions.

Chapter Five investigates whether those retirees with experience of mentoring others at work go on to experience more positive outcomes in retirement than those who have not mentored. The outcomes of interest are career satisfaction and a corresponding reduction in unwelcome ruminations about one's past work.

Chapter Six summarises the findings from the studies and evaluates the overall contribution of the research both in terms of the development of the organizational memory scale and the caveats found regarding the assumptions about older workers as *able* knowledge repositories and *willing* mentors. Implications for organizational practice and future research are outlined.

## CHAPTER ONE

### Organizational Memory

This chapter begins by defining organizational memory and locating the construct in the knowledge management and organizational learning literature. Various options for measuring the construct are considered and the rationale for the eventual decision to construct an organizational memory scale is outlined. The challenges involved in further defining the construct of organizational memory for the purpose of item generation are discussed, and various concepts relevant to organizational memory are summarised. This elaboration of the content and forms of organizational memory helps also to explain why the construct is considered significant for companies' competitive advantage.

#### Organizational Memory: Background

Organizational memory, the knowledge gained from experience within a particular work context, consists of "stored information from an organization's history that can be brought to bear on present decisions," (Walsh & Ungson, 1991, p.610). To that definition, Stein (1995) later added "resulting in higher or lower levels of effectiveness" (p.22) acknowledging that the outcomes of such knowledge are not always positive ones. The terms *corporate memory* and *institutional memory* have been used interchangeably with organizational memory throughout the research and popular business literature. Lahaie (2005) for example, used corporate memory to describe knowledge that is at risk when senior executives leave, including knowledge of the day-to-day running of the organization, planning and decision-making, cultural norms and values, and knowledge of past successes and failures. Likewise, Coffey and Hoffman (2003) stated that the loss of institutional memory can have serious consequences for the organization, as its absence may contribute to repetition of past mistakes.

The concept of organizational memory grew out of the *organizational learning* and *knowledge management* literature streams. Organizational learning is the study of the learning processes that an organization undertakes (Easterby-Smith & Lyles, 2005). The idea that an organization can learn as a whole was first outlined by Cyert and March (1963), echoing Dewey's (1963) idea of the importance of learning from experience. Argyris and Schon (1978) were influential in the field by describing characteristics of organizations with, and those without, the capacity to profit from learning. Significantly, they identified that while organizations may profit from learning from the past, they also engage in a number of defensive behaviours to avoid having to do so. The term *learning organization* made popular by Senge (1990) refers to the capacity for organizations to learn from their past and present, and is particularly relevant to the study of organizational memory.

Knowledge management is defined as a “technical approach aimed at creating ways of disseminating and leveraging knowledge in order to enhance organizational performance”, (Easterby-Smith & Lyles, 2005, p.3). Emerging as an area of research focus in the mid 1990s, this area had a strong information technology focus that has been challenged more recently through more social-oriented theories, including Brown and Duguid (2000), and Davenport and Prusak (2000), who argued for the significant role of relationships in knowledge exchange and management. In some areas of the literature, this socially-oriented approach has become known as “knowledge sharing” (e.g., McInerney & Mohr, 2007). The significance of social networks in knowledge management is also particularly relevant for the focus of this thesis on mentoring to transfer organizational memory.

Organizational memory draws from both the organizational learning (in particular, the learning organization) and the knowledge management literature. These fields have

acknowledged that learning does occur within organizations, with knowledge held at different levels – individual, group or department, organizational, and inter-organizational levels, as well as industry and other networks, although there has been some debate over these repositories (e.g., Vera & Crossan, 2005). Some (e.g., Hedberg, 1981) have argued that while organizational members come and go, certain mental maps, norms and values remain over time, and therefore organizational memory is more than the knowledge of members within an organization at any one time. Others, like Simon (1991) have insisted that learning takes place only within individuals and that organizational learning is merely the sum of the learning of its existing and new members. Walsh and Ungson's (1991) paper simply titled "Organizational Memory" was understandably influential at that time. Walsh and Ungson acknowledged that organizations can learn, know, and have a memory, and proposed that this knowledge is held within both human and non-human memory repositories. While it is understood that organizations in themselves cannot actually remember, the idea of organizational memory, (involving the repositories outlined) still serves as a useful metaphor (Anand, Manz, & Glick, 1998).

### **Organizational Memory and Measurement**

The measurement of social and intellectual capital within organizations occupies a large area of research attention with a corresponding level of frustration at the lack of means by which to effectively achieve this (e.g. Argote & Ingram, 2000; Gratton & Ghoshal, 2003; Marr, 2004). Walsh and Ungson (1991) suggested that organizational tenure may be the most relevant attribute for the study of organizational memory at the individual level. Length of service in one organization according to Walsh and Ungson promotes an understanding of the organization's cultural attributes, its practices and procedures, and underlying values. Leonard and Swap (2005a, 2005b) also pointed out the importance of tenure (e.g., job tenure) for the development of complex skills and

knowledge, and suggested that this level of expertise typically requires ten years of experience.

Hierarchical level within the organization is also considered likely to influence the type of organizational memory one has (Walsh, 1995). As Beehr and Bowling (2002) concluded “Older workers are generally given more opportunities to lead and influence others within the workplace than are their younger counterparts, because with age comes job seniority, organizational tenure, and relevant work experience” (p.226). However it is difficult to make judgements as to who would have more or less knowledge according to hierarchical level. Sennett (2006) argued that it is often those in the lower hierarchical levels of an organization who have the most institutional knowledge. It is likely that the content of organizational knowledge and memory may vary according to hierarchical position in the organization, just how it does remains debatable.

At this point in time and all things considered, organizational tenure still arguably offers the most value as a “proxy” for organizational learning and experience apart from age, and its wide use as such has been acknowledged in the past by Chao, O’Leary-Kelly, Wolf, Klein, and Gardner (1994). However, using age or tenure as measures of organizational memory has limitations. Not all older or long term employees necessarily have the organizational memory they are assumed to have. Some older workers have had interrupted careers and job histories. There are also cases where employees may have long tenure, but have reached a plateau in their career, or have not received continued development and up-skilling. In these cases tenure may be less accurate as a measure of knowledge and experience.

A core aim of this research was to examine attitudes to knowledge sharing (mentoring). The studies required the capacity to measure participants’ estimated organizational memory resources. A “costs and benefits” approach to mentoring (to be



examined in Study 4) assumes that individuals are able to evaluate the knowledge resources that they bring to the mentoring relationship, and a measure of organizational memory was required for this.

A search of the published literature did not result in a specific measure of organizational memory, although the author was aware of an unpublished pilot study of scale by Conlan (2001). Conlan's study identified four organizational memory dimensions, namely, "organizational decision-making," "organizational history and events," "norms and expectations," and "power and politics," which seem to reflect the knowledge domains discussed earlier in this chapter. However, Conlan found that "organizational history and events" was the only factor predicted by organizational tenure, concluding that this was the only factor actually measuring organizational memory.

While not using the label organizational memory, a self-report scale of "organizational socialization" developed by Chao et al. (1994) provided an approach to measurement that seemed relevant for the current studies. Chao et al. believed that a self-report measure of organizational knowledge (in their case at a level of achieved socialization) could offer more predictive validity in terms of relevant outcomes than organizational tenure alone. In an attempt to identify and evaluate possible signs of early organizational learning, Chao et al. identified six dimensions of successful socialization, including (basic) knowledge of history, language, politics, people, organizational goals and values, and proficiency in job performance. Socialization refers to *early* organizational learning and organizational memory in comparison refers to the more *advanced* organizational learning associated with long tenure, although it was expected that the content areas identified by Chao et al. would also have some relevance for an organizational memory scale. There were drawbacks with adopting the socialization

scale for the purposes of this thesis. Chao et al. found only modest correlations between organizational tenure and the socialization subscales, with only performance proficiency and history significantly related to the tenure variable. While the organizational socialization scale provided an exemplar for a measurement scale in organizational learning, focus shifted towards developing a scale of organizational memory that could further differentiate between individuals of short and long tenure.

### **Construct Definition**

Grounding oneself in the conceptual definition of the construct to be measured is the crucial first step in developing an appropriate measure (DeVellis, 2003; Spector, 1992). This was a challenging process in the current project as according to Johnson and Paper (1998) many researchers have lamented that the concept of organizational memory is something of a “rather loosely defined and under-developed concept” (p.504), a point well illustrated by the following definition of organizational memory by Kransdorff and Williams (2000):

Although not exclusively so, organizational memory is more concerned with tacit knowledge than explicit knowledge; how the individual applies his particular skill within a particular workplace environment. It is this 'particularised knowledge'; an awareness of the wider organization's specific experiences, an understanding and accommodation of the corporate culture, shared value and belief systems (Wilkins, 1978). In addition, it includes an awareness of the management, communication and decision making style (Trice & Beyer, 1984), mindfulness of contacts and relationships between fellow employees, as well as knowledge of the detail of job-related events and tried and tested usage as it applies to the organization's own market (so-called episodic knowledge). Organizational

memory is knowledge accrued from individual experience and is the non-technical how of getting things done.... (p.108)

To generate items for the planned scale, it was important to synthesize existing organizational memory definitions along with other terms that refer to the organizational knowledge individuals accrue over time that is considered optimally transferred via mentoring. Table 1.1 displays a number of definitions of organizational memory and related constructs with relevance for the organizational memory scale, and these are discussed in the next section.

Walsh and Ungson (1991) suggested that organizational memory is held within a number of information storage bins including organizational culture (e.g. language, shared frameworks, symbols and stories), transformations that occur in the organization (e.g. human resource practices, accounting measures, market planning), structures, (e.g. social roles, stories and myths, and how the organization views its environment), and ecology (e.g., the physical work setting). They suggested a final storage bin consisting of individual recollections. Employees and stakeholders, individually and collectively, represented knowledge “repositories” (Walsh & Ungson, 1991) or in other words, knowledge “reservoirs” (Argote & Ingram, 2000).

Organizational memory consists of both explicit and tacit knowledge (Bryant, 2005; Kransdorff & Williams, 2000). The distinction between tacit knowledge, “subconsciously understood and applied, difficult to articulate, and developed from direct experience,” (Zack, 1999, p.46) and explicit knowledge (which is easy to articulate and open for all to see, as in written procedures and policies) is attributed to Polanyi’s (1966) theoretical work, but was popularised by Nonaka and Takeuchi (1995), who proposed four modes of knowledge conversion involved in knowledge transfer.

**Table 1.1.** *Definitions and Sources of Organizational Memory and Related Constructs*

<b>Organizational Memory and Related Constructs</b>	<b>Source</b>
<p>Five information storage bins:</p> <ol style="list-style-type: none"> <li>1. Individual recollections of what has occurred.</li> <li>2. Culture (language, shared frameworks, symbols, stories).</li> <li>3. Transformations (work design, human resources systems, market planning, and accounting).</li> <li>4. Structures (social roles, myths, and organization's perception of its environment).</li> <li>5. Ecology (physical work setting).</li> </ol>	Walsh & Ungson (1991, pp.63-66)
<p>Three types of organizational memory:</p> <ol style="list-style-type: none"> <li>1. Implicit forms, e.g. "organizational beliefs, knowledge, frames of reference, models, values and norms; as well as organizational myths, legends and stories."</li> <li>2. More explicit forms, e.g. "formal and informal behavioural routines, procedures and scripts"</li> <li>3. The organization's "physical artefacts which embody, to varying degrees, the results of prior learning."</li> </ol>	Moorman & Miner (1997, pp. 92-93)
<p>Four knowledge domains in organizational memory:</p> <ol style="list-style-type: none"> <li>1. Management-oriented organizational memory including structure and management methods.</li> <li>2. Technology-oriented organizational memory involving operations, product and information technology.</li> <li>3. Culture-oriented organizational memory including values and employee behaviour.</li> <li>4. Market-oriented organizational memory, including knowledge of the organization's environment, including competitors and stakeholders.</li> </ol>	Zhang, Tian, & Qi (2006, p.228)
<p>Organizational memory is:</p> <ol style="list-style-type: none"> <li>1. "More concerned with tacit knowledge than explicit knowledge."</li> <li>2. Concerns "how the individual applies his particular skill within a particular workplace environment."</li> <li>3. An "awareness of the wider organization's specific experiences, an understanding and accommodation of the corporate culture, shared value and belief systems (Wilkins, 1978)."</li> <li>4. An "awareness of the management, communication and decision making style (Trice and Beyer, 1984)."</li> <li>5. Mindfulness of contacts and relationships between fellow employees.</li> <li>6. Knowledge of the detail of job-related events and tried and tested usage as it applies to the organization's own market."</li> </ol>	Kransdorff & Williams (2000, p.108)

Table 1.1 continued:

<p>7. Knowledge accrued from individual experience and is the non-technical 'how' of getting things done. It relates to all the routines and processes (formal or otherwise) that make an organization tick.”</p>	
<p>Organizational memory scale (unpublished) identified four subscales:</p> <ol style="list-style-type: none"> <li>1. Organizational decision-making</li> <li>2. Organizational history</li> <li>3. Norms and expectations</li> <li>4. Power and politics</li> </ol>	<p>Conlan (2001)</p>
<p>Four types of lost knowledge - knowledge threatened by the exit or retirement of experienced workers:</p> <ol style="list-style-type: none"> <li>1. Structured knowledge: Explicit in nature comprised of rules, routines and systems within organizations.</li> <li>2. Human knowledge: Skills, expertise, information and experience</li> <li>3. Social knowledge: Knowledge of human networks, and awareness of who knows what in the organization and its environment.</li> <li>4. Cultural knowledge: An understanding of how things work in the organization, and how to behave if you want to be accepted.</li> </ol>	<p>DeLong (2004, p.23)</p>
<p>Deep Smarts: “Expertise that consists of highly developed complex skills and system-level knowledge developed through practical experience.” (2005b, p.12)</p> <ol style="list-style-type: none"> <li>1. Know-how characteristics: Swift decision-making, ability to extrapolate from available information, Pattern recognition, discernment of fine distinctions, rule selection, tacit knowledge.</li> <li>2. Know-who characteristics: Knowing who knows what, access to second opinions, ability to filter in large networks.</li> </ol>	<p>Leonard &amp; Swap (2005a, 2005b)</p>
<p>Four-class taxonomy of “knowings”:</p> <ol style="list-style-type: none"> <li>1. Know-who: An individual’s social network and social capital.</li> <li>2. Know-how: The individual’s skill and expertise required to do their job.</li> <li>3. Know-what: The individual’s product or service knowledge and organizational arrangements that support these.</li> <li>4. Know-why: Refers to the ability to be able to communicate effectively within one’s work setting.</li> </ol>	<p>Kidd &amp; Terramoto (1995)</p>

Table 1.1. continued:

Three elements of human capital:	Gratton & Ghoshal (2003, pp.2-3)
<ol style="list-style-type: none"> <li>1. Intellectual capital – the explicit and tacit knowledge expressed in skills and expertise.</li> <li>2. Social capital – the depth and breadth of one’s social network.</li> <li>3. Emotional capital – akin to emotional intelligence.</li> </ol>	
Three elements of social capital:	Nahapiet & Ghoshal (1998, pp.243-244)
<ol style="list-style-type: none"> <li>1. Structural embeddedness – the pattern of the network the individual connects with and how.</li> <li>2. Relational embeddedness – the characteristics of relationships over time like respect, trust, and influence.</li> <li>3. Cognitive representations – Shared mental models to facilitate effective communication.</li> </ol>	
Four transactive memory categories:	Cannon-Bowers & Salas (2001, pp.196-197).
<ol style="list-style-type: none"> <li>1. Knowledge of fellow team members.</li> <li>2. Knowledge of team member attitudes and beliefs.</li> <li>3. Task-related knowledge</li> <li>4. Task Specific knowledge</li> </ol>	
Socialization scale identified six knowledge domains/factors:	Chao, O’Leary-Kelly, Wolf, Klein, and Gardner (1994, pp.731-732)
<ol style="list-style-type: none"> <li>1. History</li> <li>2. Language</li> <li>3. Politics</li> <li>4. People</li> <li>5. Organizational goals and values</li> <li>6. Performance proficiency</li> </ol>	

Nonaka and Takeuchi’s (1995) modes of knowledge conversion included *socialization*, (from tacit to tacit), *externalization*, (from tacit to explicit), *combination*, (from explicit to explicit), and *internalization*, (from explicit to tacit). Kransdorff and Williams (2000) claimed that tacit knowledge is more relevant to the concept of organizational memory, while Moorman and Miner (1997) described three “types” of organizational memory, including both implicit (the unwritten rules, values and norms, stories and beliefs) and explicit forms (including formal and informal procedures and scripts), as well as the organization’s physical artefacts. With regards to organizational memory content, Zhang, Tian, and Qi (2006) proposed four specific domains including management-oriented,

technology-oriented, culture oriented, and market oriented, organizational memory. A number of other concepts without the label “organizational memory” are discussed in the knowledge management and organizational learning literature that have relevance and these are described in the following section and also summarised in Table 1.1.

### **Lost Knowledge**

Acknowledging that “knowledge” is “the capacity for effective action or decision making in the context of organized activity,” (p.21), DeLong (2004), described *lost knowledge* as a decrease in that capacity, specifically applying the term to the knowledge management threat of an ageing workforce. DeLong (2004) suggested four “types” of knowledge: *Structured knowledge*, explicit in nature, which makes up the rules, routine and systems within organizations, *human knowledge*, consisting of skills, information, experience, and level of expertise, *social knowledge*, comprised of knowledge of human networks in the work unit or organization and the collective awareness of who knows what in the organization and its environment, and *cultural knowledge*, the understanding amongst organizational members of how things are done, and how to perform acceptably in that particular context.

### **Deep Smarts**

The term “deep smarts” was developed to describe “a special form of experience-based expertise” (Leonard & Swap, 2005a, p. ix). Deep smarts are characterised by the speed of decision-making in one’s work, the ability to contextualise knowledge, the ability to arrive at a novel solutions, and the ability to make fine distinctions. This form of expertise also involves an awareness of knowledge gaps, the ability to recognise relevant patterns, and extensive use of tacit knowledge in decision making. Leonard and Swap, (2005a) referred to these aspects of deep smarts as “know-how”. They also acknowledged

the complementary concept of “know-who” incorporating knowledge of who to refer to and trusted sources of “second opinions”.

### **“Knowings,” Human Capital, and Social Capital**

Kidd and Terramoto (1995) described four “knowings” that have relevance for the organizational memory construct. These were based on the four levels of training that should lead to common understanding for all levels of an organization suggested by Kanda (1992, cited in Kidd & Terramoto, 1995). These included “know-who” (e.g., social network and capital), “know-how” (e.g., skill and expertise for the job), “know what” (e.g., product and service knowledge), and “know-why” (e.g., the ability to communicate effectively). Similarly, Gratton and Ghoshal (2003) referred to three elements of human capital which include, an employees’ skill and expertise (e.g., intellectual capital), their social network (e.g., social capital), and emotional intelligence, (e.g., emotional capital). Nahapiet and Ghoshal (1998) described three elements of social capital alone including “structural embeddedness” or social network, “relational embeddedness” which included characteristics like trust and respect, and “cognitive representations”, or in other words, shared mental models.

### **Transactive Memory**

Transactive Memory, a concept first described by Wegner, Giuliano, and Hertel (1985) refers to the collective memory held by a group about the human repositories of skill and knowledge within it. Transactive memory, like organizational memory, refers not only to explicit knowledge, but to “all the implicit relations, tacit conventions, subtle cues, untold rules of thumb, recognizable intuitions, specific perceptions, well-tuned sensitivities, embodied understandings, underlying assumptions, and shared world views,” (Wenger, 1998, p.47). Cannon-Bowers and Salas (2001) differentiated between



types of transactive memory including knowledge of fellow team members and their attitudes and beliefs, and task-related knowledge.

### **Socialization**

Socialization, a term used by Nonaka and Takeuchi (1995) to describe the conversion of knowledge from tacit to tacit, is also defined in the industrial and organizational psychology and human resource management literature as “the process by which a new employee becomes aware of the values and procedures of the organization” (Landy & Conte, 2004, p.529). By this definition, the term socialization is often taken to refer to early organizational learning. Chao et al. (1994) found six domains of knowledge that reflect this early organizational learning, and as already discussed the dimensions identified (politics, people, goals and values, proficiency, history, and language) seemed likely to have some relevance for organizational memory also.

### **Common Themes in Constructs**

Several recurring themes arose when considering all of the definitions in Table 1.1. These included job related knowledge, knowledge of relevant social networks inside and outside the organization, organizational politics, organizational values and cultural norms, the lessons learned from history, and knowledge of the organization’s industry. These represent the broad content domains of organizational memory that needed to be taken into consideration later when it came to the item generation phase of the development of the organizational memory scale.

### **Organizational Memory and Competitive Advantage**

The definitions summarised in Table 1.1 also suggest why organizational memory is considered vital for competitive advantage. The knowledge management literature has given substantial focus to the contribution that the creation, identification, capture, and transference of knowledge makes to an organization’s competitive advantage (e.g., Cross

& Baird, 2000; Kransdorff & Williams, 2000; Nonaka & Takeuchi, 1995; Stein, 1995, Zack, 1999). It has been suggested that organizations can differentiate themselves from their competitors through their knowledge base (Argote & Ingram, 2000). The concept of the “learning organization” emphasised the need for organizations to gain new talents and capabilities, and to utilise past experience as they adapt to their fast-changing environments in order to remain competitive (e.g., Nonaka & Takeuchi, 1995; Senge, 1990; Zack, 1999).

Organizational memory represents potential for competitive advantage, by providing a store of knowledge gained from experience that current organizational members can draw on in their practice (Cross & Baird, 2000; Stein, 1995). In this way it is considered useful for a number of purposes including problem solving (e.g. Cross & Baird, 2000), the development of best practice (e.g., Rulke, Zaheer, & Anderson, 2000; Szulanski, 1996), decision-making and company strategy, (e.g., Neustadt & May, 1986; Zack, 1999), and product and service innovation (e.g., Moorman & Miner, 1997).

Organizational memory gives companies the opportunity to learn from their past successes and mistakes as a means of sustaining competitive advantage (DeLong, 2004; Johnson & Paper, 1998; Neustadt & May, 1986). When employees exit their companies through retirement (early or otherwise) and/ or as a result of restructuring efforts, companies may lose this resource. Older workers often feel the pressure to retire early when an organization is downsizing, even when they wish to keep on working (Isaksson & Johansson, 2000). The loss of crucial knowledge accumulated over a life time may be the negative consequence for organizations. That is not to say that a reliance on organizational memory is without potential drawbacks. The selective use of memory, denial of lessons learned, tunnel vision (or inflexibility in decision-making), and maintenance of the status quo when change may lead to more effective methods are all

examples of the possible misuse of organizational memory (Johnson & Paper, 1998; Kransdorff & Williams, 2000; Stein, 1995).

In general, tacit or implicit knowledge as Nonaka and Takeuchi (1995) defined it, is hard to articulate and is dependent on context and face-to-face communication for effective transfer. The following observation made by Marchant and Robinson (1999) illustrates this:

Many lawyers will recount how they learned more from one afternoon in the back of the courtroom than when they did an entire semester of law school. Yet, when asked what they learned, they cannot describe it satisfactorily. (p.18)

The term tacit knowledge however is sometimes also applied (if erroneously) to information that is not written down for other reasons. Zack (1999) suggested that in some cases knowledge is labelled tacit only because it has not *yet* been articulated or simply because it is potentially sensitive and considered threatening to the social and cultural status quo of the organization. Social knowledge of who actually holds relevant knowledge or influence may differ in reality to who has the authority “on paper”. This too has relevance for competitiveness, as knowledge considered too sensitive within the culture of one organization may be overt in another, resulting in the latter’s gain in competitive advantage over the former (Zack, 1999).

Some researchers have suggested that tacit knowledge is more pertinent than explicit knowledge to organizational memory and its potential for competitive advantage (e.g., Kransdorff & Williams, 2000). The dependence on context and face-to-face communication purportedly makes tacit knowledge resistant to imitation from those outside the organization and to movement across organizational boundaries, and explains

why tacit knowledge may seem particularly relevant for competitive edge (e.g. Kransdorff & Williams, 2000). While it is important to distinguish between tacit and explicit knowledge properties, there are those who have argued that any split between explicit and tacit knowledge is artificial, recognising that all knowledge has its tacit dimensions (Leonard-Barton & Sensiper, 1998; Polanyi, 1966; Rulke et al., 2000).

According to Cross and Baird (2000) both the explicit and tacit knowledge held by individuals and groups of employees is crucial to an organizations' capacity to solve problems and innovate. Furthermore, they argued that while organizational memory can be stored in non-human repositories like computer databases, policy and procedure manuals, and work processes, that employees often turn first to trusted and capable colleagues for information. A study by Rulke et al., (2000) supported this emphasis on the social sources of information within organizations.

Aspects of organizational memory that seem to be resistant to transfer beyond organizational walls, and therefore maximising competitive advantage for companies, can also prove challenging for transfer *within* the organization's walls. Argote and Ingram (2000) pointed out, "more effort has gone into identifying knowledge as the basis for competitive advantage than into explaining how organizations can develop, retain, and transfer that knowledge"(p.156). This may be particularly so for tacit knowledge and the social aspects of knowledge transfer.

## **Conclusion**

Organizational memory, the knowledge gained from experience, and a concept derived from both the knowledge management and organizational learning literature, represents potential competitive edge for organizations. While proxy measures for experience have been used frequently (e.g. age or tenure variables), use of these can be misleading, and it was desirable for the current research to have a measure of

organizational memory that tapped into various knowledge domains. An existing measure of socialization (Chao et al., 1994) offered a useful exemplar of this approach, while falling short in capturing items of organizational knowledge that represent long tenure rather than early organizational adjustment. The development of the organizational memory scale was undertaken to overcome these shortcomings.

A review of the literature on organizational memory and related constructs yielded six broad themes including job related knowledge, knowledge of social networks, knowledge of organizational politics, organizational values and cultural norms, lessons learned from history, and knowledge of the organization's industry. These themes represent the broad content domains of organizational memory, and the basis for the organizational memory scale items.

## CHAPTER TWO

### Development of an Organizational Memory Scale

This chapter outlines the steps taken in the development of the organizational memory scale. The chapter chronicles the steps taken from item generation and analysis through to exploratory and confirmatory factor analyses involving both employee and retiree samples. Further analyses of the reliability of the resulting scale along with preliminary findings regarding validity are also discussed.

#### Generation of the Item Pool for the Organizational Memory Scale

Seventy-two items were generated for the organizational memory scale in all, with a view to a possible 20-25 item measure as a result. DeVellis (2003) suggested that it is a good idea to begin with a set of items that is much larger than the intended scale length. Schriesheim (cited in Hurley et al., 1997) acknowledged that item generation aims for two to three times the number of items sought for the resulting scale. Some redundancy of items is considered useful at this stage so that common threads will unite and irrelevancies cancel out (DeVellis, 2003). Long scales can be trying for those who complete them, and as the organizational memory scale was intended for use in conjunction with several other attitudinal scales, a shorter version was the goal.

The 72 items (listed in Table 2.1) consisted of twelve items for each of the six broad categories identified in the previous chapter. These categories were:

1. *Job knowledge* (e.g., Chao, O’Leary-Kelly, Wolf, Klein, & Gardner, 1994; DeLong, 2004; Gratton & Ghoshal, 2003; Leonard & Swap, 2005a; Zhang, Tian, & Qi, 2006). This included several items taken or adapted from Chao et al.’s (1994) “performance proficiency” subscale.

2. *Social knowledge*. According to Cross, Davenport, and Cantrell (2003) high performers are characterised by their ability to create, maintain and utilise personal networks. This ability to form strong reciprocal ties with those in their networks tends to bring knowledge of opportunities and resources to them. Social capital is acknowledged by many of the conceptual frameworks that were summarised in Table 1.1 (e.g., Cannon-Bowers & Salas, 2001; DeLong, 2004; Gratton, & Ghoshal, 2003; Kidd & Terramoto, 1995; Leonard & Swap, 2005a; Nahapiet & Ghoshal, 1998). Items were generated reflecting the existence of social networks, the ability to identify knowledge repositories among co-workers and an understanding of their skills, attitudes, and networks.
3. *Political knowledge*. Both Conlan's (2001) organizational memory scale and the organizational socialization scale developed by Chao et al. (1994) included political knowledge as a subscale. Zhang et al. (2006) referred to "management-oriented organizational memory" which includes knowledge of management methods. Items were generated to reflect knowledge of resource allocation, organizational decision-making, and knowledge of the prime actors in organizational events.
4. *Cultural knowledge*. This included knowledge of organizational norms and values. Norms refer to collective ways of getting things done in the organization and acceptable standards of practice and behaviour (e.g., DeLong, 2004; Moorman & Miner, 1997; Zhang et al., 2006). Conlan's (2001) organizational memory scale incorporated a "norms and expectations" subscale and Chao et al. (1994) included an "organizational goals and values" subscale for their socialization measure. Items were generated for this scale that tapped into an understanding of organizational norms, values, and priorities.

5. *History*. According to Day (1994) “Organizations without practical mechanisms to remember what has worked and why will have to repeat their failures and rediscover their success formulas over and over again” (p.44). Roth and Kleiner (1998) suggested that organizational members each know something about the organization’s past, its difficulties, and successes, and have some idea as to how the organization can move forward. Conlan’s (2001) organizational memory scale and the socialization scale developed by Chao et al. (1994) each included “history” subscales. Items were generated for the organizational memory scale that called upon knowledge of past successes and failures and the lessons learned from them.
6. *Industry knowledge*. Zhang et al. (2006) used the term “market-oriented organizational memory”, to include aspects of the organization’s environment including knowledge of competitors and stakeholders, and Kransdorff and Williams (2000) referred to the knowledge of events within the organization’s own market in their definition of organizational memory. Ability to identify competitors, and knowledge of past events that had shaped the industry were included in the organizational memory scale, as were items referring to the nature of the participant’s network external to the organization.

In addition to the requirement of generating items that adequately reflects the breadth of the organizational memory construct, other criteria influenced the wording used. Effort was made to avoid double-meanings (Spector, 1992), and to keep items as brief as possible for clarity (DeVellis, 2003). The reading level of participants (DeVellis, 2003; Spector, 1992) was also considered. A general rule for readability is to monitor the number of syllables in each item. DeVellis (2003) suggested aiming for a reading level of fifth to seventh grade (up to 24 syllables per item), and this guideline was adopted.



**Table 2.1.** *General Conceptual Categories and Initial Organizational Memory Scale Items*

<p><b>Job knowledge</b></p> <ol style="list-style-type: none"> <li>1. I have not yet learned the basics of my job. * (R)</li> <li>2. I quickly get to the core of the matter when it comes to making decisions in my work tasks.</li> <li>3. I have learned how to operate in my job in an efficient manner.*</li> <li>4. I have mastered the required tasks of my job.*</li> <li>5. I know the aspects of my job that are particular to this organization.</li> <li>6. I have not yet developed the appropriate skills necessary to perform my job.* (R)</li> <li>7. My performance in my work tasks often feels awkward.</li> <li>8. I have little experience to draw upon when solving problems in my work tasks.(R)</li> <li>9. I understand what the duties of my job entail.*</li> <li>10. I know where ‘corners can be cut’ without affecting the quality of my work.</li> <li>11. I can think of exception(s) to the rule I am applying when solving problems in my work.</li> <li>12. Accomplishing my work tasks seems like second nature to me.</li> </ol>
<p><b>Social knowledge</b></p> <ol style="list-style-type: none"> <li>1. When I encounter a problem in my work, I need to ask co-workers who to go to for help.(R)</li> <li>2. I know ‘who’ supports ‘who’ when it comes to my co-workers.</li> <li>3. I have a good understanding of the work strengths of my co-workers.</li> <li>4. I have a good idea of “who knows what” in this organization.</li> <li>5. I know which of my co-workers have expertise you can rely on.</li> <li>6. I am not aware of informal collaboration(s) among my colleagues.(R)</li> <li>7. I know which co-workers to go to for a second opinion in my work tasks.</li> <li>8. I am not aware of how the ‘grapevine’ works in this organization. (R)</li> <li>9. I have difficulty understanding the jargon used in this organization. (R)</li> <li>10. I know which co-workers are likely to share their knowledge when asked to do so.</li> <li>11. I do not know how up-to-date my co-workers are in their work-related knowledge. (R)</li> <li>12. I know who belongs to which clique in the organization.</li> </ol>
<p><b>Political knowledge</b></p> <ol style="list-style-type: none"> <li>1. I do not know whom you should consult in order to get a request heard here. (R)</li> <li>2. I do not know of ways to get an idea heard here apart from formal procedures.(R)</li> <li>3. I know who has the real power in this organization.</li> <li>4. I can describe the sort of person who will rapidly advance in this organization.</li> <li>5. I know examples of effective leadership in this organization.</li> <li>6. I know how to advance an idea in this organization.</li> <li>7. I do not know how budgets are constructed in this organization.(R)</li> <li>8. I can identify different styles of leadership at work in this organization.</li> <li>9. I do not know what this organization considers its main priority. (R)</li> <li>10. I know whom you cannot afford to offend in this organization.</li> <li>11. I know whose support you need in the organization to make an idea work.</li> <li>12. I know the organization’s priorities when it comes to resource allocation.</li> </ol>

Table 2.1 continued:

**Cultural knowledge**

1. I do not understand why certain behaviours are considered inappropriate here.(R)
2. I know which behaviours upset the management of this organization.

Table 2.1 continued:

3. I am not sure which behaviours you can get away with in this organization.(R)
4. I know how to avoid reprimand in this organization.
5. I do not know of organizational rules that can be broken without penalty. (R)
6. I am not aware of any ‘unwritten rules’ in this organization.(R)
7. I know how this organization differs to others in what behaviours are acceptable.
8. I know who represents the model of acceptable behaviour in this organization.
9. I do not know when co-workers have over-stepped the boundaries of acceptable behaviour. (R)
10. I do not know which practices will be punished by this organization. (R)
11. I know the personal characteristics that make a person a good ‘fit’ here.
12. I know how to avoid the disapproval of management here.

**History**

1. I have little knowledge of how different managers have responded to crises. (R)
2. I know the major turning points in this organization’s past.
3. I know who was considered responsible for major errors in this organization.
4. I know the origins of most organizational traditions.
5. I know which mistakes have really hurt this organization.
6. I know which achievements will be celebrated in this organization.
7. I am not aware of any mistakes the organization has made. (R)
8. I know who has been responsible for the major decisions made in this organization.
9. I know what the organization regrets most about its past.
10. I have little experience of how decisions are made in this organization. (R)
11. I know what organizational decisions will mean for different departments.
12. I cannot predict how colleagues are likely to respond to organizational decisions.(R)

**Industry knowledge**

1. I know how similar organizations in this industry are performing.
2. I know what represents this organization’s major threat in this industry.
3. I know how well this organization has performed compared with others.
4. I know how other organizations in this industry operate.
5. I have a network of associates for the mutual sharing of work-related information.
6. I know which associates to go to for accurate industry news.
7. I have few associates that I can go to for work related feedback. (R)
8. I know which associates to go to for good work-related advice.
9. I know which stakeholders give valuable work-related feedback.
10. I know which stakeholders’ opinions matter most to the organization.
11. I know the reputation this organization has in the industry.
12. I know what has been considered the major success of this organization.

*Note.* (R) Item was reverse scored.

\*Items taken or adapted from Chao, G. T., O’Leary-Kelly, A. M., Wolf, S., Klein, H.J. & Gardner, P.D. (1994). Organizational socialization: Its content and consequences. *Journal of Applied Psychology*, 79(5), 730-743.

Ambiguous language or jargon can be confusing for scale items (DeVellis, 2003; Spector, 1992) and so these were avoided wherever possible, or definitions given for terms which may have been ambiguous (e.g. “stakeholders”).

Negatively worded items were included, and are indicated by (R) in Table 2.1. These items indicated the reverse of what would be expected if one had extensive organizational memory, e.g. “I am not sure which behaviours you can get away with in this organization”. Spector (1992) suggested that the use of negatively worded items minimises response biases such as acquiescence. DeVellis (2003) is less encouraging on this point and noted that participants are often confused by negatively worded items when they are asked to rate their agreement with a statement that seems to be opposed to the construct being measured. At this early stage of development, and in the interest of avoiding response biases such as acquiescence, several negatively worded items were included with a view to later exclusion should they perform poorly.

A seven-point response scale was adopted for the organizational memory scale, anchored with the following statements: 1= *strongly disagree* and 7= *strongly agree*. Between five and nine response choices are considered optimal (Nunally, 1978; Spector, 1992), and the use of strongly worded anchor statements are thought to be most useful for clarity (DeVellis, 2003).

### **Study 1: Exploratory Factor Analysis**

The purposes of factor analysis include the reduction of a data set to a more manageable size and to identify groups or clusters of variables (Field, 2005). Exploratory factor analysis (EFA) explores the number of factors, their relationships with one another, and which observed variables (or items) seem to best measure each factor, and is done in the absence of an a priori model (Schumaker & Lomax, 2004). While the item generation process for the organizational memory scale proposed six categories for the 72 items,

these had not yet been confirmed, and as some of these categories were quite broad, the existence of further sub-categories was considered likely, as was the possibility that some items could fit into more than one category. For example, the industry knowledge category contained items about industry networks that might also fit the social knowledge category. The initial use of EFA, with confirmation sought later with a different sample was the course decided upon.

## **Method**

### **Sampling**

A number of small businesses representing the finance and banking industry, professional service sector, and two divisions from within a large public utility company were approached for volunteers to participate in the EFA study with a total of 154 participants as a result. This included a development sample of 12 people from a professional services company involved in a pilot study. There were 143 participants in the study after exclusion of 11 cases with incomplete data sets, and those employees with less than 3 months organizational tenure to avoid floor effects, an accumulation of scores at the lower end of the response scales had the potential to skew the distribution (Aron & Aron, 1999). Each firm approached for participants arranged a time and venue for data collection and employees were invited to participate. Generally, data gathering took place during tea or lunch breaks in the organizations. Response rate information is not available for all the organizations, but in general there was close to a 100% response from those who were present at each venue at the time data gathering took place. Participants represented the utility industry ( $n=59$ , 41.3%), with 38 individuals (16.6%) representing an organization in the banking and finance sector, and the remaining 46 participants (32.2%) from five small businesses in the professional services sector.

## Participants

There were 60 (42%) male and 83 (58%) female participants. The mean participant age was 43.26, ( $SD= 11.97$ ). The mean job tenure of the group was 7.11 years ( $SD=8.05$ ), and the mean organizational tenure was 10.51 years, ( $SD=10.25$ ). In regards to position in the organization, 98 individuals (68.5%) selected team member, 24 (18.8%) individuals selected team middle manager/team leader, 17 (11.9%) selected senior manager/team leader, and 4 (2.8%) individuals selected chief executive officer.

## Materials

The questionnaire consisted of several demographic questions (see Appendix A) and the 72 organizational memory items. Various definitions were included to provide participants with a common frame of reference and therefore to help reduce error (Spector, 1992). The concept of organizational memory was introduced in the following way:

When an individual enters an organization to work, over time, they acquire knowledge about how things are done in that particular organization – how things operate, the procedures, the lines of communication (formal and informal), acceptable behaviour and practices, and organizational traditions, as well as the specific skills and knowledge related to their job. Organizational memory refers to this organizational knowledge gained over time.

The term *co-workers* was used to describe “others in the organization that participants interact with in order to meet job goals and objectives,” the term *colleagues* referred to “other individuals who work in the organization,” the term *managers* referred to “individuals the participant is directly responsible to for their work including supervisors

and/or team leaders,” while *associates* referred to others the participant interacted with “in order to meet job goals and objectives who are not members of your organization, and who are not clients or shareholders,” and *stakeholders* referred to “others like clients or shareholders” that the participant “may relate to in the course of their work”.

In addition to the scale items several demographic questions were added. This step also gave the opportunity to include some items early with potential for scale validation (specifically construct validity), as recommended by DeVellis (2003) and Spector (1992). Demographic details (e.g. age and sex) and information on tenure within their current job and organization, hierarchical level in the organization, along with the number of jobs within the industry, were sought.

### **Procedure**

DeVellis (2003) has recommended that the scale items be reviewed for face validity, clarity, and conciseness. Five individuals were invited to give feedback on the fit between items and the concept as described in the questionnaire. Two academics, one post-graduate student and two business consultants were invited to give feedback on the fit between items and the concept, as well as issues of clarity and conciseness. Reviewers were also asked to record their reading time. One demographic item was highlighted as not being clear and this was altered. The organizational memory scale was also initially trialled with a group of 12 employees from a small financial services firm. Comments were invited as to readability etc. The most common feedback concerned the similarity of some of the scale items, attesting to the existence of “usefully redundant” items (e.g., DeVellis, 2003). The feedback did not result in any changes to the questionnaire.

All participants gave informed consent, and were assured of anonymity and confidentiality. No incentive was given for participation. Participants were asked to fill in the paper and pencil questionnaire (see Appendix A) and to return the questionnaires in

the freepost envelope provided (addressed to the researcher), although most elected to hand the sealed envelope to the researcher in person.

### **Results**

All statistical procedures for this study employed the SPSS 14 Graduate edition. A number of guidelines have been offered with regards to an optimal sample size for EFA. While Nunally (1978) has suggested that as many as 300 people are required, Spector (1992) suggested a sample size of between 100 and 200 respondents, and Kline (1993) has suggested at least 100 or a case-variable ratio of 2 to 1 for factor analyses. DeVellis (2003) cautioned that while in reality scales have been successfully developed with quite small samples, the possible costs of doing so are an unstable factor structure and lower internal consistency estimates in subsequent studies.

