

Curtin Graduate School of Business

Knowledge Management: a Residential Aged Care Perspective

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Declaration

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgment has been made.

This thesis contains no material which has been accepted for the award or any other degree or diploma in any university.

Candidate

Michael Preece _____

Date

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ABSTRACT

This research explores perceptions of knowledge management processes held by managers and employees in a service industry. To date, empirical research on knowledge management in the service industry is sparse. This research seeks to examine absorptive capacity its four absorptive capacity capabilities of acquisition, assimilation, transformation and exploitation and their impact on effective knowledge management. All of these capabilities are strategies that enable external knowledge to be recognised, imported and integrated into, and further developed within the organisation effectively.

The research tests the relationships between absorptive capacity and effective knowledge management through analysis of quantitative data (n=549) drawn from managers and employees in 35 Residential Aged Care organisations in Western Australia. Responses were analysed using Partial Least Square-based Structural Equation Modelling. Additional analysis was conducted to assess if the job role (of manager or employee) and three industry context variables of profit motive, size of business and length of time the organisation has been in business, impacted on the hypothesised relationships.

Structural model analysis examined the relationships between variables as hypothesised in the research framework. Analysis found that absorptive capacity and the four capabilities correlated significantly with effective knowledge management, with absorptive capacity explaining 56% of the total variability for effective

knowledge management. Findings from this research also show that absorptive capacity and the four capabilities provide a useful framework for examining knowledge management in the service industry. Additionally, there were no significant differences in the perceptions held between managers and employees, nor between respondents in for-profit and not-for-profit organisations. Furthermore, the size of the organisation and length of time the organisation has been in business did not impact on absorptive capacity, the four capabilities and effective knowledge management.

The research considers implications for business in light of these findings. The role of managers in providing leadership across the knowledge management process was confirmed, as well as the importance of guiding routines and knowledge sharing throughout the organisation. Further, the results indicate that within the participating organisations there are discernable differences in the way that some organisations manage their knowledge, compared to others. To achieve effective knowledge management, managers need to provide a supportive workplace culture, facilitate strong employee relationships, encourage employees to seek out new knowledge, continually engage in two-way communication with employees and provide up to date policies and procedures that guide employees in doing their work. The implementation of knowledge management strategies have also been shown in this research to enhance the delivery and quality of residential aged care.

DEFINITIONS

The key terms and variables in this research are operationally defined as follows:

Knowledge Management is the collection and dissemination of knowledge to the benefit of an organisation and its individuals (Lueg 2001).

Effective Knowledge Management is the existence of significant prior knowledge (Brockman & Morgan 2003).

Absorptive Capacity is the ability of an organisation to use prior knowledge to recognise the value of new knowledge from external sources, assimilate it and apply it to the benefit of the organisation (Cohen and Levinthal 1990).

Western Australian Residential Aged Care Organisations include all for-profit and non-profit residential aged care organisations that operate in Western Australia.

Employees includes all staff that provide direct care to residents within a Residential Aged Care organisation.

Profit refers to the profit motive of participating organisations. Specifically, being either for profit or not-for-profit.

Size refers to the size of the participating organisation, identified by the number of licensed beds.

Time refers to the amount of time the participating organisation has been in business, and a reflection of experience.

Managers include Executive Officers, Director of Nursing, Care Managers, Business Managers and Clinical Managers.

Service Industry are those industries listed in the Australian Bureau of Statistics to include Wholesale, Retail, Accommodation, Communication, Finance, Property, Health and Community, Cultural and Recreational and Personnel services.

Organisation is a Residential Aged Care facility.

CHAPTER ONE

INTRODUCTION AND JUSTIFICATION OF THE THESIS

1.1 INTRODUCTION

To date, a significant amount of knowledge management literature has focused on the manufacturing industry (Kandampully 2002; Pepitone 2002; Chandra & Kumar 2003; Daghfous 2004; Karner & Karni 2010). This same literature indicates a need to expand the debate on issues that surround the management of organisational knowledge within the service industry. Effective knowledge management has been shown in the manufacturing industry to be affected by the organisation's ability to import and integrate new information and knowledge from external sources (Daghfous 2004). Industry context is also believed to have an impact on the organisation's ability to import and integrate new knowledge across all industries. This research has explored these variables within Western Australian Residential Aged Care organisations.

Organisational-wide knowledge processes result from conscious organisational initiatives with the emergent individual knowledge processes tied directly to the work practices themselves (Grover & Davenport 2001). The role of knowledge in these processes may therefore not be visible to employees. Documenting where these processes integrate with familiar aspects of the business, strategy, culture and employees behaviour may provide a window into the effectiveness of how knowledge is being managed (Grover 2001). The philosophy of the successful knowledge-

managing organisation would therefore have a strong focus on how employees interact and behave, rather than just how people work. Ideally, this would be in an environment that respects individuals and encourages their creativity (DeTienne & Jackson 2001). The four capabilities of absorptive capacity are acquisition, assimilation, transformation and exploitation (Gold *et al* 2002; Zahra & George 2002). These capabilities provide a mechanism to document these processes and interactions in a service environment.

This research seeks to contribute to knowledge management theory and practice through the identification of the relationships that exist between absorptive capacity and effective knowledge management. In doing so, it will extend the research literature that is largely drawn from the manufacturing industry to the service industry.

Chapter One discusses the background to the research, outlining the purpose and justification for the research. A conceptual framework is presented, providing a basis for the development and testing of hypotheses relating to the relationships between variables identified in the conceptual framework (Figure 2.2). An overview of the methods and thesis structure will also be described.

1.2 BACKGROUND TO THE RESEARCH

Knowledge management is the process of capturing an organisation's collective expertise wherever it resides; that is, in databases, on paper or in the heads of individuals and distributing it to wherever it can help to produce the biggest payoff

(Liebowitz 1999). In doing so this process ensures that knowledge that is relevant to and needed by the organisation is available and applied (Achterbergh & Vriens 2002). As mentioned a review of the knowledge management literature reveals that the main focus of research to date has been on the manufacturing industry. Little has been written on the issue of knowledge management in the service industry (Southon *et al* 2002); that which has been published has however, mostly focused on the effects on productivity and learning. The service industry accounts for approximately 73% of employment in the USA, 68% in the European Union (Alon 2002) and as much as 76% in Australia (ABS January 2011). Whilst the manufacturing and service industries are significant employers, there is however an imbalance in the research attention given to the service industry in comparison to the manufacturing industry, including the former industry's management of knowledge.

When discussing the concept of productivity improvements in service environments, Pepitone (2002) identified several barriers to improvement, the most critical of which is the persistent use of control-based methods such as mechanisation, standardisation, measurement and training. According to this author this control-based approach originated within the manufacturing environment and resulted in little or no input by individuals involved in their production processes. Service work nonetheless has high dependence on human performance (Pepitone 2002) necessitating higher levels of human knowledge involvement and subsequent dependence on individuals within the organisation to build relationships and transmit their knowledge (Tyler & Swailes 2002; Lindsay *et al* 2003).

Manufacturing and service industries sit at opposite ends of a ‘discretion’ continuum (Pepitone 2002). The term discretion is used to describe how employees in the service industry have some choice in what they do next when dealing with the customer, which in the context of the sample industry are aged care residents. Compared to manufacturing, service work is mainly self-paced and requires significant initiative in meeting the needs of the customer (Pepitone 2002).

A further difference between the manufacturing and service industries is the level of ambiguity in respective work contexts. The act of providing a service involves three components; inseparability, intangibility and heterogeneity (Grieves & Mathews 1997). All the above combine to present a high degree of ambiguity for the service worker. Knowledge management in the service environment therefore requires the organisation to develop a guiding process which reduces the uncertainty that results from ambiguity. These are delivered through defined control parameters which both prohibit deviant action yet enable innovation to occur in the delivery of service (Grieves & Mathews 1997).

Bhatt (2002) states that knowledge activities in the service industry are often unstructured and their specifications cannot be predefined in detail, as afforded to production-based activities in the manufacturing industry which are specified and predefined. With a shift from manufacturing to service industry employment, Kandampully (2002) identified a need to examine the knowledge that underlies the

service organisation's success and more importantly examine how this knowledge is managed and shared.

The Residential Aged Care industry makes up one section of the service industry. Residential Aged Care is under increased financial and human resource pressure because of a large and sustained growth in the number of elderly Australians, along with increasing complexity in meeting the care needs of this sector (National Aged Care Roundtable 2010). Further, there is also increasing legislation that places demand and control on Australian Residential Aged Care organisations (Andrews-Hall *et al* 2007). The average cost of employees across all Australian Residential Aged Care organisations is 70% of the revenue (Aged Care Financial Performance Survey 2010) emphasising the labour intensity of this service and the intricacy with which employees are required to deliver the service. The combination of increasing financial and human resource pressures on the operators and the importance of employees in service delivery present an opportunity to examine knowledge management in a section of the service industry that may benefit from the findings.

1.3 PURPOSE OF THE RESEARCH

The purpose of this research is to examine perceived levels of knowledge management effectiveness within service-oriented organisations. This examination is informed through analysis of data drawn from Australian Residential Aged Care organisations, representing an important component of the service industry.