In factor analysis, the Kaiser-Meyer-Olkin statistic (K-M-O) is a measure of sampling adequacy that can range in value between 0 and 1. A value close to one indicates that factor analysis should yield distinct and reliable factors, while values between .5 and .7 are considered mediocre; between .7 and .8 good, values between .8 and .9, very good, and over .9, excellent (Field, 2005). Increasing the sample size is indicated if the K-M-O is below .5. The K-M-O for this analysis was .73, a respectable result. The Bartlett test of sphericity resulted in a value of 5690.49 ( $df = 2556, p < .001$ ), indicating scale item independence.

Initially the analysis was run specifying a minimum eigenvalue of one as the criterion for factor extraction. The 72 items were subjected to a principle-components analysis initially to determine the number of factors to rotate to produce clusters of items. Principle components analysis differs from factor analysis in that it assumes all the variability of an item should be used in the analysis and tends to be favoured for data reduction purposes, while factor analysis uses only the variability in the items that is

common to other items; in most cases the results are similar (Statsoft, retrieved 08/04/09). As a result there were 19 components with an eigenvalue over 1.00, accounting for a cumulative 72.02% of the variance in the data. This number of components was obviously too high for utility, and indeed DeVellis (2003) has suggested that the eigenvalue rule is often too generous in the number of components identified.

There were two issues to consider in determining the number of factors to rotate. Firstly, while item generation assumed a conceptual framework of six categories, as already discussed, these categories were quite broad (see Table 2.1). One aim was to avoid under-specifying the number of factors represented by the items. On the other hand there were concerns that extracting a large number may result in factors with too few items, (e.g., less than three) which would not be useful (Spector, 1992). The scree plot shown in Figure 2.1 was examined and showed elbows after components 1, 3, and 6.

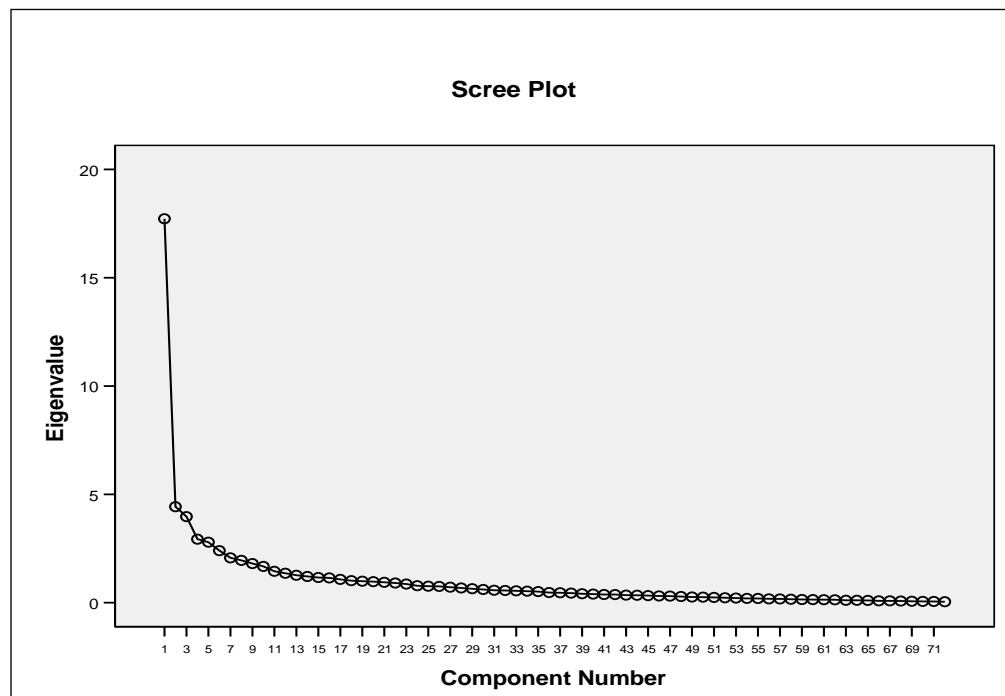


Figure 2.1. Scree plot for organizational memory scale with 72 items.



The decision was made to rotate ten factors initially, with a view to evaluating the result to ensure that each component carried a minimum of three items. A minimum item loading of .40 was set, as recommended by Nunally (1978). The method of extraction was principle components with oblique rotation (direct oblimin). An oblique rotation is useful where latent variables are thought to relate to one another, whereas orthogonal rotation may limit the approximation of simple structure by not allowing variables to correlate (DeVellis, 2003). An oblique rotation was carried out with the option to revise the method in favour of orthogonal rotation should the correlations between factors be low (e.g., less than .15) as advised by DeVellis (2003). The rotation of ten factors, resulted in some factors with two or less items, as did rotating nine and eight factors subsequently. A seven factor solution however resulted in the minimum three items per factor, with a total of 33 items accounting for a cumulative 63.21 % of the variance in the data. The items can be found, along with their subscale item-total correlations and factor loadings, in Table 2.2.

The resulting seven factors were subjected to a reliability analysis to evaluate internal consistency estimates (coefficient alpha) which indicate how well the items on a scale or subscale represent an underlying construct (Spector, 1992). DeVellis (1991) offered the following guidelines to interpret coefficient alpha, below .60 is unacceptable, and .60 to .65 undesirable, .65 to .70 minimally acceptable, .70 to .80 respectable, and .80 to .90 is considered very good. It may be warranted to remove items if this results in an increased alpha. Coefficient alpha was .87 for socio-political knowledge, .83 for inexperience, .74 for astuteness, .81 for job knowledge, .75 for external network, .77 for industry knowledge and .79 for history. All subscale alphas were within the respectable to very good range and no items were removed. Coefficient alpha for the overall organizational memory scale was .91.

**Table 2.2.** *Factor Analysis Pattern Matrix with Subscale Item-Total Correlations for the Seven-Factor Organizational Memory Scale*

	<b>Item Total Correlation</b>	<b>Factor 1</b>	<b>Factor 2</b>	<b>Factor 3</b>	<b>Factor 4</b>	<b>Factor 5</b>	<b>Factor 6</b>	<b>Factor 7</b>
<b>Factor 1: Socio-political knowledge</b>								
1. I know who has been responsible for the major decisions made in this organization.	.694	<b>.776</b>	-.059	-.051	.058	-.073	.018	.196
2. I know who represents the model of acceptable behaviour in this organization.	.651	<b>.717</b>	.097	.063	.083	-.031	.119	-.096
3. I have a good idea of who knows what in this organization.	.638	<b>.660</b>	.062	-.002	.165	.101	.025	-.039
4. I know how to advance an idea in this organization.	.681	<b>.609</b>	.204	-.041	-.020	.090	.168	.121
5. I know the personal characteristics that make a person a good fit here.	.646	<b>.604</b>	.023	.340	.036	.110	-.044	.042
6. I know whose support you need in the organization to make an idea work.	.647	<b>.511</b>	.196	.309	-.125	.223	-.022	.081
7. I know what organizational decisions will mean for different departments.	.687	<b>.432</b>	.057	.222	.165	.177	.051	.190
<b>Factor 2: Inexperience</b>								
1. I do not know whom you should consult in order to get a request heard here.	.658	.170	<b>.768</b>	-.054	-.035	.008	-.097	-.047
2. I do not know of ways to get an idea heard around here apart from formal procedures.	.622	.201	<b>.721</b>	-.205	-.037	.084	.058	-.072
3. I am not sure which behaviours you can get away with in this organization.	.600	-.146	<b>.694</b>	.014	.117	.180	-.219	.222
4. I do not know when co-workers have over-stepped the boundaries of acceptable behaviour.	.446	-.103	<b>.633</b>	.075	-.022	.044	.252	-.185

Table 2.2 continued:

5. I am not aware of how decisions are made in this organization.	.545	-.025	<b>.618</b>	.217	.212	-.178	.115	-.036
6. I have little experience of how decisions are made in this organization.	.608	.153	<b>.584</b>	.108	-.095	.094	.029	.269
7. I have difficulty understanding the jargon used in this organization.	.570	.117	<b>.549</b>	-.112	.212	-.132	-.105	.350
<b>Factor 3: Astuteness</b>								
1. I know where corners can be cut without affecting the quality of my work.	.530	-.203	.005	<b>.725</b>	.049	.048	.195	.169
2. I know who belongs to which clique in this organization.	.518	.213	.062	<b>.714</b>	-.111	-.064	-.078	-.021
3. I can think of exception(s) to the rule I am applying when solving problems at work.	.560	-.091	-.002	<b>.701</b>	.204	.095	.063	-.115
4. I know how to avoid the disapproval of the management here.	.546	.333	-.107	<b>.699</b>	.054	-.100	-.054	.028
<b>Factor 4: Job knowledge</b>								
1. I have learned how to operate in my job in an effective manner.	.629	.024	-.048	-.097	<b>.856</b>	-.110	.139	-.076
2. I have mastered the required tasks of my job.	.700	-.069	-.030	.140	<b>.809</b>	.139	-.118	.073
3. I understand what the duties of my job entail.	.626	.260	.214	.003	<b>.669</b>	-.082	-.052	.036
4. I know the aspects of my job that are particular to this organization.	.611	.065	.041	.094	<b>.658</b>	.206	.039	-.074
<b>Factor 5: External network</b>								
1. I know which associates to go to for good work related advice.	.545	-.031	-.003	.045	.115	<b>.844</b>	-.296	.076

Table 2.2 continued:

2. I know which associates to go to for accurate industry news.	.644	.098	.083	-.070	-.012	<b>.738</b>	.113	.117
3. I have a network of associates for the mutual sharing or work-related information.	.548	.006	.158	-.038	.010	<b>.717</b>	.228	-.172
<b>Factor 6: History</b>								
1. I know which mistakes have really hurt this organization.	.627	-.044	.158	.205	-.108	.019	<b>.735</b>	.053
2. I know what the organization regrets most about its past.	.527	.206	-.012	-.163	.088	-.018	<b>.690</b>	.067
3. I know how well this organization has performed compared with others.	.462	-.056	-.015	.077	.109	.001	<b>.544</b>	.331
4. I know the major turning points in this organization's past.	.598	.096	-.043	.053	.144	.227	<b>.528</b>	.179
5. I know who was considered responsible for major errors in this organization.	.476	.292	-.100	.103	-.094	.281	<b>.400</b>	.116
<b>Factor 7: Industry knowledge</b>								
1. I know how other organizations in this industry operate.	.720	-.056	.009	.018	-.107	.007	.103	<b>.874</b>
2. I know how similar organizations in the industry are performing.	.615	.010	-.021	.076	-.016	.007	.123	<b>.744</b>
3. I know what has been the major success of this organization.	.564	.235	.036	-.120	.093	.079	.060	<b>.648</b>
<b>Eigenvalues</b>		9.13	2.82	2.37	1.84	1.72	1.60	1.38
<b>Percentage of variance explained</b>		27.66	8.55	7.17	5.58	5.22	4.86	4.17

### **Factor Interpretation**

The labels given to the resulting factors took into consideration the content of the items that loaded on each, and differed from the knowledge categories proposed in the item generation process. The factors resulting from the EFA were:

*Socio-political knowledge* (7 items). The item content represented several of the original conceptual categories including social, political, cultural, and historical knowledge. This included knowledge of the people who have been significant actors in the organization's past (e.g., "I know who has been responsible for the major decisions made in this organization") along with knowledge of who knows what and norms of person organization fit (e.g., "I know the personal characteristics that make a person a good fit here"). There was a political slant to this social knowledge with an understanding of how things get done (e.g., "I know how to advance an idea in this organization") and the consequences of decision-making for those in the organization (e.g., "I know what organizational decisions will mean for different departments").

*Inexperience* (7 items). This group consisted of negatively worded items, including organizational norms (e.g., "I am not sure which behaviours you can get away with in this organization"), social knowledge (e.g., "I do not know who you should consult in order to get a request heard here,"), and political knowledge (e.g., "I have little experience of how decisions are made in this organization"). These items that had been expected to disperse across various knowledge domains rather than cluster together. DeVellis (2003) has noted that "inclusion of a specific phrase can create a false appearance of a conceptually meaningful factor", (p.127), and the inexperience factor may have resulted purely from the negative slant of its items. The inexperience factor was redundant with the inclusion of the socio-political factor, and its utility was questionable, and so was dropped from the scale.

*Astuteness* (4 items). It was questionable whether this factor too represented a distinct, internally consistent dimension. This factor was comprised of two items that were based on Leonard and Swap's (2005a) concept of "deep smarts" representing advanced expertise and job proficiency (e.g., "I know where corners can be cut without affecting the quality of my work" and "I can think of exceptions to the rule I am applying when solving problems at work"). These were joined by two other items including knowledge of clique membership and how to avoid the disapproval of management. While the correlation between the two deep smarts items would be expected, their relationship with the latter items was less predictable although all together could (tenuously) represent a high level of organizational astuteness. DeVellis (2003) cautioned that "if the analysis yielded one factor with items that seem dissimilar, it probably is best not to take this factor too seriously as an indicator of a latent variable" (p.127), and so this factor was also dropped.

*Job knowledge* (4 items). This factor was comprised of three items originally found in or adapted from Chao et al.'s (1994) "job proficiency" dimension of socialization, with the addition of an item "I know the aspects of my job that are particular to this organization" indicating wider knowledge of that job beyond one particular organization.

*External network* (3 items). This factor was comprised of three items reflecting participation in a relevant network outside the organization and drawn from the proposed industry knowledge category. It acknowledged the importance of industry networks (e.g., "I know which associates to go to for accurate industry news").

*History* (5 items). The content of this subscale included knowledge of influential past events, (e.g., "I know the major turning points of this organization's past"). It also

involved knowledge of relatively sensitive information (e.g., “I know which mistakes have really hurt this organization”).

*Industry knowledge* (3 items). Knowledge of other organizations in the industry as well as the organization’s own reputation in the industry featured here. Items included “I know how other organizations in this industry operate” and “I know what has been the major success of this organization”.

The removal of the inexperience and astuteness factors for both conceptual (lack of consistency) and psychometric reasons (parsimony and utility) resulted in a five factor structure. One item, “I know how well this organization has performed compared to others” was found to load on both the history and industry knowledge subscales. Items that double-load may interfere with interpretation and inflate correlations between factors, although removing these may result in a threat to content validity (Spector, 1992). In the interests of a more stable factor structure, the item was removed. Removal of this item did not change the five factor structure of the scale (using EFA), which can be seen in Table 2.3.

### **Descriptive Statistics**

The items on each of the five organizational memory subscales were summed to create subscale scores, and these scores in turn were divided by the number of items on each subscale to calculate mean item scores. These were calculated to put all scale scores on the same metric (e.g., always between 1 and 7) for comparison, otherwise with different numbers of items for each subscale there could be potentially misleading differences that are just the result of the number of items. Mean item scores, means, standard deviations, coefficient alphas (where appropriate), and the intercorrelations of the study variables can be seen in Table 2.4.

**Table 2.3.** Factor Analysis Pattern Matrix with Subscale Item-Total Correlations for the Five-Factor Organizational Memory Scale

	<b>Item Total Correlation</b>	<b>Factor 1</b>	<b>Factor 2</b>	<b>Factor 3</b>	<b>Factor 4</b>	<b>Factor 5</b>
<b>Factor 1: Socio-political knowledge</b>						
1. I know who represents the model of acceptable behaviour in this organization.	.651	<b>.776</b>	.047	-.100	-.132	.125
2. I know the personal characteristics that make a person a good fit here.	.687	<b>.772</b>	.020	.086	-.020	-.042
3. I know whose support you need in the organization to make an idea work.	.681	<b>.753</b>	-.108	.197	.062	-.067
4. I have a good idea of who knows what in this organization.	.647	<b>.744</b>	.115	.001	-.084	.020
5. I know how to advance an idea in this organization.	.694	<b>.724</b>	-.063	.014	.074	.136
6. I know who has been responsible for the major decisions made in this organization.	.638	<b>.716</b>	.006	-.159	.218	-.018
7. I know what organizational decisions will mean for different departments.	.646	<b>.532</b>	.171	.137	.148	.082
<b>Factor 2: Job knowledge</b>						
1. I have learned how to operate in my job in an effective manner.	.629	-.078	<b>.869</b>	-.162	-.052	.125
2. I have mastered the required tasks of my job.	.700	-.048	<b>.832</b>	.133	.100	-.134
3. I know the aspects of my job that are particular to this organization.	.611	.031	<b>.711</b>	.187	-.033	.083
4. I understand what the duties of my job entail.	.626	.293	<b>.688</b>	-.055	.034	-.072



Table 2.3. continued:

**Factor 3: External network**

1. I know which associates to go to for good work related advice.	.545	.072	.101	<b>.816</b>	.063	-.271
2. I know which associates to go to for accurate industry news.	.548	-.021	.024	<b>.744</b>	-.153	.282
3. I have a network of associates for the mutual sharing or work-related information.	.644	.054	-.024	<b>.720</b>	.160	.128

**Factor 4: Industry knowledge**

1. I know how other organizations in this industry operate.	.720	-.056	-.065	.000	<b>.916</b>	.027
2. I know how similar organizations in the industry are performing.	.615	.010	.033	-.002	<b>.795</b>	.117
3. I know what has been the major success of this organization.	.564	.235	.092	.000	<b>.683</b>	-.006

**Factor 5: History**

1. I know which mistakes have really hurt this organization.	.627	-.014	-.045	.011	.019	<b>.845</b>
2. I know what the organization regrets most about its past.	.499	.073	.078	-.009	.070	<b>.717</b>
3. I know the major turning points in this organization's past.	.543	.077	.126	.199	.151	<b>.544</b>
4. I know who was considered responsible for major errors in this organization.	.509	.205	-.087	.210	.119	<b>.509</b>

**Eigenvalues****Percentage of variance explained**

	6.91	2.30	1.66	1.44	1.32
	32.91	10.97	7.92	6.84	6.29

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**Table 2.4.** Means, Mean Item Scores (Scales), Standard Deviations, Coefficient Alphas, and Intercorrelations of Study 1 Variables (N=143)

	<i>M</i>	<i>SD</i>	<i>α</i>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
1. Age	43.26	11.97		1.00									
2. Number of industry jobs	1.23	1.56		.14	1.00								
3. Job tenure	7.11	8.05		.46***	.14	1.00							
4. Organizational tenure	10.51	10.25		.50***	.12	.66***	1.00						
5. Socio-political knowledge	5.51	1.00	.87	.16	.05	.37***	.26**	1.00					
6. Job knowledge	6.05	0.78	.81	.10	.13	.28**	.12	.45***	1.00				
7. External network	5.44	1.09	.75	.14	.11	.33**	.20*	.39***	.56***	1.00			
8. History	4.13	1.30	.79	.23**	-.11	.32**	.29**	.52***	.20*	.47***	1.00		
9. Industry knowledge	4.38	1.31	.75	.20**	.17*	.29**	.21*	.48***	.24**	.27**	.45***	1.00	
10. Total organizational memory	5.18	0.80	.89	.22**	.03	.44***	.30***	.85***	.60***	.67***	.77***	.67***	1.00

\*  $p < 0.05$  level; \*\* $p < 0.01$  level, \*\*\*  $p < 0.001$  level, (two-tailed).

The mean item scores calculated for socio-political knowledge, job knowledge, and external network subscales were particularly high, indicating that participants tended to evaluate themselves more highly on these, however this may also have reflected the exclusion of participants with three or less months organizational tenure (to avoid floor effects). Correlations among the five resulting organizational memory factors ranged from .20 to .56, and as such surpassed the minimum correlation of .15 that justifies the use of an oblique rotation (DeVellis, 2003).

According to Kane (2006) correlation coefficients offer much of the validity evidence in early scale development. In this study and the CFA studies that follow, interest was primarily in the hypothesised relationships between the tenure variables (and to a lesser extent age) often used as proxy variables for knowledge and experience and organizational memory. Variations in the strength of correlations would also be of interest, for example it would be expected that industry tenure would have a stronger relationship with industry knowledge and that job tenure would relate more strongly with job knowledge.

The correlations between the study variables showed early support for construct validity. All organizational memory subscales correlated significantly with the two tenure variables (job and organizational) except job knowledge which correlated as expected with job tenure alone. Surprisingly, job tenure had a stronger relationship with all of the organizational memory subscales than organizational tenure. As would be expected, the number of industry jobs held by participants correlated with their industry knowledge but not the other dimensions of organizational memory.

## **Discussion**

A review of the original knowledge categories proposed at the item generation phase (see Table 2.1) indicated that three to seven items from each category were

represented in the final 21 items. However the content of the resulting factors differed from that specified in the initial categories. In some cases the categories proposed at the item generation stage were too broad and resulted in sub-categories after factor analysis. Others categories merged, such as the socio-political knowledge factor. Perhaps the more organizational experience one has, the more these domains become conjoined, and the less utility there is in separating social and political knowledge.

The EFA study is an illustration of the “subjective judgement is necessary to determine the number of factors and their interpretation,” (Spector, 1992, p.55). One way in which these subjective decisions may be evaluated further is through confirmatory factor analysis (CFA). In CFA the researcher has an a priori model with which to test the data and is able to specify the number of factors, their interrelatedness, and which items will load on each factor. DeVellis (2003) suggested replicating the factor analytic process with an independent sample to show that the factor structure identified in the EFA has some stability. Replication through CFA was the aim of Study 2 which follows.

### **Study 2: Confirmatory Factor Analysis**

While EFA methods can be used in a confirmatory manner, CFA has become synonymous with the use of structural equation modelling (SEM) based approaches (DeVellis, 2003; Spector, 1992). SEM allows for the comparison of the variance-covariance matrix of a set of data with the pre-specified parameters of the model being tested (Byrne, 2001; Schumaker & Lomax, 2004). It also allows for variant models to be tested and evaluated.

The aim of Study 2 was to evaluate the fit of the factor structure identified in Study 1 with (a) an employee sample, and (b) with a retirement sample. Browne and Cudeck (1993) have suggested that no a priori model will fit the data in a population perfectly, because all models are approximations. While this claim remains contentious

(e.g. Hurley et al., 1997), Browne and Cudeck suggested that an alternative way of assessing fit is to examine the relative fit of a number of alternative a priori models. Accordingly, four models were proposed for the current study and these are illustrated in Figure 2.2. Specifically the models were:

Model 1: A unidimensional scale of organizational memory.

Model 2: Five unrelated factors.

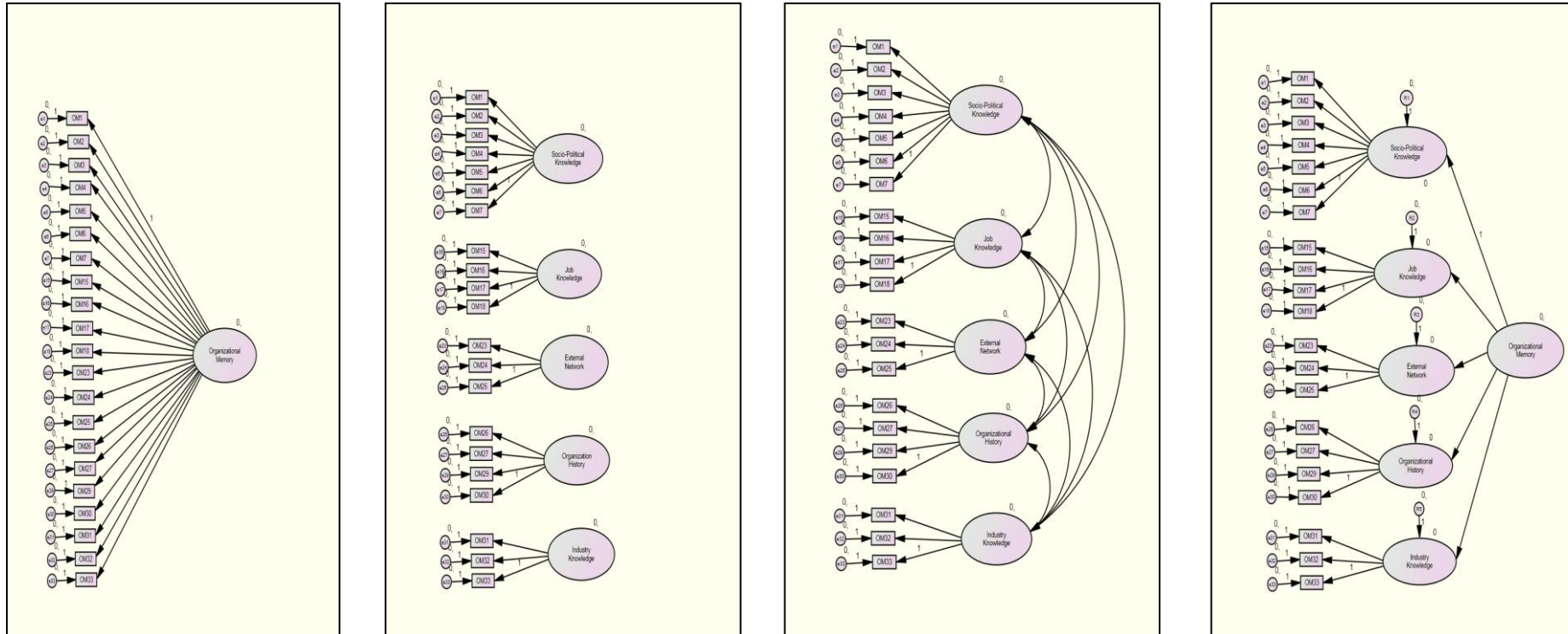
Model 3: Five correlated first-order factors as per Study 1 (EFA).

Model 4: Five first-order factors related to an over-arching second-order factor, organizational memory.

According to Marsh and Hocevar (1985) Model 3 was most likely to represent the benchmark for all other models in the case of multidimensional measures. This model represented a confirmation of the EFA model in Study 1. It was also expected that Model 4 while not achieving the same fit as Model 3, would also surpass Models 1 and 2, underlining the utility of the overall scale as well as use of the separate subscales in future analyses. Therefore it would be expected that:

*Hypothesis 1: Model 3 will achieve greater fit than Models 1, 2 and 4.*

*Hypothesis 2: Models 3 and 4 will achieve greater fit than Models 1 and 2*



Model 1. A unidimensional scale.

Model 2. Five un-correlated first-order factors.

Model 3. Five correlated first-order factors as per the EFA model in Study 1.

Model 4. Five first-order factors and one second-order factor.

Figure 2.2. Alternative factor structure models of the organizational memory scale for comparison by confirmatory factor analysis.

## **Goodness of Fit Indices**

The SEM-based CFA approach allowed for the evaluation of model fit according to a number of goodness of fit statistics. These fit indices each express how far the sample covariance matrix differs from the estimated covariance matrix of the hypothesised model (Blunch, 2008). Again while there is much discussion over the relative merits of each of these, most have agreed on the best practice of using several fit indices, (e.g. Hurley et al., 1997). Blunch (2008) suggested selecting the best measures from a variety of groups, but in general recommended reporting the chi-square statistic ( $\chi^2$ ), with degrees of freedom ( $df$ ), and significance ( $p$ -value), along with RMSEA with confidence level and PCLOSE. If seeking a relative fit measure, Blunch recommended the use of CFI but cautioned that the weakness of this statistic is that the baseline model used is the independence model (zero correlation among manifest variables) and that this is not a realistic model. Bearing these issues in mind, the following fit statistics were employed for the current CFA.

### *Absolute Fit Measure*

CMIN or  $\chi^2$  represents the distance between the unrestricted sample covariance matrix and the restricted covariance matrix (Byrne, 2001). A significant  $\chi^2$  value indicates that the observed (sample) and hypothesised variance-covariance matrices differ (Schumacker & Lomax, 2004) and so a nonsignificant result is indicative of fit. However a weakness of this statistic is its vulnerability to sample size; if a sample is sufficiently small, the model will be accepted, if large enough, the model will be rejected (Byrne, 2001; Blunch, 2008). Commonly, findings show a large  $\chi^2$  relative to degrees of freedom (Joreskog & Sorbom, 1993). This limitation led to the development of other fit indices, including those that follow, and ideally the  $\chi^2$  should not be used exclusively.

### *Relative Fit Measure*

The comparative fit index (CFI, Bentler, 1990) can range from 0 to 1.0 and in effect shows the improvement in non-centrality going from the independence model to the hypothesised model (Schumacker & Lomax, 2004). A value over .90 is considered indicative of good fit (Bentler, 1992), but more recently a revised cut-off value of .95 has been recommended (Hu & Bentler, 1999). However, there are differing opinions here, and Brown and Cudeck (1993) for example, have suggested that a CFI of .80 and above may not necessarily indicate poor fit.

### *Fit Measure Based on the Non-central Chi-square Distribution*

The root mean square of approximation (RMSEA, Browne & Cudeck, 1989), considered one of the most informative of the fit indices, focuses on the error of approximation in the population (Byrne, 2001). The RMSEA effectively asks how well the model would fit the population covariance matrix if it were available (Browne & Cudeck, 1993). RMSEA values less than .05 indicate good fit, although up to .08 are considered to represent reasonable errors of approximation in the population (Browne & Cudeck, 1993). MacCallum, Browne, and Sugawara (1996) added that values ranging from .08 to .10 can be interpreted as mediocre fit, and that those values over 1.0 indicate poor fit. A 90% confidence interval is given in AMOS to aid interpretation of the RMSEA, with a small interval reflecting more precision (MacCallum et al., 1996). AMOS also gives the *p*-values (PCLOSE) as a test of the null hypothesis that RMSEA in the population is less than .05 (Byrne, 2001), and so again a non-significant value is considered favourable.

### *Reliability and Validity*

Internal consistency estimates were sought to evaluate the reliability of the subscales and correlations between study variables were of interest to evaluate construct



validity. Specifically, a consistent positive relationship between organizational tenure and the organizational memory subscales was sought, along with correlations between job tenure and job knowledge, and industry tenure with industry knowledge.

### *Samples*

While the data for Study 3, Study 4 and Study 5 were to test the assumptions outlined in the introduction to this thesis, they were also suitable for the purpose of CFA for the organizational memory scale. There were two separate samples: Study 2(a) an employee sample consisting of participants from Study 3 and Study 4 that follow, and Study 2 (b), a group of retirees from Study 5.

## **Study 2 (a) Employee Sample**

### **Method**

#### **Sampling**

The employee sample was made up of a combination of 288 participants from two different studies that follow: Study 3 ( $N=134$ , 46.53%) and Study 4 ( $N= 154$ , 53.47%). For Study 3, six companies representing the utility industry (10.6 %), the banking and finance sector (19.5%), the professional services sector (19.2%), manufacturing (41.3%), and the engineering/transport (9.4%) industries were approached to contribute volunteer participants. Access was given to specific divisions or departments within each company according to their convenience and participation was invited through notices in company communal areas and/or via email invitation. Participation occurred in tea or lunch breaks. Invitations were estimated to have circulated among 435 people in total, with the resulting 134 participants representing a response rate of 30.80%. The remaining 154 participants for the employee sample, participants in Study 4, and were drawn from an electrical manufacturing company representing 23.69% out of a total workforce of 650 employees

who had participated in Part 1 of an online survey on “organizational memory and mentoring”.

### **Participants**

For the combined employee group, of those who completed the demographic questions, there were 187 (65.4%) male and 99 (34.6%) females, with a mean age of 41.75 years ( $SD=11.17$ ). Participants had been in their current job for a mean 5.03 years ( $SD= 5.50$ ), their organizations for a mean 9.53 years ( $SD =8.78$ ), and their industries for a mean 15.88 years ( $SD=11.55$ ). With regards to organizational level, 192 (67.1%) individuals identified themselves as team members, 77 (26.9%) as team leaders/middle managers, 16 (5.6%) as team leaders/senior managers and 1 (.3%) as chief executive officer.

### **Materials**

Participants in Study 3 completed the organizational memory scale and a number of other attitudinal scales in a pencil and paper questionnaire (see Appendix B). Participants in Study 4 completed an online survey (see Appendix C). Part 1 consisted of the organizational memory scale, some attitudinal scales pertaining to the expected relationship between organizational memory and mentoring, along with several demographic questions. See Study 3 and Study 4 for full details on all the measures used. Responses to the 21 item organizational memory scale developed in Study 1 were via a 7-point Likert-type scale anchored with 1= *strongly disagree* and 7 = *strongly agree*. As in Study 1, items were summed to create a score for each of the organizational memory subscales, and sum scores were divided by the number of items to calculate mean item scores so that scales were on the same metric for comparison purposes.

## Procedure

All participants were assured of confidentiality and anonymity and gave their informed consent. No incentive was given for participation. Study 3 participants were instructed to return completed questionnaires in the freepost envelopes provided.

Participants in Study 4 had been sent email invitations to volunteer participation through the company's human resource management department. These participants were given three weeks to complete the online questionnaires, with two reminders issued.

## Results

All confirmatory factor analyses employed version 6.0 of AMOS (Arbuckle, 2005). AMOS utilises a maximum likelihood estimation approach to missing data, which offers estimates that are claimed to exhibit the least bias of all methods (Little & Rubin, 1989; Schafer, 1997). The results of the CFA can be seen in Table 2.5. Model 1 treated the 21 items as all loading onto a single organizational memory factor. The findings showed poor fit with a significant (rather than nonsignificant)  $\chi^2$ , a CFI well below .90, and RMSEA well above .08. Model 2 consisted of five unrelated first-order factors. Again this model exhibited poor fit although not to the extent of the first model.

Model 3 consisted of five first-order correlated factors (see Figure 2.3). While the  $\chi^2$  value was still significant, there was an acceptable CFI and RMSEA for this model. Model 4 consisted of the five first-order factors with one second-order factor of organizational memory (see Figure 2.4). As with Model 3 there was an improvement in fit indices over Models 1 and 2 but not to the same degree of the benchmark Model 3. Model 4 also achieved modest fit with the CFI and RMSEA fit indices. Models 3 and 4 achieved significantly more fit than Models 2 and 3.

**Table 2.5.** *Confirmatory Factor Analysis Fit Indices for Organizational Memory Scale (Five Factors) with Employee Sample (N=288)*

	$\chi^2$	(df)	<i>p</i>	CFI	RMSEA	Lo	Hi	PCLOSE	Comparison	$\chi^2$ Change	<i>df</i> Change	<i>p</i> for $\chi^2$ Change
Model 1 N=288	1269.78	(189)	.00	.60	.14	.13	.15	.00	Models 1 & 3	880.91	10	<.001
Model 2 N=288	743.02	(189)	.00	.80	.10	.09	.11	.00	Models 2 & 3	354.15	10	<.001
Model 3 N=288	388.87	(179)	.00	.92	.06	.06	.07	.01	Models 3 & 4	45.63	5	<.001
Model 4 N=288	434.50	(184)	.00	.91	.07	.06	.08	.00	Models 1 & 4 Models 2 & 4	835.28 308.52	5 5	<.001 <.001

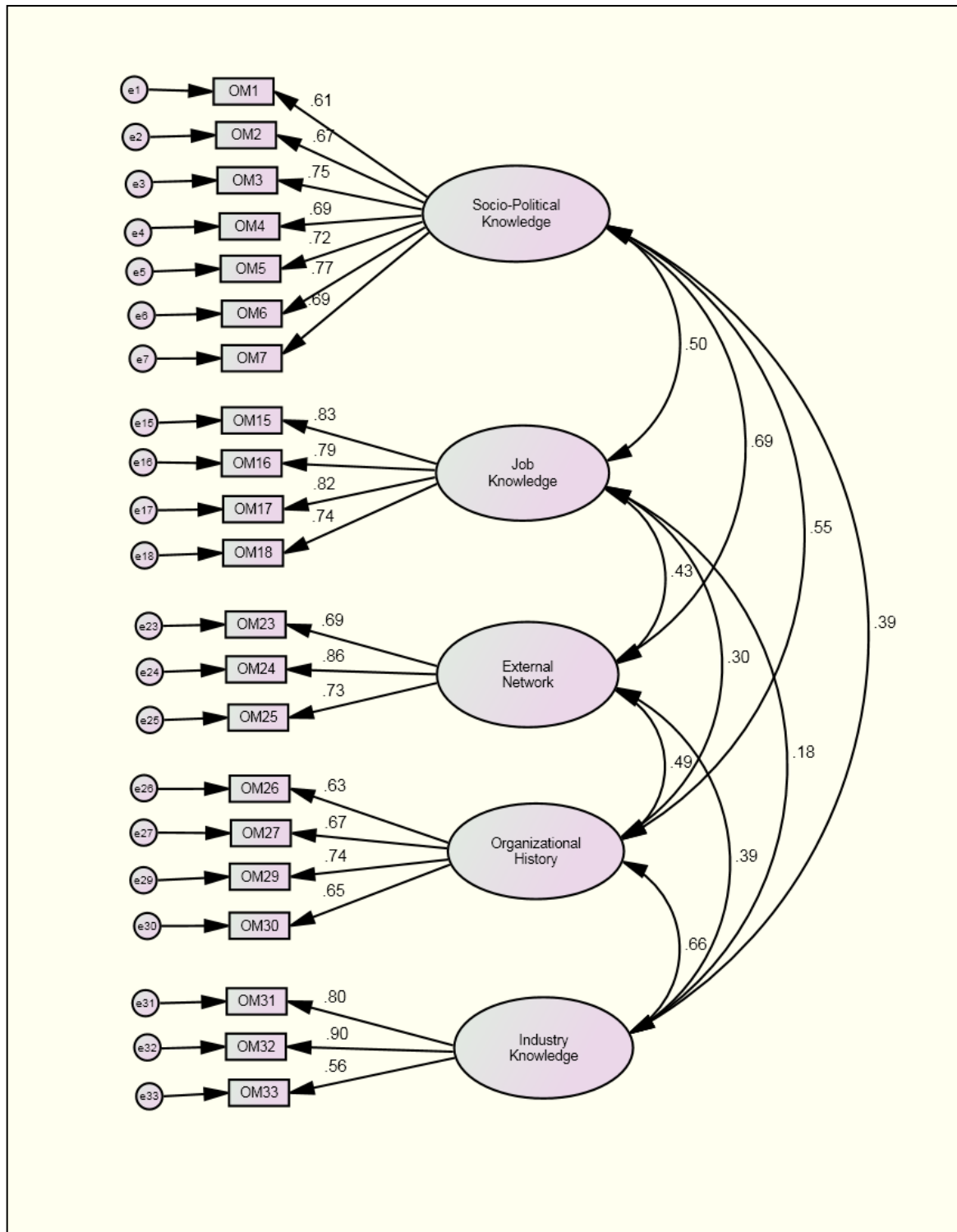


Figure 2.3. Confirmatory factor analysis diagram of five correlated first-order factors of organizational memory (Model 3), for the employee sample ( $N=288$ ).

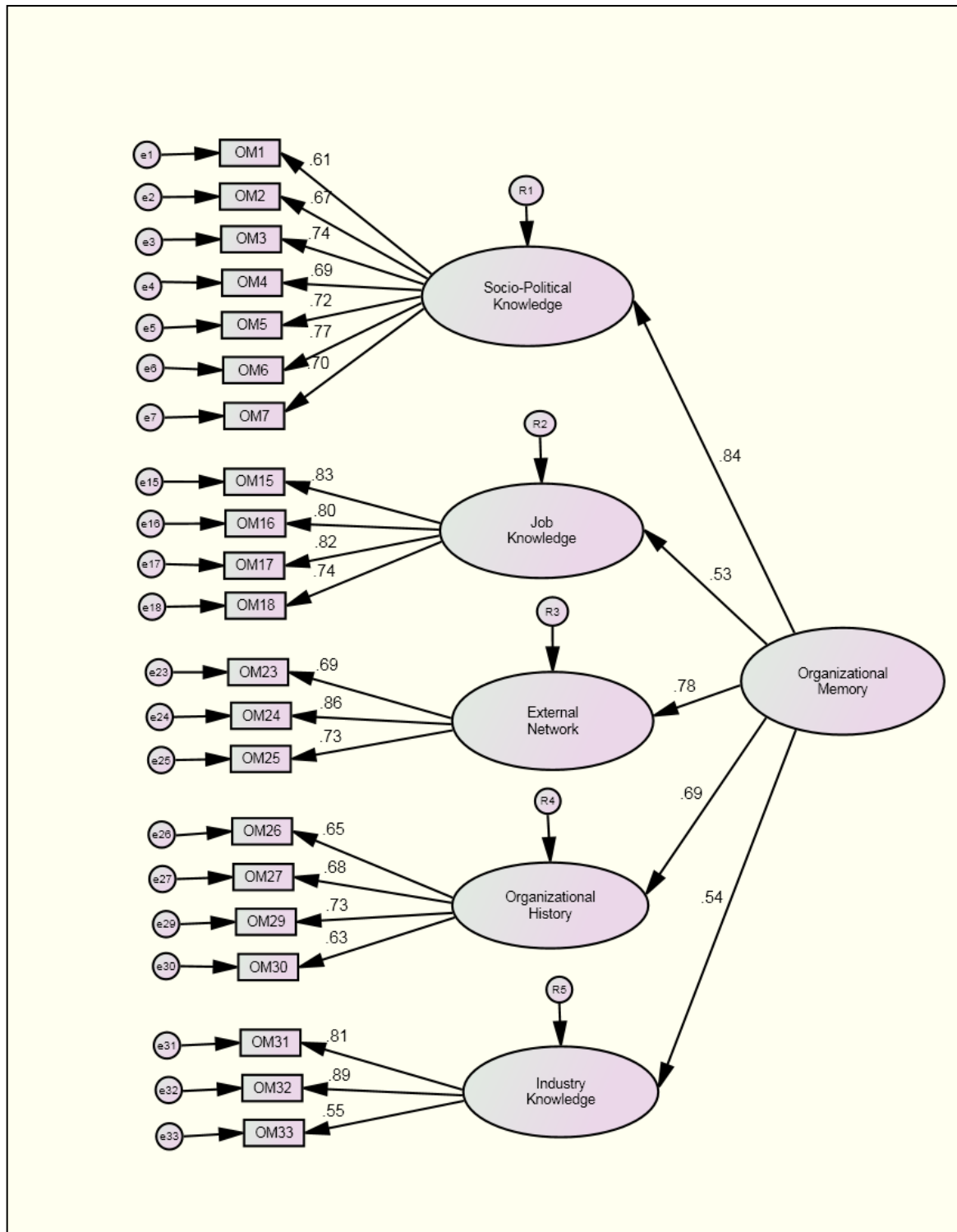


Figure 2.4. Confirmatory factor analysis diagram of five first-order factors and one second-order factor of organizational memory (Model 4) for the employee sample ( $N=288$ ).

**Table 2.6.** Study 2(a) Means, Mean Item Scores (Scales), Standard Deviations, Coefficient Alphas, and Correlation Matrix (Employee Sample,  $N=288$ )

	<i>M</i>	<i>SD</i>	$\alpha$	1	2	3	4	5	6	7	8	9	10
1. Age	41.75	11.17		1.00									
2. Organizational tenure	9.53	8.78		.53***	1.00								
3. Job tenure	5.03	5.50		.39***	.59***	1.00							
4. Industry tenure	15.88	11.55		.73***	.66***	.42***	1.00						
5. Socio-political knowledge	4.83	1.08	.87	.12*	.26***	.08	.13*	1.00					
6. Job knowledge	5.77	0.94	.87	.20**	.19**	.14*	.15*	.44***	1.00				
7. External network	5.00	1.29	.81	.13*	.21**	.11	.10	.58***	.38***	1.00			
8. History	3.62	1.21	.77	.32***	.41***	.25***	.31***	.44***	.25***	.39***	1.00		
9. Industry knowledge	3.89	1.29	.78	.27***	.21***	.06	.25***	.41***	.21***	.33***	.57***	1.00	
10. Total organizational memory	4.67	0.85	.91	.26***	.35***	.17**	.25***	.86***	.60***	.73***	.73***	.66***	1.00

\*  $p < 0.05$  level; \*\* $p < 0.01$  level, \*\*\*  $p < 0.001$  level, (two-tailed).

## **Descriptive Statistics**

The mean item scores, means, standard deviations, coefficient alphas (where appropriate), and intercorrelations of the study variables can be found in Table 2.6. Coefficient alphas for the organizational memory subscales ranged from .77 to .89, indicating acceptable to excellent internal consistency estimates.

As in Study 1 there was interest in the correlations between the organizational memory subscales and the tenure variables which are often used as “proxy” variables for experience (see Table 2.6). Organizational tenure correlated significantly with all of the organizational memory subscales, while job tenure correlated significantly with only two, job knowledge and history. Industry tenure correlated with job knowledge, history, and industry knowledge, but surprisingly, not with external network. In this study age correlated with all of the organizational memory subscales. A further discussion of these results follows after the Study 2(b) method and results sections.

## **Study 2 (b) Retiree Sample**

### **Method**

#### **Sampling**

Seven groups, all under the umbrella of a social organization for fully-retired and partly-retired persons (generally with a professional/business work background) were approached for voluntary participants. There was at the time, a combined total of 798 members listed with the groups approached, although there was not a 100% attendance rate at the meetings where participation was sought. Typically there was a 20-25% response rate of those attending to take away questionnaires. Out of the 200 questionnaires disseminated at the meetings, 115 were completed and returned representing a response rate of 57.5%.



## **Participants**

Of those who completed demographic details, there were 75 (65.2%) males and 39 (34.2%) females, with an overall mean age of 72.80 years ( $SD=6.55$ ). In terms of their past employment (specified as the participant's workplace immediately prior to their retirement decision), participants reported a mean organizational tenure of 23.29 ( $SD=13.64$ ) years. There were 30 (26.1%) individuals who classified themselves as team members, 32 (27.8%) as team leaders/middle managers; 39 (33.9%) as team leaders/senior managers, and 9 (7.8 %) who identified as having been the chief executive officer of their organization just immediately prior to retirement.

## **Materials**

The questionnaire can be found in Appendix D, and a full description of the study measures can be found in Study 5. There were a number of questions pertaining to the participants' prior work and retirement process, followed by several scales, including the organizational memory scale. Participants were also asked about their experiences as a mentor and/or protégé and were asked to complete the intention to mentor scale and some demographic details. Responses for the organizational memory items were via a 7-point Likert-type scale anchored with 1= *strongly disagree* and 7 = *strongly agree*. Scale scores were obtained by summing the items in each, and mean item scores calculated by dividing sum scores by the number of items in each scale.

## **Procedure**

A pilot study involving seven retired or partly retired individuals involved in a business mentoring network was conducted to evaluate the questionnaire initially, and there were no changes made to the questionnaire as a result. Responses from the pilot study were not included in this sample. All participants were assured of the anonymity and confidentiality of their responses, and no incentive was given for participation.

Participants gave informed consent by completing and returning the questionnaire. A post-paid envelope was provided and participants were encouraged to return the survey within two weeks.

## Results

The CFA results for the retiree sample can be seen in Table 2.7. Model 1 treated the 21 organizational memory scale items as all loading onto a single factor. The results showed poor fit with a positive  $\chi^2$  value, a CFI value well below .90, and a RMSEA well above .08. Model 2 consisted of five unrelated first-order factors. Again this model exhibited poor fit although not to the extent of the first model, with the  $\chi^2$ , CFI, and RMSEA values still outside acceptable bounds.

Model 3 (see Figure 2.5) consisted of the first-order factors (allowed to correlate with one another). This resulted in an improvement in fit over Models 1 and 2. While the  $\chi^2$  value was still significant, there was modest support for fit with acceptable CFI and RMSEA values. Model 4 (see Figure 2.6) consisted of the five first-order factors with one second-order factor of organizational memory. As with Model 3 there was an improvement in fit indices over Models 1 and 2. Model 4 again resulted in a significant  $\chi^2$ , but also achieved modest fit with acceptable CFI and RMSEA statistics. While Model 4 had the higher  $\chi^2$  value (indicating less fit), the difference between the values for Model 3 and Model 4 were not significant, and these models also shared acceptable RMSEA and CFI values. While the confirmatory factor analysis for the retiree sample did not achieve the same level of fit as the employee sample, it was still acceptable. Models 3 and 4 succeeded in achieving significantly more fit than Models 2 and 3.

**Table 2.7.** *Confirmatory Factor Analysis Fit Indices for Organizational Memory scale (Five Factors) with Retiree Sample (N=115)*

	$x^2$	( <i>df</i> )	<i>p</i>	CFI	RMSEA	Lo	Hi	PCLOSE	Comparison	$x^2$ Change	<i>df</i> Change	<i>p</i> for $x^2$ Change
Model 1 N=115	694.63	(189)	.00	.58	.15	.14	.17	.00	Models 1 & 3	396.26	10	<.001
Model 2 N=115	431.98	(189)	.00	.79	.11	.09	.12	.00	Models 2 & 3	133.61	10	<.001
Model 3 N=115	298.37	(179)	.00	.90	.08	.06	.09	.00	Models 3 & 4	5.67	5	<i>ns</i>
Model 4 N=115	304.04	(184)	.00	.90	.08	.06	.09	.00	Models 1 & 4 Models 2 & 4	390.59 127.94	5 5	<.001 <.001

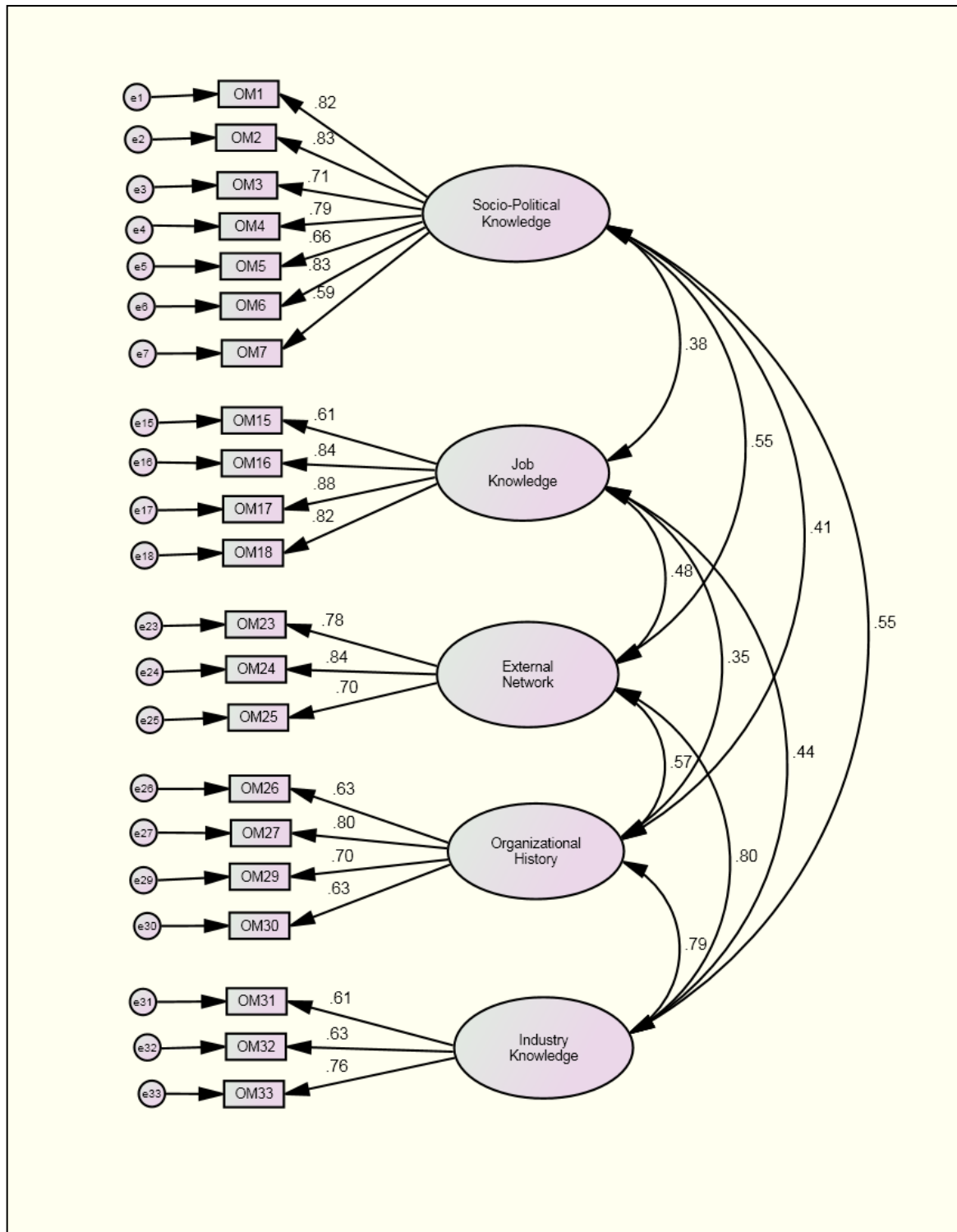


Figure 2.5. Confirmatory factor analysis diagram of five correlated first-order factors of organizational memory (Model 3) for the retiree sample ( $N=115$ ).

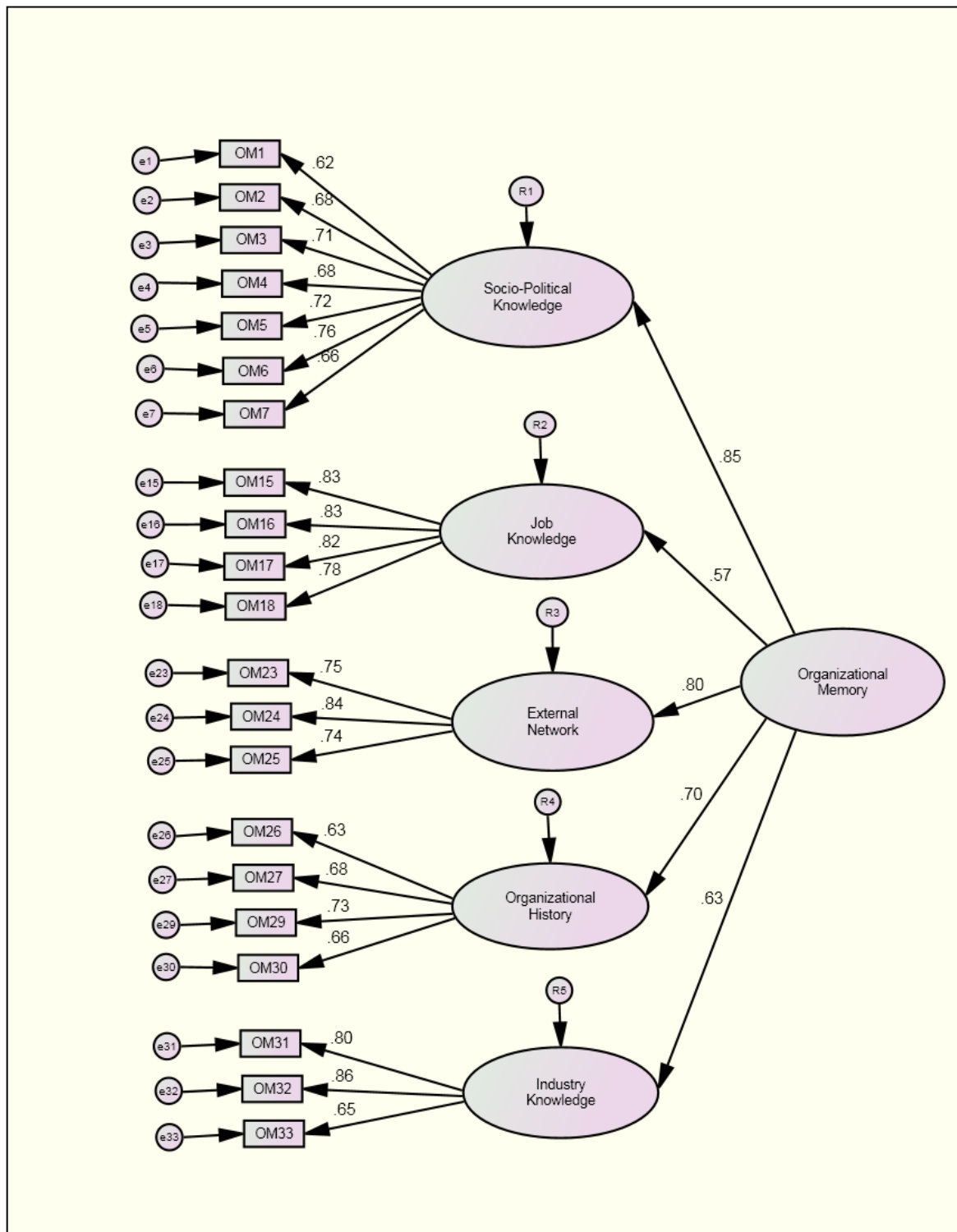


Figure 2.6. Confirmatory factor analysis diagram of five first-order factors and one second-order factor of organizational memory (Model 4) for the retiree sample ( $N=115$ ).

## **Descriptive Statistics**

The mean item scores, means, standard deviations, coefficient alphas, and intercorrelations of the study variables for the retiree sample can be found in Table 2.8. For the retirees, as with the employee sample, job knowledge, external network, and socio-political knowledge had the three highest mean item scores. While these scores are high, they should be interpreted with some perspective. Participants in this study had greatest mean age and tenure, and a higher percentage of them had achieved advanced positions within their organizations, compared with the two previous samples. Their organizational memory results should reflect this level of experience.

The intercorrelations of the study variables (see Table 2.8) showed organizational tenure correlated only with history and external network, while job tenure correlated with the history subscale alone. There were negative correlations between age and all of the organizational memory subscales, although only the correlation between age and industry knowledge was significant. There were also negative correlations (although not significant) between organizational memory (except job knowledge) and length of retirement. These results may suggest some memory decay over time. The coefficient alphas (also see Table 2.8) for the organizational memory scale and subscales ranged from .73 to .90 for the retirement sample, indicating acceptable to excellent internal consistency estimates.

When comparing the results of both the employee and retiree samples, the high correlation between the history and industry knowledge factors is of some note (see Figure 2.3 for employees, and Figure 2.5 for the retirees). This may be an issue for the stability of the factor structure of the scale in future studies.

**Table 2.8.** Study 2(b) Means, Mean Item Scores (Scales), Standard Deviations, Coefficient Alphas, and Correlation Matrix (Retiree Sample,  $N=115$ )

	<i>M</i>	<i>SD</i>	$\alpha$	1	2	3	4	5	6	7	8	9	10
1. Age	72.31	8.09		1.00									
2. Job tenure	14.42	10.86		.11	1.00								
3. Organizational tenure	23.29	13.64		.31**	.39***	1.00							
4. Length of retirement	11.37	7.57		.82	-.01	.20	1.00						
5. Socio-political knowledge	5.67	1.05	.90	-.07	.19	.05	-.15	1.00					
6. Job knowledge	6.49	0.59	.85	-.08	.11	.15	.05	.34***	1.00				
7. External network	5.68	1.21	.80	-.06	.14	.25*	-.10	.51***	.39***	1.00			
8. History	4.89	1.27	.78	-.19	.22*	.28**	-.11	.36***	.25*	.46***	1.00		
9. Industry knowledge	5.14	1.13	.73	-.21*	.19	.06	-.18	.42***	.29**	.58***	.56***	1.00	
10. Organizational memory	5.59	0.76	.90	-.15	.21*	.20	-.14	.81***	.54***	.76***	.73***	.75***	1.00

\*  $p < 0.05$  level; \*\* $p < 0.01$  level, \*\*\*  $p < 0.001$  level, (two-tailed).

## Discussion

Study 2 (a) and (b) sought to confirm the factor structure of the organizational memory scale established in the EFA in Study 1. Models 3 and 4 both achieved modest fit with both the employee and retiree samples. As hypothesised, Model 3 achieved benchmark status out of the four models proposed for both samples as suggested by Marsh and Hocevar (1985). There was a significant difference in fit between the Models 3 and 4 for the employee sample, but not for the retiree sample. As hypothesised, Models 3 and 4 also achieved greater fit than Models 1 and 2 in both samples. The CFA analyses show support for the correlated five-factor solution of organizational memory established in the EFA in both the employee and retiree samples, as well as confirmation of a proposed second-order factor of organizational memory.

Study 2 also gave the opportunity to assess the construct validity of the subscales through the inclusion of several demographic variables. Of particular importance is the relationship between the organizational memory scale and subscales, and the variable organizational tenure, as Walsh and Ungson (1991) have stated:

The most important individual attribute that is relevant to the study of organizational memory may be the length of service in the organization.... The absolute length of service in the tenure profile of an organization is critical to the effective retrieval of information. (p.78)

The employee sample showed promising results with organizational tenure correlating significantly with all the organizational memory subscales. Job tenure correlated with only two of the subscales, job knowledge as expected, and history. Industry tenure correlated with four subscales, two of these relationships much stronger (industry knowledge as expected,



and history) than the others (socio-political knowledge and job knowledge). It had also been expected that industry tenure would correlate with external network, when actually this was the only organizational memory subscale it did not correlate with. However, workers may have moved around geographically, and in that case, industry tenure may not necessarily correlate with external network. All three tenure variables correlated significantly with the job knowledge, history and overall organizational memory scales.

In the retiree sample, variables that had previously shown significant correlations with the organizational memory scales did not fare as well. The links between both job and organizational tenure and the organizational memory subscales were more tenuous. Organizational tenure correlated only with external network and history while job tenure correlated with history alone. Perhaps the incremental value of organizational tenure (in terms of gains in organizational memory) plateaus beyond an optimal time (e.g., like the ten years required for expertise suggested by Leonard & Swap, 2005b), and beyond that stage other variables (i.e., hierarchical position) become more influential. It is interesting to note that the history subscale, not surprisingly, had the most consistent relationship with tenure variables across the samples in Study 1, Study 2(a), and Study 2(b).

While the job knowledge subscale related well with the tenure variables, it also related least well with the combined organizational memory scale in both employee and retiree samples which may suggest the utility of developing a fully separate job knowledge and expertise scale. The high mean score on this subscale across samples may also suggest the need for further development of the subscale, to provide further differentiation between individuals of varying expertise. The two items of the discarded astuteness scale that did correlate well in Study 1 show some potential with the addition of other items to create a scale of job expertise or “deep smarts” (e.g., Leonard & Swap, 2005a), and future research may use these as the basis for future scale development.

With regards to reliability there are positive signs with the organizational memory scale and subscales achieving acceptable to excellent internal consistency estimates. However the history and industry knowledge scales seem to rate consistently less well than the other three subscales, and there may be issues with some similarity between these subscales as indicated with the removal of one item that loaded on both factors in the EFA. There is potential to add items to each subscale to improve internal consistency which despite achieving respectable levels look vulnerable compared with the other subscales.

### **Conclusion**

This chapter chronicled the development of the organizational memory scale. The scale was designed to enable employees to estimate their resources across a number of job and organizational knowledge domains which are relevant to transfer by mentoring. The knowledge categories proposed for the study, and the resulting subscales do not represent an exhaustive list of the domains that make up organizational memory, and there is potential to add to these, with priority perhaps to be given to further development of a separate job-related knowledge and expertise scale. Overall, the scale shows promise for use in future research with a consistent factor structure, good internal consistency estimates for the overall scale and subscales, and support for the expected relationships between the subscales and the tenure variables often used as “proxy” variables for the acquisition of job, organizational, and industry knowledge.

## CHAPTER THREE

### **Organizational Memory and Empowerment**

The classic maxim claims that “knowledge is power”. This chapter proposes a model of the relationship between organizational memory and empowerment that locates organizational memory in terms of its potential antecedents and consequences/outcomes. The study described in this chapter tests the model, along with the test-retest reliability of the organizational memory scale, involving a sample of 134 employees drawn from six companies. The chapter describes the study and concludes with a discussion of the results and the implications for both research and practice.

In the introduction to this thesis, several assumptions about older workers were outlined including: Older workers have valued knowledge and experience and are significant repositories of organizational memory, and older workers anticipate and are likely to experience positive outcomes from mentoring others. The study described in this chapter (Study 3) tests these assumptions by examining the relationships between age, organizational tenure, and organizational memory. It examines potential positive outcomes of organizational memory in terms of psychological empowerment at work, requests to share knowledge, and organization-based self-esteem. If knowledge is power, then those with considerable tenure within their job and organization, who are also repositories of organizational memory, are also likely to experience empowerment within that organizational context.

At the same time, Study 3 seeks to add support to the validity argument for the organizational memory scale which should be able to explain unique variance in knowledge and experience related outcomes above age and organizational tenure, often used (the latter particularly) as proxy variables for the acquisition of organizational knowledge (e.g., Chao, O’Leary-Kelly, Wolf, Klein, & Gardner, 1994). This study also takes the opportunity through

a follow-up questionnaire to assess the test-retest reliability of the organizational memory scale.

### **The Organizational Memory and Empowerment Model**

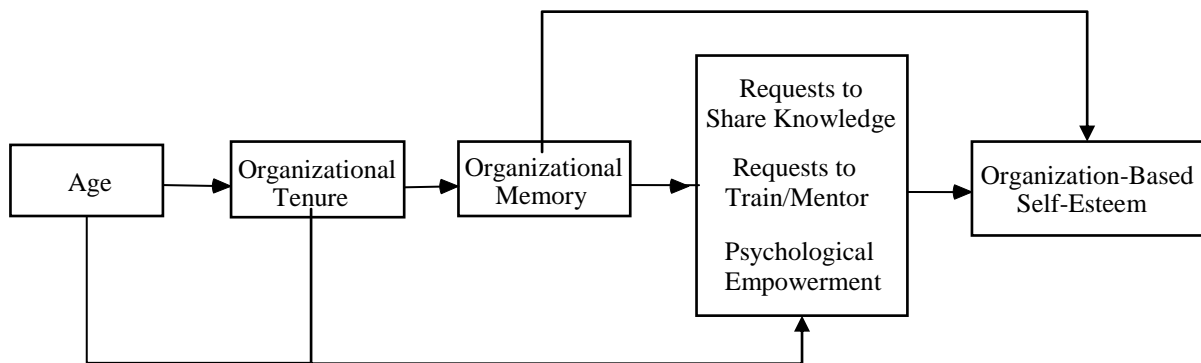
In a New Zealand survey focusing on workplace attitudes to older workers, McPherson (2008a) found that while employers/managers valued older workers for their experience and willingness to share their knowledge, they also acknowledged that not *all* older workers are necessarily suited to the mentoring role, claiming that experience rather than age was most salient in targeting mentors. As two participants in the McPherson study commented:

We buddy people up, older workers and new young ones. But the older workers do that not because of their age, but because of their longer service and experience, and they pass that on, (p.15) and,

Each year we admit a couple of new people to the Legends Hall of Fame. These are always the people who have lots of wisdom, share their knowledge and are known as the go-to people for advice. (p. 15)

These comments are particularly pertinent to Study 3. The first implies that conditions need to be placed on the assumption that all older workers have the necessary organizational memory, and therefore the knowledge resources for mentoring, by introducing the caveats of “long service” and “experience”. The second quote acknowledges that some employees become known as the “go-to” people for sharing knowledge and that this role is particularly valued and celebrated by organizations.

The proposed model of organizational memory and empowerment (see Figure 3.1) recognises these insights and aspects of organizational practice. Empowerment, according to the model, refers to both individuals and indirectly, their organizations. For the individual, psychological empowerment incorporates the sense of meaning, competence, self-determination, and impact that knowledgeable employees may attain in their work. These employees, as repositories of organizational memory, also in turn, represent potential empowerment for the organization in terms of the frequency with which they are requested to share their knowledge by colleagues and associates. The model suggests that organizational-based self-esteem is a likely outcome of both empowerment for the individual and the extent to which they are sought to share their knowledge (through requests to share knowledge and requests to train/mentor). The following sections outline the study variables and the hypothesised relationships between these.



*Figure 3.1.* A model of organizational memory and empowerment incorporating psychological empowerment, requests to share knowledge, and organization-based self esteem.

### **Antecedents of Organizational Memory: Age and Organizational Tenure**

In the model in Figure 3.1, age and organizational tenure are proposed to precede organizational memory. Organizational memory is the knowledge resulting from long tenure

(Walsh & Ungson, 1991). The older worker's tendency for long tenure is well documented, and has had both positive (e.g., they find a greater fit over time with their job and organization, and are more loyal than younger workers), and negative interpretations (e.g., they are afraid of leaving their positions as they age as they fear their chances on a competitive and possibly discriminatory job market) (Flynn & McNair, 2004). It is noted that older workers, due to their greater job and organizational tenure, also tend to gravitate to upper level positions in their organization (Barnes-Farrell & Matthews, 2007). Consequently many older workers are likely to be repositories of organizational memory primarily because of their long tenure.

The idea that older workers have the knowledge to be "able" mentors has appeared repeatedly throughout the literature on mentoring and the management of older workers (e.g. Beehr & Bowling, 2002; Critchely, 2004; Hedge, Borman, & Lammlein, 2006; Kram, 1985). Kram's (1985) early work on mentoring stated that the older worker was able to provide wisdom to teach other workers and to help shape organizational policy. Beehr and Bowling (2002) also noted that older workers with their experience, knowledge, and network of contacts, are resourceful mentors for the less experienced in the organization, and provide value through advisory roles to the organization's decision-makers. Critchley (2004) argued that the skills and qualifications of new workers cannot compete with the knowledge gained from experience that older workers typically hold.

Employers have readily valued the experience (namely superior skill levels) that older workers offer, although there is some ambivalence about the relative advantages and disadvantages of older workers according to Barth, McNaught, and Rizzi (1993). O'Donohue (2000) also found that employers generally believed that older workers have valuable expertise that may be lost to the organization on their retirement, with "useful experience" the most commonly cited attribute of older workers (83% of respondents), followed by a

“strong work ethic” (62%), and “client knowledge” (56%). This assumption about age and experience is so strong in general that Hummert, Gartska, Ryan, and Bonneson (2004) suggested that older workers can help themselves at work by leveraging off this “positive age stereotype”. Hummert et al. encouraged older workers to emphasise their age group’s (and indirectly their own) experience and maturity particularly when it comes to working in political positions in their organizations. However, the positive stereotype has been challenged by Pecchioni, Ota, and Sparks (2004), who claimed that not all senior members of the organization are necessarily older, and the juniors, younger. All things considered, the assumption seems to remain that older workers through their tenure (and associated experience) are likely reservoirs of organizational memory and have potential to be mentors within their workplaces. So while it is expected that age will be positively related to organizational memory, it is also expected that organizational tenure will mediate this relationship through its relationship with both variables.

*Hypothesis 3.1.* Age and organizational tenure will positively relate to organizational memory. Organizational tenure will mediate the relationship between age and organizational memory.

### **Psychological Empowerment at Work**

The model shown in Figure 3.1 indicates that organizational memory will relate to psychological empowerment for individuals. While early definitions of workplace empowerment equated to notions of self-efficacy (e.g. Conger & Kanungo, 1988), Thomas and Velthouse (1990) argued for a multi-faceted approach to the concept incorporating a sense of meaning (a fit between one’s work and one’s own beliefs, values and behaviours), competence in one’s work, the opportunity for self-determination, and the capacity to impact

on the organization (Spreitzer, 1995; Thomas & Velthouse, 1990). Spreitzer (1995) noted that psychological empowerment at work reflects an active rather than passive orientation, is a state rather than enduring personality trait, and is not necessarily generalizable to other contexts. Of particular interest to the current study, Spreitzer found that access to information about the organization's mission was positively related to psychological empowerment at work. Individuals with considerable knowledge about their work and workplace are more likely to be able to make sense of and find meaning in their work (Conger & Kanungo, 1988). Similarly it is expected that the more an individual knows about their work, organization and industry, the more likely they are to gain competence, and earn opportunities for self-determination. Furthermore, being a recognised knowledge reservoir may equate to the ability and likely opportunity to influence and impact the organization.

*Hypothesis 3.2.* Organizational memory will positively relate to, and account for unique variance in psychological empowerment (comprised of meaning, competence, self-determination and impact, at work) over age and organizational tenure.

### **Requests to Share Knowledge**

The model in Figure 3.1 also indicates that organizational memory will predict the frequency with which individuals are asked to share their knowledge. Those individuals with organizational memory are likely to represent considerable knowledge resources for others inside (and outside) their organization. As the two employer comments in McPherson's (2008a) study indicated, knowledgeable employees become known as the people to approach for advice and information. Organizational memory may be evidenced by the frequency with which managers and team members within their organization and industry associates outside of the organization ask employees to share their knowledge. Age was also expected to relate



to requests to share knowledge due to the positive age stereotype suggested by Hummert et al. (2004) and a similar effect was expected for those who were long term employees. The links between age and tenure and experience may mean that others turn to older and also to long-tenured individuals with requests to share knowledge as a matter of course. However it was expected that organizational memory as an indicator of knowledge and experience, would be able to predict total requests to share knowledge beyond both age and organizational tenure.

*Hypothesis 3.3.* Organizational memory will be positively related to, and account for unique variance in requests to share knowledge (comprised of requests from team members, managers and associates) over age and organizational tenure.

### **Requests from Managers to Train/Mentor Others**

Separate hypotheses were generated regarding the ability of organizational memory to predict the frequency of requests from managers to train and mentor others (colleagues and co-workers) and this variable can also be seen in the model in Figure 3.1. Beehr and Bowling (2002) claimed that the knowledge and networks of experienced workers qualifies them to be particularly resourceful mentors, something that companies are likely to be well aware of. This hypothesis was significant as it was the first opportunity to gain an indication of the relationship between organizational memory and mentoring.

*Hypothesis 3.4:* Organizational memory will be positively related to, and account for unique variance in requests to train/mentor others over age and organizational tenure.

### **Organization-Based Self-Esteem**

Finally, the model in Figure 3.1 suggests that organizational memory, empowerment, requests to share knowledge, and requests to train/mentor would be related to organization-based self-esteem. The human resource management literature has suggested that organizations value older workers for their experience. In particular, Hedge et al. (2006) suggested that the mentoring role publicly places high value on the experience of older workers. Barth et al. (1993) found, however, that while companies generally value the experience workers gain over their careers that there were variations to this trend. Human resource executives when asked to describe the contribution of the “typical” worker over their career, returned responses that were organized into four categories (Barth et al., 1993). The first group (28%) saw the value of a worker’s contribution to the company as increasing over their career. A second group, also 28% suggested an initial upward slope during the early years of a career, and then a flattening out to a constant “plateau” pattern. However the greatest response at 37% argued that an employee’s value to the company was dependent on whether employees maintained their work skills (labelled “training dependent”). Only 4% of respondents suggested an inverted “u-shaped” pattern of increasing value in the first part of the career followed by decreasing value in mid to late career. In general it would seem that employee experience (especially if skills are kept up-to-date) is thought to add value to organizations, and if this is so, those with organizational memory should feel valued by their organizations, resulting in their own organization-based self-esteem.

In reviews of the self-esteem literature conducted by Tharenou (1979), and Tharenou and Harker (1982), job related characteristics were the most consistent correlates of individuals’ assessments of their own work competence and worth. Therefore the job-related empowerment dimensions including meaning, competence, self-determination and impact are also expected to relate to organization-based self-esteem, as are requests to share knowledge

(from team members, managers and associates) and requests to train/mentor, as these imply respect from these organizational members. Pierce, Gardner, Cummings, and Dunham (1989) for example, found managerial respect for individuals (along with job complexity) to be an antecedent of an individual's organization-based self-esteem. Previous theoretical and empirical work has also underlined the value that is given to those who are mentors within an organization (e.g., Beehr & Bowling, 2002; Hedge et al. (2006); Kram, 1985; McPherson, 2008a; Ragins & Scandura, 1999). The following hypotheses relate to the model shown in Figure 3.1:

*Hypothesis 3.5:* Organizational memory will be positively related to and account for unique variance in organization-based self-esteem over age and organizational tenure.

*Hypothesis 3.6:* Empowerment (meaning, competence, self-determination and impact) and requests to share knowledge (including requests to train/mentor) will be positively related to and account for unique variance in organization-based self-esteem.

## **Method**

### **Study Design**

This study also gave the opportunity to evaluate the discriminant validity of the organizational memory scale. Discriminant validity is indicated when a measure of one construct has little, or preferably, no relationship with other constructs where theory or previous research would indicate there should not be a relationship (Spector, 1992). A scale of universalism values (Schwartz, 1994) was included in the study questionnaire for that purpose. Universalism values refer to values linked to the welfare of people and nature. It

was expected that there would be little if any relationship between the universalism values measure and organizational memory subscales. In a similar way the universalism values scale provided a marker variable as it was expected that this scale would also have little, if any relationship with the other study scales. Should there have been substantial correlations between this scale and the others used in the study, there would have been cause for alarm that participants were resorting to a consistency bias (Lindell & Brandt, 2000; Lindell & Whitney, 2001; Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

### **Sampling**

The sample was made up of 134 volunteers drawn from six separate companies, one representing the utility industry ( $n=25$ , 18.66%), two companies from the banking and finance sector, ( $n=46$ , 34.33%), a professional services company, ( $n=19$ , 14.18%), a manufacturing company, ( $n=22$ , 16.42%), and an engineering/transport firm, ( $n=22$ , 16.42%). Researcher access was granted to specific divisions or departments within organizations according to what was convenient for each company at the time, and participation was invited through notices in company communal areas and/or via email invitation. Invitations are estimated to have circulated among 435 people in total and the resulting 134 participants represented a response rate of 30.80%.

### **Participants**

The sample was comprised of 74 (55.207%) males and 59 (44.4%) females. The mean age of the group was 43.02 years ( $SD=12.47$ ). Participants had been in their current job for a mean 5.24 years ( $SD= 6.42$ ), their organizations for a mean 9.37 years ( $SD =4.92$ ), and industries for a mean 16.57 years ( $SD=12.97$ ). Of those who responded to questions regarding organizational hierarchical level and managerial responsibility, 100 (74.6 4%) individuals identified themselves as team members, 28 (20.9%) as team leaders/middle managers, and 3 (3.8%) participants identified themselves as team leaders/senior managers.

Of the 134 participants in the first part of the study, 83 individuals (61.94%) completed follow-up questionnaires (Part 2) to assess the test-retest reliability of the organizational memory scale. Of these, 21 were from the utility industry (25.30%), 23 from the banking and finance sector (27.71%), 16 from professional services (19.28%), 13 from manufacturing (15.66%) and 10 from the engineering/transport (12.05%) industry. There were 49 (59 %) males and 34 (41%) females. Mean age of the retest group was 43.59 years (SD=13.76). Participants had been in their current job for a mean 6.20 years (SD= 7.29), their organizations for a mean 10.28 years (SD =10.88), and industries for a mean of 17.65 years (SD= 14.37). In regards to organizational level and managerial responsibility, 68 (81.9%) individuals identified themselves as team members, 12 (14.5 %) as team leaders/middle managers, and 3 (3.6%) participants identified themselves as team leaders/senior managers.

### **Materials and Measures**

The questionnaires for this study can be found in Appendix B (Parts 1 and 2). The first questionnaire included all the scales for organizational memory, empowerment, requests to share knowledge, and organization-based self-esteem, as well as a scale of universalism values. A number of demographic details completed the questionnaire including, gender, age, organizational level, number of industry jobs, as well as job, organization, and industry tenure. A personal code was requested of participants at the end of the questionnaire to enable the researcher to match the follow-up questionnaire for testing the organizational memory scale test-retest reliability. The follow-up questionnaire (Part 2 in Appendix B) consisted of the organizational memory scale and demographic questions only. Participants were reminded how to write in their personal code for the researcher to match questionnaires.

A description of all measures used in this study follows. All scales were scored via a seven-point Likert scale and all (except universalism values and requests to share knowledge) were anchored by the statements 1= *strongly disagree*, and 7= *strongly agree*. Scale scores

were obtained by summing scale items. The mean item scores were calculated by dividing the sum score by the number of items in the scale to produce a shared metric among scales for comparison.

*Organizational memory.* This consisted of the 33 items which comprised the initial seven factor model of the organizational memory scale listed in Study 1 (Chapter Two), however only the 21 items confirmed in the CFA studies were used in the analysis. Coefficient alphas for each subscale were (with alphas from the test-retest data in brackets): Socio-political knowledge .86 (.89), job knowledge .89 (.91), external network 83 (.76), history .77 (.82), and, industry knowledge.77 (.74). Items from all of the subscales were combined to create a total organizational memory score, with a coefficient alpha of .89 (.92).

*Psychological Empowerment.* Psychological empowerment was measured by Spreitzer's (1995) 12 item scale. The scale consisted of four subscales of three items each, including meaning (e.g., "My job activities are personally meaningful to me"), competence (e.g., "I am confident about my ability to do my job"), self-determination (e.g., "I can decide on my own how to go about doing my work"), and impact (e.g., "I have significant influence over what happens in my department"). All subscales have been found to correlate with job satisfaction (Spreitzer, Kizilos, & Nason, 1997). Coefficient alphas reported in previous studies (with alpha values for the current study in brackets) ranged from .81 to .87 for meaning (.94), .76 to .84 for competence (.90), .79 to .85 for self-determination (.88), and .83 to .88 for impact (.87), (Gagne, Senecal, & Koestner, 1997; Markel & Frone, 1998; Spreitzer, 1995, 1996; Spreitzer, Kizilos, & Nason, 1997, cited in Fields, 2002). Subscale scores were combined to create a total empowerment score. Spreitzer (1995) reported an alpha for the combined scale of .72 in an industrial sample, and .62 in an insurance sample. In this study coefficient alpha was .88 for the combined scale.

*Organization-based self-esteem.* Organization-based self-esteem was measured by Pierce et al.'s (1989) unidimensional scale consisting of ten items related to self esteem within an organizational context e.g., "I am taken seriously around here" and "I count around here". Pierce et al., (1989) report a coefficient alpha range for the scale of .86 to .96 across seven studies. The coefficient alpha for the scale in the current study was .91.

*Universalism values.* These were measured via the universalism values subscale of the "Work Value Survey" developed by Schwartz (1994). Participants were asked to indicate via a seven-point scale (1= *opposed to my values*, 7= *of supreme importance to me*) the degree to which each statement was indicative of their own values. Items included "protecting the environment," "social justice," and "being broad-minded". A coefficient alpha of .80 has been reported for the universalism values subscale (Feather, Norman, & Worsely, 1998 cited in Fields, 2002), and the alpha was .86 for this study.

*Requests to share knowledge.* Requests to share knowledge from managers, team-members and associates were measured by a scale developed specifically for this study. Participants were asked how frequently they received requests to share their knowledge from team members (5 items) and managers (5 items) inside their organization, and associates outside of their company (4 items). As the scale had been developed for this study the items were subjected to a principle components factor analysis specifying a three factor structure with oblique rotation (direct oblimin), as it was expected that the factors would correlate. The scale items loaded on three factors as expected with the exception of two items that loaded on both requests from managers and team members, "How frequently have managers asked you to train or mentor a colleague or co-worker?" and "How frequently have managers sought your opinion on work matters?" Both items were deleted from analyses involving the scale, although the first item (requests to train/mentor) was retained as a single item variable giving the opportunity to test the relationship between organizational memory and mentoring. The

resulting solution including factor loadings can be seen in Table E.1 in Appendix E. This consisted of 12 items loading on three correlated factors requests from team members, (4 items e.g. “How frequently have team members sought your opinion on work matters?”), requests from managers, (3 items, e.g. “How frequently have managers in your company/organization asked you about an aspect of your organization’s past?”), and requests from associates (5 items, e.g. “How frequently have your associates referred someone in the industry to you for help or advice?”). Responses were via a seven-point Likert scale with 1= *not at all* and 7= *very frequently*. Coefficient alphas were .88 for team members, .82 for managers, and .94 for requests from associates. Scores from the subscales were also combined to create a total requests score with a coefficient alpha of .91.

*Demographic variables.* Participants were asked to state their gender, and their age (in years), and to indicate the years and months of their tenure within their current job, organization, and industry, and the number of organizations they had worked for in the industry. Participants were asked to select one box indicating their hierarchical level within the organization including team member, team leader/middle manager, team leader/ senior manager, or chief executive officer. A distinction was made between those who were team members and those who had managerial responsibility.