Specifically, this research seeks to examine the impact of absorptive capacity (Cohen & Levinthal 1990) and its four ‘capabilities’: acquisition, assimilation, transformation and exploitation (Gold *et al* 2002; Zahra & George 2002) on effective knowledge management within the service industry. It also considers the impact of four additional variables, being job role (manager or employee) and three industry context variables (profit motive, size of the organisation and time the organisations has been in business).

To accomplish its purpose this research seeks to answer the following questions:

1. What is the relationship between absorptive capacity and effective knowledge management?
2. What is the relationship between the four absorptive capacity capabilities of acquisition, assimilation, transformation and exploitation and effective knowledge management?
3. Is there a difference in perception of effective knowledge management between managers and employees within Western Australian Residential Aged Care organisations?
4. What is the impact of three industry context variables (profit motive, size of the organisation and time the organisation has been in business) on the relationships between the absorptive capacity, the absorptive capacity capabilities (acquisition, assimilation, transformation, and exploitation) and effective knowledge management model?

1.4 OVERVIEW OF THE METHODS

The design of this research is based on the application of empirical methods through the testing of hypotheses developed from the literature and reflected in the conceptual framework (Figure 2.2). The findings drawn from the data analyses form the basis for discussion, conclusions and subsequent recommendations relating to this and further research.

1.4.1 The Survey Instrument

A survey instrument (Appendix A) measured the self-reported perceptions of Residential Aged Care employees in relation to knowledge management in their organisation. There were no previously developed instruments available and no one source of literature to guide the development of the instrument scales. The opportunity was presented then to develop the instrument from a number of previous studies referred to in the literature.

Eleven (11) items were developed to measure the construct of acquisition. This construct refers to the organisation acquiring new knowledge, either by developing it internally or acquiring it from an external source (Gold *et al* 2002; Zahra & George 2002). Assimilation is an organisation's ability to analyse, process, interpret and understand the information and knowledge being imported from external boundaries as well as that which is developed internally (Zahra & George 2002). Four (4) items were developed to measure this construct. Five (5) items were developed to measure the construct of transformation, that is, the extent to which the organisation is

perceived to facilitate the integration of existing knowledge with newly acquired and assimilated knowledge (Gold *et al* 2002; Zahra & George 2002). Exploitation is the refinement, extension and leveraging of existing competencies and the exploitation new knowledge (Gold *et al* 2002; Zahra & George 2002). Nine (9) items were developed to measure this construct. The above constructs and their measurement will be discussed in greater detail in Chapter Three (Research Methodology). A two-stage pilot process was undertaken, involving an initial piloting of the draft questionnaire with 45 Master of Business Administration (MBA) students and a second follow-up pilot study with representatives from the Residential Aged Care industry. By utilising this approach the researcher was able to test for construct reliability and make any required changes prior to distribution of the main research to the wider Residential Aged Care industry.

1.4.2 Sample

Thirty-five (35) Residential Aged Care organisations participated in this research; twenty eight (28) from metropolitan Perth and seven (7) from regional Western Australia, thirty (30) from the for-profit sector, five (5) from the not-for-profit sector. The Residential Aged Care industry in Western Australia is made up of two hundred and seven (207) metropolitan care organisations and fifty three (53) rural care organisations which include non-profit religious, non-profit non-secular and for-profit organisations. A total of 1,353 surveys were distributed directly to the Residential Aged Care organisations; these were returned in a sealed box for metropolitan

organisations and through postal from regional organisations. A total of 549 usable responses were received providing a response rate of 41%.

1.4.3 Data Analysis

Structural equation modelling (SEM) using Partial Least Squares (PLS) and PLS-graph (Chin 1982) was used to test the relationships between absorptive capacity, the four absorptive capacity capabilities (acquisition, assimilation, transformation and exploitation) and effective knowledge management data. SEM is considered an appropriate tool for this early stage research (Asoh *et al* 2007) and provides the opportunity to bridge the theoretical and empirical gap (Fornell & Lacker 1981). As a multivariate statistical technique, SEM was chosen on the basis of its strength in instrument validation and organisational behaviour research model testing (Chau 1997). Furthermore SEM provides an advantage over first-generation techniques due to improved flexibility for theory and data interplay (Chin 1998; Xu & Quaddus 2005) and conducts simultaneous assessment of the structural and measurement model (Chin 1998; Gefen *et al* 2000; Asoh *et al* 2007).

1.5 JUSTIFICATION FOR THE RESEARCH

This research contributes to scholarship and business practice in a number of ways. Knowledge management in a service environment is examined through the absorptive capacity construct as well as the four absorptive capacity capability constructs of acquisition, assimilation, transformation and exploitation. These constructs are acknowledged in the literature (Cohen & Levinthal 1989) as being vital to the

understanding of how knowledge is imported or developed internally, integrated and utilised to the benefit of the organisation. The research also investigates the impact of four additional variables on the relationships between absorptive capacity, the four absorptive capacity capabilities and effective knowledge management. These include the variable of job role and three industry context variables of profit motive, size of the organisation and length of time the organisation has been in business. Job role refers to the level of respondent's position in the organisation and resultant perceptions of how effective the knowledge is being managed from both manager's and employee's perspectives.