## **Procedure**

All 134 participants were assured of confidentiality and anonymity, and gave informed consent to complete the organizational memory scale and a number of other attitudinal scales. No incentive was given for participation. Participants returned completed questionnaires in the freepost envelopes provided, addressed to the researcher, either in person or through the post, according to their choice. This procedure was repeated for the second part of the study concerning test-retest reliability. There was a mean interval of 4.02 (SD= 0.72) weeks between completion of the Part 1 and Part 2 questionnaires.



## **Results**

### **Descriptive Statistics**

All statistical analyses used SPSS 17. The mean item scores and standard deviations of the Part 1 study variables can be found in Table 3.1. The intercorrelations of the study variables in Part 1 can be found in Table 3.2 and a number of those were of particular note. All the organizational memory subscales had significant positive correlations with all of the empowerment subscales, and all the requests to share knowledge scales (except associates' requests to share knowledge, which correlated only with history and industry knowledge). All of the organizational memory subscales, except socio-political knowledge, correlated with manager requests to train and mentor others. Industry knowledge was the only organizational memory subscale that did not correlate with organization-based self-esteem.

### **Discriminant Validity**

The universalism values scale, included both as a marker variable, and to evaluate the discriminant validity of the organizational memory subscales correlated with only two of the study variables, socio-political knowledge, and organization-based self-esteem. It should be noted that the correlation between socio-political knowledge and the marker variable was the weakest of all the significant correlations between socio-political knowledge and other study variables. It is possible that this relationship could be explained by a political awareness underlying both, with the result that socio-political knowledge may be associated with some of the universalism values (e.g. "protecting the environment," "social justice," etc.). The correlation between organization-based self-esteem and universalism values may be due to order effects, as the former immediately preceded the latter in the questionnaire, and there had been no attempt to counterbalance order and control for common method bias. As only two scales out of a possible fourteen related to universalism values it seems unlikely that a consistency bias was operating.

**Table 3.1.** *Mean Item Scores and Standard Deviations for Study 3 Scales*

<b>Independent/Dependent Variables</b>	<b><i>M</i></b>	<b><i>SD</i></b>
Organizational memory (total)	5.01	0.87
Socio-political knowledge	5.02	1.04
Job knowledge	5.91	1.01
External network	5.11	1.32
History	3.54	1.28
Industry knowledge	4.03	1.29
Requests to share knowledge (total)	3.61	1.22
Requests from team members	3.83	1.48
Requests from managers	3.50	1.36
Requests from associates	3.89	1.62
Requests to train/mentor (item)	4.25	1.96
Psychological empowerment (total)	5.35	0.86
Meaning	5.64	1.10
Self-efficacy	5.87	0.96
Self-Determination	5.48	1.14
Impact	4.41	1.52
Organization-based self-esteem	5.51	0.90
Universalism values	5.56	0.71

**Table 3.2.** Intercorrelations of Study 3 Variables ( $N=134$ )

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Age	1.00																			
2. Organizational tenure	.57**	1.00																		
3. Socio-political knowledge	.04	.30**	1.00																	
4. Job knowledge	.36**	.29**	.37**	1.00																
5. External network	.12	.22*	.59**	.38**	1.00															
6. History	.42**	.41**	.39**	.26**	.37**	1.00														
7. Industry knowledge	.27**	.22*	.30**	.19*	.25**	.49**	1.00													
8. Total organizational memory	.31**	.41**	.82**	.60**	.74**	.72**	.59**	1.00												
9. Requests from team members	.28**	.27**	.32**	.30**	.34**	.53**	.27**	.50**	1.00											
10. Requests from managers	.24**	.30**	.28**	.26**	.29**	.42**	.39**	.45**	.59**	1.00										
11. Requests from associates	.23**	.09	.13	.14	.15	.32**	.28**	.27**	.48**	.39**	1.00									
12. Requests to train/mentor	.20*	.20*	.16	.28**	.19*	.31**	.18*	.31**	.58**	.58**	.29**	1.00								
13. Requests: total	.31**	.27**	.31**	.31**	.32**	.52**	.39**	.51**	.88**	.77**	.75**	.67**	1.00							
14. Empower: meaning	.09	.18	.42**	.21**	.27**	.30**	.18*	.42**	.17*	.18*	.07	.18*	.19*	1.00						
15. Empower: competence	.33**	.29**	.32**	.78**	.29**	.23**	.24**	.51**	.36**	.32**	.16	.35**	.37**	.18*	1.00					
16. Empower: self-determination	.12	.23**	.47**	.50**	.33**	.27**	.24**	.52**	.28**	.34**	.16	.24**	.33**	.26**	.65**	1.00				
17. Empower: impact	.15	.27**	.37**	.24**	.28**	.40**	.24**	.45**	.42**	.39**	.26**	.30**	.45**	.37**	.30**	.42**	1.00			
18. Empower: total	.24**	.33**	.54**	.56**	.41**	.43**	.31**	.65**	.44**	.43**	.23**	.37**	.47**	.62**	.69**	.78**	.78**	1.00		
19. Organization self-esteem	.09	.25**	.48**	.60**	.39**	.24**	.16	.54**	.24**	.27**	.03	.33**	.27**	.42**	.60**	.56**	.43**	.68**	1.00	
20. Universalism Values	.08	.11	.25**	.16	.14	.06	-.06	.19*	-.04	-.10	-.04	-.03	-.06	-.05	.13	.16	.09	.11	.29**	1.00

\*  $p < 0.05$  level; \*\* $p < 0.01$  level (two-tailed).

**Table 3.3.** Mean Item Scores, Standard Deviations, and Intercorrelations (Test-Retest Reliability) for the Organizational Memory Scales (N=74)

	<i>M</i>	<i>SD</i>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>
1. Socio-political knowledge (1)	5.01	1.04	1.00											
2. Job knowledge (1)	5.92	0.98	.47**	1.00										
3. External network (1)	5.12	1.33	.59**	.40**	1.00									
4. History (1)	3.46	1.38	.44**	.31**	.42**	1.00								
5. Industry knowledge (1)	4.10	1.29	.35**	.24*	.27**	.53**	1.00							
6. Organizational memory (1)	4.77	0.86	.84**	.64**	.74**	.75**	.62**	1.00						
7. Socio-political knowledge (2)	5.09	0.93	<b>.82**</b>	.48**	.56**	.41**	.34**	.76**	1.00					
8. Job knowledge (2)	5.76	1.02	.44**	<b>.83**</b>	.44**	.35**	.20*	.62**	.59**	1.00				
9. External network (2)	5.12	1.15	.41**	.49**	<b>.61**</b>	.36**	.21*	.56**	.53**	.60**	1.00			
10. History (2)	3.60	1.35	.41**	.26**	.41**	<b>.86**</b>	.43**	.66**	.45**	.28**	.39**	1.00		
11. Industry knowledge (2)	4.15	1.20	.32**	.29**	.47**	.48**	<b>.70**</b>	.59**	.44**	.33**	.48**	.56**	1.00	
12. Organizational memory (2)	4.80	0.84	.68**	.60**	.66**	.66**	.48**	<b>.86**</b>	.84**	.72**	.75**	.73**	.71**	1.00

Note. (1) Time One (2) Time Two. Test-retest correlations are in bold.

\*  $p < 0.05$  level; \*\* $p < 0.01$  level, (two-tailed).

### **Test- Retest Reliability**

The test-retest reliability coefficients for each organizational memory subscale and the combined scale can be found in Table 3.3, along with the item means and standard deviations for the scales. In regards to the test-retest reliability, three of the organizational memory subscales, and the overall scale, achieved the acceptable reliability coefficient level of .80 (according to Kline, 2000), with the test-retest reliability coefficients for industry knowledge and external network unsuccessful in reaching acceptable levels of test-retest reliability.

### **Regression Analyses**

A listwise deletion approach was taken toward missing data for all regression analyses. This resulted in a satisfactory sample size for each of the analyses. To achieve a .8 level of power, with up to six predictors requires a sample size of 50 for a large effect and 100 for a medium effect size (Field, 2004). One analysis involved 15 predictors, requiring approximately 70 participants for a large effect, and 175 for a medium effect.

For all regression analyses, case diagnostics were carried out to ensure that there were no cases exerting undue influence on the sample, and regression assumptions were investigated. Standardized residuals were examined to ensure that no more than 5% of the cases had absolute values above 2, and that no more than 1% have absolute values over 2.5, with any case above 3 considered an outlier. Cook's distance offers a further check, however, for cases with problematic standardized residuals. Stevens (1992) suggested that if a data point is considered an outlier, but the Cook's distance value is still less than 1, there is probably no need to delete that data point. All cases were within these guidelines for each analysis. To examine the assumption of no multicollinearity, VIF and tolerance statistics were examined. If the largest VIF is over 10 (Bowerman & O'Connell, 1990; Myers, 1990), and the average VIF substantially greater than 1 (Bowerman & O'Connell, 1990), then there is a danger that the regression may be biased. In addition, tolerance values below .2 and

especially .1 indicate a potential problem (Menard, 1995). All analyses met these conditions. The assumption of independent errors states that any two of the residual terms should be uncorrelated is assessed by the Durbin-Watson test. As a conservative rule of thumb, values less than 1 or greater than 3 can be cause for concern (Field, 2005). The Durbin-Watson values were within the range of 1.82 to 2.26 for this study.

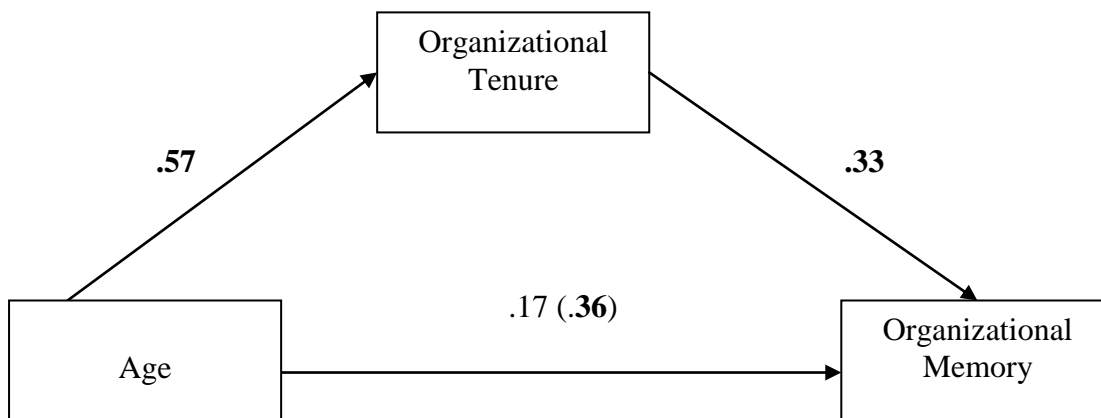
To test the normality of the residuals, histograms, and probability-probability (P-P) plots were examined (Field, 2005). Graphs of standardized residuals (ZRESID\*) plotted against standardized predicted (ZPRED\*) along with partial plots, were examined to meet the assumption of linearity and homoscedasticity (homogeneity of variance). There were no obvious discrepancies here and accordingly the analyses appear to be accurate for the sample, and generalizable to the population.

### **Hypothesis Testing**

The first regression equation examined Hypotheses 3.1 examining the relationship between age, organizational tenure, and organizational memory. With the combined scale of organizational memory as the dependent variable, age was entered as an independent variable in the first step, ( $\beta = .36, p = .000, \Delta R^2 = .13, p < .000$ ). In the second step, organizational tenure ( $\beta = .33, p = .003$ ) was entered and accounted for unique variance in organizational memory ( $\Delta R^2 = .07, F = 9.56, p < .003$ ) over age ( $\beta = .17, p = .108$ ).

Several steps were taken to assess organizational tenure as a mediator of the relationship between age and organizational memory (see Figure 3.2). Firstly, organizational tenure was regressed onto age to find the unstandardized regression coefficient and standard error term ( $b = .48, SE = .07$ ), secondly organizational memory was regressed on both organizational tenure and age, to find the statistics for organizational tenure ( $b = .55, SE = .18$ ). All four statistics were entered into an online version of Sobel's test (Soper, accessed 02/11/09) to evaluate the significance of the drop in size of the regression

coefficient between age and organizational memory with the inclusion of organizational tenure. This resulted in a Sobel's Test statistic of 2.79,  $p < .01$ , which indicated support for organizational tenure as a mediator of the relationship between age and organizational memory.



*Figure 3.2.* Path diagram showing organizational tenure as mediator of the age and organizational memory relationship. Drop in direct path between age and organizational memory from .36 to .17. Significant coefficients are in bold.

To examine Hypothesis 3.2 concerning organizational memory as a predictor of empowerment, each of the empowerment subscales (meaning, competence, self-determination, and impact) were regressed onto the five organizational memory subscales, and beta values examined to identify significant organizational memory predictors (see Table 3.4). Socio-political knowledge was the lone predictor of meaning, and together with job knowledge also predicted self-determination. Socio-political knowledge also, along with history, predicted impact. Job knowledge was the only significant predictor of competence.

**Table 3.4. Multiple Regression: Organizational Memory Subscales Predicting Empowerment**

Dependent Variable (in <b>Bold</b> ) & Independent Variables/ Steps	$R^2$	Adj. $R^2$	$F$ for $\Delta R^2$	$\beta$
<b>Empower: Meaning</b> ( $N=128$ )				
Socio-political knowledge	.20	.16	6.00***	.34**
Job knowledge				.04
External network				-.01
History				.17
Industry knowledge				-.00
<b>Empower: Competence</b> ( $N= 128$ )				
Socio-political knowledge	.62	.60	39.82***	.05
Job knowledge				.76***
External network				-.04
History				-.02
Industry knowledge				.10
<b>Empower: Self-determination</b> ( $N= 128$ )				
Socio-political knowledge	.35	.32	13.11***	.32**
Job knowledge				.38***
External network				-.03
History				.03
Industry knowledge				.06
<b>Empower: Impact</b> ( $N=110$ )				
Socio-political knowledge	.23	.19	7.10***	.21*
Job knowledge				.07
External network				.02
History				.30**
Industry knowledge				.02

\*  $p < 0.05$  level, \*\*  $p < 0.01$  level, \*\*\*  $p < 0.001$  level.



To investigate the ability of the organizational memory subscales to predict total empowerment over age and organizational tenure, a hierarchical regression approach was taken and followed the order of entry according to the path diagram in Figure 3.1 with the results displayed in Table 3.5. While age did predict total empowerment in the first step, organizational tenure predicted the dependent variable over age in the second, while organizational memory in the form of socio-political knowledge and job knowledge predicted total empowerment over age and organizational tenure in the third step, giving support for Hypothesis 3.2.

**Table 3.5.** *Hierarchical Regression Predicting Empowerment (N=112)*

Dependent Variable (in <b>Bold</b> ) & Independent Variables/ Steps	$R^2$	Adj. $R^2$	$\Delta R^2$	$F$ for $\Delta R^2$	$\beta$
<b>Empowerment</b>					
1. Age	.07	.07	.07	8.73**	.27**
2. Age	.14	.12	.06	7.79**	.09
Organizational tenure					.31**
3. Age	.50	.47	.37	15.48***	-.04
Organizational tenure					.09
Socio-political knowledge					.32**
Job knowledge					.38***
External network					-.04
History					.18
Industry knowledge					.06

\*  $p < 0.05$  level, \*\*  $p < 0.01$  level, \*\*\*  $p < 0.001$  level.

To test organizational memory predictors of requests to share knowledge (Hypothesis 3.3) each of the requests subscales (team members, managers, and associates), and the single item requests to train/mentor, were regressed onto the five organizational memory subscales, and beta values examined (see Table 3.6).

**Table 3.6. Multiple Regression: Organizational Memory Predicting Requests to Share Knowledge**

Dependent Variable (in Bold) & Independent Variables/ Steps	$R^2$	Adj. $R^2$	$F$ for $\Delta R^2$	$\beta$
<b>Requests from team members (N=127)</b>				
Socio-political knowledge	.33	.30	11.97***	.02
Job knowledge				.14
External network				.12
History				.46***
Industry knowledge				-.03
<b>Requests from managers (N= 128)</b>				
Socio-political knowledge	.25	.22	7.88***	.02
Job knowledge				.12
External network				.09
History				.28**
Industry knowledge				.18
<b>Requests from associates (N= 127)</b>				
Socio-political knowledge	.12	.08	3.26**	-.05
Job knowledge				.06
External network				.03
History				.24*
Industry knowledge				.14
<b>Requests to train/mentor ( N=128)</b>				
Socio-political knowledge	.15	.11	4.25**	-.07
Job knowledge				.23*
External network				.06
History				.26*
Industry knowledge				.00

\*  $p < 0.05$  level, \*\*  $p < 0.01$  level, \*\*\*  $p < 0.001$  level.

The history subscale was the lone predictor of all three requests subscales, and together with the job knowledge subscale predicted the single item, requests to train/mentor. Industry knowledge came close to significance in predicting manager requests ( $\beta=.18$ ,  $p=.052$ ). Hierarchical regression analysis was used next to examine if organizational memory predicted requests to share knowledge over age and organizational tenure (see Table 3.7)

**Table 3.7. Hierarchical Regression: Predicting Total Requests and Requests to Train/Mentor**

<b>Dependent Variable</b> (in Bold) Independent Variables/ Steps	$R^2$	Adj. $R^2$	$\Delta R^2$	$F$ for $\Delta R^2$	$\beta$
<b>Requests (total) (N=109)</b>					
1. Age	.13	.13	.13	16.45***	.37***
2. Age	.14	.12	.01	.77	.31*
Organizational tenure					.10
3. Age	.37	.32	.23	7.17***	.10
Organizational tenure					-.04
Socio-political knowledge					-.20
Job knowledge					.17
External network					.11
History					.31**
Industry knowledge					.17
<b>Requests to train/mentor (N= 112)</b>					
1. Age	.07	.06	.07	7.91**	.26**
2. Age	.07	.05	.00	.47	.21
Organizational tenure					.08
3. Age	.17	.14	.09	6.42**	.07
Organizational tenure					-.01
Job knowledge					.26**
History					.21*

\*  $p < 0.05$  level, \*\*  $p < 0.01$  level, \*\*\*  $p < 0.001$  level.

The total requests to share knowledge score was entered as the dependent variable in the first analysis (Hypothesis 3.3), and requests to train/mentor as dependent variable in the second analysis (Hypothesis 3.4). While age predicted total requests over organizational tenure, organizational memory (in the form of history) predicted the dependent variable over both age and organizational tenure, providing support for Hypothesis 3.3. Furthermore, organizational memory, (this time as history and job knowledge) predicted requests to train/mentor over age and organizational tenure as expected, in Hypothesis 3.4.

As the relationships between age, organizational tenure, organizational memory, and mentoring-related variables are of particular interest to this thesis, and in view of the study results, steps were taken to assess organizational memory (total) as a mediator of the relationship between age and requests to train/mentor (see Figure 3.3). Firstly, organizational memory (total) was regressed onto age ( $b=.44, SE=.13$ ), secondly requests to train/mentor was regressed on both organizational memory ( $b=.04, SE=.01$ ) and age, resulting in a Sobel's test statistic of 2.58,  $p < .01$  (Soper, accessed 02/11/09), indicating that in this study organizational memory did mediate the relationship between age and requests to train/mentor.

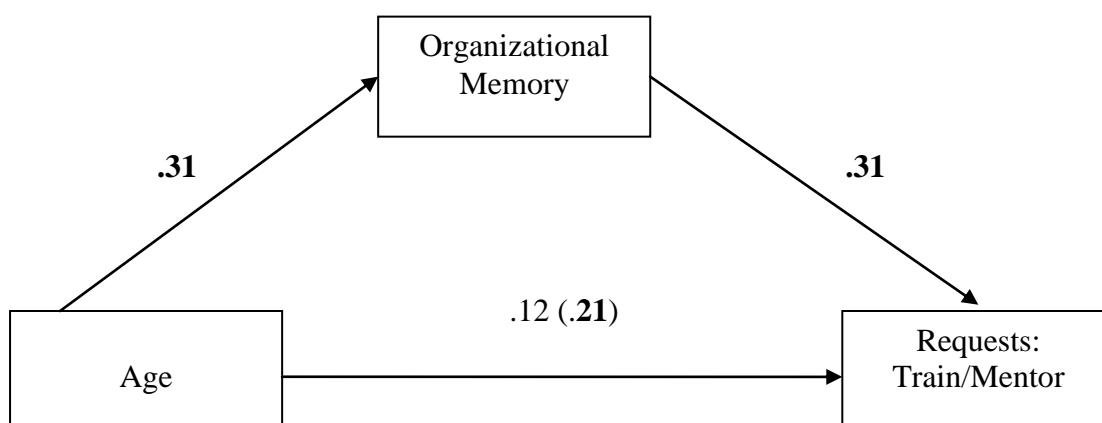


Figure 3.3. Path diagram showing organizational memory as mediator of the age and requests to train/mentor relationship. Drop in direct path between age and requests to train/mentor from .21 to .12. Significant coefficients are in bold.

The final regression analysis focused on organization-based self-esteem as the dependent variable, and tested Hypotheses 3.5 and 3.6, with the results in Table 3.8.

**Table 3.8.** *Hierarchical Regression: Predicting Organization-Based Self-Esteem (N=110)*

<b>Dependent Variable</b> (in Bold)					
Independent Variables/ Steps	$R^2$	Adj. $R^2$	$\Delta R^2$	$F$ for $\Delta R^2$	$\beta$
<b>Organization-based self-esteem</b>					
1. Age	.01	.00	.01	.96	.09
2. Age	.07	.06	.07	7.59**	-.09
Organizational tenure					.32**
3. Age	.46	.42	.38	14.25***	-.20
Organizational tenure					.11
Socio-political knowledge					.29**
Job knowledge					.49***
External network					-.02
History					.03
Industry knowledge					.03
4. Age	.65	.60	.20	6.64***	-.18*
Organizational tenure					.04
Socio-political knowledge					.11
Job knowledge					.22*
External network					.02
History					.02
Industry knowledge					.01
Requests: To train/mentor					.25**
Team members					-.15
Managers					-.03
Associates					-.13
Empower: Meaning					.18*
Competence					.24
Self-determination					.15
Impact					.21**

\*  $p < 0.05$  level, \*\*  $p < 0.01$  level, \*\*\*  $p < 0.001$  level.

Variables were entered in the order specified in the model (Figure 3.1). Organizational tenure predicted organization-based self-esteem over age, while the organizational memory subscales socio-political knowledge and job knowledge predicted organization-based self-esteem over age and organizational tenure. In the final step of the analysis, age, job knowledge, requests to train/mentor, and two empowerment variables, meaning and impact, were significant predictors of organization-based self-esteem giving support for both Hypotheses 3.5 and 3.6. Interestingly, when controlling for organizational tenure, organizational memory, requests to share knowledge, and empowerment variables, there was a negative relationship between age and organization-based self-esteem.

### **Discussion**

There were several aims for this study. The first was to test a model of organizational memory and empowerment. This involved investigating potential antecedents of organizational memory (specifically age and organizational tenure), and an examination of the relationships between organizational memory and its proposed outcomes, including empowerment, the frequency participants received requests to share knowledge, and organization-based self-esteem. A further aim was to make an initial examination of the relationship between organizational memory and a mentoring outcome (requests to train/mentor). The final aim of the study was to assess the test-retest reliability of the organizational memory scale. The results of this study offer several encouraging findings.

#### **Potential Antecedents of Organizational Memory**

As hypothesised, both age and organizational tenure positively related to organizational memory, and furthermore, organizational tenure was found to mediate the relationship between age and organizational memory. This indicates that the relationship age has with organizational memory is largely through the association age also has with organizational tenure, and this echoes the distinction some employers make between age,

tenure, and experience when targeting mentors (e.g. McPherson, 2008a). Not all older workers necessarily have the organizational memory their generation is reputed to have.

### **Potential Consequences of Organizational Memory**

When controlling for age and organizational tenure, organizational memory (total and/or in the form of various subscales) accounted for unique variance in all of the outcomes investigated in the study including empowerment, requests to share knowledge, requests to train/mentor, and organization-based self-esteem, indicating its value in adding incrementally to the two proxy variables of age and tenure in predicting outcomes of work experience. The findings also highlight likely positive outcomes of organizational memory, in terms of empowerment (meaning, competence, self-determination, and impact), requests to share knowledge (from team members, managers, and associates; and, the single item, manager requests to train/mentor), and organization-based self-esteem.

#### *Empowerment*

With regards to the empowerment subscales, socio-political knowledge and job knowledge featured strongly as predictors. This result is not surprising, as knowledge of how to navigate the socio-political environment and how to operate within one's job would be expected to help employees make sense of any given work situation. The particularly strong performance of job knowledge in predicting competence (akin to occupational self-efficacy) is noted although not considered surprising. Job knowledge too, was the lone organizational memory predictor of organization-based self-esteem when also controlling for age, tenure, empowerment and requests. Both results support the conclusions made by Tharenou (1979) and Tharenou and Harker (1982) that job related characteristics are the most consistent correlates of individuals' assessments of their own work competence and worth.

### *Requests to Share Knowledge*

In terms of the requests to share knowledge subscales, history was the only significant organizational memory predictor, although when it came to the single-item dependent variable requests to train/mentor, history and job knowledge were significant predictors. The consistency of the history subscale in predicting requests for knowledge sharing across managers, team members, and associates possibly suggests a “positive” stereotype (e.g., Hummert et al., 2004) where people suppose that having knowledge about the organization’s history generalises to having knowledge about more than just the past. The addition of job knowledge as a predictor of requests to train/mentor is unsurprising as this knowledge will particularly come to the fore when training other employees. It is of interest to note that industry knowledge came close to significance for predicting manager requests to share knowledge. This may reflect the more strategic nature of the information managers seek from experienced employees (e.g., with regards to the organization’s competitors in the industry). As Beehr and Bowling (2002) noted, experienced employees can be valuable advisors to the organization’s decision-makers.

### *Organization-Based Self-Esteem*

The variable, manager requests to train/mentor, was the lone “requests to share knowledge” predictor of organization-based self-esteem, and seems to support the idea that experienced workers who mentor are particularly valued by their organizations (e.g., Beehr & Bowling, 2002; Hedge et al., 2006; Kram, 1985; McPherson, 2008a). However it is of particular interest that when controlling for organizational tenure, organizational memory, requests to train/mentor, and empowerment, that age (specifically, being younger) predicted organization-based self-esteem. It is likely that there are some older workers who do not fit the idea of the long-tenured and experienced worker. People with unconventional career progressions, particularly those with major gaps in their work history due to other



commitments (i.e. those who have taken time out for parenting roles) may feel less valued in their organizations than those with longer and uninterrupted tenure.

### **Test-Retest Reliability**

There were encouraging results in terms of test-retest reliability for the organizational memory scale. Three of the five subscales (socio-political knowledge, job knowledge, and history) along with the total organizational memory scale achieved acceptable levels of reliability after a mean interval of four weeks. The external network and industry knowledge subscales did not perform as well. Further development of the scale may also necessitate a further examination of test-retest reliability.

### **Limitations**

Within the current research several design elements aimed to minimise potential bias. Participants were able to complete questionnaires anonymously to minimise the potential for social desirability in their responses. The inclusion of the universalism values scale created a marker variable that was expected to have little or no relationship with other study variables in order to detect response biases and any consistency motif. As discussed previously, apart from a couple of exceptions, this variable did not correlate with the other study variables. Common method variance can be an issue for self-report measures where item priming effects or a consistency bias can operate (Podsakoff et al., 2003). Future studies could look at counterbalancing the order of scale items in the questionnaire to further avoid potential biases.

While self-report formats are largely subjective measures, they can provide meaningful insights (Fields, 2002). In the current study the results did offer some useful information on the relationships between the assessments employees make of their knowledge resources and the positive work outcomes they experience. The inclusion and examination of variables like age and organizational tenure provided more objective

comparisons for the newly developed organizational memory scale. There are, however, other measurement issues which need to be taken into account. The organizational memory scale is still in the early stage of development, and so while the available reliability and validity information is promising, results should also be interpreted with caution. In addition, the requests to share knowledge scale developed specifically for this study had not been validated previously. The requests to share knowledge subscales achieved very good internal consistency estimates and so this is again a caution rather than a concern at this stage.

A further consideration is the research design. Although the hypothesised model proposed that age and organizational tenure precede organizational memory, which in turn was hypothesised to precede the various outcomes outlined (empowerment, requests, and organization-based self-esteem) the correlational design precludes firm causality inferences. Furthermore, the results may not generalize beyond this sample, although it should be noted that the study participants represented a variety of hierarchical levels, organizations, and industries.

### **Implications for Research and Practice**

There are several implications resulting from this study for future research and organizational practice. There may be a number of reasons for employers to target older workers with long tenure and experience to be mentors other than just to capture and transfer knowledge. As this study found, organizational memory and being requested to mentor others related to organization-based self-esteem, employer approaches to older workers to become mentors may also contribute to these employees' feelings of worth and ultimately to their work longevity. On the other hand, organizations may need to find ways to offset the negatives of aging in cases where older employees do not fit the expected "experienced" profile. In the case where the older worker lacks organizational and/or industry tenure, or

does not meet the “training dependent” profile described by Barth et al. (1993) the organizational benefits of age, may be somewhat decreased.

There is also some indication from this study of the positive stereotypes that may exist around older workers and their experience. Those employees who have knowledge of the organization’s history may also be presumed by other organizational members to have vast knowledge of other domains, which may not necessarily be so. This needs to be taken into consideration by organizations when targeting potential mentors.

### **Conclusion**

The chapter opened by considering two assumptions regarding older workers, firstly that they are significant repositories of organizational memory, and secondly, that in general, they anticipate and are likely to experience positive outcomes from mentoring others in the organization. The study findings suggest that while age is related to organizational memory that the first assumption needs to be further qualified in terms of the amount of organizational tenure the older worker has. There is some support from this study for the second assumption about positive outcomes, in that those with organizational memory also experienced a sense of empowerment and organization-based self-esteem, particularly when requested to take on a mentoring role. Accordingly it would appear that in general many older workers, with long tenure, are recognized repositories of organizational memory, and that they can anticipate positive outcomes for that role and for mentoring others, in the form of psychological empowerment, organizational regard and recognition (e.g., through requests to share knowledge), and self-esteem. There is also the potential for organizations to benefit too, through the knowledge resources those experienced employees represent for their fellow employees.

## **CHAPTER FOUR**

### **Organizational Memory and Mentoring**

This chapter argues that experienced employees may not always be as amenable to mentoring others to pass on their knowledge as often thought. It begins with a brief introduction to mentoring research before introducing a model of the relationship between organizational memory and the intention to mentor, incorporating a costs and benefits of mentoring approach. The aim of the study was to identify possible caveats to the assumption that experienced workers are as a matter of course willing to mentor others by investigating potential mediators and moderators of the relationships between organizational memory and both the intention to mentor and the expected costs of mentoring. A second part to the study aimed to examine the proposed differential relationships between the organizational memory subscales and recognised mentoring functions.

In the introductory chapter of this thesis, an assumption was made that older workers are particularly amenable to passing on their knowledge to others in the organization through their willingness to leave a legacy and/or desire to give back to their organization.

Lindenberger and Stolz-Loike (2005) for example, suggested that baby boomers are looking for new ways of working including “ways to give back to their organizations, or avenues for working with younger employees” (para. 4) adding that mentoring is “compatible with baby boomers’ values and work style” (“Continuing Mentoring Past Retirement,” para. 2).

However Lindenberger and Stolz-Loike also noted “we have seen baby boomers who are reluctant to mentor younger employees because they are afraid that once they share their knowledge, they will become extraneous and lose their jobs’ (“Enable Knowledge Transfer”, para.4). Within research too there are indications that older workers may not be as amenable

to mentoring as often thought. A study by Ragins and Cotton (1993) unexpectedly found age to be unrelated, and organizational tenure negatively related, to willingness to mentor.

### **Mentoring Definitions and Research**

Mentoring in the workplace involves a relationship between a less experienced employee (the protégé) and a more experienced individual (the mentor), most often for the purpose of the protégé's personal and professional development (Eby, Rhodes, & Allen, 2007; Kram, 1985). Mentoring can be formal (e.g., a structured programme whereby mentor and protégé are matched by a third party) or informal (e.g., when mentor and/or protégé gravitate toward one another for the purpose of the protégé's professional development) (Eby et al., 2007).

While early mentoring research tended to focus on outcomes for the protégé rather than the mentor (e.g., Allen, 2003; Allen, Poteet, & Burroughs, 1997a), eventually research began to pay attention to characteristics of the mentoring relationship as a whole. Studies on the mentoring relationship have included an examination of the influence of gender and age of both mentor and protégé (e.g., Allen, Poteet, Russell, & Dobbins, 1997b; Baugh, Lankau, & Scandura, 1996; Finkelstein, Allen, & Rhoton, 2003; Larkin, Sadler & Maher, 2005; Ragins & Scandura, 1994; Scandura & Williams, 2001). Subsequent studies focusing on the mentor have included topics of career related satisfaction (e.g., Atkinson, Casas, & Neville, 1994; Pullins & Fine, 2002), mentor characteristics (e.g., Allen & Eby, 2004), protégé selection (e.g. Allen, 2004; Allen, Poteet, & Russell, 2000), the expected costs and benefits of being a mentor (e.g., Ragins, & Scandura, 1994, 1999), and the willingness to mentor (e.g., Allen, 2003; Allen et al., 1997a; Allen et al., 1997b; Aryee, Chay, & Chew, 1996).

### **Mentoring to Transfer Organizational Memory**

Mentoring plays a significant role and is a common practice within organizational knowledge management strategies (MetLife, 2009). The transfer of knowledge within an

organization is dependent on its relational infrastructure, and according to Droege and Hoobler (2003) “just as the apprentice learns the tools of trade from a master, businesses gain from the knowledge shared by mentors, supervisors, co-workers, project team members, and long-tenured employees”(p.50). Mentoring is an interpersonal relationship mentioned frequently when discussing appropriate relational modes of transferring organizational memory. According to DeLong (2004), mentoring and coaching are “probably the most effective ways of directly transferring critical implicit knowledge from one individual to another” (p.107). Mentoring relationships represent the ideal context for building the strong ties (e.g. Granovetter, 1973) that facilitate the transfer of complex information (Hansen, 1999). Swap, Leonard, Shields, and Abrams (2001) suggested that mentoring offers an opportunity to pass on technical skills, information about organizational practices, and conveys knowledge and understanding of organizational norms, values and traditions, and the power structure undergirding organizational practice, all relevant to organizational memory. Dychtwald, Erickson, and Morison (2006) acknowledged the place of mentoring in both harnessing the knowledge and experience of older workers while developing the organizational capabilities of less-experienced workers.

The mentoring relationship may be significant because it offers the opportunity for the mentor to share stories of their own experiences with their protégés (e.g. Noe, 1988). Storytelling is mentioned frequently as an effective knowledge sharing tool. According to Zack (1999), the transfer of tacit knowledge is mostly achieved through face to face interaction with the use of conversation, stories, and the sharing of personal experiences, a view shared by many (e.g. DeLong 2004; Droege & Hoobler, 2003; Lahaie, 2005; Leonard & Swap, 2005a; Linde, 2001; Swap et al., 2001). While there are many mentions about the important role of mentoring in knowledge management initiatives, it is the knowledge-

transfer purpose of mentoring, (the focus of the current study), that arguably has been most neglected in mentoring research to-date (Bryant, 2005).

### **Experienced Workers and Willingness to Mentor**

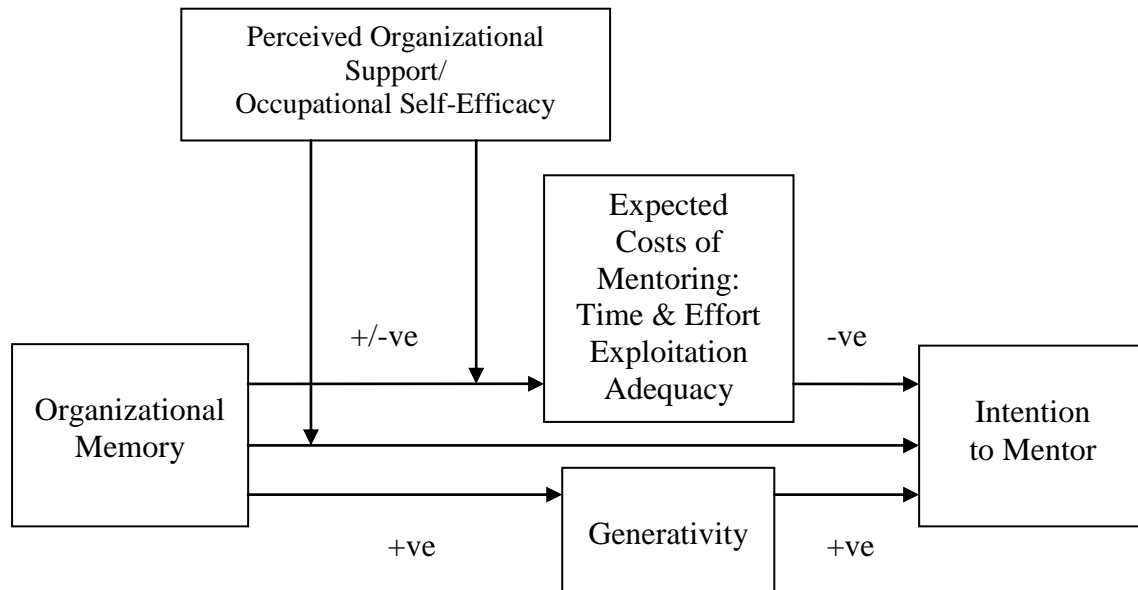
Experienced workers are thought to not only have the knowledge and experience that makes them able to mentor, but also are thought to be particularly willing and motivated to do so. The value of the older experienced worker in a mentoring role has been mentioned frequently in the literature regarding managing the ageing workforce (e.g. Davey & Cornwall, 2003; Dychtwald et al., 2006). Mentoring is portrayed as the older and more experienced worker's strength, and is treated like a general panacea for keeping workers at mid-career and beyond engaged in their work (Davey & Cornwall, 2003; Dychtwald et al., 2006).

Career development theories have recognised the mentor role as a predictable occurrence at mid-career onwards. In Dalton, Thompson, and Price's (1977) four-stage model of professional career development, for example, acting as a mentor is a key role in stage three, and more recently it has been acknowledged that mentoring at mid-career and beyond is an accepted norm of organizational practice (Finkelstein et al., 2003). Perhaps this norm is justified because it is at mid-career that employees have had the work experience and acquired the organizational memory that equips them for mentoring. As Study 3 concluded however, not all older workers necessarily have the organizational memory their generation is reputed to have. Similarly, as Ragins and Cotton (1993) found, long-tenured employees (with the knowledge resources that would make them able mentors), may not necessarily be as willing to take on the mentor role, as is often thought.

### **A Model of Organizational Memory and the Intention to Mentor**

The current study proposed a model of the relationships between organizational memory and the intention to mentor, taking into account some contextual issues relating to

the ageing of the workforce. It was predicted that a number of costs of mentoring may exist for experienced and knowledgeable employees that may constrain their intention to mentor, while at the same time there may be a unique motivation that prompts some workers to adopt the mentoring role.



*Figure 4.1.* The organizational memory and intention to mentor model.

The model is displayed in Figure 4.1 and suggests a relationship between organizational memory and the intention to mentor based on the idea that having the resources to transfer (organizational memory) likely prompts requests to mentor from others (as was seen by the relationship between organizational memory and requests to share knowledge in Study 3) and/or a willingness or even obligation to pass on that knowledge. However by exploring potential caveats for this relationship, the model also acknowledges that the relationship between organizational memory and the intention to mentor is likely to be a more distal than proximal one, and that other factors are likely to influence the strength of the relationship between these variables. Among these are two potential mediators,



generativity and the expected costs of mentoring (see Figure 4.1). Through generativity, Erikson (1963) proposed, mature adults take a role of leading, teaching and nurturing the generations after them. The idea that experienced workers will be willing to mentor is based on that concept (e.g., Levinson, Darrow, Levinson, Klein, & McKee, 1978; Kram, 1985). However workplaces have changed substantially since early mentoring research emerged. Changes to the career contract mean that the long tenure once guaranteed by organizations, that ensured both the ability to mentor through the knowledge resources that had accumulated over time, and the willingness to mentor through the employee's reciprocation of loyalty, is no longer the norm. Ragins and Scandura (1999) acknowledged some potentially negative outcomes of mentoring for mentors, and the model accordingly proposes some specific costs that may be particularly relevant to the knowledge transfer aspects of mentoring, including the cost of time and effort in mentoring, fear of exploitation, and concerns about the adequacy of knowledge for mentoring purposes.

The model in Figure 4.1 also proposes that the strength of the relationships between organizational memory and both the intention to mentor, and the expected costs of mentoring, will be influenced by two potential moderators, perceived organizational support and occupational self-efficacy (Figure 4.1). Experienced workers may take into consideration the support they receive from their organizations when deciding if they intend to mentor and this may also influence the costs they perceive are associated with the process. Similarly the employee's level of occupational self-efficacy may potentially influence their perception of the costs involved in mentoring and their intention to mentor. Those with low occupational self-efficacy may see more costs and demonstrate fewer intentions to mentor. The following section discusses the proposed model in Figure 4.1 in more detail.

### **Experienced Workers as Mentors: Generativity as Motivation**

The emergence of mentoring behaviours at mid-life may be due to more than just an accrual of the necessary knowledge and experience, and involve other motivations that are feasibly accounted for by developmental theories. The generativity concept acknowledges the importance of leaving a legacy, or resourcing following generations, in a number of contexts including parenting roles and roles like mentoring at work. Kram (1985) also suggested that employees in late career would be more inclined to mentor because at that stage they would be less concerned with their own advancement, and therefore less guarded about sharing their knowledge.