There is extensive literature on the benefits of knowledge management in manufacturing. Conversely there has been very little knowledge management research conducted within the service industry and none thus far carried out in the area of Residential Aged Care. This service is critical and requires a degree of discretion from employees as their work involves continual contact with clients. The accessibility of the Residential Aged Care industry provided an opportunity to gather data on this important topic and examine how knowledge is managed in this service environment.

Conducting the research in the Residential Aged Care industry moreover presents an opportunity to extend the discussion to include implications to accreditation in the knowledge management process. Accreditation is a mandatory management process within the Australian Residential Aged Care industry and at present there is a distinct

absence of data on the benefits or otherwise of supporting quality and accreditation process through a knowledge management approach. The examination of links between knowledge management and accreditation represent an additional component of this research.

1.6 OVERVIEW OF THE THESIS STRUCTURE

This thesis consists of six chapters, with Chapter One providing an introduction and outline of the thesis structure. Chapter Two presents a literature review in support of the conceptual framework for the research (Figure 2.2), as well as development of hypotheses for testing. Chapter Three introduces the methodology for the research, including data collection and data analysis. The sample characteristics are described along with the survey instruments in this chapter. Chapter Four presents the data analyses as well as the methods used to investigate the factorial structure of the conceptual framework and relationships of variables. The methods and processes utilised to refine the measurement model are explained and the validity and reliability of each construct in the measurement model are investigated and confirmed. The structural model is then tested for the hypothesised relationships. Chapter Four also presents the descriptive statistics as well as analyses of the data for the construct relationships, using structural equation modelling (SEM) techniques. Chapter Five discusses the findings of the data analyses in relation to the literature and hypotheses, and Chapter Six presents the conclusion and implications for research and business from the findings of this work. The thesis concludes with a consideration of the major findings, the limitations of the research and recommendations for future research.

CHAPTER TWO

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 INTRODUCTION

This chapter presents a review of the literature on knowledge management and development of a conceptual framework for testing of hypotheses. The variables under consideration in this research are discussed individually and hypotheses reflecting relationships between the variables are proposed. The conceptual framework (Figure 2.2) forms the basis of the research design and provides a platform for testing the hypotheses. Specifically, the conceptual framework depicts the uni-directional paths between the independent variables of absorptive capacity (Cohen & Levinthal 1989, 1990) and its four capabilities, acquisition, assimilation, transformation and exploitation (Gold *et al* 2001; Zahra & George 2002) as well as the dependent variable of effective knowledge management, with each path representing a hypothesis to be tested. It is proposed in this research that absorptive capacity and its four components have a substantial impact on effective knowledge management.

The objective of this research is two-fold. The first is to investigate how all employees, including the managers, perceive the effectiveness of knowledge management in their organisation. The second is to identify the key aspects of knowledge management that contribute to effectiveness in the service industry, specifically the Residential Aged Care industry. The service industry was chosen

because much of the knowledge management research and literature to date has focused on manufacturing and there is an opportunity to expand the discussion into the service environment. At present Residential Aged Care is a service that is under continual pressure to admit people with serious ailments (Andrews–Hall *et al* 2007). Along with increasing legislative constraints on how the business is to operate (Hogan 2004), these are placing an increasing need on managers to effectively manage the knowledge.

This literature review begins with an overview of the concept of knowledge, followed by consideration of the term, knowledge management. In respect to the latter term, emphasis is placed on understanding how people are central to developing, storing and sharing knowledge in an organisation. Knowledge management is followed by a definition of effective knowledge management. Absorptive capacity is introduced as a function of the organisation's existing tacit and explicit knowledge, existing resources, routines, culture and management competencies (Gray 2006). As such, absorptive capacity allows examination of an organisation's ability to import and develop new knowledge and integrate it into the workplace (Jones & Craven 2001). The literature review concludes with a proposal to use absorptive capacity and its four capabilities (acquisition, assimilation, transformation and exploitation) as constructs, to further examine the multi-faceted concept of knowledge management in the context of a service environment.

2.2 KNOWLEDGE

2.2.1 Definition of Knowledge

Knowledge is a resource that people and organisations possess which includes experience, skills, understanding, learning, awareness, familiarity and the facts (Gao *et al* 2003). The literature identifies two dimensions or categories of knowledge; tacit or personal knowledge as well as explicit or organisational knowledge. Each is valued differently within organisations (Ipe 2003) and the value attributed to each dimension has a significant influence on the way knowledge is subsequently managed and shared. The two dimensions of knowledge and their relationship and categories are considered below.