There are other possible developmental explanations for the assumed willingness of older workers to mentor. Employees in mid to late career have reported being less tied to extrinsic rewards (e.g. pay and promotion) and more influenced by intrinsic motivations (Sterns & Miklos, 1995), and this trend has reached a point where *Zenployment* (changing careers at midlife to attain work with more personal meaning) has become a “phenomenon” (Norwich Union Life, 2007). Similarly, socioemotional selectivity theory (Carstensen, 1992) has suggested that as time is perceived as more limited (i.e., as with increasing age) people tend to set goals to find more meaning in their lives, while at the same time setting fewer goals for acquisition. Pragmatically, Kauffman (1982) suggested that an employee’s financial preparedness for retirement may in fact be the overriding influence on the significance that they attach to intrinsic and extrinsic rewards. This may be particularly so in times when economic dependence ratios are putting pressure on pension and superannuation schemes, and some employees are having to work longer to prepare financially for retirement.

Mentoring research has shown support for the significant role of pro-social personality variables in the willingness to mentor, regardless of age, (Allen, 2003; Allen et al, 1997a; Aryee et al., 1996; Atkinson, et al., 1994; Ragins & Cotton, 1993; Ragins & Scandura,

1999). Pro-social motivations that have been considered include other-oriented empathy and helpfulness (Allen, 2003); the desire to pass on information to others, build a competent workforce, help others, benefit the organization, and to help minorities (Allen et al., 1997a); altruism and positive affectivity (Aryee et al., 1996); and the motivation to pass on insights and wisdom, and exercise generativity (described here as being rejuvenated through vicarious development of a less experienced person), (Ragins & Scandura, 1999). Whether older workers tend to favour these altruistic tendencies compared to younger employees appears difficult to call. Indeed, Allen et al., (1997b) suggested that those more interested in personal growth and development will be more likely to mentor others, and do not claim an association for these personal characteristics with age.

Generativity represents a pro-social motivation that seems particularly relevant to the concept of mentoring to transfer organizational memory. Generativity appears to involve the ability to evaluate one's own resources (knowledge or otherwise) and to identify the lack of those same resources in others. It may be triggered by the awareness that time is limited rather than open-ended (similar to claims made by socioemotional selectivity theory). It is possible then, that some experienced workers may have a unique altruistic motivation for mentoring others. However it is also likely that they may face a number of unique costs of mentoring, and little attention has been paid to this possibility.

### **Experienced Workers as Mentors: Expected Mentoring Costs**

The model in Figure 4.1, acknowledges that the relationship between organizational memory and the intention to mentor is likely mediated by some mentoring costs as well as the generativity motivation. Mentoring relationships incur costs from the mentor's perspective, and this has been acknowledged in several studies (e.g., Ragins & Cotton, 1993; Ragins & Scandura, 1994, 1999). Ragins and Scandura's (1999) "Expected Costs and Benefits of Mentoring Scale" included costs of interacting with a protégé such as "being more trouble

than they are worth”, the possibility of a “dysfunctional relationship,” being open to charges of “nepotism” from others in the organization, and the possible “energy drain” of these relationships. While Ragins and Cotton (1993) found both males and females shared similar intentions to mentor, females perceived more drawbacks to mentoring (e.g., greater visibility with potential for negative exposure), reported less time availability to mentor, and regarded themselves as not sufficiently qualified to mentor. A later study of both male and female *executives* however, also conducted by Ragins & Scandura (1999), found males and females to have similar perceptions of the expected costs and benefits in mentoring, indicating the role of organizational rank (and possibly the recognised organizational memory those with rank may have) in the willingness to mentor others.

While predominantly optimistic about the outcomes older experienced workers can expect from mentoring others, there has been some suggestion in the literature that these employees might also anticipate some negative outcomes from mentoring. Kram (1985) conceded for example, that low self esteem and depressed or angry states may interfere with older workers accepting the mentor role. Kram also suggested that some may resist becoming mentors due to a perception that it somehow belittles them or that the role itself is a burden in terms of time and effort. The expected costs approach (e.g., Ragins & Scandura, 1999) offers a useful foundation to build upon when it comes to identifying costs of mentoring that may be unique to experienced workers in a knowledge transfer context. The three relevant costs examined in this study included the cost of time and effort involved in mentoring, concerns about possible exploitation, and concerns that their knowledge may not be adequate or up-to-date for the purposes of mentoring.

#### *Cost of Time and Effort*

Perceived lack of time to mentor may restrict experienced workers (and older workers in particular), from mentoring others. Cranwell-Ward, Bossons, and Gover (2004) noted that

the time commitment involved is the most frequently acknowledged mentoring constraint. Some groups may signal this more than others, for example, Ragins and Cotton (1993) found women reported they had little time available to mentor. Older workers tend to seek opportunities to work less rather than more (e.g. Barth, McNaught, & Rizzi, 1993), and may be more resistant to mentoring initiatives unless time is allocated for the purpose. While some older workers may be particularly inclined to seek ways of achieving generativity in their lifestyle, demands from factors external to work (e.g. family and community responsibilities) may mean that this motivation is acted out largely in those contexts rather than in the workplace. For example, McNair, Flynn, Owen, Humphreys, and Woodfield (2004) identified three “types” of older worker, including the “juggler” type who balanced domestic and or caring responsibilities with paid employment, a group largely comprised of women. For these and many other employees, the prospect of a mentoring relationship may mean just another drain of time and effort for some who seek to reduce rather than increase their work responsibilities. In addition, some employees who are considered knowledgeable and expert may already be subject to a large number of demands on their time and energy.

### *Exploitation*

In times when job markets are highly competitive, or in organizations that have a highly competitive culture, workers are encouraged to have a different approach to their knowledge or human capital and the competitive advantage it can mean for them individually (McInerney & Mohr, 2007). As Geisler (2008) pointed out “managers and professionals are weary of divulging their ‘tricks of the trade’ and their knowledge of the political and social processes that helped to elevate them to their position and keep them there” (p.241). Davenport (2005) suggested that experienced employees asked to pass on their knowledge without rewards or guarantees of continued employment may be particularly reluctant to

cooperate. Kram (1985) also raised the possibility that individuals in their late career may feel threatened by the potential apparent in the protégé.

The potential for the mentoring relationship to be dysfunctional has been addressed and is a real concern for many (e.g., Eby & Allen 2002; Feldman 1999; O'Neill & Sankowsky 2001; Scandura, 1998). Exploitation can take many forms and as Cross and Baird (2000) suggested, some knowledgeable employees begin to stagnate in their career as their organizations continually exploit their known expertise at the cost of developing their skills in other areas. The employee “stalled” in their career may consequently have negative feelings toward the organization, and be reluctant to contribute beyond the requirements of their role (Ragins & Cotton, 1993). Therefore, it was predicted that those who suspect that sharing their knowledge might lead to exploitation would also have fewer mentoring intentions.

#### *Knowledge Adequacy*

Negative workplace attitudes and treatment of older experienced workers may reduce confidence in the adequacy of their knowledge resources for mentoring others. In many countries, employers hold negative expectations about older workers and their ability and willingness to keep up with technological change and to continue learning (OECD, 2006), and some older employees themselves share this belief (McGregor & Gray, 2002). Age related stereotypes about the ability to be trained reputedly have a significant role in limiting the older workers' access to training. According to Maurer, (2007) stereotypes can result in the older worker being denied entrance to training and development opportunities, and a further consequence may be that they may receive little support or are even discouraged from participating in the training events that are open to them. Perceived discomfort with technology may particularly prevent their inclusion in some training programmes (Brooke & Taylor, 2005). Older workers themselves may start to question their own ability to learn, or

the appropriateness of learning at their age and stage of life, a version of the self-fulfilling prophecy (Maurer, Weiss, & Barbeite, 2003).

Lack of access to training and development has definite implications for older employees and their potential to mentor. These employees may understandably lose confidence that their knowledge is up-to-date. Depending on their own comfort level with new technologies, these workers may realistically fear that their knowledge is mostly obsolete in the face of new technological advances. Furthermore, previous experience as a protégé has been found to relate to the willingness to mentor others (Allen et al., 1997b), so the lack of earlier involvement in developmental relationships even as a protégé may restrict the pool of willing mentors later on. Finally, poor access to training for some can send a message about these workers to others in the organization. Some protégés may not be willing to have a mentor who appears stalled in their career, even if they do have considerable experience.

Older, experienced employees may experience a further depreciation of their knowledge and skills due to the value placed on formal qualifications in labour markets. In many cases, older workers will have received their skills training “on-the-job” and thus lack the formal qualifications that younger workers often have. The validation given in the workplace to educational qualifications is not always extended to the knowledge and skills gained through experience (Davey & Cornwall, 2003). Livingstone and Sawchuk (2004), for example, while documenting the learning practices of working-class people across several industries, found that interviewees valued formal education not only for the credentialing it gives in the labour market, but for the comparatively higher self-esteem it gives qualified individuals in the workplace. The experience-based nature of organizational memory may predispose older workers to discount their knowledge and also result in a reluctance to

mentor others. Some employees may fear that their knowledge will be judged as out-dated, or in other ways under-rated or de-valued if they were to mentor others.

### **Potential Moderators in the Organizational Memory and Intention to Mentor Model**

Experienced workers may be subject to the particular mentoring costs outlined above. However the degree to which they are swayed by these costs is in turn likely to be moderated by other work-related characteristics. The organizational memory and mentoring model in Figure 4.1 proposes that both perceived organizational support and occupational self-efficacy will moderate the relationship between organizational memory and intention to mentor, and the relationship between organizational memory and the expected costs of mentoring. The following section discusses why this might be so.

#### *Changes in Career Contract and Perceived Organizational Support*

In many cases older experienced employees entered the workplace when “one career, job, and/or organization for life” was the norm (Barth et al, 1993). This was thought to ensure both continuous organizational tenure (and the associated organizational memory resources to pass on to others), as well as contributing to the employees’ sense of loyalty to the company, possibly prompting a willingness to mentor. The large-scale organizational restructuring and downsizing typical of the late 1980s, and during the 1990s, (and perhaps making a comeback in the current economic recession), eroded these expectations. Companies once able to make the promise to employees that “the company will take care of you” and provide life-long job security, retreated to offering merely employment security (employment, but not necessarily in the same job), to withdrawing guarantees of either (Harrington & Hall, 2007). Secondly, poor access to training and development may have led to the conclusion in some cases that the organization does not support the experienced worker and may dampen any enthusiasm these employees have to reciprocate support through taking on a mentoring role (Ragins & Cotton, 1993).



Perceived organizational support is of interest as it is both an antecedent and a consequence of psychological contract fulfilment, (i.e. the extent to which mutual obligations between employer and employee are met, Latham, 2007). Perceived organizational support may influence the willingness to contribute to the organization beyond the demands of one's work role. Eisenberger, Armeli, Rexwinkel, Lynch, and Rhoades (2001) found for example, that perceived organizational support was positively related to employees' felt obligation to care about the organization's welfare and to help the organization reach its goals in a sample of 413 postal workers. Wayne, Shore, Bommer, and Tetrick (2002) too found perceived organizational support related to employee commitment and organizational citizenship behaviour in 211 employee-employer dyads. Perceived organizational support may minimise the potential costs of mentoring in the mind of an employee, where as a lack of support might magnify these costs.

#### *Depreciation of Knowledge and Occupational Self-Efficacy*

Occupational self-efficacy also becomes a focus of interest when considering the effects of negative stereotypes, lack of access to training, and credentialism. Those who lack formal qualifications may find that they or others discount their knowledge even if it is vast and relevant. Negative stereotypes may result in older workers devaluing their own knowledge and abilities. This may be particularly so where change and "change management" are particularly favoured, as according to Sennett (2006) "consultancy work in changing institutions requires suspicion of long-entrenched employees, whose accumulated institutional knowledge appears a barrier to swift change" (p. 97). Those employees who have lacked access to training opportunities may have reasonable doubts about the efficacy of their knowledge skills and abilities resulting in diminished occupational self-efficacy, increased perception of the costs involved in mentoring, and fewer mentoring intentions.

Identifying the salient costs and motivations for mentoring in experienced workers is a priority, and this is acknowledged by the model. In summary, the model in Figure 4.1 proposes the following hypotheses:

*Hypothesis 4.1:* Organizational memory will positively relate to and account for unique variance in the intention to mentor beyond age and organizational tenure.

*Hypothesis 4.2:* Perceived organizational support and occupational self-efficacy will moderate the relationship between organizational memory and the intention to mentor.

*Hypothesis 4.3:* The variables a) generativity and, b) expected costs of mentoring will account for unique variance in the intention to mentor.

*Hypothesis 4.4:* The variables a) generativity and, b) expected costs of mentoring will mediate the relationship between organizational memory and intention to mentor.

*Hypothesis 4.5:* Perceived organizational support and occupational self-efficacy will moderate the relationship between organizational memory and the expected costs of mentoring.

### **Organizational Memory and Mentoring Functions**

This study also gave the opportunity to further establish the validity of the organizational memory subscales by examining the potentially differential relationships between the subscales and two mentoring functions. According to Kram (1985) mentors

demonstrate two broad categories of mentoring behaviours/functions. The first, *career mentoring functions* includes facilitating the protégé's career advancement through sponsorship, coaching, protection, visibility, and challenging assignments. The second category, *psychosocial mentoring functions* focus on the interpersonal nature of the mentoring relationship and include recognition of a developing professional identity, counselling, friendship, and role modelling. While the development of a number of measures of mentoring functions has led to some divergence in opinion over the number of factors involved (e.g., Ragins & McFarlin, 1990; Scandura & Viator, 1994) there seems to be some support for the two factor model (e.g., Allen & Eby, 2004; Ensher & Murphy, 1997; Noe, 1988)

It was predicted that the two mentoring functions, psychosocial and career mentoring would relate differently to the organizational memory dimensions. Allen (2003) found mentors with intrinsic motivations for mentoring were more likely to cite psychosocial mentoring functions, while those with personal enhancement motivations were more likely to cite career mentoring functions. Allen found that those mentors who were motivated to benefit others provided both types of mentoring function. Swap et al. (2001) considered the types of knowledge mentors pass on to their protégés, and suggested that different mentoring activities are employed according to the information that needs to be passed on. For example they suggested that mentors pass on technical skills and knowledge through direct enquiry and feedback. As an extension of this idea, it is proposed that the different mentoring functions will draw on different knowledge and organizational memory domains. Career mentoring for example might relate to knowledge of external network and industry knowledge, whereas psychosocial mentoring functions might relate to socio-political knowledge.

*Hypothesis 4.6:* The organizational memory subscales will relate differentially with career mentoring and psychosocial mentoring functions.

## **Method**

### **Study Design**

The study consisted of a two part, online questionnaire, (see Appendix C). The two-part design was to avoid order effects and the possibility of a consistency motif. The first part of the questionnaire consisted of the organizational memory scale and was followed (in the order they appeared in the questionnaire) by the scales for generativity, perceived organizational support, occupational self-efficacy, and demographic details, including space for participants to develop their own online code, so that both parts of the questionnaire could be matched by the researcher. The second part of the questionnaire, which was launched three weeks after the closure of the first, consisted of questions about mentoring experience, and the scales for mentoring functions, mentoring costs, mentoring motivations, and intention to mentor. These were again followed by demographic details and the personal code, so that both parts could be matched by the researcher.

### **Sampling**

The study participants were all employees of an electronics manufacturing firm. An invitation (including a link to the online research study) was emailed via the organization's human resources department to all levels and departments within the organization inviting participation in the two part study. There had been some interest in establishing a mentoring programme in the organization and the current study was seen as a way of stimulating further discussion of this prospect.

## Participants

The participants in Part 1 of the study consisted of 154 (23.69%) out of a total workforce of 650 employees. Of those, 92 individuals (59.74%) completed the follow-up questionnaire (Part 2), but due to inability to match some questionnaires through code or demographic details, there were only 78 participants included in this study. Of these there were 57 (73.1%) males and 21 (26.9%) females. The mean age was 40.12 years ( $SD=9.68$ ). Participants reported a mean job tenure of 4.46 years ( $SD=4.01$ ), mean organizational tenure of 9.25 years ( $SD=6.70$ ), and a mean industry tenure of 15.10 years ( $SD=10.06$ ). There were 47 (60.3%) individuals who classified themselves as team members, 24 (30.8%) as team leaders/middle managers and 7 (9.0%) who identified themselves as team leaders/senior managers; there was a total of 31 individuals (39.74%) who were managers. Of the 76 individuals who gave information on ethnicity, no individual identified as Maori, 61 individuals (78.2%) identified as Pakeha or New Zealanders of European descent, and 15 (19.2%) identified as other (unspecified). Of the 78 participants who completed both parts of the study, 57 individuals (73.08%) ticked a box indicating they had experience as a mentor, and 55 participants (70.5%) ticked a box indicating they had experience as a protégé. There were 46 individuals (59%) who had both experience as a mentor and as a protégé.

## Materials and Measures

The questionnaires (Part 1 and Part 2) for the study can be found in Appendix E. Responses to all the scales used in the study were via a seven-point Likert-type scale anchored with 1= *strongly disagree* and 7= *strongly agree*. Scores for each of the scales were calculated by summing items, and mean items scores for the scales calculated by dividing sum scores by the number of items on each, again to enable comparisons across scales. In some cases reduced sets of items were used for brevity (e.g., Rodell & Judge, 2009). This kept both Part 1 and Part 2 to a manageable length with approximately 60 items in each

including scale, demographic, and mentoring question items. The following measures were included:

*Organizational memory.* The 21 organizational memory items resulting from the CFA in Study 2 were included in the data analysis. The coefficient alphas for each of the subscales were .89 for socio-political knowledge, .77 for job knowledge, .74 for external network, .80 for history and .78 for industry knowledge.

*Generativity.* Generativity was measured by 10 items from the 20-item “Loyola Generativity Scale” (McAdams & St. Aubin, 1992). Items that were thought to be most appropriate to the current study included four items that related directly to sharing own skills and knowledge, (e.g., “I try to pass on the knowledge I have gained through my experiences), three items referring to the betterment of society, (e.g., “Others would say that I have made unique contributions to society”), and three items directly concerned with leaving a legacy (e.g., “I feel as though my contributions will exist after I die”). There were two items reverse-scored, (e.g., “I feel as though I have done nothing of worth to contribute to others”). McAdams and St. Aubin (1992) reported coefficient alphas of .83 (adult sample) and .84 (college sample) for their twenty item scale. The ten-item scale in this study resulted in a coefficient alpha of .84.

*Perceived organizational support.* Perceived organizational support was measured with 9 items from the 17 item scale developed by Eisenberger, Huntingdon, Hutchinson, and Sowa (1986). Items included “The organization strongly considers my goals and values”, and two reverse scored items (e.g., “Even if I did the best job possible, the organization would fail to notice”). The 9 item scale in this study had an alpha of .94.

*Occupational self-efficacy.* Occupational self-efficacy was measured using the short form (8 items) of Schyns and von Collani’s (2002) measure. Items included “If I am in trouble at my work, I can usually think of something to do” and “I can remain calm when

facing difficulties in my job because I can rely on my abilities”. The unidimensional scale had a reported coefficient alpha of .86 (Schyns & von Collani, 2002). The coefficient alpha for the scale in this study was .88.

*Expected costs of mentoring.* The expected costs of mentoring were measured by 9 items (again for brevity) from Ragins and Scandura’s (1999) 17 item “Expected Costs of Mentoring Scale” along with four further items developed for the current study. The 9 items from Ragins and Scandura (1999) consisted of a four item subscale “mentoring relationships are more trouble that they are worth” (e.g., “Mentoring takes more time than it is worth”) referred to as *cost of time and effort* in the current study, and five items comprising a “dysfunctional relationship” subscale, (e.g., “Protégés can end up taking the mentor’s job”), referred to as *exploitation*. Four items were added to reflect participant concerns about the adequacy of their knowledge for mentoring, and termed *adequacy* (e.g., “Mentors may discover that their knowledge is deficient when they share what they know”). As items had been added and the expected costs of mentoring scale modified, all items were subjected to principle components factor analysis with oblique rotation (direct oblimin) and with three components specified. Three double-loading items were removed, without altering the structure (see Table F.1 in Appendix F for item loadings) with the result that there were three subscales; time and effort (4 items,  $\alpha=.84$ ), exploitation (3 items,  $\alpha=.79$ ), and adequacy, (3 items,  $\alpha=.74$ ) accounting for a cumulative 74.42% of the variance in the data.

*Motives for mentoring.* Motives for mentoring were measured with 9 items from a “Motives to Mentor” scale developed by Allen (2003). These included 3 items that reflect gaining visibility or gaining a reputation in the organization, (e.g., “Acting as a Mentor is worthwhile to enhance your visibility within the organization”), termed *reputation* in this study, 3 items that reflect making a contribution to benefit the organization (e.g., “Acting as a Mentor is worthwhile to build/develop a competent workforce within your organization”)

labeled *benefit organization* for this study, and 3 items reflecting a desire to mentor for the personal satisfaction it brings (e.g., “Acting as a Mentor is worthwhile for the personal gratification that comes from seeing the protégé grow and develop”) entitled *personal satisfaction*. Subscale scores were calculated by summing items and coefficient alphas were .87 for reputation, .79 for benefit organization and .87 for personal satisfaction.

*Mentoring experience.* Participants were given the following definition of mentoring:

Mentoring, in the workplace, refers to a relationship between a generally more experienced employee (mentor) who is intentionally working to promote the development of a generally less experienced employee (protégé). Mentoring activities may include helping a new employee make sense of the organization and their role within it, providing sponsorship by introducing the protégé to influential colleagues, and/or providing challenging assignments, giving guidance and feedback on the protégé’s job and/or organizational behaviour, providing support and reassurance, and giving career related advice. The mentoring relationship does not refer to casual one-off requests for help, but to a relationship over several weeks, months or years.

Participants were asked to indicate whether they had ever been mentored by someone at work (experience as a protégé), and whether they had ever acted as a mentor in the organization (experience as a mentor), and the number of protégés they estimated that they had mentored in total.

*Mentoring functions.* Mentoring functions were measured by 18 items taken from Noe’s (1988) 29-item scale of mentoring functions. Of these, nine items described career mentoring functions, and the nine remaining, psychosocial mentoring functions. These items were originally worded for protégés, and so were re-worded from a mentor’s point of view,



an approach taken by Allen (2003), (e.g., “Your mentor has shared history of his/her career with you” became “I have shared history of my career with my protégé”). Reliability analysis found an internal consistency estimate of .82 for career mentoring and .73 for psychosocial mentoring functions only after two items loading on the latter subscale, “I encouraged my protégé to prepare for advancement” and “I have kept my protégé’s feelings and doubts in strict confidence” were removed to maximise alpha. Only participants who ticked a box to indicate they had experience as a mentor were asked to respond to these items.

*Intention to mentor.* The intention to mentor scale was measured by the two items from the Ragins and Cotton (1993) “Willingness to Mentor Scale” (e.g., “I would like to be a mentor” and the reverse scored “I have no desire to be a mentor”) and the two additional items adopted by Ragins and Scandura (1999), “I intend to be a mentor” and “I would be comfortable assuming a mentor role”. The four items were summed to create the intention to mentor score. The scale has a reported coefficient alpha of .90 (Ragins & Scandura, 1999). In this study, coefficient alpha was .75.

*Organizational variables.* Participants were asked to indicate the years and months of tenure in their current job, organization, and industry. Participants were also asked to tick one box indicating their level within the organization, and response options included team member, team leader/middle manager, team leader/ senior manager, and chief executive officer. A distinction was made in the study between those who were team members and those who were managers.

*Demographic variables.* Demographic items relating to gender, age (in years), ethnicity (Maori, Pakeha/New Zealander of European Descent, and “other”) and education (years of secondary education, and tick a box of highest education qualification were sought, (seven boxes from School Certificate/NCEA Level One to post-graduate degree, and boxes for other qualifications, and no qualifications, were provided).

## **Procedure**

Participants were invited to participate in the study through the human resources department of the organization. Those who were interested in participating followed a link to further information and instructions about the study. They were assured that their responses would be both anonymous and confidential, however as the study consisted of two parts, were advised that they would be asked to create a participant code comprising of the first three letters of their mother's maiden surname and the last three numbers of their current telephone number. Potential participants were informed that completing the questionnaire would indicate their informed consent, and a further link took those who wished to continue to the actual questionnaire. Two reminders inviting participation were given at five and then ten days after the online survey opened. The survey was closed after two weeks. There was a break of three weeks before the process was repeated for the second part of the survey. This survey was also open for two weeks with reminders sent for participation.

## **Results**

All data analyses were conducted with SPSS version 17. The mean items scores and standard deviations for the study variables can be found in Table 4.1. The intercorrelations of the study variables can be found in Table 4.2.

There were some correlations of note between the study variables. Only socio-political knowledge and history positively correlated with intention to mentor, while socio-political knowledge along with industry knowledge had negative correlations with the cost of time and effort in mentoring. All the organizational memory subscales (except job knowledge) had significant negative correlations with the expected mentoring cost, adequacy, while industry knowledge alone negatively correlated with the expected cost, exploitation.

**Table 4.1.** *Mean Item Scores and Standard Deviations for Scale Variables*

<b>Independent/Dependent Variables</b>	<b><i>M</i></b>	<b><i>SD</i></b>
Organizational memory (total)	4.58	0.79
Socio-political knowledge	4.69	1.12
Job knowledge	5.82	0.73
External network	4.89	1.22
History	3.64	1.14
Industry knowledge	3.64	1.19
Generativity	4.78	0.91
Occupational self-efficacy	5.50	0.74
Perceived organizational support	4.62	1.16
Expected costs of mentoring (total)	3.05	0.75
Time and effort	2.38	0.95
Exploitation	2.81	1.12
Adequacy	4.14	1.05
Motivations for mentoring (total)	5.20	0.75
Reputation	4.46	1.20
Organization	5.92	0.72
Personal satisfaction	5.21	1.08
Intention to mentor	5.18	1.97
Career mentoring functions	5.08	0.93
Psychosocial mentoring functions	5.06	0.69

**Table 4.2. Intercorrelations of Study 4 Variables**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Age	1.00																			
2. Organizational tenure	.41**	1.00																		
3. Socio-political knowledge	.24*	.36**	1.00																	
4. Job knowledge	.14	.10	.42**	1.00																
5. External network	.16	.33**	.51**	.28*	1.00															
6. History	.17	.30**	.49**	.11	.34**	1.00														
7. Industry knowledge	.27*	.12	.40**	.13	.22	.66**	1.00													
8. Total organizational memory	.28*	.37**	.88**	.50**	.65**	.75**	.66**	1.00												
9. Occupational self-efficacy	.17	.16	.53**	.64**	.10	.16	.28*	.49**	1.00											
10. Perceived org. support	.01	-.02	.47**	.17	.13	.16	.39**	.41**	.30**	1.00										
11. Generativity	.12	.29*	.46**	.16	.11	.42**	.35**	.46**	.37**	.33**	1.00									
12. Time and effort (C)	-.18	.11	-.35**	.01	-.05	-.20	-.24*	-.27*	.07	-.37**	-.17	1.00								
13. Exploitation (C)	-.29*	-.02	-.22	-.05	-.12	-.21	-.37**	-.28*	-.02	-.16	.00	-.43**	1.00							
14. Adequacy (C)	-.27*	-.10	-.23*	-.13	-.25*	-.24*	-.40**	-.34**	-.15	-.11	-.10	.09	.33**	1.00						
15. Reputation (M)	-.26*	-.11	.03	.01	.08	-.00	.02	.04	.07	.12	-.04	.02	.21	.19	1.00					
16. Benefit organization (M)	-.11	-.18	.06	-.02	-.16	-.06	-.03	-.03	-.02	.17	.05	-.55**	-.36**	.17	.19	1.00				
17. Personal satisfaction (M)	.01	-.00	.19	.06	-.02	.13	.04	.14	.16	.06	.23*	-.34**	-.01	-.03	.44**	.35**	1.00			
18. Intention to mentor	.07	.07	.30**	.02	.04	.30**	.20	.28*	.13	.11	.44**	-.56**	-.23*	-.00	.18	.40**	.43**	1.00		
19. Psychosocial mentoring (F)	.15	.25	.37**	.24	.16	.39**	.15	.25	.28*	-.04	.16	-.20	-.14	-.26*	.16	.17	.30*	.38**	1.00	
20. Career mentoring (F)	-.08	.13	.05	.01	.25	.13	.19	.16	.01	-.20	.25	-.03	.06	-.21	.19	.06	.31*	.30*	.46**	1.00

Note. (C)= An expected cost of mentoring variable; (M) = A motives for mentoring variable; (F) = Mentoring functions.

\*  $p < 0.05$  level; \*\* $p < 0.01$  level, (two-tailed).

Socio-political knowledge, history, and industry knowledge positively correlated with generativity. There was no relationship between any of the organizational memory subscales and any of the mentoring motives scales. Interestingly, age correlated positively (but not significantly) with generativity, and had significant but negative correlations with all of the expected costs of mentoring subscales. Only the costs time and effort and exploitation had significant (negative) correlations with intention to mentor.

Both mentoring function variables correlated with intention to mentor supporting the view that past behaviour predicts future behaviour. Psychosocial mentoring functions correlated with socio-political knowledge and history, while career mentoring functions did not correlate with any of the organizational memory subscales in this study.

### **Regression Analyses**

Hierarchical regression analyses were used to evaluate if the observed pattern of relationships among the variables were consistent with the hypotheses of this study. All analyses utilised a listwise approach to missing data. According to Field (2005) for analyses with six to ten predictors, a sample size of between 50 to 60 for large effects and a sample size between 100 and 150 for medium effects is required for 80% power. The sample size of 78 may not have had sufficient power to yield some small to moderate effects.

For all regression analyses, case diagnostics were carried out to ensure that there were no cases exerting undue influence on the sample, and regression assumptions were investigated. While the standardized residuals did show some cases that were potential outliers in the analyses, their Cook's Distance was still less than 1 and considering the small sample size, cases were retained. To examine the assumption of no multicollinearity, VIF and tolerance statistics were examined. All VIF statistics were less than 10 and tolerance values above .2 indicating that multicollinearity was not a problem for these analyses (Bowerman & O'Connell, 1990; Menard, 1995; Myers, 1990). The Durbin Watson test values in the study

had a range of 1.62 to 2.20 and therefore were within the recommended range of 1 to 3. To test the normality of the residuals, histograms and probability-probability (P-P) plots were examined along with all partial plots. While the model appears to be accurate for the sample and generalizable to the population, there is some caution over possible violations of the assumption of homoscedasticity of generativity.

### **Organizational Memory and the Intention to Mentor**

To test Hypothesis 4.1 regarding a relationship between organizational memory and the intention to mentor, the dependent variable was regressed onto the five organizational memory subscales. Socio-political knowledge was the only significant predictor (see Table 4.3).

**Table 4.3. Multiple Regression: Organizational Memory Predicting Intention to Mentor**  
( $N=75$ )

Dependent Variable (in Bold) & Independent Variables/ Steps	$R^2$	Adj. $R^2$	$F$ for $\Delta R^2$	$\beta$
<b>Intention to mentor</b>				
Socio-political knowledge	.15	.09	2.41*	.32*
Job knowledge				-.08
External network				-.17
History				.24
Industry knowledge				-.04

\*  $p < 0.05$  level.

Continuing with Hypothesis 4.1, a hierarchical regression analysis was carried out testing organizational memory as a predictor of intention to mentor when controlling for age, gender, organizational tenure, holding a management position (managers), experience as a mentor, and experience as a protégé (see Table 4.4). Both experience as a mentor, and socio-political knowledge were found to significantly predict intention to mentor in the second step.

There was therefore support for organizational memory (in the form of socio-political knowledge) as a significant predictor of the intention to mentor over age and organizational tenure (Hypothesis 4.1).

**Table 4.4.** *Hierarchical Regression: Testing Socio-Political Knowledge as Predictor of Intention to Mentor (N=73)*

Dependent Variable (in <b>Bold</b> ) & Independent Variables/ Steps	$R^2$	Adj. $R^2$	$\Delta R^2$	$F$ for $\Delta R^2$	$\beta$
<b>Intention to mentor</b>					
1. Age	.15	.07	.15	1.92	-.07
Gender					-.06
Organizational tenure					-.06
Managers					.17
Experience as a protégé					-.01
Experience as a mentor					.30*
2. Age	.23	.15	.08	6.92*	-.08
Gender					-.09
Organizational tenure					-.17
Managers					.14
Experience as a protégé					-.03
Experience as a mentor					.32*
Socio-political knowledge					.31*

\*  $p < 0.05$  level.

#### *Potential Moderators of the Organizational Memory and Intention to Mentor Relationship*

Hypothesis 4.2 proposed perceived organizational support and occupational self-efficacy as potential moderators of the socio-political knowledge and intention to mentor relationship. In analyses where moderation hypotheses were tested, the continuous predictor (e.g. socio-political knowledge) and potential moderators were centred to eliminate

multicollinearity effects between predictor and moderator. To centre these variables, the sample mean for each variable was subtracted from all individual scores, resulting in a revised sample mean of zero for each centred variable.

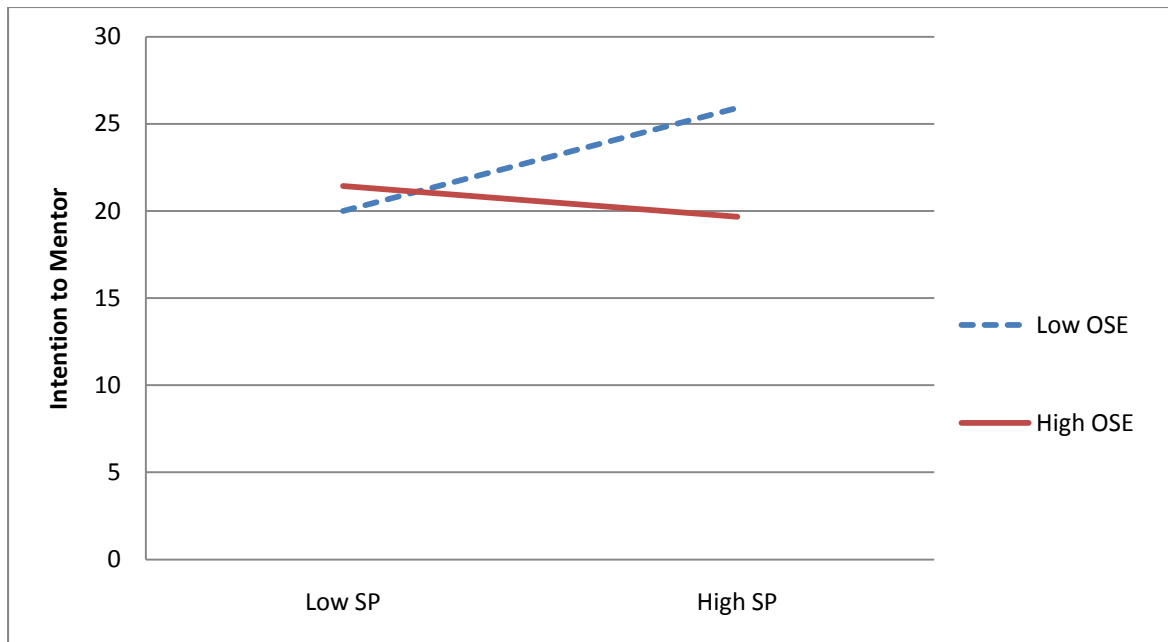
To test the potential moderators (see Table 4.5), firstly experience as a mentor, the only significant control variable in the previous analysis, was entered in the first step, with the independent variables socio-political knowledge along with the moderator variables for each analysis (a) perceived organizational support and (b) occupational self-efficacy in the second. The interaction term for each potential moderator and socio-political knowledge was entered in the third step. The standardized coefficients ( $\beta$ ) of each interaction term were examined to determine support for hypotheses. Of the two potential moderators, only the interaction term for occupational self-efficacy x socio-political knowledge explained significant amounts of variance in intention to mentor, supporting Hypothesis 4.2 (b) and this effect is graphically presented in Figure 4.2. Unexpectedly, those people with high socio-political knowledge and high occupational self-efficacy had fewer mentoring intentions than those with high socio-political knowledge and low occupational self-efficacy, although mentoring intentions remain relatively high even for the former group.



**Table 4.5. Hierarchical Regression: Testing Perceived Organizational Support and Occupational Self-efficacy as Moderators of the Socio-Political Knowledge and Intention to Mentor Relationship**

Dependent Variable (in <b>Bold</b> ) & Independent Variables/ Steps	$R^2$	Adj. $R^2$	$\Delta R^2$	$F$ for $\Delta R^2$	$\beta$
<b>Intention to mentor (N=75)</b>					
1. Experience as a mentor	.12	.11	.12	10.25**	.35**
2. Experience as a mentor	.19	.16	.07	3.03	.32**
Socio-political knowledge					.29*
Perceived Organizational Support (POS)					-.06
3. Experience as a mentor	.23	.19	.04	3.34	.27*
Socio-political knowledge					.19
Perceived Organizational Support (POS)					-.09
Socio-political knowledge x POS					-.23
<b>Intention to mentor (N=74)</b>					
1. Experience as a mentor	.11	.10	.11	8.79**	.33**
2. Experience as a mentor	.18	.14	.07	2.93	.30**
Socio-political knowledge					.28*
Occupational self-efficacy (OSE)					-.02
3. Experience as a mentor	.29	.25	.11	11.00**	.24*
Socio-political knowledge					.19
Occupational self-efficacy (OSE)					-.22
Socio-political knowledge x OSE					-.43**

\*  $p < 0.05$  level, \*\*  $p < 0.01$  level.



*Figure 4.2.* Occupational self-efficacy (OSE) as moderator of the socio-political knowledge (SP) and intention to mentor relationship.

Hierarchical regression was also used to test the hypothesised relationships of both generativity and the expected costs of mentoring with intention to mentor (according to the model in Figure 4.1). Intention to mentor was entered as the dependent variable with independent variables entered in the order they appear in the model (see Table 4.6). With such a large number of study variables, and considering the small sample size, only experience as a mentor was entered as a control variable in the first step in order to preserve power (e.g. Neter & Wasserman, 1974). As expected, experience as a mentor predicted intention to mentor in the first step, socio-political knowledge in the second, and the interaction term socio-political knowledge x occupational self-efficacy predicted intention to mentor in the third step. In the fourth and final step there was support for Hypothesis 4.3 (a) and (b) in that both generativity and the expected costs of mentoring (in the form of cost of time and effort) predicted intention to mentor over socio-political knowledge. Of further note, generativity was found to account for unique variance in intention to mentor when controlling

for other motives for mentoring including benefits like personal reputation and satisfaction, and the desire to benefit the organization.

**Table 4.6.** Hierarchical Regression Predicting Intention to mentor ( $N=71$ )

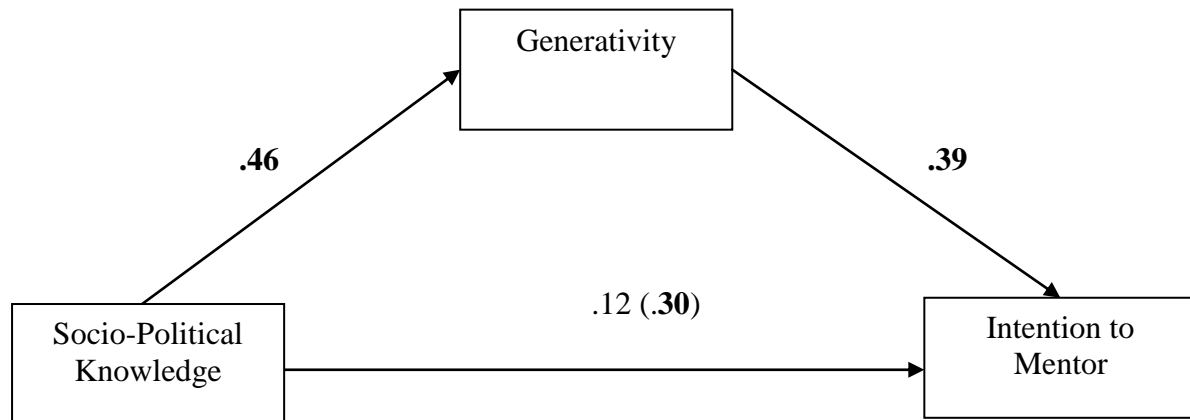
Dependent Variable (in <b>Bold</b> ) & Independent Variables/ Steps	$R^2$	Adj. $R^2$	$\Delta R^2$	$F$ for $\Delta R^2$	$\beta$
<b>Intention to mentor (<math>N=75</math>)</b>					
1. Experience as a mentor	.13	.05	.13	1.63	.30*
2. Experience as a mentor	.21	.13	.08	6.76*	.25*
Socio-political knowledge					.30**
3. Experience as a mentor	.21	.11	.00	.02	.22*
Socio-political knowledge					.15
Socio-political knowledge x OSE					.33**
4. Experience as a mentor	.33	.23	.12	10.80**	.11
Socio-political knowledge					-.10
Socio-political knowledge x OSE					-.18
Generativity					.32**
Motives: Reputation					.18
Motives: Organization					-.06
Motives: Personal satisfaction					.12
Costs: Time and effort					-.42***
Costs: Exploitation					-.08
Costs: Inadequate knowledge					.03

\*  $p < 0.05$  level, \*\*  $p < 0.01$  level, \*\*\*  $p < 0.001$  level.

#### *Mediators of the Organizational Memory and Intention to Mentor Relationship*

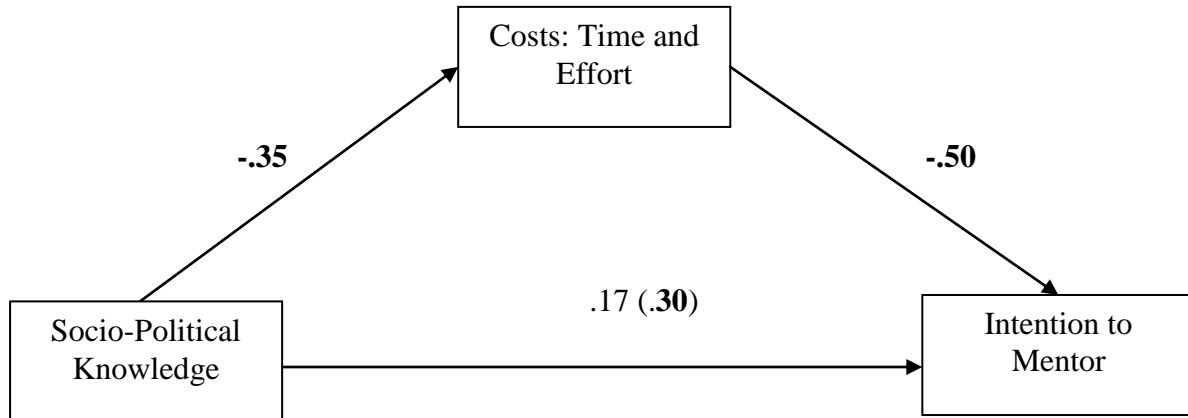
Several steps were taken to assess generativity and the cost of time and effort as mediators of the relationship between organizational memory (e.g., socio-political knowledge) and the intention to mentor, the focus of Hypothesis 4.4 (see Figure 4.3). Firstly, generativity was regressed onto socio-political knowledge ( $b = .48$ ,  $SE = .11$ ), and secondly,

intention to mentor was regressed on both socio-political knowledge and generativity ( $b = .22$ ,  $SE = .07$ ). This resulted in a Sobel's Test statistic of 2.55,  $p = .01$ , two-tailed, (Soper, accessed 9/12/09) indicating that in this study generativity did mediate the relationship between organizational memory and intention to mentor, supporting Hypothesis 4.4(a).



*Figure 4.3.* Path diagram showing generativity as a mediator of the socio-political knowledge and intention to mentor relationship. Drop in direct path between socio-political knowledge and intention to mentor from .30 to .12. Significant coefficients are in bold.

Similarly (see Figure 4.4), the cost of time and effort was regressed onto socio-political knowledge ( $b = -.17$ ,  $SE = .05$ ), and intention to mentor regressed on both socio-political knowledge and time and effort ( $b = -.61$ ,  $SE = .13$ ), resulting in a Sobel's Test statistic of 2.75,  $p = .006$  (Soper, accessed 9/12/09), indicating that the cost of time and effort also mediated the relationship between socio-political knowledge and intention to mentor. Therefore both Hypotheses 4.4 (a) and (b) were supported.



*Figure 4.4.* Path diagram showing time and effort as a mediator of the socio-political knowledge and intention to mentor relationship. Drop in direct path between organizational memory and intention to mentor from .30 to .17. Significant coefficients are in bold.

### **Organizational Memory and the Expected Costs of Mentoring**

The final hypothesis (Hypothesis 4.5) tested (a) perceived organizational support and (b) occupational self-efficacy as potential moderators of the organizational memory and expected costs of mentoring relationship. Hierarchical regression was used to determine the proposed relationship between socio-political knowledge and the expected cost of time and effort (dependent variable), with control variables entered in the first step and socio-political knowledge entered in the second (see Table 4.7). Organizational tenure was a significant positive predictor of the costs variable, while socio-political knowledge and managers were negative predictors.

**Table 4.7. Hierarchical Regression: Socio-Political Knowledge Predicting Cost of Time and Effort (N=72)**

Dependent Variable (in <b>Bold</b> ) & Independent Variables/ Steps	$R^2$	Adj. $R^2$	$\Delta R^2$	$F$ for $\Delta R^2$	$\beta$
<b>Time and effort (N=73)</b>					
1. Age	.24	.17	.24	3.34**	-.14
Gender					.11
Organizational tenure					.33**
Managers					-.30*
Experience as a protégé					-.11
Experience as a mentor					-.13
2. Age	.38	.32	.15	15.44***	-.12
Gender					.09
Organizational tenure					.47***
Managers					-.26*
Experience as a protégé					-.09
Experience as a mentor					-.14
Socio-political knowledge					-.42***

\*  $p < 0.05$  level, \*\*  $p < 0.01$  level, \*\*\*  $p < 0.001$  level.

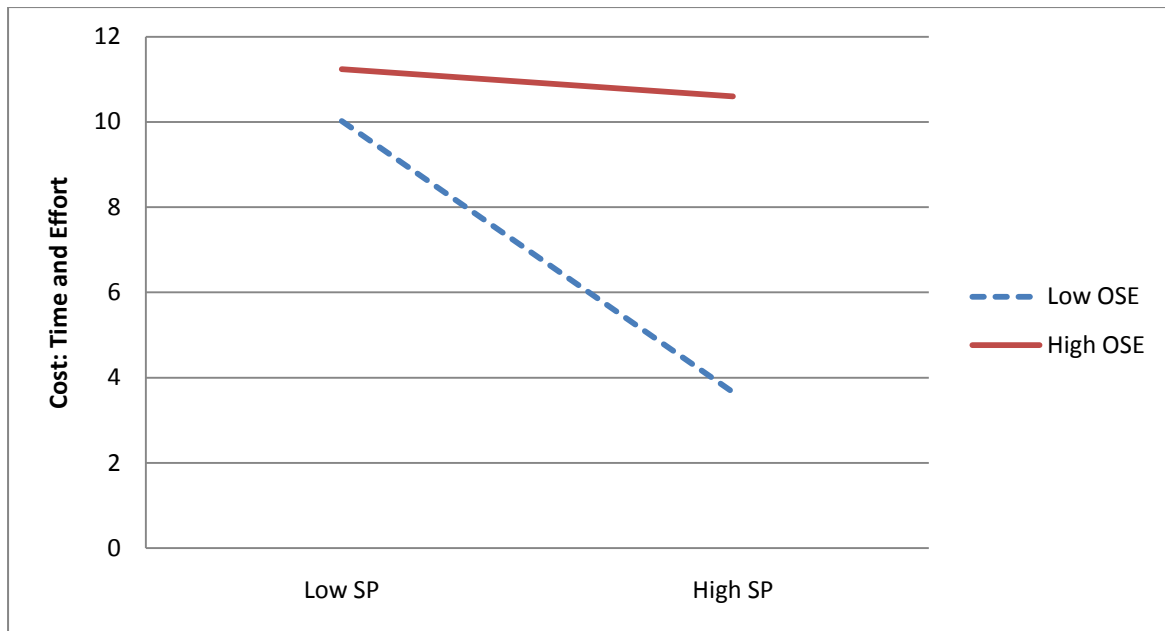
#### *Moderators of the Organizational Memory and Expected Costs of Mentoring Relationship*

For the moderation analyses, the continuous predictor (e.g., socio-political knowledge) and potential moderators were centred to eliminate multicollinearity effects. To test for moderation (see Table 4.8), the previously significant control variables were entered in the first step, with socio-political knowledge entered in the second, along with the moderator variables for each analysis (a) perceived organizational support, and (b) occupational self-efficacy. The interaction terms were entered in the third step. Only occupational self-efficacy x socio-political knowledge explained significant amounts of variance in time and effort, supporting Hypothesis 4.5 (b) (see Figure 4.5).

**Table 4.8.** Hierarchical Regression: Testing Perceived Organizational Support (POS) and Occupational Self-Efficacy (OSE) as Moderators of the Socio-Political Knowledge and Cost of Time and Effort Relationship

Dependent Variable (in <b>Bold</b> ) & Independent Variables/ Steps	$R^2$	Adj. $R^2$	$\Delta R^2$	$F$ for $\Delta R^2$	$\beta$
<b>Time and effort (N=73)</b>					
1. Organizational tenure	.13	.10	.13	5.00**	.24
Managers					-.36**
2. Organizational tenure	.28	.24	.15	7.20**	.34**
Managers					-.28*
Socio-political knowledge					-.35**
Perceived organizational support (POS)					-.13
3. Organizational tenure	.28	.22	.00	.04	.34**
Managers					-.28*
Socio-political knowledge					-.36*
Perceived organizational support (POS)					-.13
Socio-political knowledge x POS					-.02
<b>Time and effort (N=73)</b>					
1. Organizational tenure	.13	.10	.13	5.00**	.24
Managers					-.36**
2. Organizational tenure	.37	.33	.24	12.82***	.38**
Managers					-.30**
Socio-political knowledge					-.61***
Occupational self-efficacy (OSE)					.37**
3. Organizational tenure	.43	.39	.06	7.45**	.30**
Managers					-.27**
Socio-political knowledge					-.50***
Occupational self-efficacy (OSE)					.52***
Socio-political knowledge x OSE					.33**

\*  $p < 0.05$  level, \*\*  $p < 0.01$  level, \*\*\*  $p < 0.001$  level.



*Figure 4.5.* Occupational self-efficacy (OSE) as moderator of the socio-political knowledge (SP) and cost of time and effort relationship.

Participants with high levels of both socio-political knowledge and occupational self-efficacy identified more cost of time and effort in mentoring than those with high socio-political knowledge and low occupational self-efficacy. Overall those with high socio-political knowledge counted fewer costs of time and effort in mentoring than those with low socio-political knowledge, while those with high occupational self-efficacy identified more cost than those with low occupational self-efficacy.

### **Organizational Memory and Mentoring Functions**

To test Hypothesis 4.6, the predicted differential relationships between the organizational memory subscales and mentoring functions, the dependent variables psychosocial mentoring and career mentoring were each regressed on the five organizational memory subscales (see Table 4.9). Socio-political knowledge was the only significant predictor of psychosocial mentoring functions, while there were no significant predictors of career mentoring.



**Table 4.9. Multiple Regression: Organizational memory Predicting Mentoring Functions (Mentors only, N=57)**

Dependent Variable (in Bold) & Independent Variables/ Steps	$R^2$	Adj. $R^2$	$F$ for $\Delta R^2$	$\beta$
<b>Psychosocial Mentoring</b> (N=57)				
Socio-political knowledge	.19	.11	2.32 $ns$	.38*
Job knowledge				-.04
External network				-.12
History				.13
Industry knowledge				.12
<b>Career Mentoring</b> (N=55)				
Socio-political knowledge	.05	-.05	.54 $ns$	-.14
Job knowledge				-.02
External network				.21
History				.11
Industry knowledge				.03

\*  $p < 0.05$  level.

## Discussion

There was support and/or partial support for the study hypotheses and the organizational memory and mentoring model as a whole. When controlling for the other organizational memory subscales, socio-political knowledge was found to account for unique variance in the intention to mentor. Perhaps this organizational memory dimension reflects a social orientation which also predisposes people to want to share their knowledge in an interpersonal mode like mentoring. This would seem to support Allen et al., (1997b) who suggested that those interested in personal growth and development are more likely to want to mentor others. This result is interesting when combined with the findings from Study 3 where history and job knowledge were significant predictors of the frequency with which people are asked to share their knowledge through mentoring, and where all the organizational memory

subscales *except* socio-political knowledge correlated with the request to train/mentor variable. This may indicate a discrepancy between those who would like to mentor (as predicted by socio-political knowledge in the current study), and those who actually are targeted to share their knowledge (predicted by history and job knowledge in Study 3).

The pre-eminence of the socio-political knowledge over the other organizational memory subscales was seen yet again in predicting psychosocial mentoring functions. Again, this relationship may be due to a social orientation underlying both. Perhaps such an orientation inclines one to both detect socially relevant information in the organization, and seek to build relationships, including mentoring ones, paying attention to the psychosocial aspects of the relationship.

In terms of the organizational memory and intention to mentor model, the study findings were that socio-political knowledge (along with experience as a mentor) predicted intention to mentor over several control variables considered in the study including age, gender, organizational tenure, experience as a protégé, and having a management position. Ragins and Cotton (1993) also found experience as a mentor (along with experience as a protégé) predicted willingness to mentor. Previous experience as a mentor may lead to an understanding of the benefits involved and/or build the self-efficacy required to repeat participation in the role.

As expected in the organizational memory and intention to mentor model, occupational self-efficacy moderated the relationship between socio-political knowledge and intention to mentor, while contrary to the hypothesis, perceived organizational support did not. However the nature of the interaction between socio-political knowledge and occupational self-efficacy was not expected. The result indicates that there may be a group of knowledgeable and effective employees who have some reluctance about sharing their knowledge compared to those who have less self-efficacy. Possible explanations might

suggest that efficacious employees are already in demand and therefore have less desire to take on more responsibility, or that they value their knowledge more highly and are more discerning about where and with whom they share it (e.g., Geisler, 2008).

As proposed by the model in Figure 4.1, generativity and the expected costs of mentoring (cost of time and effort) were both found to mediate the relationship between socio-political knowledge and the intention to mentor. The role of generativity as a mediator of this relationship may suggest that this “motivation” is triggered by (or is dependent upon) an awareness that one has accumulated the knowledge resources that others lack. This may be one reason why generativity seems to emerge at mid-life, (e.g. Erikson, 1963; Kram, 1985; Levinson et al., 1978) when there has been time for this accumulation to occur, although it should be noted that while there was a positive correlation between age and generativity in this study, it was not a significant one. The other potential gains or motives for mentoring (reputation, benefit organization, and personal satisfaction) that were included in the study provided useful control variables to illustrate the significant role of generativity as a positive predictor of the intention to mentor in the model.

The cost of time and effort was the only expected costs of mentoring variable to significantly (negatively) predict the intention to mentor. The predominance of this variable over the other cost variables further underscores the importance of this frequently mentioned mentoring constraint (e.g. Cranwell-Ward et al., 2004). Whether this concern reflects a real perceived cost, or perhaps represents a more socially acceptable reason to decline mentoring (compared to exploitation and concerns about the adequacy of one’s knowledge), is open to further question. While the study participants were assured of anonymity and confidentiality in their responses, the cost of time and effort may be a more palatable concern even in their own thinking and deliberations. On the other hand the cost of the time and effort involved in mentoring can be a very real one, especially for experienced workers who are likely to have a

large number of work-related demands. As mediators, both generativity and the cost of time and effort qualify as more proximal predictors of the intention to mentor compared to socio-political knowledge (as illustrated by the model in Figure 4.1).

### **Organizational Memory and the Expected Costs of Mentoring**

Socio-political knowledge along with holding a management position in the organization was found to negatively predict the mentoring cost of time and effort, while organizational tenure positively predicted the cost variable. The negative relationship between socio-political knowledge and the cost of time and effort may again reflect an underlying social orientation that might tend to downplay this cost. Those with managerial responsibilities may have mentoring responsibilities and the time required for them already built into their job descriptions, which may diminish this potential cost for them. On the other hand, those with organizational tenure may find more is expected of them and find the mentoring role a further time pressure. Some long-tenured employees may have stagnated in their career and lack the motivation to assist with mentoring initiatives especially if these responsibilities are outside their role definitions.

As with the organizational memory and intention to mentor relationship, occupational self-efficacy was also found to moderate the socio-political knowledge and cost of time and effort relationship. This indicates that those individuals with high socio-political knowledge and high occupational self-efficacy identify greater costs of time and effort involved in mentoring and express fewer intentions to mentor than those with low occupational self-efficacy. There are several possible explanations for this. As already suggested, those with greater occupational self-efficacy may already have numerous demands that discourage further time commitments in the form of mentoring others. Alternatively this group may value their knowledge more than those with less occupational self-efficacy and be more circumspect about what they are willing to share (e.g., Davenport, 2005; Geisler, 2008;

McInerney & Mohr, 2007). Those with high socio-political knowledge and low occupational self-efficacy on the other hand, may be eager to test their knowledge in a mentoring relationship with a view to gaining more confidence, and therefore may discount the costs of time and effort involved, and this too may prompt their greater intention to mentor. Whatever the explanation for this phenomenon, it does stand as an exception to the assumption that experienced and knowledgeable workers (who qualify as “able” mentors), will always be “willing” to share their knowledge.

The inclusion of the other costs in the analysis, exploitation and adequacy, while not featuring as significant predictors of the intention to mentor did raise other issues. Firstly, age was negatively correlated with both variables, indicating that younger rather than older employees identify these particular constraints. Interestingly the motive to mentor in order to boost one’s reputation was also negatively related to age. Taken together these results might suggest that younger workers are more influenced by competitive values, (guarding own resources from exploitation, fears about the adequacy of one’s knowledge, eagerness to mentor to establish a reputation) rather than cooperative knowledge sharing. Van Emmerik, Baugh, and Euwema (2005) found that career aspirations rather than affective organizational commitment related to propensity to mentor and concluded that those individuals ambitious to further their own careers were more likely to volunteer as mentors. The current study suggests that possibility may be particularly characteristic of younger workers. The tendency for younger workers to more of a competitive mindset in mentoring than older workers is consistent with the drive for acquisition considered characteristic of those with expansive time boundaries (i.e. younger individuals) and noted in socioemotional selectivity theory (Carstensen, 1992). In comparison, Kanfer and Ackerman (2004) suggested that older workers prefer cooperative rather than the competitive management initiatives. It would seem

that those with greater knowledge resources are able to be more generous in their sharing of those resources, while those with much less are more guarded of the little they do have.

### **Implications for Practice**

Overall, the study results suggest a number of implications for organizations. There is a positive relationship between organizational memory and the intention to mentor, although this is tempered by some concern about the costs of time and effort involved. A frequent pitfall in implementing mentoring programmes is that the expectations about the time commitment involved are not managed well, and mentor and protégé are not given the time the relationship requires to be successful (Piktialis & Greenes, 2008). Managers may need to build mentoring responsibilities into job descriptions and allow time for these relationships to be built if they are to capitalise on the knowledge resources in their organizations. Secondly, the intention to mentor is driven by a mix of cooperative agendas (e.g. generativity, benefiting the organization) and more competitive agendas (e.g. to build one's own reputation), and various combinations of both. Some volunteers may not yet have the knowledge resources that make them "able" mentors, and yet wish to be mentors for social and other reasons like advancement. Others who may have the knowledge resources that make them "able" mentors may require further prompting to become "willing" mentors, perhaps through pointing out the necessity for building a strong workforce for now and the future (e.g. by citing generativity motives).

In the case of those experienced workers who lack belief in their own abilities, mentoring may offer an opportunity to gain more confidence. Providing mentor-training opportunities for all employees to enable them to engage competently and confidently as mentors is crucial (Megginson & Clutterbuck, 2006). Giving employees at all stages of their careers (including those with little organizational memory as yet) mentors of their own may encourage them to reciprocate in the future when further knowledge and experience has

better equipped them for the task (Allen et al, 1997b; Finkelstein et al., 2003). Aiman-Smith, Bergey, Cantwell, and Doran (2006) cited studies indicating that around a third of employees who did not receive mentoring in their workplace looked for another job within their first year of employment, further support for the value of establishing a mentoring culture.

While the adoption of the strategies outlined in this section should maximise the pool of willing mentors, not all experienced workers will necessarily want to participate in mentoring initiatives, regardless of how well an organization supports them. Mentoring schemes have the most potential to succeed when mentors and protégés have some control over the process and have a say in their own participation (Cranwell-Ward et al., 2004). Removing choice will only serve to weaken mentoring efforts, when alternatively focusing on and promoting effective existing mentoring relationships that do exist, may eventually help to address the concerns reluctant employees may have about the process.

### **Limitations**

The focus of this study has been on investigating the organizational memory and intention to mentor relationship. While there has been research to indicate that “intentions” do predict future “behaviour”, they are not perfectly correlated (Allen, 2003). Future research may need to investigate how intentions to mentor are converted to action. Furthermore, while there was support for the hypothesised relationships in the organizational memory and mentoring model the study design was correlational and therefore firm causality conclusions cannot be drawn from this study.

Self-report measures are generally viewed with some reservation due to issues like bias and common method variance (Spector, 1987, 1994). In the current study several design elements aimed to minimise potential biases. Participants were able to complete questionnaires anonymously to minimise the potential for social desirability in their responses. While some attempt had been made to avoid a consistency motif through a two-

part study design, the relationship between organizational memory and generativity may have been due to order effects, and future research should address this through counterbalancing.

The sample size while sufficient to yield several significant effects may have lacked the statistical power to detect others that exist, and studies with larger samples are recommended. Also, as the study was representative of only one company, the results may not be able to be generalised to other organizations. It is likely that different organizational cultures influence the transfer of organizational memory through mentoring (Bright, 2005; Bryant, 2005; Cross & Baird, 2000; McInerny & Mohr, 2007; Nahapiet, Gratton, & Rocha, 2005). Organizational cultures vary in their norms for cooperation and competition, with varying consequences for the costs and motivations for mentoring that employees identify. Future research should repeat the study questions with different organizational cultures, and indeed even repeating the study questions in different temporal contexts may also yield interesting results. For example, employees may be inclined to hoard their resources (including knowledge) during times of recession if they think their job security is at stake.

## **Conclusion**

The good news for the company that participated in this study (and other similar organizations) is the positive relationship between organizational memory and the intention to mentor. However the study also found that the cost of the time and effort involved in mentoring may possibly preclude able mentors from mentoring others, and this is an exception to the assumption that knowledgeable workers are as a matter of course, willing to mentor. The study has also identified the pivotal role that occupational self-efficacy may play in determining which knowledgeable employees are more or less likely to mentor. Allowing time for mentoring relationships to flourish as well as developing mentoring cultures where employees are both the receivers as well as givers of organizational knowledge may result in a steady stream of both willing and able mentors for organizations.



## CHAPTER FIVE

### **The Effects of Mentoring Experience on Career Satisfaction and Work Ruminations in Retirement**

Mentoring in the workplace is potentially beneficial for the organization's knowledge management strategy. It is also assumed that the mentoring relationship brings benefits for the mentor and as discussed earlier in this thesis there is an assumption that older and experienced worker can anticipate and are likely to experience positive outcomes from mentoring others (e.g. Beehr & Bowling, 2002; Critchley, 2004; Dychtwald, Erickson, & Morison, 2006; Hankin, 2005; Hedge, Borman, & Lammlein, 2006). Furthermore, Kram (1985) specifically suggested that mentoring could facilitate employees' transition to retirement by giving them a sense of satisfaction as they reflect on their substantial experience while passing it on to others. The study in this chapter tests the prediction that experience as a mentor at work facilitates enduring positive outcomes for the mentor beyond the transition to retirement. The study involved 96 retired individuals.

According to Allen (2003) research comparing mentors with nonmentors is rare, but needed. The current study provided the opportunity to carry out such a comparison through a quasi-experimental approach with participants assigned to their groups on the basis of whether or not they had had experience as a mentor at work. The study aimed to investigate predicted differences between those groups in terms of career satisfaction and a corresponding reduction in unwelcome ruminations about their past work. Certainly if there are enduring benefits of mentoring for mentors in retirement, then employers can cite these among other incentives when recruiting mentors (e.g. as recommended by Piktialis & Greenes, 2008) to ensure knowledge transfer before these employees exit the organization.

### **The Transition to Retirement and the Benefits of Mentoring Experience**

In late career in the absence of compulsory retirement, an individual can experience a number of “pushes” from their current work and workplace, and “pulls” from the retirement future they imagine, which eventually results in a retirement decision (e.g. Kielhofner, 2002; Schultz, Morton, & Weckerle, 2002). Retirement has been defined as “the exit from an organizational position or career path of considerable duration, taken by individuals after middle age, and taken with the intention of reduced psychological commitment to work thereafter” (Feldman, 1994, p.287) . For some, according to Kram (1985), retirement from one career gives the opportunity to engage in another, possibly something that was not possible up until then; for others, there is the anticipation that retirement can give them time to indulge a wide range of hobbies, relationships and interests. However, for those for whom work was central to life, retirement can also constitute a threat (Kram, 1985).

There are several ways in which mentoring is thought to benefit the older worker in their retirement. Kram (1985) suggested that giving older employees the opportunity to reflect on their experiences through mentoring could bolster mentors’ satisfaction with their career, and provide these employees approaching retirement with helpful support as they process the transition. Finally, Kram suggested passing on their knowledge to less experienced and often younger employees was thought to help mentors achieve a sense of generativity, (e.g. Erikson, 1963), the satisfaction of having left a legacy behind.

Overall, Kram (1985) proposed that acting as a mentor potentially helps the older employee to reach closure with their past work and career, enabling them to move on to other pursuits. This was a reference to Erikson’s (1963) concept of *ego integrity* which involves coming to terms with the choices and actions taken over one’s life, being able to resolve issues and achieving some sense of purpose or meaning. According to Fishman (1992) “only when we can let the past go are we in what Erikson describes as a state of ego integrity”,

(p.271). Mentoring may have the effects of both enhancing satisfaction with one's career in retirement, as well as providing opportunity for catharsis through the airing and resolving of issues that otherwise might result in unwelcome ruminations about past work, and this is the central hypothesis of this study.

Support for the study's hypothesis comes from studies of *life review*. The process of reviewing one's life involves an intentional look at past events and unresolved conflicts in order to achieve some kind of closure or resolution. Butler (1963) (based on his clinical observations) suggested that individuals who undergo life review are better able to accept their past, and live in the present with minimal fears of the future. There seems to be some evidence that older individuals who engage in an autobiographical life review process experience fewer depressive symptoms, less hopelessness, and improved life satisfaction (e.g., Serrano, Latorre, Gatz, & Montanes, 2004). In one study for example McGowan (1994) found that older individuals who shared reminiscences as mentors in a life histories project experienced both enjoyment of the process and significant improvements in self-image. McGowan concluded these positive outcomes resulted from the seniors having a role with status (as a mentor), the intergenerational nature of the relationship, and the purposefulness of the exercise, similar benefits to those espoused by Kram (1985). Similarly, Arkoff, Meredith, and Dubanoski (2004) found gains in psychological wellbeing (autonomy, mastery, positive relations with others self-acceptance and growth) for a non-clinical group of older women through a retrospective life review programme. Women involved in the workshop group had significant increases in post-test compared to pre-test scores, while there was no change between pre-test and post-test scores for a comparison group of women also members of the participating academy. There does seem to be some gains that are achieved through the process of life review whether the review process is for the purposes of mentoring or not.

## **Mentor Experience and Positive Outcomes**

There is also support in the mentoring literature for career satisfaction outcomes of experience as a mentor. Atkinson, Casas, and Neville (1994) found that ethnic minority psychologist mentors gained personal satisfaction through helping others' careers. Ragins and Scandura (1999) identified satisfaction outcomes that included the rewards of passing on insights and wisdom, acknowledging a positive result of career, leaving a legacy, and self-esteem. They itemised other benefits of mentoring (from the mentor's perspective) as improved job performance, developing a loyal base of support, recognition by others, and generativity. In Study 3 in this thesis, the frequency with which employees were requested to train and mentor others in the organization was positively related to their organization-based self-esteem. In this study (Study 5) career satisfaction refers to the individual's assessment of the degree to which they have met their career goals for income, advancement, development of new skills, success, and overall career satisfaction (Greenhaus, Parasuraman, & Wormley, 1990).

Positive outcomes however can consist of more than just an increase in a desirable state (like career satisfaction); a decrease in an undesirable consequence (e.g. unwelcome ruminations about one's past work) can also amount to a positive outcome. There has been little attention given to positive results of mentoring that may take the form of a reduction in less satisfactory behaviours. The potentially cathartic effect of workplace mentoring for example, has received little empirical attention. While many elderly people engage in ongoing reminiscences about their past, *ruminations* in general refer to recurring thoughts of a more unwelcome nature (e.g. Trapnell & Campbell, 1999). The prediction was that those who had been mentors at work would have had the opportunity to resolve some issues that might otherwise lead to ruminations about work in retirement. Those retirees who have been

mentors, according to Kram (1985) should experience more favourable outcomes (higher career satisfaction and fewer work ruminations) than nonmentors.

*Hypothesis 5.1:* Mentors will have greater career satisfaction and fewer work ruminations compared to nonmentors.

### **Control Variables**

A number of other factors and covariates may influence the degree to which mentors and nonmentors feel satisfied with their careers in retirement and/or experience unwelcome ruminations about their previous work, and these were considered as potential control variables. The following section elaborates briefly on the possible influences of these variables.

#### *Individual Differences*

In Study 3, organizational memory was found to have a positive relationship with several empowerment variables (e.g., a sense of meaning, competence, self-determination, and impact) which have also been found to relate to satisfaction outcomes in other studies (Spreitzer, Kizilos, & Nason, 1997). Similarly, it is expected that organizational memory will also be associated with career satisfaction. Organizational memory represents the acquisition of valued knowledge resources, and this is likely to be associated with achievement of various career goals including development, advancement, and success. The relationship between organizational memory and work ruminations however is less clear. There may be cases where the possession of organizational memory leads to increased ruminations about work in retirement. Retirees with considerable knowledge about their work and workplace, who felt that they were not able to make full use of that knowledge (e.g., through mentoring to pass it on), may experience unwelcome ruminations as a result. The same might be said for

people with significant knowledge who didn't achieve the advancement at work they hoped for.

Work centrality represents a further individual difference with potential influence on the outcomes of interest to this study. Work centrality is defined as the beliefs individuals hold about the importance that work should have in peoples' lives (Paullay, Alliger, & Stone-Romero, 1994). Work centrality is considered to be largely due to the socialization experiences of individuals through their environment including family, friends, culture and own work experiences, and is considered to be a stable set of beliefs rather than an attitude that is subject to change according to the work environment (Paullay et al., 1994). The impact of work centrality is well illustrated in a study by Arvey, Harpaz, and Liao (2004) who found that lottery winners with high work centrality were less likely to stop working after their wins. As mentioned earlier in the chapter, Kram (1985) suggested that retirement may be a threatening event for those who are work-centred. In the New Zealand context Alpass et al. (2007) found that work involvement, measured by Kanungo's (1982) scale negatively predicted anticipated retirement adjustment in a sample of 6662 participants in the "Health, Work, and Retirement Survey". Work-centred individuals may hold to a higher standard to achieve career satisfaction, and may indeed be more likely to ruminate over their past careers.

### *Demographic Influences*

Gender may also influence outcomes in this study. In a study investigating the factors influencing the quality of retirement experienced by 244 men and 214 women, Quick and Moen (1998) found that good health, a continuous career (or fewer years in part-time employment), an early retirement (although not premature), and a good income post-retirement were all associated with retirement quality for women. For men, quality of retirement was associated also with good health, as well as an enjoyable job pre-retirement, low work-role salience, pre-retirement planning, and opting to retire for internally motivated

reasons (to participate in activities other than work). Thus gender differences in determinants of satisfaction within retirement exist and may influence the experience of career satisfaction and/or work ruminations.

### *Organizational Influences*

As achieving career satisfaction involves satisfaction with meeting goals for advancement within the organization (Greenhaus et al., 1990) it was expected that achieving a management position would relate to career satisfaction. On the other hand, team members who have not achieved advancement in this way may have some regrets or unfinished business in terms of reaching career goals, leading to work ruminations. Job tenure may be influential as individuals who remain in their jobs a long time may do so because they have gained satisfaction from their career (Flynn & McNair, 2004). Brief job tenure may also mean “unfinished business” for some individuals and lead to work ruminations. Furthermore, experience as a protégé may lead to career satisfaction with the career support it provided, while being overlooked for this opportunity may contribute to work ruminations.

### *Retirement Related Influences*

The perception of retirement as voluntary or involuntary has been found to relate to satisfaction in retirement, and this may also extend to the individual’s career satisfaction. Individuals may experience their retirement as involuntary for a number of reasons, including work restructuring and redundancy, health, and family reasons (Szinovacz & Davey, 2005). Issakson and Johansson (2000) found that the voluntary choice of retirement was directly and positively related with satisfaction and psychological well being for both early retirees and those continuing to work after company restructuring. Talaga and Beehr (1993) also found that the perceived voluntariness of retirement was related to several satisfaction outcomes – health, finances, activities, life, marriage, and retirement. Schultz et al. (1998) too found that those early retirees who perceived they had retired voluntarily had higher life satisfaction

scores than those who perceived that their retirement was involuntary. An involuntary retirement may interfere with meeting goals for financial preparation for retirement, and for further learning and advancement, with lack of career satisfaction and an increase in corresponding work ruminations about “what might have been” as a result.

The time passed since retirement from work may diminish both career satisfaction and work ruminations. Retirement age may influence both career satisfaction and work ruminations depending on the expectations individuals have for a satisfactory retirement age. Too soon or too late may result in unsatisfactory evaluations of one’s past career and ruminations about work (e.g., Quick and Moen, 1998).

## **Method**

### **Sampling**

In addition to a pilot study sample of seven individuals, seven groups under the umbrella of a social organization for fully-retired and partly-retired persons (generally with a professional/business work background) were approached for participants. There were 798 listed members in the groups represented although according to club officials, not all listed members were necessarily “active members”, nor was there 100% attendance rate at the meetings where participation was sought. Typically there was a 20-25% response of those attending to take away questionnaires. Out of the 200 questionnaires disseminated at the meetings, 115 were completed and returned representing a response rate of 57.5%. There were a total of 122 respondents in the study.

### **Participants**

Inclusion in the study was based on a number of steps (see Figure 5.1). Only those who indicated that they were fully retired were included in the study resulting in 103 participants out of the original group of 122 (85.8%). Seven further cases were removed from



the study consisting of those with more than 10% missing data. As a result there were 96 cases remaining.

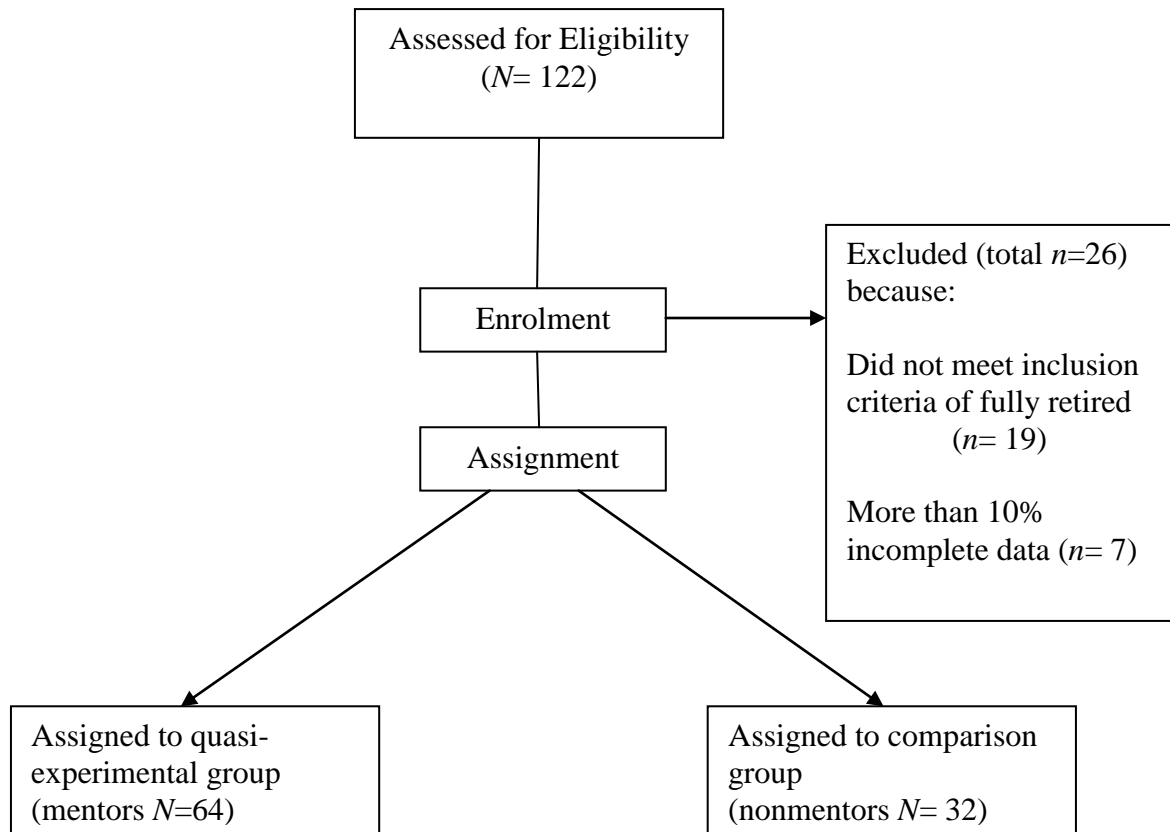


Figure 5.1. Flow of participants through each stage of the quasi-experiment.

There were 63 (65.6%) males and 33 (34.4%) females with a mean age of 73.09 years ( $SD=6.89$ ). Participants had been retired for a mean 11.61 ( $SD=7.63$ ) years, and the mean age at retirement was 61.51 ( $SD=4.67$ ) years. In terms of their past employment (specified as the participant's job immediately prior to their retirement decision), participants reported a mean job tenure of 13.82 ( $SD= 10.08$ ) years. There were 26 (27.4%) individuals who classified themselves as team members, 27 (28.4%) as team leaders/middle managers, 36 (37.9%) as team leaders/senior managers, and 6 (6.3%) who identified as having been the chief executive officer of their organization just immediately prior to retirement, with an overall total of 69 (72.6%) individuals indicating they had been managers in their organization. A total of 72

(75.8%) participants indicated that they considered their retirement decision to be voluntary with 23 (24.2%) citing involuntary retirement. There were 64 (66.7%) participants with past experience as a mentor at work, and 32 (33.3%) with no past experience of being a mentor. There were 62 participants (64.6%) with past experience of being a protégé.

### **Materials and Measures**

The questionnaire can be found in Appendix D, and consisted of a number of questions pertaining to the participants' prior work and retirement process. These were followed by the study scales. Participants were then asked about their experiences as a mentor and protégé and some demographic details. A seven-point Likert-type scale anchored by 1= *strongly disagree* and 7= *strongly agree* was used for all scale items in the questionnaire. All scale and subscale scores were obtained by summing the items in each, and mean item scores calculated by dividing sum scores by the number of items in each to enable comparisons across scale measures. Descriptions of the measures and demographic information sought in the questionnaire follow.

*Retirement variables.* Participants were asked to state the number of years and months since part or full retirement (length of retirement). A further variable, retirement age, was computed by subtracting length of retirement from participant age. Participants were asked if they were fully or partly retired. Partly-retired participants were asked to specify if they were working for their pre-retirement organization or another. Participants were also asked if they considered that their decision to retire was voluntary or involuntary.

*Organizational variables.* Participants were asked to indicate the years and months of their tenure within the organization they were employed by prior to their retirement transition. Participants were also asked to tick one box indicating level within the organization, with response options including team member, team leader/middle manager,

team leader/ senior manager, and chief executive officer. A distinction was made between managers and team members.

*Organizational memory.* Only the 21 organizational memory items resulting from the CFA (Study 1) five-factor model were included in the data analysis. Coefficient alpha for each of the subscales were .89 for socio-political knowledge, .85 for job knowledge, .80 for external network, .76 for history, and .74 for industry knowledge.

*Work ruminations.* As a scale of work ruminations could not be found, eight items from the rumination subscale of the “Rumination-Reflection Questionnaire” (RRQ) (Trapnell & Campbell, 1999) were adapted for a work context. For example “My attention is often focused on aspects of myself that I wish I’d stop thinking about” became “My attention is often focused on aspects of my work I wish I would stop thinking about”. As it was imperative for the scale in this study to represent unwelcome thoughts about past work, a further step was taken to use only those work rumination items that had a significant negative correlation (two-tailed) with career satisfaction. This resulted in four items “I always seem to be rehashing in my mind things I have said and done at work”, “I do not waste my time rethinking work-related things that are over and done with” (reverse-scored), “It is easy for me to put unwanted thoughts about my work out of my mind” (reverse-scored), and “My attention is often focused on aspects of my work I wish I would stop thinking about”. Trapnell and Campbell (1999) reported an alpha of the original scale of over .90, while the adapted version for this study was .71 for the four item scale.

*Work centrality.* Work centrality was calculated as the sum of the six items adapted by Arvey et al. (2004) from Kanungo’s (1982) “Work Involvement Questionnaire”. Items include “Work should be considered central to life” and, “Life is only worth living when people get absorbed in work”. One item “Work should only be a small part of one’s life” was reverse-scored to reflect beliefs that work should be central. Arvey et al. reported a

coefficient alpha of .82 for the scale. In the current study coefficient alpha was .77 for the six items.

*Career satisfaction.* Career satisfaction was measured by five items developed by Greenhaus et al. (1990). Items included satisfaction with the progress made towards goals for income, advancement, and the development of new skills along with overall measures (e.g. “I am satisfied with the success I achieved in my career”). Greenhaus et al. report a coefficient alpha of .88 and in this study the coefficient alpha was .91.

*Mentoring experience.* Participants were given the following definition of mentoring:

Mentoring, in the workplace, refers to a relationship between a generally more experienced employee (mentor) who is intentionally working to promote the development of a generally less experienced employee (protégé). Mentoring activities may include: Helping a new employee make sense of the organization and their role within it, providing sponsorship by introducing the protégé to influential colleagues, and/or providing challenging assignments; giving guidance and feedback on the protégé’s job and/or organizational behaviour, providing support and reassurance, and giving career related advice. The mentoring relationship does not refer to casual one-off requests for help, but to a relationship over several weeks, months or years.

Participants were asked to indicate if they had ever acted as a mentor in the organization they worked in prior to retirement, and if they had been mentored (experience as a protégé). Those who indicated they had been mentors were asked to estimate the number of protégés they had mentored.

*Demographic variables.* Demographic items were sought relating to gender, age (in years), ethnicity (Maori, Pakeha/New Zealander of European descent, and other) and

education (years of secondary education, and tick a box of highest education qualification (seven boxes from school certificate to a post-graduate degree).

### **Procedure**

A pilot study involving seven retired or partly retired individuals involved in a business mentoring network was conducted to evaluate the questionnaire initially; no changes were made to the questionnaire as a result. Participants were assured of the anonymity and confidentiality of their responses, and gave informed consent by completing the questionnaires. No incentive was given for participation. Participants were provided with the questionnaire and a post-paid envelope for return and were encouraged to return the survey within two weeks.