2.2.2 Tacit Knowledge

Tacit knowledge is personal knowledge that resides in the minds of individuals and is developed and retained by the individual for their own needs and used when deciding what subsequent actions are to be taken (Drott 2001; Gao *et al* 2003; Klein 2008). In the organisational context, tacit knowledge is the basis from which an individual decides how to react to any given workplace situation. That is, tacit knowledge is the ‘know-how’ that enables the individual to make decisions about how they do their day-to-day work.

Tacit knowledge is behavior emanating from perception (Martensson 2000; Smith 2001) which reflects mental models, values, beliefs, insights and assumptions (Smith 2001); or, put simply, that which is in an employee’s head (DeTienne & Jackson

2001). Tacit knowledge is a mixture of theory, technique, learning, capacity and skill (Gao *et al* 2003) inherent within an individual's cognitive belief system (Birkinshaw 2001). Such knowledge is difficult for the individual to articulate and may therefore be less accessible to others (Kogut & Zander 1992; Grant 1996; Dyer & Nobeoka 2000).

Tsoukas and Vladimirou (2001) noted that tacit or personal knowledge can become accessible to organisations as the understanding by individuals increase to the point that it becomes collective experience. Drott (2001) however, contends that most tacit knowledge is partial and narrow and has little to do with overall organisational goals and objectives. Further, tacit knowledge does not easily lend itself readily to being quantified and catalogued (Wong & Radcliffe 2000; DeTienne & Jackson 2001). Taking these points further, Drott (2001) argues that it is incorrect to assume that an organisation can easily put some order to tacit knowledge in a database sense and then assume that the data represents any form of value to other people in the organisation. Nonetheless, through the use of knowledge processors (Holsapple & Joshi 2002) tacit knowledge can be recorded (or codified) for others to use, resulting in its conversion into explicit knowledge (Wong & Radcliffe 2000). Such codification is a process of interpretation and recording, enabling tacit knowledge to become public and transferable to employees within the organisation as well as outside the organisation (Martensson 2000; Wong & Radcliffe 2000; DeTienne & Jackson 2001; Ipe 2003). It is important to note that the ability to codify tacit knowledge is dependent on

processes within the organisation to assist in the conversion of tacit knowledge to explicit knowledge (Galunic & Rodan 1998).

2.2.3 Explicit Knowledge

Explicit knowledge is organisational knowledge that is controlled by the organisation and available to all employees to use when undertaking work roles (Martensson 2000; Wong & Radcliffe 2000; DeTienne & Jackson 2001; Ipe 2003). Access to such knowledge is provided through policies, written procedures and information databases (Wong & Radcliffe 2000; DeTienne & Jackson 2001). In comparison to tacit knowledge, explicit knowledge is far easier to articulate and share. This form of knowledge can originate from outside the organisation and be imported, or from the conversion of tacit knowledge, with its true value emerging through knowledge management processes (Prusak 1999; Smith 2001; Bogdanowicz & Bailey 2002).

According to Glazer (1998) converted tacit or imported explicit knowledge will have no lasting effect unless it is assimilated into the organisation and is thus accessible within the collective memory of the organisation. Strategies to ensure the longevity and usefulness of knowledge require the development of a knowledge culture (Gold *et al* 2001; McInerney 2002). The creation of a knowledge culture occurs when opportunities to learn and share what is 'known' are available (McInerney 2002) with the resultant culture being central to an organisation's ability to manage its knowledge (Gold *et al* 2001). Inherent in the knowledge culture is encouragement by managers and supervisors for employees to engage in the processes which, according to Gold

and colleagues (2001) and McInerney (2002), is reflected in many strategies. Examples of such strategies are meetings and seminars, both of which facilitate communication amongst individuals and accommodation of required formal and informal interactions (McInerney 2002).

2.2.4 Summary

In summary, the literature identifies two dimensions of knowledge; tacit or personal knowledge and explicit or organisational knowledge. Tacit knowledge is developed and resides in the minds of individuals and is specific to the individual. It is the 'know-how' that enables individuals to make decisions about how they go about their day-to-day work. Such knowledge may be difficult for the individual to articulate so is therefore less accessible to others. Explicit knowledge on the other hand is knowledge stored and available for use by all members of the organisation through policies and written procedures. Explicit knowledge can originate from outside the organisation or from the conversion of existing tacit knowledge. Importantly, explicit knowledge will provide very little value to the organisation unless it is accessible.