### **Results**

All statistical analyses were carried out with SPSS version 17. Missing data was replaced with the series mean for the job knowledge, history, industry knowledge, work centrality and career satisfaction variables. In total there were nine data points missing from these scales. Table 5.1 presents the means, mean item scores (for scales), standard deviations, and intercorrelations of the study variables.

There were several intercorrelations of note. Retirement age positively correlated with career satisfaction while also negatively correlating with work ruminations, indicating that retiring later rather than earlier was more satisfying for this group. Job tenure and all the organizational memory variables except job knowledge were also significantly correlated with career satisfaction. Interestingly, there was a positive correlation between work centrality and work ruminations, however this did not reach significance ( $r = .18, p = .07$ ).

**Table 5.1.** Means, Mean Item scores (Scales), Standard Deviations, and Intercorrelations of Study 5 Variables (N=96)

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Age	73.09	6.89	1.00												
2. Length of retirement	11.61	7.63	.80**	1.00											
3. Retirement age	61.52	4.67	.17	-.45**	1.00										
4. Job tenure	13.82	10.08	.22*	.12	.14	1.00									
5. Socio-political	5.66	1.01	-.01	-.12	.17	.22*	1.00								
6. Job knowledge	6.47	0.60	-.02	.08	-.17	.13	.33**	1.00							
7. External network	5.64	1.19	.01	-.08	.15	.14	.48**	.34**	1.00						
8. History	4.88	1.21	-.17	-.14	-.02	.26*	.26*	.16	.37**	1.00					
9. Industry knowledge	3.85	1.14	-.18	-.21*	.08	.16	.41**	.22*	.55**	.51**	1.00				
10. Total organizational memory	5.56	0.73	-.09	-.14	.09	.25*	.80**	.49**	.74**	.67**	.74*	1.00			
11. Work centrality	3.31	0.84	.01	.03	-.04	.05	-.03	-.06	.18	.06	.07	.01	1.00		
12. Career satisfaction	5.73	0.97	.05	-.13	.29*	.29*	.49**	.12	.38**	.34**	.36**	.54**	-.02	1.00	
13. Work ruminations	3.59	1.29	.01	.14	-.22*	-.06	-.11	.01	-.14	-.10	-.15	-.16	.18	-.35**	1.00

\*  $p < 0.05$  level; \*\* $p < 0.01$  level, (two-tailed).

### Differences between Mentors and Nonmentors

ANCOVA is used in quasi-experimental designs to remove the effects of variables which may modify the relationship of the categorical independent (in this case, experience as a mentor) and the dependent variables (career satisfaction and work ruminations) (Field, 2005). In order to test hypothesis 5.1, firstly steps were taken to determine the covariates to be entered into the ANCOVA. Chi-square tests were carried out to determine differences across mentors and nonmentors for the categorical control variables (see Table 5.2).

**Table 5.2.** *Chi-Square Analysis: Differences Between Mentor and Nonmentor Groups across Categorical Dependent Variables*

Dependent Variables		Nonmentors	Mentors	$\chi^2$	V
Gender	males	20	43	.21	.05
	females	12	21		
Protégé experience	non-protégés	23	11	27.89***	.54
	protégés	9	53		
Retirement decision	non-voluntary	13	10	7.09**	.27
	voluntary	19	53		
Managers	non-manager	15	11	27.89***	.31
	manager	17	52		

*Note.* V is Cramer's measure of association  
 \*\*  $p < 0.01$  level; \*\*\*  $p < 0.001$  level.

All cells had an expected count of over 5 to meet assumptions. Results showed that mentors were more likely to also have been managers, to have made a voluntary retirement decision, and to have had experience as a protégé. Independent *t*-tests were used to examine differences between mentor and non-mentor groups across the continuous control variables and these can be seen in Table 5.3. The Levene's Test indicated where variances were not equal and where the alternative *t*-test values (for non-equal variances) were relevant. Mentors

had greater socio-political knowledge, external network, history, industry knowledge, and work centrality than nonmentors.

**Table 5.3.** Independent *t* tests for Mentor and Nonmentor Groups (*N*=96)

Dependent Variables	Nonmentors ( <i>N</i> =32)		Mentors ( <i>N</i> =64)		<i>t</i>	95% Confidence Interval	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		Lower	Upper
Retirement age	60.91	4.50	61.81	4.75	-.87	-2.96	1.16
Length of retirement	11.66	7.36	11.59	7.81	.04	-3.30	3.44
Job tenure	12.96	9.29	14.21	10.48	-.55	-5.76	3.26
Work centrality	17.72	6.02	20.73	7.00	-2.08*	-5.89	-.14
Socio-political knowledge	37.19	8.12	40.83	6.17	-2.45*	-6.60	-.69
Job knowledge	25.59	2.27	26.05	2.45	-.87	-1.48	.58
External network	15.16	4.17	17.81	2.86	-3.66***	-4.10	-1.22
History	17.97	4.85	20.30	4.66	-2.27*	-4.36	-.29
Industry knowledge	13.67	3.51	16.24	2.90	-3.82***	-3.91	-1.23

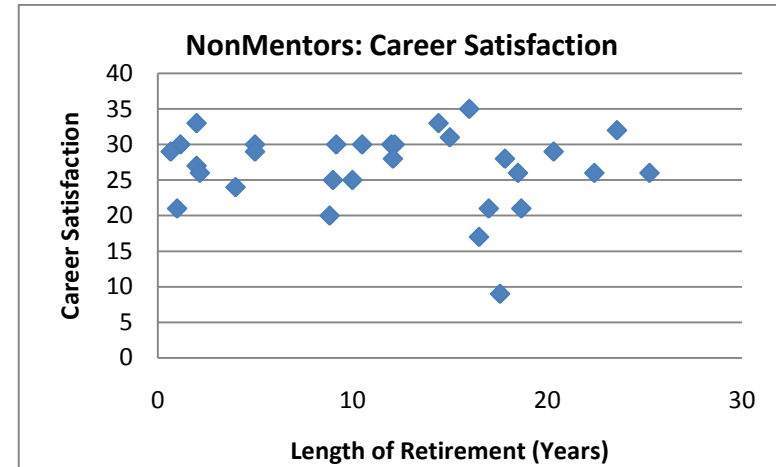
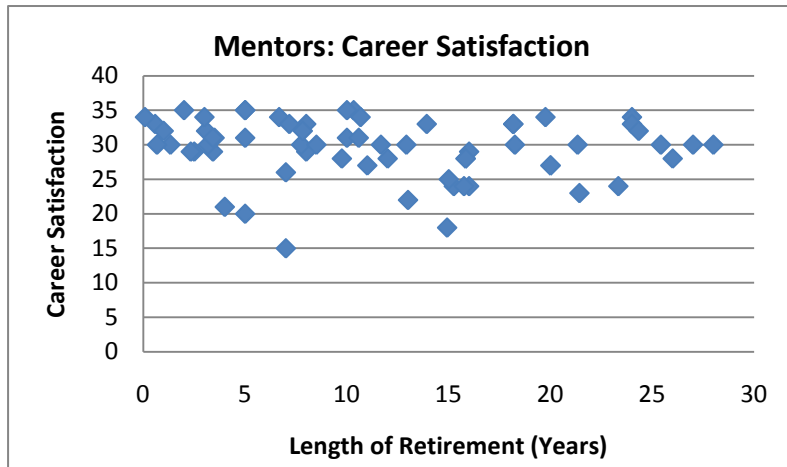
\*  $p < 0.05$  level; \*\* $p < 0.01$  level, \*\*\*  $p < 0.001$  level.

For the ANCOVA, experience as a mentor was entered as the fixed factor, with all other significant covariates entered as such (categorical variables dummy coded). These included experience as a protégé, voluntariness of retirement decision, managers, work centrality, socio-political knowledge, external network, history, and industry knowledge. The marginal means (group means after covariates have been accounted for) for career satisfaction were 28.56 ( $SE= 0.60$ ) for mentors, and 28.72 ( $SE= 0.92$ ) for nonmentors, with the pairwise comparison between the marginal means not significant  $F(1, 84) = .02, p= .89$ . There was only one significant covariate for career satisfaction indicating that socio-political knowledge was significantly related to career satisfaction,  $F(1, 84) = 10.60, p=.002$ .

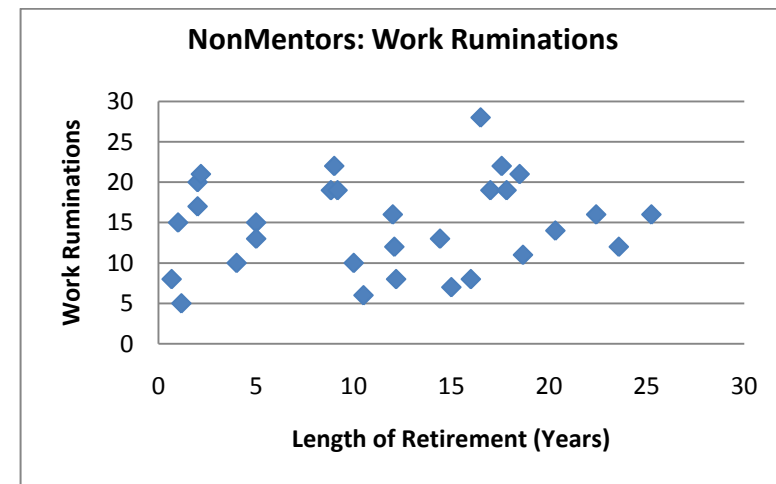
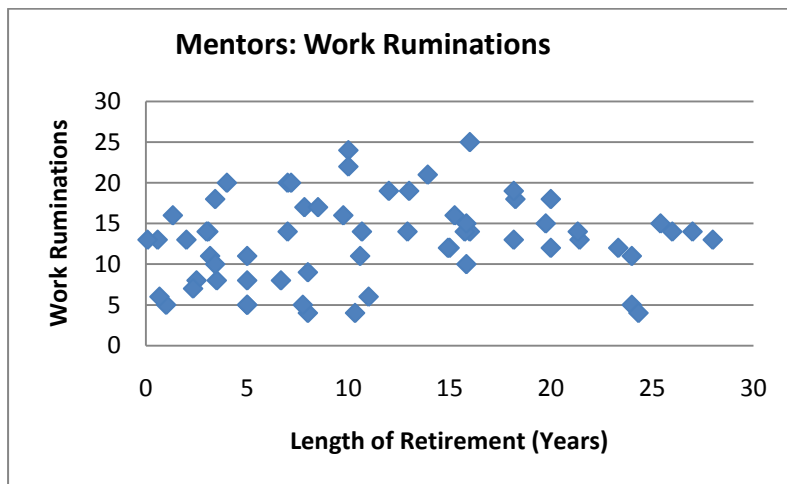


The same steps were taken for the ANCOVA with work ruminations as the dependent variable. There were no significant covariates for work ruminations, and marginal means were 13.24 ( $SE=0.75$ ) for mentors and 13.79 ( $SE=1.14$ ) for nonmentors, again not significant  $F(1, 84) = .13, p = .72$ .

While the results did not support the study hypothesis, it was of interest to note the existence of career satisfaction and work ruminations beyond the transition to retirement, and in particular that some individuals (both mentors and nonmentors) still experienced ruminations about their past work well into retirement. Figure 5.2 a) shows the sample's scores for career satisfaction (y axis, possible score range 5-35) by length of retirement (x axis), for mentor and nonmentor groups, and b) shows the sample scores for the work ruminations scale (y axis, possible score range= 4-28) by the length of retirement (x axis), also for mentor and nonmentor groups. The scatterplots indicate that career satisfaction and more surprisingly, unwelcome work ruminations, endure well into retirement with the mean length of retirement for this group 11.61 years ( $SD=7.63$ ).



(a)



(b)

Figure 5.2. Comparison scatterplots involving mentor and nonmentor groups for (a) career satisfaction x length of retirement and (b) work ruminations x length of retirement.

## Discussion

The study results did not support the hypothesis that those with experience as a mentor would also experience more career satisfaction and fewer unwelcome work ruminations in retirement compared to nonmentors. There were no significant differences between mentor and nonmentor groups for either dependent variable when controlling for the covariates in the study. There was only one significant covariate for career satisfaction, socio-political knowledge, indicating a positive relationship between the two variables.

The lack of results suggest two possibilities, one being that there is no effect of mentoring on either career satisfaction or the reduction of work ruminations, and the second, that the career satisfaction and work ruminations measures did not measure these constructs effectively. In considering the first option, it should be noted that the mean length of retirement for this sample was over ten years, and it may be that the positive effects in terms of the outcomes of interest were more likely to be apparent during, or just beyond the transition to retirement. Repeating this study with those in the process of, or immediately after retirement (i.e., up to 24 months following retirement) may yield different results. In terms of the measures themselves, while the career satisfaction scale demonstrated excellent reliability, the steps taken to include only those work rumination items that negatively correlated with career satisfaction did also result in a reduction in scale reliability which may have undermined the results. Further work on a scale to effectively capture the concept of unwelcome recurring thoughts about work may be beneficial.

In spite of the lack of support for the study hypothesis, there were some other results which are worth noting. In terms of career satisfaction, the significance of the socio-political covariate may indicate that this form of organizational memory is particularly relevant for achieving career related goals and success. Employees who have considerable knowledge about their work and workplace are more likely to be able to make sense of and find meaning

in their work (Conger & Kanungo, 1988), and career satisfaction in retirement may ultimately be an extension of this. The enduring nature of this relationship may be explained further in terms of the *psychological ownership* of one's work (e.g. Pierce, Kostova, & Dirks, 2001). One aspect of psychological ownership, for example, is *dwelling*, which involves a "sense that one is 'within' and a 'part of' some particular place" (Pierce, Jussila, & Cummings, 2009, p.484). Socio-political knowledge, as knowledge of "place", may facilitate this experience. Pierce et al. (2009) suggested that a sense of dwelling relates to finding a purpose and sense of self in that work, and indeed, socio-political knowledge was found to relate to a sense of meaning in Study 3. Experience of the psychological ownership of one's work may help to explain the enduring nature of career satisfaction in retirement

There were some differences across mentor and nonmentor groups also worth noting. As would be expected, on average, mentors had higher scores in socio-political knowledge, external network, history, and industry knowledge, than nonmentors. There was also a significant difference between mentors and nonmentors in work centrality, with mentors having higher scores on average than nonmentors. This potentially creates an interesting dilemma. Kram (1985) suggested that those who are work-centred are more likely to find difficulty adjusting to retirement, at the same time saying those who have experience as a mentor are more likely to adjust more successfully to retirement. This suggests some likely interaction effects worth investigating in the future.

The study results although not as expected have several implications for practice in organizations. Mentors were more likely to also have had experience as a protégé, indicating again the value of giving employees the opportunity to be mentored as well as to mentor. The relationship between socio-political knowledge and career satisfaction also has implications for organizations. Socio-political knowledge reflects the ability to make sense of and operate effectively within the social structure of the organization and this has implications for

companies in the ways they operate induction and various training and development opportunities for employees.

While there were no significant differences between mentors and nonmentors when it came to work ruminations, it is interesting to note that this group of retirees, many well beyond the transition to retirement, still experienced unwelcome recurring thoughts about their past work. This is deserving of future research. Overall, it would also be beneficial to track the effect of mentoring experience in contributing to this outcome for older workers as they approach, transition, and settle into retirement using a longitudinal design.

In this study, age at retirement was positively correlated with career satisfaction and negatively correlated with work ruminations indicating that retiring later rather than earlier was preferred by this group largely consisting of individuals with a professional or business background. Repeating the study with retirees from other occupations (e.g., those incorporating manual labour) may not necessarily replicate this result. Studies testing links between career satisfaction and a corresponding reduction in work ruminations, to variables associated with the successful adjustment to retirement would also be beneficial.

Future studies could also investigate the willingness to mentor of newly retired individuals. There is a trend for companies to harness the knowledge and experience of its ex-employees through mentoring and/or consulting roles in retirement (DeLong, 2004). It would be interesting to examine the roles of career satisfaction and work ruminations in predicting willingness to return as a mentor under these circumstances.

### **Limitations**

Limitations with this study revolved around sampling. The mean length of retirement was over ten years for this sample, which may have diminished any effects that experience as a mentor may have had upon both career satisfaction and work ruminations during or immediately following the transition to retirement. There were also methodological

limitations in the current study to be aware of. Issues regarding common method variance involve a concern with the inflated size of relationships between variables due to the method rather than the constructs themselves (Campbell & Fisk, 1959; Podsakoff, Scott, & MacKenzie, 2003; Spector, 2006). In the current study there were concerns regarding item context effects, specifically item priming effects (Podsakoff et al., 2003) through the ordering of various scales in the questionnaire. According to Podsakoff et al. (2003) the “position of a predictor (or criterion) variable on the questionnaire can make that variable more salient to the respondent and imply a causal relationship with other variables” (p.882).

In this questionnaire the organizational memory scale was completed before the career satisfaction scale, although it should be noted that there were several other scales placed between the measures (see Appendix D). The positive effects of life review on satisfaction outcomes have been outlined already, and it could be that the relationship between organizational memory and career satisfaction was inflated as a result of participants favourably reviewing the breadth and depth of their knowledge earlier in the questionnaire. In future these effects may be neutralised through the use of a counterbalanced question order.

## **Conclusion**

While this study did not support the hypothesis that mentors would have greater career satisfaction and fewer work ruminations than nonmentors, interestingly the results show that there are still lingering thoughts about work well into retirement of both a positive (career satisfaction) and unwelcome nature (work ruminations), and this finding suggests potential in a longitudinal investigation over the retirement transition. The study findings have identified a relationship between socio-political knowledge and career satisfaction with implications for practice in terms of organizational practices like induction and development initiatives (including mentoring) that may facilitate and enhance the acquisition of this type of knowledge.

## CHAPTER SIX

### **Experienced Workers and Mentoring: Willing and Able?**

Despite strong concerns about the brain drain, most employers have not yet taken a holistic approach to the design and implementation of their workplace practices and programs aimed at transferring knowledge from their aging workforce to younger workers.

MetLife Report: The Emerging Retirement Model Study, December 2009, (p.4).

This chapter begins by reiterating the rationale for the current research. It summarises the findings of the research in terms of the assumptions made about older workers and organizational memory and mentoring, and describes some implications of these findings for future research and applications for practice in organizations. The chapter also evaluates the contribution made by the research on the basis of the objectives outlined in the introduction to the thesis, while also summarising the major limitations in the studies.

#### **The Potential Loss of Organizational Memory: A Continuing Concern**

In the time since the programme of research for this thesis was begun, the worldwide economic recession has altered the fears employers have had about the aging of the workforce. The MetLife (2009) report on “The Emerging Retirement Model Study” published at the time of writing acknowledged that due to the recent market declines, older workers are opting to continue working for immediate and financial needs, rather than for just the mental/social stimulation of their work. The MetLife survey found that employer anxieties about the aging workforce now centre on the impending knowledge drain. The implications for the 240 companies (each with over 1,000 employees) that participated in the survey are that strategies to encourage the longevity of the workforce have taken a backseat to those which focus on harnessing the knowledge resources that older workers represent.

Companies have been given a second chance to ensure this happens. However the MetLife study also suggested that this reprieve may not be helpful if it leads to the false sense of security suggested by the quote opening this chapter. Among the range of strategies to transfer knowledge used by the organizations surveyed by MetLife, was a continuing reliance on mentoring programmes to ensure knowledge transfer between older and younger workers. It would seem that more than ever research is needed to investigate the efficacy of knowledge management strategies, and in particular intergenerational mentoring, within companies.

### **Main Research Findings: Testing Assumptions**

The purpose of this thesis was to test some assumptions that appear in the human resource management literature about older workers as repositories of organizational memory, and their willingness to mentor others (e.g. Beehr & Bowling, 2002; Critchley, 2004; Dychtwald, Erickson, & Morison, 2006; Hankin, 2005; Hedge, Borman & Lammlein, 2006). The assumptions were:

- 1) Older workers have valued knowledge and experience, and are significant repositories of organizational memory.
- 2) Older workers anticipate, and are more likely to experience, positive outcomes from mentoring others.
- 3) Older workers are particularly amenable to passing on their knowledge to others in the organization through their willingness to leave a legacy and/or desire to give back to their organizations.

The following section relates findings from the current research to the above assumptions.



### **Development of an Organizational Memory Scale**

The first step taken in order to test the above assumptions was the development of a reliable and valid measure of organizational memory. The first study drew on construct definition work that identified the types of organizational memory considered optimally transferable through mentoring. The exploratory factor analysis in Study 1 resulted in five correlated factors of organizational memory, including socio-political knowledge, job knowledge, external network, history, and industry knowledge. Confirmation of these five first order factors, and a second-order factor, organizational memory, was achieved with both employee and retiree samples in Study 2, with acceptable to very good internal reliability (coefficient alphas) for all subscales. There was also some support for the test-retest reliability of several of the subscales in the employee sample.

The subsequent studies in the thesis have each supported to some degree, the proposed relationships between organizational memory and constructs that have been theoretically or anecdotally hypothesised to be related to this resource. The organizational memory subscales identified are not an exhaustive list of the categories of organizational memory relevant to an organization's competitive advantage, and there remains potential to add to these, but those identified do provide a starting point in terms of a relatively brief measure of organizational memory.

### **Older Workers as Repositories of Organizational Memory**

Study 3 began by testing the relationships between organizational memory, age, and organizational tenure, the latter two variables sometimes used as proxy measures for the knowledge gained through experience. While organizational memory was related to both of these variables, organizational tenure was found to mediate the relationship between age and organizational memory, indicating that while many older workers have acquired considerable knowledge, not all older workers necessarily match that description, and that tenure is a

further qualifier. This brings into question the assumption that all older people are able mentors. While many older workers are significant knowledge repositories in their organizations, age does not necessarily amount to having the necessary knowledge resources for mentoring.

While some employers seem to be aware of the need to move beyond age to other criteria when targeting potential mentors (e.g., McPherson, 2008a) there was also some indication in Study 3 that others still pinpoint age as a means of recognising organizational knowledge repositories. Age predicted total requests to share knowledge (combined total of requests from team members, managers, and associates) even when controlling for organizational tenure. This may point to a “positive” stereotype about the knowledge and experience of older workers. Others may seek information from older workers as a matter of course. Furthermore, requests to share knowledge (which included items regarding requests for opinions, and for information about the organization’s politics, procedures, policies, as well as past) was predicted by the history subscale of organizational memory. This may indicate that those requesting information tend to approach co-workers with knowledge of the history of the organization, possibly expecting that they will have strengths in many other knowledge domains also, when this may not necessarily be so.

### **Positive Outcomes for Mentors**

Also in Study 3, organizational memory accounted for unique variance in several positive outcomes that were proposed, including empowerment, requests to share knowledge, and (through job knowledge) organization-based self-esteem. The frequency with which one is requested to mentor and/or train others in the organization, and the meaning and impact knowledgeable employees find in their work were also related to organization-based self-esteem. The results of this study indicated, as the assumption suggests, that experienced

workers can in many instances expect positive outcomes from being recognised repositories of organizational memory, especially when they take on mentoring roles.

Study 5 in this thesis also investigated if mentoring others at work was associated with positive outcomes for individuals, this time by focusing on levels of career satisfaction, and a corresponding reduction in unwelcome work ruminations in retirement. There was, however, no support for differences between mentors and nonmentors for either outcome in the study. The retirees who participated in this study were on average, well advanced into their retirement and arguably, any positive outcomes that acting as a mentor may confer upon individuals may be more apparent during or immediately after the initial transition rather than in later retirement.

### **Experienced Workers and Willingness to Mentor**

Study 4 investigated the relationship between organizational memory and the intention to mentor. Several mediators and moderators of this relationship, thought to be relevant to the context of an ageing workforce, were tested. As expected, generativity, the motivation often invoked when discussing the willingness of experienced workers to mentor (e.g., Lindenberger & Stolz-Loike, 2005; Kram, 1985), accounted for unique variance in the intention to mentor over other positive motivations like personal reputation, personal satisfaction and the desire to contribute to the organization. Generativity also mediated the relationship between organizational memory (in the form of socio-political knowledge) and the intention to mentor. It would seem that those who have organizational memory (i.e., experienced employees) may also experience an imperative to pass their knowledge on to those who need it, to resource others, and to leave a legacy. At the same time, several potential costs of mentoring related to knowledge sharing were also investigated, one of which (the cost of time and effort involved in mentoring) negatively predicted the intention to

mentor and also mediated the relationship between organizational memory and mentoring intentions.

Of particular interest in this study, was the finding that those employees with both high levels of organizational memory and occupational self-efficacy identified more cost of time and effort, and less intention to mentor, than those with high organizational memory and low occupational self-efficacy. The findings suggest that there may be a group of efficacious, experienced workers who are less enthusiastic about participating as mentors. This might come as the result of already having a number of demands on their time. Then again, these employees may place such a high value on their knowledge and skills that they exercise further discretion as to when and to whom they will share their knowledge. An alternative explanation suggests that those with high organizational memory and less occupational self-efficacy are more inclined to disregard the cost of mentoring and have more intentions to mentor, perhaps to gain further confidence. This finding is a caveat to the assumption that experienced workers will necessarily be willing as well as able mentors.

There is also some suggestion from the findings in Study 3 and Study 4 that those who are more enthusiastic about mentoring others may differ in their knowledge base (e.g., socio-political knowledge) from those sought as mentors within the organization due to knowledge in other domains (e.g., job knowledge and history) although in many cases, the individual who has extensive socio-political knowledge is also likely to have strengths in those other areas. This result too may indicate a possible caution that those who are willing to mentor others may not necessarily be able (with the required knowledge base) to do so.

### **Implications of the Findings for Future Research**

There is scope for the further development of the organizational memory scale. The inclusion of more items reflecting job expertise may be beneficial for the job knowledge subscale. Additional items for the history and industry knowledge subscales may also be

indicated to improve the internal consistency of each and to ensure a stable factor structure in future outings.

Future research also needs to look further at the potential antecedents and outcomes of organizational memory. Possible antecedents include a continuous learning orientation, and participation in training and development opportunities, including a continuing focus on involvement in mentoring relationships as either protégé or mentor among other initiatives. In particular, there is a need to explore the role of a training dependent work pattern in producing repositories of organizational memory (e.g. Barth, McNaught, & Rizzi, 1993).

As already suggested elsewhere in this thesis, comparative research across a number of organizational cultures and knowledge management strategies would also be worthwhile, with regards to potential predictors of willingness to mentor. Examining the roles of trust and competitiveness in company culture are likely keys.

A further set of assumptions (that mirror the ones addressed in this thesis) could be tested with regards to the willingness of younger and/or less experienced workers to be mentored. There is some evidence of changing attitudes to older and experienced workers. A New Zealand survey conducted with recruitment specialists, acknowledged that employers were becoming increasingly aware of the value of hiring older workers, and that in some cases (e.g., in the trades and industrial sector) mature workers were preferred over younger workers (McPherson, 2008b). Effective knowledge management in companies will also depend on the degree to which younger and older, novice and experienced workers are able to learn from each other. Co-learning as opposed to the more “one-sided” nature of conventional mentoring is an important feature of continuous learning (Hall & Mirvis, 1995). As Brooke and Taylor (2005) concluded, “policy makers need to consider inter-age, or the issues concerning the mix of young and older workers or ‘age diversity’, rather than just the interests and utilisation of so-called ‘older workers’” (p.426). Research that examines

willingness to mentor as well as willingness to be mentored within all age and experience groups in organizations may be beneficial.

There is also some potential in future research to address the sampling issues experienced in Study 5, the retirement study. Investigating the research questions with individuals in early rather than late retirement, may yield the significant results expected but lacking from the study in this thesis. The incorporation of a longitudinal study design has the potential to provide valuable results, tracking the effects of career satisfaction and work ruminations over the course of the retirement transition.

### **Implications of the Findings for Organizations**

With the aging of the workforce becoming an increasingly influential factor in human resource management, theorists, researchers, and practitioners, must together move beyond talking in generalities about older workers. Human resource management strategies need to focus on individual attributes rather than assumptions made about age (Sterns & Miklos, 1995). The negative and “positive” stereotypes that abound about the performance characteristics of older workers are less than useful. Studies that have examined age-related decline in physical and cognitive function have found that while on average decline exists in some areas, that there is also more variability among individuals in this age group than in any other (Sterns & Miklos, 1995). In that case, negative stereotypes have the potential to be particularly damaging for this generational group. However the positive stereotypes that exist about older workers in terms of organizational memory and mentoring are also potentially misleading. Not all older workers will have the organizational memory to mentor others. Not all older workers with organizational memory will necessarily want to mentor others. Long-tenured workers who have not received ongoing training may not represent viable knowledge repositories. Accordingly, organizations must not be complacent about their role in ensuring a steady stream of able mentors through the provision of continuing training and development.

A life span approach to career development is central to providing resilience in an era of rapid change (Sterns & Dorsett, 1994). Maintaining professional competence while warding off skill obsolescence means that career development cannot be just for the young, new, and/or inexperienced employee.

In their quest to ensure that there is a continuing supply of able mentors, organizations also need to do their best to create a climate where those individuals are also willing to mentor. The current research has highlighted the concerns experienced and efficacious workers have regarding the time and effort involved in mentoring. It is possible that this “acceptable” mentoring concern may mask other concerns including the possibilities of exploitation or fears about job security. At the very least there needs to be careful management of the time demands experienced workers already face on the job, if they are also to be targeted as mentors for knowledge transfer purposes. Mentors and protégés need to be given the time to ensure the mentoring relationship can be successful (Piktialis & Greenes, 2008).

There are also strategies for creating corporate cultures that facilitate knowledge sharing. The benefits of building a relational culture is a common theme in the literature. Bryant (2005) for example, found that higher perceived levels of peer mentoring were associated with perceptions of higher levels of knowledge creation and sharing. Cross and Baird (2000) suggested relationships that facilitate knowledge sharing often develop after individuals have participated in groups and/or on projects with one another. They considered this achieves two purposes in that the time spent working together builds the reciprocity and trust required to share knowledge, and secondly leads to awareness among co-workers as to the specific knowledge each holds.

The current research has shown the relationship that generativity has with intention to mentor. The desire to leave a legacy and to resource others less experienced, should not be

overlooked in a life-span approach to career development in organizations and it is likely that altruistic motivations will flourish where trust also abounds in organizations. McInerney and Mohr (2007) suggest that in organizations where there is “an active interest in learning, innovation and continuous change,” that, “knowledge sharing in order to achieve the organization’s mission becomes routine” (p.65).

When intellectual property concerns arise, trust can provide reassurance for knowledge sharing activities. According to McInerney and Mohr (2007) traditionally, rather than viewing knowledge sharing as an intrusion, knowledgeable employees willingly shared what they knew through conversation, mentoring, apprenticeships and formal teaching methods. There is some acknowledgement that short-termism works against trust, while a longer shared history between employees can build this vital component (e.g., Bright, 2005; Cross & Baird, 2000; McInerney & Mohr, 2007). In competitive environments other steps can be taken to encourage knowledge sharing. McInerney and Mohr (2007) proposed that benefits like recognition and status within the organization could be further emphasised when recruiting mentors. They suggest encouraging employees to mentor with the understanding that sharing their knowledge increases organizational power, and the power of those within it. The call to employees to leave a legacy might also feature here.

### **Contribution of the Research**

A number of research objectives were outlined to test the assumptions outlined in the thesis. These were the following:

- To contribute to the understanding of the measurement issues in this area, including the development of a self-report organizational memory scale.



- To empirically test a model of organizational memory and empowerment, including investigating the potential work-related antecedents and positive outcomes of organizational memory.
- To empirically test a model of organizational memory and the intention to mentor, including predicted mediators and moderators of the relationships between organizational memory and the expected costs of mentoring, and organizational memory and the intention to mentor.
- To empirically test the predicted differences between those with and without experience as a mentor in achieving career satisfaction and a corresponding reduction in unwelcome work ruminations in retirement.
- To outline the implications of the research findings for organizational practice and future research, with a particular focus on contributing to the literature on the aging workforce, knowledge management and mentoring.

In accomplishing the above objectives, the studies in this thesis have made several contributions to the research literature including the development of a reliable and valid measure of organizational memory as outlined earlier in the chapter. The scale is suitable for inclusion with other measures for the investigation of research questions around the transfer of knowledge whether by mentoring or any other means. Other measurement tools have also been created (e.g., requests to share knowledge), or adapted (e.g., the expected costs of mentoring and work ruminations scales) for the purposes of this research, and with further development, show potential for use in future research studies.

Studies in this thesis also proposed and tested two models, a model of organizational memory and empowerment, and a model of organizational memory and the intention to mentor, taking into consideration the context of an ageing workforce. Support was found for

both models. Finally, while it is as yet unclear as to whether the positive effects of mentoring others continue beyond the transition to retirement, interestingly, the research has shown that unwelcome thoughts about one's past work do endure well into retirement, and this itself has potential for further research.

In summary, the research questions in this thesis asked if older workers are indeed both *willing* and *able* mentors in their organizations, a matter of relevance to the organization's ability to create, locate, retain, and transfer knowledge in order to maximise competitive advantage. However the research also had relevance for the wellbeing of older workers themselves. *Active ageing* is "the process of optimising opportunities for health, participation and security in order to enhance the quality of life as people age" (World Health Organization, 2002, p.12). A core policy of active ageing is to encourage older people's continued participation in the labour market, and this implies the importance given to the creation and maintenance of meaningful work roles for them. This research has confirmed (with some caveats) that the roles of organizational memory repository and mentor are still relevant for many older workers, and this is something organizations need to bear in mind in their human resource management strategies.

### **Limitations**

Among the limitations to this research has been a reliance on cross-sectional as opposed to longitudinal data, a lack of counterbalancing of the measures within study questionnaires to offset potential risks of common method variance, and in some studies (e.g. Study 4 and to a lesser extent Study 5) relatively small sample sizes with issues for statistical power. There were also specific sampling issues in Study 5.

Efforts were made to minimise concerns about the social desirability of responses through the anonymity of participants in the studies, and some effort was made to address common method variance through a study design incorporating two parts enabling data to be

collected over two different points in time (e.g., Study 4). Furthermore, some effort was made to check for response bias with the inclusion of a marker variable (i.e., Study 3). Giving continued attention to the precautions that were taken, as well as monitoring sample size to maximise statistical power, counterbalancing questionnaire measures, and incorporating longitudinal study designs where practicable, are likely to be beneficial in future studies.

### **Conclusion**

The promotion and development of older workers as repositories of organizational memory and mentors may in most cases be the “win-win” solution it appears to be. However, the current research has also identified several potential caveats to the assumptions that older workers are repositories of organizational memory, that they experience (and therefore can anticipate) positive outcomes for taking on a mentoring role, and that they are willing to pass on their knowledge as a matter of course. These findings should not undermine the understanding that in general, many older workers are significant repositories of organizational memory, and are willing to share their knowledge.

When all is considered, employees at mid-career and beyond do represent potential competitive edge for organizations. Knowledge and expertise accrue over time. The outcomes of any one employee’s investment in tenure may rest largely on the extent to which they have pursued continuous learning and been given access to opportunities for development throughout their careers. It may also depend on the degree to which they have been furnished with the time, and the organizational cultures and norms that facilitate successful mentoring relationships. These characteristics will likely be highly influential in maximising the number of individuals who remain up-to-date in their skills and knowledge, and who are motivated to pass on their knowledge through mentoring. The ongoing goal is to ensure that employees have both the means, and the inclination, to pass on their prized knowledge, and contribute to the competitive advantage of their organizations.

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## Appendix A

### Organizational Memory EFA Study Questionnaire

## QUESTIONNAIRE

### Organisational Memory

**Please read the following note before completing the questionnaire.**

NOTE: You are invited to participate in the research project “Development of an Organisational Memory Scale”. The aim of this project is to test proposed items for a scale of organisational memory in individuals.

Your participation in this project will involve completion of a questionnaire, which asks you to assess your own knowledge of various aspects of organisational life based on the organisation you are in now. Firstly, there are several demographic questions for you to answer, which will allow the researcher to understand what role demographic factors play in the acquisition of organisational memory. The total questionnaire takes approximately 15 -20 minutes to complete. You are asked not to discuss the questions with your co-workers while you are completing the questionnaire.

The project is being carried out as a requirement for the degree of Doctor of Philosophy by Annette Dunham under the supervision of Dr. Chris Burt and Professor Simon Kemp. The primary researcher, Annette Dunham, can be contacted at (03) 366 7001, ext. 3634. She will be pleased to discuss any concerns you may have about participation in the project.

The questionnaire is anonymous, and you will not be identified as a participant without your consent.

You may withdraw your participation, including withdrawal of any information you have provided, until your questionnaire has been added to the others collected. Because it is anonymous, it cannot be retrieved after that.

**By completing the questionnaire it will be understood that you have consented to participate in the project, and that you consent to publication of the results of the project with the understanding that anonymity will be preserved.**

**Please answer the following demographic questions:**

1. **What is your gender?** (Please tick the box to indicate your gender)

Male	<input type="checkbox"/>
Female	<input type="checkbox"/>

2. **Age** \_\_\_\_\_ **Years**

3. **Education**

Please indicate the years of secondary (and if applicable), tertiary education you have had.

<b>Education</b>	<b>Total Years</b>
Secondary	
Tertiary	

4. **What is your current job title?** \_\_\_\_\_

5. **Please tick the box that indicates your current position within the organisation.**

Team Member	<input type="checkbox"/>
Middle Manager/Team Leader	<input type="checkbox"/>
Senior Manager/Team Leader	<input type="checkbox"/>
Chief Executive Officer	<input type="checkbox"/>

6. **Number of Jobs**

	<b>Total</b>
How many other organisations have you worked for within this industry? (Total number including full-time and part-time)	
How many jobs have you had in total, whether in this organisation, industry, or another, since leaving secondary school? (Total full and part-time)	

7. **Work Tenure**

	<b>Years</b>	<b>Months</b>
How long have you been employed in your current job?		
How long have you worked in this organisation whether in this job or any other role?		

**Please ensure you have completed all items before you turn the page**

### Organisational Memory Scale

When an individual enters an organisation to work, over time, they acquire knowledge about how things are done in that particular organisation – how things operate, the procedures, the lines of communication (formal and informal), acceptable behaviour and practices, and organisational traditions, as well as the specific skills and knowledge related to their job. Organisational memory refers to this organisational knowledge gained over time. This questionnaire asks you to estimate how much memory or knowledge you have about aspects of your work and organisation.

In this questionnaire, definitions for the terms “co-workers,” “colleagues,” “managers/management,” “associates” and “stakeholders” are as follows.

Please estimate, in the boxes that follow each term, the approximate number of individuals you consider fit that description for you.

“**Co-workers**” describes others in your organisation that you interact with in order to meet your job goals and objectives

“**Colleagues**” refers to other individuals who work in your organisation

“**Managers/ Management**” refers to individuals who you are directly responsible to for your work, including supervisors and/or team leaders.

“**Associates**” refers to others you interact with in order to meet your job goals and objectives who are not members of your organisation, and who are not clients or shareholders.

“**Stakeholders**” refer to others, like clients or shareholders that you may relate to in the course of your work.

Please respond to the following items by **circling a number** on the scale provided beside each statement that indicating your assessment of your knowledge.

When I encounter a problem in my work, I need to ask <b>co-workers</b> who to go to for help.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know ‘who’ supports ‘who’ when it comes to my <b>co-workers</b> .	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I do not know of ways to get an idea heard here apart from formal procedures.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have not yet learned the basics of my job	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know which behaviours upset the <b>management</b> of this organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have little knowledge of how different <b>managers</b> have responded to crises.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree

**Please ensure you have completed all items before you turn the page**

I have a network of <b>associates</b> for the mutual sharing of work-related information.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know who has the real power in this organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I quickly get to the core of the matter when it comes to making decisions in my work tasks.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have little experience of how decisions are made in this organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I am not sure which behaviours you can get away with in this organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have a good understanding of the work strengths of my <b>co-workers</b> .	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I do not know whom you should consult in order to get a request heard here.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I can describe the sort of person who will rapidly advance in this organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have learned how to operate in my job in an efficient manner	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know how to avoid reprimand in this organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know examples of effective leadership in this organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have a good idea of “who knows what” in this organisation	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know how to advance an idea in this organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know how similar organisations in this industry are performing.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know the major turning points in this organisation’s past.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have mastered the required tasks of my job.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I do not know of organisational rules that can be broken without penalty.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know who was considered responsible for major errors in this organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree

**Please ensure you have completed all items before you turn the page**

I know which of my <b>co-workers</b> have expertise you can rely on.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know the aspects of my job that are particular to this organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know which <b>stakeholders'</b> opinions matter most to the organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I do not know how budgets are constructed in this organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I am not aware of any 'unwritten rules' in this organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know the origins of most organisational traditions.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know which <b>associates</b> to go to for accurate industry news.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know what represents this organisation's major threat in this industry.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have not yet developed the appropriate skills necessary to perform my job.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I do not understand why certain behaviours are considered inappropriate here.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know what the organisation regrets most about its past.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know how this organisation differs to others in what behaviours are acceptable.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have difficulty understanding the jargon used in this organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know which mistakes have really hurt this organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
My performance in my work tasks often feels awkward.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I am not aware of informal collaboration(s) among my <b>colleagues</b> .	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know who represents the model of acceptable behaviour in this organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know which <b>co-workers</b> to go to for a second opinion in my work tasks.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree

**Please ensure you have completed all items before you turn the page**

I know how well this organisation has performed compared with others.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have few <b>associates</b> that I can go to for work related feedback.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I am not aware of how the 'grapevine' works in this organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have little experience to draw upon when solving problems in my work tasks.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know which achievements will be celebrated in this organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I do not know when <b>co-workers</b> have overstepped the boundaries of acceptable behaviour.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I can identify different styles of leadership at work in this organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know which <b>co-workers</b> are likely to share their knowledge when asked to do so.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I cannot predict how <b>colleagues</b> are likely to respond to organisational decisions.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I understand what the duties of my job entail.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know how other organisations in this industry operate.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know what has been considered the major success of this organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know which <b>associates</b> to go to for good work-related advice.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know where 'corners can be cut' without affecting the quality of my work.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I do not know what this organisation considers its main priority.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I do not know which practices will be punished by this organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know whom you cannot afford to offend in this organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I am not aware of any mistakes the organisation has made.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree

**Please ensure you have completed all items before you turn the page**

I know the personal characteristics that make a person a good 'fit' here.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I do not know how up-to-date my <b>co-workers</b> are in their work-related knowledge.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know who belongs to which clique in the organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I can think of exception(s) to the rule I am applying when solving problems in my work.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know what organisational decisions will mean for different departments.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know how to avoid the disapproval of <b>management</b> here.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know who has been responsible for the major decisions made in this organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know which <b>stakeholders</b> give valuable work-related feedback.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know whose support you need in the organisation to make an idea work.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
Accomplishing my work tasks seems like second nature to me.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know the organisation's priorities when it comes to resource allocation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know the reputation this organisation has in the industry.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree

**END**

**Please check that you have answered all the questions.**

**Thank you for your participation.**



## Appendix B

### Organizational Memory and Empowerment Questionnaire Parts I and II

## QUESTIONNAIRE

### **Organizational Memory (Validation Study Part I)**

**Please read the following note before completing the questionnaire.**

NOTE: You are invited to participate in the research project “Validation of an Organizational Memory Scale”. This project aims to test the validity and reliability of a newly developed Organizational Memory Scale.