2.3 KNOWLEDGE MANAGEMENT

2.3.1 Definition of Knowledge Management

The definition of knowledge management and resultant guiding principles is as broad as the many influencing paradigms that have informed its development (Hazlett *et al* 2005). A broad definition offered by DeTienne and Jackson (2001, 2) states that

knowledge management is a:

“...set of organisational design and operational principles, processes, organisational structures, applications and technologies that helps knowledge workers dramatically leverage their creativity and ability to deliver business value”.

Another definition provided by Hlupic and colleagues (2002) highlights that knowledge management is about the *right* information for the *right* people at the *right* time, being “an organising principle aimed at satisfying and where possible, exceeding customer expectations” (Hlupic *et al* 2002, 92). As such, knowledge management can provide organisations with the operational ability to identify, appreciate and respond to their business process strengths and weaknesses. In doing so, knowledge management assimilates feedback, develops capacity to operate in real-time environments and creates value (Hlupic *et al* 2002). Knowledge management is a process of “continually managing knowledge of all kinds to meet existing and emerging needs, to identify and exploit existing and acquired knowledge assets and to develop new opportunities” (Quintas *et al* 1997, 387). Knowledge management therefore provides a mechanism to capture an organisation’s collective expertise wherever it resides; that is, in databases, on paper or, importantly, in people’s heads, as well as distributing such expertise to wherever it can help produce the biggest payoff (Liebowitz 1999). Knowledge management is aimed at ensuring that knowledge relevant to the organisation is available and applied (Achterbergh & Vriens 2002) and is vital to the ongoing success of most organisations (Cabrera & Cabrera 2005).

2.3.2 Managing Knowledge Management

Knowledge management provides a sound base from which managers and supervisors can focus on strategic issues within the workplace and allows them to create, capture and re-use knowledge to achieve organisational objectives (Simon & De Gaus 1998; Gao *et al* 2003). However, barriers to implement knowledge management successfully, according to Mason and Pauleen (2003), are derived from management practices. Barriers include organisational cultures that prevent knowledge management from occurring, which are precipitated by a lack of leadership and general awareness of the knowledge management processes (Mason & Pauleen 2003). These organisational cultures essentially determine the relationships that exist between individuals (De Long & Fahey 2000) and what Sing and Kant (2008) referred to as internal barriers. These internal barriers begin with a lack of top management commitment and flow through to a lack of technical infrastructure, supporting organisational structure and ownership of the problems by individuals (Sing & Kant 2008). The common mistake made by managers and supervisors is that they simply focus on capturing as much information and data as possible, in the belief that doing so is 'knowledge management' (DeTienne & Jackson 2001).

The knowledge management process begins with data (Smith 2001), the content of which has relevance, purpose and context in the workplace. Representations of events that occur within the workplace are gathered together to form data, then manipulated and interpreted as information (Holsapple & Joshi 2002). These representations are

symbols, audio and visual patterns (Holsapple & Joshi 2002) or that which individuals see, hear and witness within the workplace.

Data is therefore defined in this research as the raw material for information (Bogdanowicz & Bailey 2002; Ford & Chan 2003) and thereafter classified, summarised, transferred or corrected in order to add value to that which the organisation is setting out to achieve. By clarifying the data, information is then able to inform or reduce uncertainty within the workplace (Grover & Davenport 2001). Information may also be imported at this point and treated in the same way as data gathered within the organisation. Conversion of the information is mechanical and generally supported by storage, processing, and communication technologies (Grover & Davenport 2001). Therefore, information is essentially the preliminary stage to knowledge (Ahmed *et al* 1999; Lueg 2001) and may come in the form of documents (Prusak 1999, Lueg 2001). As information only becomes knowledge when it is given meaning or used on the job, a belief that knowledge management stops at information and data can prevent managers and supervisors from gaining the true value from the eventual knowledge (Cortada & Woods 2000; Smith 2001).

A challenge to managing knowledge is offered by Mason and Pauleen (2003) who argue that there is a simplistic assumption amongst observers that knowledge management is the same in all environments. These authors found that this assumption results in many managers mistakenly following a knowledge management path that does not address human, social and organisational cultural factors.

Following on from Mason and Pauleen (2003) a premise behind this research is that organisations differ, with particular differences evident between the service and manufacturing environments. This difference presents an opportunity to further explore an understanding of knowledge management in service organisations; not so much as to compare with manufacturing but rather to expand and enrich what is known about the process of knowledge management.

2.3.3 Approaches to Knowledge Management

Strengthening corporate commitment and facilitating effective communication between managers, supervisors and employees is an effective way of facilitating knowledge management (Binney 2001; DeTienne & Jackson 2001). Other approaches include the use of broad guidelines to guide employees in their work, providing employees with the ability and authority to contribute to their work scheduling and encouraging employee networking (Bhatt 2002). All of these approaches combine to develop the commitment of the organisation to knowledge management (Bhatt 2002).

The propositions put forward by Autio and colleagues (2000), Dyer and Nobeoka (2000), Binney (2001), DeTienne and Jackson (2001), Bhatt (2002), and McInerney (2002) highlight a consistent theme; that of the important role individuals play in the knowledge management process. There is additional recognition that employees, as groups of individuals, are also key to knowledge management (Grant 1996; Argote 1999; Huber 1991; Kim 1990; Locke & Jain 1995; Senge 1990; Autio *et al* 2000; Lehr

& Rice 2002). The creation and integration of knowledge emerges from the interaction between individual employees, supported by the organisation's culture, routines and rules that facilitate or hinder this activity (Grant 1996; Autio *et al* 2000). These routines and rules are embedded in the organisation's administrative procedures and may be explicit or implicit in the way they are presented through policies and procedures (Duvall 1999). As noted above, supporting and driving these processes are important management functions. Organisations that are effective at managing their knowledge have structured routines that allow them to develop, store, and apply new knowledge systematically and across the entire organisation (Autio *et al* 2000; Dyer & Nobeoka 2000). The effectiveness of such knowledge management, according to McInerney (2002), depends on the organisation's commitment to the process.

2.3.4 Role of Technology

The management of knowledge is evident through business practices rather than technology (DeTienne & Jackson 2001). Lloria (2008) contends that knowledge management goes beyond simple information management and technology, with information technology acting only as a support mechanism for knowledge management. Rather, the main emphasis is on the human and social factors (Mason & Pauleen 2003). As noted previously, knowledge management is about sourcing the right data, recording this as information, using technology and creating knowledge through what Stacey (1996) describes as a process of social interaction.

Simon and De Gauss (1998) observed that information generated by computer systems is not a rich carrier of human interpretation for potential action and to assume otherwise may result in the organisation accepting outcomes that are based on insufficient interpretation. Therefore, knowledge management is not ‘computerised’ information management; instead it is better leadership, decisions and innovation (Prusak 1999). Technology is merely utilised to facilitate successful implementation of the processes that develop and distribute new knowledge (Duffy 2000; Gupta *et al* 2000; Lang 2001).

2.3.5 Summary

Knowledge management is about capturing relevant knowledge from inside or outside the organisation and distributing the new knowledge to wherever it can be of most value. Knowledge management is the platform from which managers and supervisors are able to focus on strategic issues and drive supportive policies and processes and resultant cultures that facilitate people working together to create and use knowledge to the advantage of the organisation.

2.4 PREVIOUS RESEARCH ON KNOWLEDGE MANAGEMENT

The concept and functionality of knowledge management is presented throughout the literature as being neither easy to define or apply (Alvesson 2001; Freeman 2003; Dorroch 2003; DeTienne & Jackson 2004; Schultze & Stabell 2004; Begona Lloria 2008). The concept of knowledge management has developed over the past decade. For example Zhou and Fink (2003) contended that knowledge can be viewed as either

a process or as a creation, making the task of researching it more difficult. Nonaka and Takeuchi (1995) recognised the importance of the tacit and personal nature of knowledge as a key source of innovation. Further, Willem and Buelens (2007) observed that the management of knowledge is a broad concept and there is no consensus as to its definition or boundaries.

A number of themes have been identified in the knowledge management literature (Bryans & Smith 2000; Davenport & Volpel 2001). These include realising the 'hidden' knowledge in an organisation, the development of knowledge bases, the use of collaborative technologies and the existence of communities of practice. These examples point to knowledge management as an explicit function of the organisation.

Examples of theories and concepts that are available for consideration include technology (Andreu & Sieber 2005), knowledge creation, intellectual capital and capital models (McAdam & McCreedy 1999), economic and behavioural schools of thought (Earl 2001), transactional costs, resource based theory, higher order learning and dynamic capabilities (Grover & Davenport 2001). Whilst these theories offer the opportunity to examine knowledge management from specific perspectives, a wider organisational approach is required.

Research undertaken to date has also focused mainly on the manufacturing industry (Alon 2002; Southon *et al* 2002; Roth & Menor 2003) which may be described as both process and task driven. Service industries on the other hand, operate from the basis of

significant interaction between employees and clients. Such interaction is different for all encounters with clients and therefore requires a different approach for developing, processing, using and sharing knowledge, a point which will be discussed in greater depth within this chapter. The uniqueness of this service environment and the paucity of research in the service industry, including Residential Aged Care, present an opportunity to examine knowledge management in this important environment.