Participation involves completion of a questionnaire, asking you to assess your knowledge of various aspects of your work and organization along with several associated short scales and demographic questions that will allow the researcher to understand what role these play in organizational memory. The total questionnaire takes approximately 15-20 minutes to complete. You are asked not to discuss the questions with your co-workers while you are completing the questionnaire.

In several weeks time you will be asked to complete a second questionnaire about organizational memory. Both questionnaires are anonymous, and you will not be identified as a participant without your consent. However as this study involves two parts, you will be asked to create a personalised code in this questionnaire (known only by you) so that both parts can be matched by the researcher. A post-paid envelope is provided for you to send your completed questionnaire to the researcher

Annette Dunham is carrying out the project as a requirement for the degree of Doctor of Philosophy under the supervision of Associate Professor Chris Burt and Professor Simon Kemp. She will be pleased to discuss any concerns you may have about participation in the project and can be contacted at (03) 366 7001, ext. 3634.

You may withdraw your participation, including withdrawal of any information you have provided, until your questionnaire has been added to the others collected.

**By completing the questionnaire it will be understood that you have consented to participate in the project, and that you consent to publication of the results of the project with the understanding that anonymity will be preserved.**

## 1. Organizational Memory Scale

During the time a person works in a company/organization, they acquire knowledge about how things are done in that particular organization – how things operate, the procedures, the lines of communication (formal and informal), acceptable behaviour and practices, and organizational traditions, as well as the specific skills and knowledge related to their job. Organizational memory refers to this knowledge gained through experience. This questionnaire asks you to estimate how much memory or knowledge you have about aspects of your work and company/organization.

In this questionnaire:

“**Co-workers**” describes others in your organization that you interact with in order to meet your job goals and objectives

“**Associates**” refers to those whom you interact in the process of your work and their work, but who work outside of your organization.

A “**clique**” is an unofficial group of people within an organization, with common interests or views, who do not readily allow others to join them.

Please respond to the following items by **circling a number only** (not the words) on the scale provided beside each statement indicating your assessment of your knowledge of your **current** organization. For example:

Strongly Disagree 1 2 **3** 4 5 6 7 Strongly Agree

### Please Start Here :

I know who has been responsible for the major decisions made in this organization.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know who represents the model of acceptable behaviour in this organization.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have a good idea of “who knows what” in this organization	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know how to advance an idea in this organization.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know the personal characteristics that make a person a good ‘fit’ here.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know whose support you need in the organization to make an idea work.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know what organizational decisions will mean for different departments.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I do not know whom you should consult in order to get a request heard here	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I do not know of ways to get an idea heard here apart from formal procedures.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree

**Please ensure you have completed all items before you turn the page**

I am not sure which behaviours you can get away with in this organization.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I do not know when <b>co-workers</b> have over-stepped the boundaries of acceptable behaviour.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I am not sure how the grapevine works in this organization.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have little experience of how decisions are made in this organization.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have difficulty understanding the jargon used in this organization.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have learned how to operate in my job in an efficient manner.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have mastered the required tasks of my job.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I understand what the duties of my job entail.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know the aspects of my job that are particular to this organization.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know where 'corners can be cut' without affecting the quality of my work.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I can think of exception(s) to the rules I am applying when solving problems in my work.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know who belongs to which <b>clique</b> in the organization.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know how to avoid the disapproval of management here.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know which <b>associates</b> to go to for good work-related advice.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know which <b>associates</b> to go to for accurate industry news.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have a network of <b>associates</b> for the mutual sharing of work-related information.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know which mistakes have really hurt this organization.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know what the organization regrets most about its past.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know how well this organization has performed compared with others.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know the major turning points in this organization's past.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree

**Please ensure you have completed all items before you turn the page**

I know who was considered responsible for major errors in this organization.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know how other organizations in this industry operate.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know how similar organizations in this industry are performing.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know what has been considered the major success of this organization.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree

2. Please respond to the following items by **circling a number** on the scale provided beside each statement indicating your assessment of your attitudes to your work.

The work I do is very important to me.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
My job activities are personally meaningful to me.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
The work I do is meaningful to me.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I am confident about my ability to do my job.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I am self-assured about my capabilities to perform my work activities.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have mastered the skills necessary for my job.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have significant autonomy in determining how to do my job.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I can decide on my own how to go about doing my work.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have considerable opportunity for independence and freedom in how I do my job.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
My impact on what happens in my department is large.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have a great deal of control over what happens in my department.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have significant influence over what happens in my department.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree

**Please ensure you have completed all items before you turn the page**

3. Think about the messages you receive from the attitudes and behaviours of the managers/supervisors within your company/organization to indicate your agreement or disagreement with the following statements:

**Please circle a number on the scale provided beside each item.**

I count around here.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I am taken seriously around here.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I am important around here.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I am trusted around here.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
There is faith in me around here.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I can make a difference around here.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I am valuable around here.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I am helpful around here.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I am efficient around here.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I am cooperative around here.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree

4. The following list contains a number of values that individuals support or oppose to various degrees. Please respond to the following items by **circling a number** on the scale provided beside each item indicating how much you share or are opposed to each value:

Protecting the environment	Opposed to My Values	1	2	3	4	5	6	7	Of Supreme Importance to Me
A world of beauty	Opposed to My Values	1	2	3	4	5	6	7	Of Supreme Importance to Me
Unity with nature	Opposed to My Values	1	2	3	4	5	6	7	Of Supreme Importance to Me
Being Broad-minded	Opposed to My Values	1	2	3	4	5	6	7	Of Supreme Importance to Me
Social Justice	Opposed to My Values	1	2	3	4	5	6	7	Of Supreme Importance to Me
Wisdom	Opposed to My Values	1	2	3	4	5	6	7	Of Supreme Importance to Me
Equality	Opposed to My Values	1	2	3	4	5	6	7	Of Supreme Importance to Me

Scale continued over the page

Please ensure you have completed all items before you turn the page

A world at peace.	Opposed to My Values	1	2	3	4	5	6	7	Of Supreme Importance to Me
Inner harmony	Opposed to My Values	1	2	3	4	5	6	7	Of Supreme Importance to Me

5. Please respond to the following items by **circling a number** (not words) on the scale provided beside each statement indicating the frequency of work-related requests you receive:

How frequently have your **Associates** (outside of your company/organization):

Sought your advice on an industry related matter?	Not at All	1	2	3	4	5	6	7	Very Frequently
Sought your opinion on an industry related matter?	Not at All	1	2	3	4	5	6	7	Very Frequently
Referred someone in the industry to you for your help or advice?	Not at All	1	2	3	4	5	6	7	Very Frequently
Asked you for industry related information?	Not at All	1	2	3	4	5	6	7	Very Frequently

How frequently have **Team Members** (i.e. not Managers) in your company/organization:

Sought your feedback about their work performance?	Not at All	1	2	3	4	5	6	7	Very Frequently
Sought your opinion on work matters?	Not at All	1	2	3	4	5	6	7	Very Frequently
Asked you about important policies and procedures in your organization?	Not at All	1	2	3	4	5	6	7	Very Frequently
Asked you about an aspect of the organization's past?	Not at All	1	2	3	4	5	6	7	Very Frequently
Asked you about the politics within the organization?	Not at All	1	2	3	4	5	6	7	Very Frequently

How frequently have **Manager(s)** in your company/organization:

Sought your opinion on work matters?	Not at All	1	2	3	4	5	6	7	Very Frequently
Asked you to help train or mentor a colleague or co-worker?	Not at All	1	2	3	4	5	6	7	Very Frequently
Asked you about important policies and procedures in your organization?	Not at All	1	2	3	4	5	6	7	Very Frequently
Asked you about an aspect of the organization's past?	Not at All	1	2	3	4	5	6	7	Very Frequently
Asked you about the politics within the organization?	Not at All	1	2	3	4	5	6	7	Very Frequently

**Please ensure you have completed all items before you turn the page**

Please give the following personal details:

Today's Date: \_\_\_\_\_

6. What is your gender? (Please tick the box to indicate your gender)

Male	<input type="checkbox"/>
Female	<input type="checkbox"/>

7. Age \_\_\_\_\_ Years

8. Please tick the box that indicates your current position with in the organization.

Team Member	<input type="checkbox"/>
Middle Manager/Team Leader	<input type="checkbox"/>
Senior Manager/Team Leader	<input type="checkbox"/>
Chief Executive Officer	<input type="checkbox"/>

9. Number of Industry Jobs

How many organizations (including this one) have you worked for within this industry?	<input type="text"/>
---	----------------------

10. Work Tenure

	Years	Months
How long have you been employed in your current <b>job</b> ?	<input type="text"/>	<input type="text"/>
How long have you worked in this <b>organization</b> whether in this job or any other role?	<input type="text"/>	<input type="text"/>
How long have you worked in this <b>industry</b> (including this organization and any others)?	<input type="text"/>	<input type="text"/>

11. Personal Code

To ensure your anonymity, but to enable the researcher to match the two parts of the current study, please write in the boxes below:

The last three letters of your mother's maiden name + the final three digits from your current home phone number. If you share the same surname as your mother's maiden name, use your grandmother's maiden name. For example, Peter Smith's mother's surname before marriage was Brown. Peter's current home phone number is 325 6938. He would write his code as the following:

O	W	N	9	3	8
---	---	---	---	---	---

Please write your code in these boxes:

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
----------------------	----------------------	----------------------	----------------------	----------------------	----------------------

**END**

Please check that you have answered all the questions in the questionnaire including the above questions and the personal code.

Please place the completed questionnaire in the post-paid envelope provided and send to the researcher. Thank you for your participation.



## QUESTIONNAIRE

### **Organizational Memory (Validation Study Part II)**

**Please read the following note before completing the questionnaire.**

NOTE: You are invited to participate in the research project “Validation of an Organizational Memory Scale”. This project aims to test the validity and reliability of a newly developed Organizational Memory Scale.

Some time ago you were asked to complete a questionnaire which included an Organizational Memory scale. This questionnaire asks you to repeat completion of the same scale, so the researcher can assess the reliability of the scale over time as well as a few demographic questions. The total questionnaire takes approximately 10 minutes to complete. You are asked not to discuss the questions with your co-workers while you are completing the questionnaire.

This questionnaire is anonymous, and you will not be identified as a participant without your consent, but you will be asked for the personalised code you created for the previous questionnaire on organizational memory so that both questionnaires can be matched by the researcher. If you have forgotten the code you used last time, this questionnaire will remind you how to create it again. A post-paid envelope is provided for you to send the completed questionnaire to the researcher.

Annette Dunham is carrying out the project as a requirement for the degree of Doctor of Philosophy under the supervision of Associate Professor Chris Burt and Professor Simon Kemp. She will be pleased to discuss any concerns you may have about participation in the project and can be contacted at (03) 366 7001, ext. 3634.

You may withdraw your participation, including withdrawal of any information you have provided, until your questionnaire has been added to the others collected.

**By completing the questionnaire it will be understood that you have consented to participate in the project, and that you consent to publication of the results of the project with the understanding that anonymity will be preserved.**

## 1. Organizational Memory Scale

During the time a person works in a company/organization, they acquire knowledge about how things are done in that particular organization – how things operate, the procedures, the lines of communication (formal and informal), acceptable behaviour and practices, and organizational traditions, as well as the specific skills and knowledge related to their job. Organizational memory refers to this knowledge gained through experience. This questionnaire asks you to estimate how much memory or knowledge you have about aspects of your work and company/organization.

In this questionnaire:

“**Co-workers**” describes others in your organization that you interact with in order to meet your job goals and objectives

“**Associates**” refers to those whom you interact in the process of your work and their work, but who work outside of your organization.

A “**clique**” is an unofficial group of people within an organization, with common interests or views, who do not readily allow others to join them.

Please respond to the following items by **circling a number only** (not the words) on the scale provided beside each statement indicating your assessment of your knowledge of your **current** organization. For example:

Strongly Disagree 1 2 **3** 4 5 6 7 Strongly Agree

### Please Start Here :

I know who has been responsible for the major decisions made in this organization.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know who represents the model of acceptable behaviour in this organization.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have a good idea of “who knows what” in this organization	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know how to advance an idea in this organization.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know the personal characteristics that make a person a good ‘fit’ here.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know whose support you need in the organization to make an idea work.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know what organizational decisions will mean for different departments.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I do not know whom you should consult in order to get a request heard here	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I do not know of ways to get an idea heard here apart from formal procedures.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree

**Please ensure you have completed all items before you turn the page**

I am not sure which behaviours you can get away with in this organization.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I do not know when <b>co-workers</b> have overstepped the boundaries of acceptable behaviour.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I am not sure how the grapevine works in this organization.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have little experience of how decisions are made in this organization.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have difficulty understanding the jargon used in this organization.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have learned how to operate in my job in an efficient manner.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have mastered the required tasks of my job.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I understand what the duties of my job entail.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know the aspects of my job that are particular to this organization.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know where 'corners can be cut' without affecting the quality of my work.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I can think of exception(s) to the rules I am applying when solving problems in my work.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know who belongs to which <b>clique</b> in the organization.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know how to avoid the disapproval of management here.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know which <b>associates</b> to go to for good work-related advice.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know which <b>associates</b> to go to for accurate industry news.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have a network of <b>associates</b> for the mutual sharing of work-related information.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know which mistakes have really hurt this organization.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know what the organization regrets most about its past.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know how well this organization has performed compared with others.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know the major turning points in this organization's past.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree

**Please ensure you have completed all items before you turn the page**

I know who was considered responsible for major errors in this organization.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know how other organizations in this industry operate.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know how similar organizations in this industry are performing.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know what has been considered the major success of this organization.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree

**Please turn to the next page once you have completed the above items .**

Please give the following personal details:

Today's Date: \_\_\_\_\_

2. What is your gender? (Please tick the box to indicate your gender)

Male	<input type="checkbox"/>
Female	<input type="checkbox"/>

3. Age \_\_\_\_\_ Years

4. Please tick the box that indicates your current position with in the organization.

Team Member	<input type="checkbox"/>
Middle Manager/Team Leader	<input type="checkbox"/>
Senior Manager/Team Leader	<input type="checkbox"/>
Chief Executive Officer	<input type="checkbox"/>

5. Number of Industry Jobs

How many organizations (including this one) have you worked for within this industry?	<input type="text"/>
---	----------------------

6. Work Tenure

	Years	Months
How long have you been employed in your current <b>job</b> ?	<input type="text"/>	<input type="text"/>
How long have you worked in this <b>organization</b> whether in this job or any other role?	<input type="text"/>	<input type="text"/>
How long have you worked in this <b>industry</b> (including this organization and any others)?	<input type="text"/>	<input type="text"/>

7. Personal Code

To ensure your anonymity, but to enable the researcher to match the two parts of the current study, please write in the boxes below:

The last three letters of your mother's maiden name + the final three digits from your current home phone number. If you share the same surname as your mother's maiden name, use your grandmother's maiden name. For example, Peter Smith's mother's surname before marriage was Brown. Peter's current home phone number is 325 6938. He would write his code as the following:

O	W	N	9	3	8
---	---	---	---	---	---

Please write your code in these boxes:

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
----------------------	----------------------	----------------------	----------------------	----------------------	----------------------

END

Please check that you have answered all the questions in the questionnaire including the above questions and the personal code.

Please place the completed questionnaire in the post-paid envelope provided and send to the researcher. Thank you for your participation.

## Appendix C

### Organizational Memory and Mentoring On-line Questionnaire Parts I and II

## **Company A<sup>1</sup> needs your help to improve our understanding of mentoring**

Taking the time to mentor another employee is a vital activity in any organisation. Because of this, we are looking to invest some effort into understanding our mentoring abilities at Company A. As a way to stimulate some discussion in this area and to help begin that process we have the opportunity to participate in some research on the topic.

Annette Dunham is a PhD student at the University of Canterbury with an interest in mentoring and knowledge management. As part of her PhD research, she has devised a study that looks at "organisational memory" and individuals' attitudes about mentoring.

Involvement in the study requires participants to complete two questionnaires spaced a month apart. The first questionnaire looks at organisational memory and the second questionnaire is concerned with attitudes to different aspects of mentoring.

The questionnaires are anonymous, but to enable the researcher to match both questionnaires completed by a participant, you will create a personal code known only to you.

Participation is open to everyone regardless of position or length of time in the organisation. Annette is interested in seeing a wide range of jobs, organisational length of service and levels of managerial responsibility represented in the participants.

How long will it take?

- Completion of the two questionnaires (about 20 minutes each)
- Reading a follow-up e-mail explaining the findings after the returns have been analysed.

If you want to participate then simply access the Instruction Guide & Link to Questionnaire accompanying this email. The link will take you directly to the first questionnaire.

The more participants from all parts of the company the better the understanding we will get and the better platform we will have to further develop our skills in this important area.

Thanks and Regards

Human Resources Manager  
Company A

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<sup>1</sup> Not actual company name.

## INSTRUCTION GUIDE & LINK TO THE QUESTIONNAIRE

### Organisational Memory and Mentoring

#### Part 1: Organisational Memory

**Please read the following note before completing the questionnaire.**

NOTE: You are invited to participate in the research project “Organisational Memory and Mentoring”.

Participation involves completion of two questionnaires approximately a month apart. This first questionnaire asks you to assess your knowledge of various aspects of your work and company/organisation, along with several associated short scales and demographic questions that will allow the researcher to understand what role these play in organisational memory. It takes approximately 15-20 minutes to complete. You are asked not to discuss the questions with your co-workers while you are completing the questionnaire.

In several weeks time you will be asked to complete a further questionnaire about aspects of mentoring at work. Both questionnaires are anonymous, and you will not be identified as a participant without your consent. However as this study involves two parts, you will be asked to create a personalised code in this questionnaire (known only by you) so that both parts can be matched by the researcher.

Here is the link to the questionnaire : <http://www.surveymoz.com/s/63903/organisational-memory-and-mentoring-part-1>

Annette Dunham is carrying out the project as a requirement for the degree of Doctor of Philosophy under the supervision of Associate Professor Chris Burt and Professor Simon Kemp. She will be pleased to discuss any concerns you may have about participation in the project and can be contacted at (03) 366 7001, ext. 3634.

**By completing the questionnaire it will be understood that you have consented to participate in the project, and that you consent to publication of the results of the project with the understanding that anonymity will be preserved.**







**13. I have little experience of how decisions are made in this organization.**

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**14. I have difficulty understanding the jargon used in this organization.**

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**15. I have learned how to operate in my job in an efficient manner.**

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**16. I have mastered the required tasks of my job.**

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**17. I understand what the duties of my job entail.**

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**18. I know the aspects of my job that are particular to this organization.**

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**19. I know where 'corners can be cut' without affecting the quality of my work.**

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**20. I can think of exception(s) to the rules I am applying when solving problems in my work.**

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**21. I know who belongs to which clique in the organization.**







**46. The organization really cares about my well-being.**

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**47. The organization is willing to extend itself in order to help me perform my job to the best of my ability.**

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**48. Even if I did the best job possible, the organization would fail to notice.**

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**49. The organization cares about my general satisfaction at work.**

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**50. The organization shows very little concern for me.**

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**51. The organization cares about my opinions.**

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**52. The organization takes pride in my accomplishments at work.**

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*Please respond to the following on the scale provided below each statement indicating how much you agree or disagree*

**53. Thanks to my resourcefulness, I know how to handle unforeseen situations in my job.**

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
------------------------	---	---	---	---	---	---------------------

**54. If I am in trouble at my work, I can usually think of something to do.**

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**55. I can remain calm when facing difficulties in my job because I can rely on my abilities.**

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**56. When I am confronted with a problem in my job, I can usually find several solutions.**

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**57. No matter what comes my way in my job, I'm usually able to handle it.**

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**58. My past experiences in my job have prepared me well for my occupational future.**

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**59. I meet the goals I set for myself in my job.**

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**60. I feel prepared to meet most of the demands in my job.**

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*Please give the following personal details:*

**61. What is your gender?**

Male



Female

**62. What is your age? (years only)**

**63. Please record the number of years you spent in High School (secondary education)**

1 year

2 years

3 years

4 years

5 years

**64. Please indicate your highest education qualification**

NCEA Level 1 or School Certificate

NCEA Level 2 or University Entrance

NCEA Level 3 or University Bursary

Vocational Certificate or Diploma

Bachelor Degree

Post-graduate Degree

Other qualification (including overseas)

No qualification obtained

**65. Please indicate your current position within the organization**

Team Member

Middle Manager/Team Leader

Senior Manager/Team Leader

 Chief Executive Officer

**66. How long have you been employed in your current job?**

Years

Months

**67. How long have you worked in this organization whether in this job or any other role?**

Years

Months

**68. How long have you worked in this industry (including this organization and any others)?**

Years

Months

**Thank you for your participation.**

## INSTRUCTION GUIDE & LINK TO THE QUESTIONNAIRE

### Organisational Memory and Mentoring

#### Part 2: Mentoring

**Please read the following note before completing the questionnaire.**

NOTE: You are invited to participate in the research project “Organisational Memory and Mentoring”.

Some time ago, you were asked to complete a questionnaire on Organisational Memory. This questionnaire is the second part of that study, and asks you about any experiences you may have had as a mentor and/or protégé, and/or your attitudes to aspects of mentoring. It takes approximately 15-20 minutes to complete. You are asked not to discuss the questions with your co-workers while you are completing the questionnaire.

This questionnaire is anonymous, and you will not be identified as a participant without your consent, but you will be asked for the personalised code you created for the previous questionnaire on organisational memory so that both questionnaires can be matched by the researcher. If you have forgotten the code you used last time, this questionnaire will remind you how to create it again.

Here is the link to the questionnaire <http://www.surveygizmo.com/s/50295/organisation-memory-and-mentoring-part-2-mentoring>

Annette Dunham is carrying out the project as a requirement for the degree of Doctor of Philosophy under the supervision of Associate Professor Chris Burt and Professor Simon Kemp. She will be pleased to discuss any concerns you may have about participation in the project and can be contacted at (03) 366 7001, ext. 3634.

**By completing the questionnaire it will be understood that you have consented to participate in the project, and that you consent to publication of the results of the project with the understanding that anonymity will be preserved.**

## Organization Memory and Mentoring Part 2:

### Mentoring

To ensure your anonymity, but to enable the researcher to match the two parts of the current study, please write in the boxes below:

The last three letters of your mother's maiden name + the final three digits from your current home phone number. If you share the same surname as your mother's maiden name, use your grandmother's maiden name. For example, Peter Smith's mother's surname before marriage was Brown. Peter's current home phone number is 325 6938. He would write his code as the following: OWN938

### Mentoring

**Mentoring** refers to a relationship between a generally more experienced employee (**mentor**) who is intentionally working to promote the development of a generally less experienced employee (**protégé**). The mentoring relationship can be **formal** (initiated by the organization) or **informal** (initiated by the mentor or protégé).

The mentor takes an active interest in, and action towards, advancing the protégé's career by providing developmental assistance. The mentor may engage in one or more of the following activities: helping a new employee make sense of the organization and their role within it; challenging assignments; giving guidance and feedback on the protégé's job and/or organizational behaviour; providing support and reassurance; and giving career related advice. The mentoring relationship does not refer to casual one-off requests for help, but to a relationship over several weeks, months or years.

**Experience as a Protégé** - Please indicate if you have experience of the **protégé** role (you have experience of being mentored) by answering **Yes** or **No** for the following statements

1. I have been a protégé in a work-related mentoring relationship (whether in this Organization or another).

Yes

No

2. If you ticked "Yes", please write the number of work-related mentors you have had in the box provided here. If you answered "No" leave this box blank.

**Experience as a Mentor** - Please indicate if you have experience of the **mentor** role by either **Yes** or **No** for the following statement:

3. I have been a mentor in a work-related mentoring relationship whether in this organization or another.

Yes















**Willingness to Mentor** - Please indicate how willing you would be to mentor another employee in your current company/organization, if you were given the opportunity to do so, (or to mentor again if you are already mentoring someone). Please indicate on the scale provided.

**50. I would like to be a mentor**

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**51. I have no desire to be a mentor**

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**52. I intend to be a mentor**

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**53. I would be comfortable assuming a mentoring role.**

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please give the following personal details:

**54. What is your gender?**

- Male
- Female

**55. What is your age? (years only)**

**56. What is your ethnicity? (Please select all applicable boxes)**

- Maori
- Pakeha/New Zealander of European Descent
- Other

**57. Please indicate your current position within the organization**

- Team Member

- Middle Manager/Team Leader
- Senior Manager/Team Leader
- Chief Executive Officer

**58. How long have you been employed in your current job?**

Years

Months

**59. How long have you worked in this organization whether in this job or any other role?**

Years

Months

**60. How long have you worked in this industry (including this organization and any others)?**

Years

Months

**Thank you for your participation.**

## Appendix D

### Organizational Memory Retirement Study Questionnaire

## QUESTIONNAIRE

### **Part IV Organisational Memory and Mentoring**

#### **For Partly or Fully Retired Participants**

**Please read the following note before completing the questionnaire.**

NOTE: You are invited to participate in the research project “Organisational Memory and Mentoring”. To participate in this questionnaire, you need to consider that you are either partly or fully retired from paid work.

Participation involves completion of a questionnaire, asking you about aspects of the work you did, and the organisation you worked for, prior to your retirement. The total questionnaire takes approximately 30 minutes to complete. The questionnaire is anonymous, and you will not be identified as a participant without your consent. A post-paid envelope is provided for you to send the completed questionnaire to the researcher.

Annette Dunham is carrying out the project as a requirement for the degree of Doctor of Philosophy under the supervision of Associate Professor Chris Burt and Professor Simon Kemp. She will be pleased to discuss any concerns you may have about participation in the project and can be contacted at (03) 366 7001, ext. 3634.

You may withdraw your participation, including withdrawal of any information you have provided, until your questionnaire has been added to the others collected. Because it is anonymous, it cannot be retrieved after that.

**By completing the questionnaire it will be understood that you have consented to participate in the project, and that you consent to publication of the results of the project with the understanding that anonymity will be preserved.**

### 1. Part or Full Retirement

Please indicate whether you are partly or fully retired, by ticking **one** of the following:

	Tick
I am <b>fully</b> retired from paid work.	
I am <b>partly retired</b> , working part-time <b>in the same organisation</b> that I worked in just prior to my retirement.	
I am <b>partly retired</b> , working part-time <b>in a different organisation or in different work</b> to that which I did just prior to my retirement.	

### 2. Length of Retirement

How long have you been retired (whether in part or full retirement)? Please write in number of years and months.

Years	
Months	

### 3. Paid Work Hours

If you are partly-retired, how many hours a week do you usually work? Please write the number of hours of paid work in the box provided.

### 4. Retirement Decision

Do you consider that your decision to retire was voluntary, or involuntary (forced in some way): Please tick **one** box

Voluntary	
Involuntary	

### 5. Retirement Planning

Please indicate if you participated in any retirement-planning activities offered by your company by ticking **one** box in the "Company Initiated" column.

Please indicate your participation in any other retirement planning activities by ticking **one** box in the column headed "Self or Other Initiated".

	Company Initiated	Self or Other Initiated
Yes		
No		

### 6. Exit Interview

When you retired, did you have an exit interview (a final formal meeting at your company where you were given the opportunity to talk about your experiences working there)? Please tick **one** box.

Yes	
No	

### 7. Job and Organisation Tenure

	Years	Months
How long had you been employed in the <b>job/position</b> you had, just prior to your part or full retirement?		
How long had you been employed in the <b>organisation</b> you were employed by, just prior to your part or full retirement?		

### 8. Organisation Level

Please tick the **one** box that indicates the highest level you reached in that company/organisation:

Team Member	
Middle Manager/Team Leader	
Senior Manager/Team Leader	
Chief Executive Officer	

**Please ensure you have completed all applicable items before you turn the page**

## 9. Organisational Memory Scale

During the time a person works in a company/organisation, they acquire knowledge about how things are done in that particular organisation – how things operate, the procedures, the lines of communication (formal and informal), acceptable behaviour and practices, and organisational traditions; as well as the specific skills and knowledge related to their job. *Organisational Memory* refers to this knowledge gained through experience. The following questions ask you to estimate how much memory or knowledge you have about the work you did and the company/organisation you worked for prior to your retirement.

In this scale:

“**Co-workers**” describes others in your organisation that you interacted with in order to meet your job goals and objectives

“**Associates**” refers to those whom you interacted in the process of your work and their work, but who work outside of your organisation.

A “**clique**” is an unofficial group of people within an organisation, with common interests or views, who do not readily allow others to join them.

Please respond to the following items by **circling a number only** (not the words) on the scale provided beside each statement indicating **your knowledge of the last job and company (or work organisation) you were in before you retired.**

For example:

Strongly 1 2 3 4 5 6 7 Strongly  
Disagree Agree

### Please Start Here

I know who has been responsible for the major decisions made in this organisation.	Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree
I know who represents the model of acceptable behaviour in this organisation.	Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree
I have a good idea of “who knows what” in this organisation	Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree
I know how to advance an idea in this organisation.	Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree
I know the personal characteristics that make a person a good ‘fit’ here.	Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree
I know whose support you need in the organisation to make an idea work.	Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree
I know what organisational decisions will mean for different departments.	Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

**Please ensure you have completed all items before you turn the page**



I do not know whom you should consult in order to get a request heard here.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I do not know of ways to get an idea heard here apart from formal procedures.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I am not sure which behaviours you can get away with in this organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I do not know when <b>co-workers</b> have overstepped the boundaries of acceptable behaviour.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I am not sure how the grapevine works in this organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have little experience of how decisions are made in this organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have difficulty understanding the jargon used in this organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have learned how to operate in my job in an efficient manner.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have mastered the required tasks of my job.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I understand what the duties of my job entail.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know the aspects of my job that are particular to this organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know where 'corners can be cut' without affecting the quality of my work.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I can think of exception(s) to the rules I am applying when solving problems in my work.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know who belongs to which clique in the organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know how to avoid the disapproval of management here.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know which <b>associates</b> to go to for good work-related advice.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know which <b>associates</b> to go to for accurate industry news.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have a network of <b>associates</b> for the mutual sharing of work-related information.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know which mistakes have really hurt this organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree

**Please ensure you have completed all items before you turn the page**

I know what the organisation regrets most about its past.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know how well this organisation has performed compared with others.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know the major turning points in this organisation's past.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know who was considered responsible for major errors in this organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know how other organisations in this industry operate.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know how similar organisations in this industry are performing.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I know what has been considered the major success of this organisation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree

**Please ensure you have completed the above scale items before turning the page**

## 10. Thoughts about Work

Please respond to the following items by **circling a number** on the scale provided beside each statement indicating how much you typically think in the following ways about your experiences of work.

I tend to ruminate or dwell over things that have happened to me in my work.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
Often I have played back over in my mind how I acted in a work-related situation.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I always seem to be rehashing in my mind things I have said and done at work.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I do not waste time rethinking work-related things that are over and done with.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I often reflect on episodes in my work that I should no longer concern myself with.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I spend a great deal of time thinking back over my embarrassing or disappointing moments at work.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
It is easy for me to put unwanted thoughts about my work out of my mind.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
My attention is often focused on aspects of my work that I wish I would stop thinking about.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree

## 11. Contact with Pre-Retirement Work and Workplace

Continue to think about the work and organisation you were in prior to your retirement. Since retirement, how often have **YOU**: (Please **circle a number** to respond)

Initiated a visit to that workplace, (or have initiated a visit outside of your usual work hours, if you still have work there)?	Very Infrequently	1	2	3	4	5	6	7	Very Frequently
Offered unsolicited work-related advice and/or suggestions to former colleagues and/or associates from that workplace.	Very Infrequently	1	2	3	4	5	6	7	Very Frequently
Attended professional development or other meetings/conferences related to your pre-retirement work?	Very Infrequently	1	2	3	4	5	6	7	Very Frequently
Attended social events with colleagues and/or associates related to that workplace?	Very Infrequently	1	2	3	4	5	6	7	Very Frequently

**Please ensure you have completed all items before you turn the page**

## 12. Attitudes to Work

Please respond to the following items by **circling a number** on the scale provided beside each item indicating how much you agree or disagree with the following:

The most important things that happen in life involve work.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
Work is something people should get involved in most of the time.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
Work should only be a small part of one's life.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
Work should be considered central to life.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
In my view, an individual's personal life goals should be work-oriented.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
Life is worth living only when people get absorbed in work.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree

## 13. Career Satisfaction

Please respond to the following items by **circling a number** (not words) indicating your satisfaction with the progress you made in your career, overall.

I am satisfied with the success I achieved in my career.	Very Dissatisfied	1	2	3	4	5	6	7	Very Satisfied
I am satisfied with the progress I made toward meeting my overall career goals.	Very Dissatisfied	1	2	3	4	5	6	7	Very Satisfied
I am satisfied with the progress I made toward meeting my goals for income.	Very Dissatisfied	1	2	3	4	5	6	7	Very Satisfied
I am satisfied with the progress that I made toward meeting my goals for advancement at work.	Very Dissatisfied	1	2	3	4	5	6	7	Very Satisfied
I am satisfied with the progress I made toward meeting my goals for the development of new skills.	Very Dissatisfied	1	2	3	4	5	6	7	Very Satisfied

**Please ensure you have completed all items before you turn the page**

**Mentoring**, in the workplace, refers to a relationship between a generally more experienced employee (**mentor**) who is intentionally working to promote the development of a generally less experienced employee (**protégé**).

Mentoring activities may include: helping a new employee make sense of the organisation and their role within it; providing sponsorship by introducing the protégé to influential colleagues and/or providing challenging assignments; giving guidance and feedback on the protégé's job and/or organisational behaviour; providing support and reassurance; and giving career related advice.

The mentoring relationship does not refer to casual one-off requests for help, but to a relationship over several weeks, months or years.

#### 14. Experience as a Protégé

Please indicate if you have ever been mentored by someone at work, at any time in your career, and in any organisation, (i.e. you have been someone's protégé), by ticking (✓) the **Yes** or **No** column.

	Yes	No
I have been a <b>protégé</b> at some time in my career in a work related mentoring relationship.		

#### 15. Experience as a Mentor

Please indicate whether you ever acted as a mentor in the company/organisation you worked for prior to your retirement by ticking (✓) the **Yes** or **No** column.

If you tick "**Yes**", please estimate the number of protégés you had in total at that place of work, and write the number in the column provided.

	Yes	No	# of Protégés
I have been a <b>mentor</b> in the company/organisation I worked in prior to retirement.			

#### 16. Mentoring Intentions

In some companies/organisations, retired ex-employees, or partly-retired employees are invited to act as mentors or advisors to others in the organisation.

Please **circle a number** (not words) to indicate your attitude to being a mentor in your pre-retirement organisation in this way, if given the opportunity.

I would like to be a mentor.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I have no desire to be a mentor.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I intend to be a mentor.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
I would be comfortable assuming a mentoring role.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree

**Please ensure you have completed all items before you turn the page**

Please fill in the following personal details:

17. What is your gender? (Please tick one box to indicate your gender)

Male	<input type="checkbox"/>
Female	<input type="checkbox"/>

18. What is your Age? \_\_\_\_\_ Years

19. What is your Ethnicity? (Please tick all applicable boxes)

Māori	<input type="checkbox"/>
Pakeha/ New Zealander of European Descent	<input type="checkbox"/>
Other. Please State:	<input type="checkbox"/>

20. Please record the number of years you spent in High School (Secondary Education) **and tick one box** that indicates your highest educational qualification:

<b>Number of Years Secondary Education:</b>	
NZ School Certificate	<input type="checkbox"/>
NZ Sixth Form Certificate	<input type="checkbox"/>
NZ University Entrance	<input type="checkbox"/>
NZ Higher School Certificate, or Higher Leaving Certificate	<input type="checkbox"/>
Vocational Diploma or Certificate	<input type="checkbox"/>
Bachelor Degree	<input type="checkbox"/>
Post-graduate Degree	<input type="checkbox"/>
Other, including overseas qualification. Please State:	<input type="checkbox"/>

21. Unpaid/Voluntary Work.

Please indicate if you participate in voluntary work on a regular basis, and write the usual number of hours per week that you do so. (Please tick **one** box)

	Tick	Hours per week
Yes	<input type="checkbox"/>	<input type="text"/>
No	<input type="checkbox"/>	<input type="text"/>

22. Mentoring in an Unpaid/Voluntary Role.

Does your voluntary work involve you acting as a mentor? (Please tick **one** box)

	Tick
Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
Not Applicable	<input type="checkbox"/>

END

Please check that you have answered all the questions on this page and throughout the questionnaire. Please use the **post-paid** envelope provided, to send the questionnaire to the researcher.

**Thank you for your participation.**

## Appendix E

### Factor Analysis: Requests to Share Knowledge Scale

Table E.1. Factor Loadings and Item-Total Correlations for Requests to Share Knowledge

	<b>Item-Total Correlation</b>	<b>Factor 1</b>	<b>Factor 2</b>	<b>Factor 3</b>
<b>Factor One: Requests from Team Members</b>				
1. How frequently have Team Members sought your opinion on work matters?	.773	<b>.952</b>	.007	-.183
2. How frequently have Team Members asked you about important policies and procedures in your organization?	.846	<b>.848</b>	-.037	.108
3. How frequently have Team Members sought your feedback about their work performance?	.649	<b>.742</b>	-.163	-.035
4. How frequently have Team Members asked you about an aspect of the organization's past?	.684	<b>.647</b>	.120	.354
5. How frequently have Team Members asked you about the politics in the organization?	.636	<b>.627</b>	-.096	.214
<b>Factor Two: Requests from Associates</b>				
1. How frequently have your associates sought your opinion on an industry related matter?	.867	.001	<b>-.955</b>	-.023
2. How frequently have your associates sought your advice on an industry related matter?	.900	-.015	<b>-.954</b>	-.061
3. How frequently have your associates asked you for industry related information?	.847	.067	<b>-.865</b>	.073
4. How frequently have your associates referred someone in the industry to you for help or advice?	.822	.058	<b>-.850</b>	.086
<b>Factor Three: Requests from Managers</b>				
1. How frequently have Managers asked you about an aspect of the organization's past?	.846	.002	.059	<b>.935</b>
2. How frequently have Managers asked you about the politics within the organization?	.737	-.073	-.237	<b>.793</b>
3. How frequently have Managers asked you about important policies and procedures in your organization?	.655	.167	.019	<b>.724</b>
<b>Eigenvalues</b>		6.04	2.04	1.19
<b>Percentage of Variance Explained</b>		50.32	16.98	9.87
Cumulative 77.17% of variance				



## Appendix F

### Factor Analysis: Expected Costs of Mentoring Scale

Table F.1. Item-Total Correlations and Factor Loadings for the Expected Costs of Mentoring

	<b>Item-Total Correlation</b>	<b>Factor 1</b>	<b>Factor 2</b>	<b>Factor 3</b>
<b>Factor One: Cost- Time and Effort</b>				
1. Being a mentor is more trouble than it is worth.	.814	<b>.957</b>	.127	.138
2. There are more drawbacks to being a mentor than advantages.	.689	<b>.849</b>	-.024	.037
3. Mentoring takes too much time away from one's job.	.701	<b>.792</b>	.015	-.117
4. Mentoring takes more time than it is worth.	.621	<b>.703</b>	-.123	-.206
<b>Factor Two: Cost- Adequacy of Knowledge</b>				
1. The protégé may overestimate what the mentor really knows and have too high expectations.	.601	.051	<b>.861</b>	.101
2. Mentors may discover that their knowledge is deficient when they share what they know.	.550	.066	<b>.777</b>	-.065
3. Protégés may underestimate the value of the mentor's knowledge and experience.	.555	-.103	<b>.754</b>	-.128
<b>Factor Three: Cost- Exploitation</b>				
1. Mentors run the risk of being displaced by successful protégés.	.571	.015	-.106	<b>-.858</b>
2. Mentors can be back-stabbed by opportunistic protégés.	.747	.163	.059	<b>-.813</b>
3. Protégés can end up taking the mentor's job.	.586	-.056	.197	<b>-.736</b>
<b>Eigenvalues</b>		3.80	2.09	1.16
<b>Percentage of Variance Explained</b>		38.01	20.86	11.56