2.5 EFFECTIVE KNOWLEDGE MANAGEMENT

Defining effective knowledge management requires the existence of continuous knowledge creation (McInerney 2002) which is an outcome that has to date eluded most researchers (King & Zeithaml 2003). Aujirapongpan and colleagues (2010) noted that effective knowledge management is a construct that is difficult to assess. Lloria (2008) observed that effective knowledge management is the result of knowledge being developed from learning which implies that this knowledge then transforms from a human asset to a business asset. This occurs when there is a commitment by managers and employees to recognise the importance of knowledge, and its development is supported by systems and process that ensure knowledge diffusion occurs. That is, effective knowledge management is considered to be present when individuals do not hold onto their knowledge, but rather share it (Davenport 1997; Liebowitz 1999; Chourides *et al* 2003). Beijerse (1999) identified a number of organisational outcomes that indicate effective knowledge management. These include organised meetings for knowledge sharing, development of training and education plans; development of handbooks to guide employees in work processes,

encouragement of team work and teambuilding activities, pursuit of best practice, and mentoring of managers and employees. Other strategies may also involve determining knowledge gaps or skills auditing, conducting research and development, development of training and education inventories, providing employees with time to develop new ideas; use of computer networks and systems, internal audits of work-related activities, continuous quality improvement and assessment of customer satisfaction. Beijerse (1999) noted that implementation of these strategies is likely to facilitate managers and employees being able to develop or import new knowledge and share this new knowledge with others within their organisation.

As previously noted knowledge contains meaning that is independent of the person who receives it and does not necessarily have the same meaning for different recipients (Gray 2000). The ability to grasp the meaning inherent in what is being presented depends on an individual's understanding of the subject domain or the existence of prior knowledge (Cohen & Levinthal 1990). The greater the understanding an individual has of a subject domain, the better informed he or she will be of knowledge drawn from that domain (Cohen & Levinthal 1990; Liyanage & Barnard 2003). The storage and existence of significant prior knowledge, as well as the development, sharing and utilisation of that knowledge within the organisation, is evidence of effective knowledge management. For the purposes of this current research, the definition of effective knowledge management is therefore the existence of stored knowledge relating to a particular domain within the organisation (Brockman & Morgan 2003).

There are many aspects to knowledge management and many individual strategies and actions that contribute to managing knowledge to the benefit of the organisation. There is however, a need to identify a single process to guide this research. One such knowledge management framework provides the opportunity to identify a broad view of what is, or is not, occurring within the participating organisations in relation to dementia care. It allows the management of knowledge to be broken down to four individual capabilities and encompasses evidence gathering of whether the organisation is aware of what new knowledge is required, through to whether the organisation is positioned to use the new knowledge. This knowledge management process is absorptive capacity and a discussion of the construct and its four components is presented below. The use of this particular domain serves as a platform for the gathering of data and testing of hypotheses in this research.

2.6 ABSORPTIVE CAPACITY

The concept of absorptive capacity was termed in the seminal work of Cohen and Levinthal (1989, 1990) and refers to organisations managing their existing knowledge base, whilst continuing to develop, import and utilise new knowledge to the organisation's advantage. Cohen and Levinthal (1998) introduced three (3) capabilities, recognition of the value of knowledge, assimilation of new knowledge and application of the knowledge imported from external sources (Figure 2.1). Subsequent studies (Cockburn & Henderson 1998; Lane & Lubatakin 1998; Van den Bosch *et al* 1999; Autio *et al* 2000; Dussauge *et al* 2000; Jones & Craven 2001)

attempted to measure absorptive capacity through the performance of manufacturing production lines (Jones 2006). These early studies and more recent papers by Zahra and George (2002) and Van den Bosch and colleagues (2003) highlight what Jones (2006) refers to as the multidimensional nature of absorptive capacity. That is, the construct of absorptive capacity is not focused on a single aspect of managing knowledge, such as the utilisation of new knowledge, but rather encompasses the importing or developing of new knowledge, the sharing of knowledge throughout the organisation and making good use of the knowledge. Lane and colleagues (2006) referred to absorptive capacity as “one of the most important constructs to emerge in organisational research in recent decades” (833), securing its inclusion in many other areas of organisational research, a review of which is presented below.

Key elements of absorptive capacity are the firm’s culture (Gold *et al* 2001; Zhou & Fink 2003; Bose 2004) supported by an appropriate corporate vision (Gold *et al* 2001). In this context an ‘appropriate’ culture and vision focuses on the interaction and collaboration between individuals and groups within the workplace, identified by Jones (2003) as crucial for the successful implementation of knowledge management. Further, such a culture recognises the importance of new knowledge and supports the conversion of tacit knowledge to explicit knowledge (Nonaka & Takeuchi 1995; Mowery *et al* 1996; Martensson 2000; Sivadas & Dwyer 2000; DeTienne & Jackson 2001; Gold *et al* 2001). Based on the assumption that imported knowledge holds some value and is complimentary to knowledge that is developed internally, Zahra and George (2002) stress the importance of being able to import knowledge and

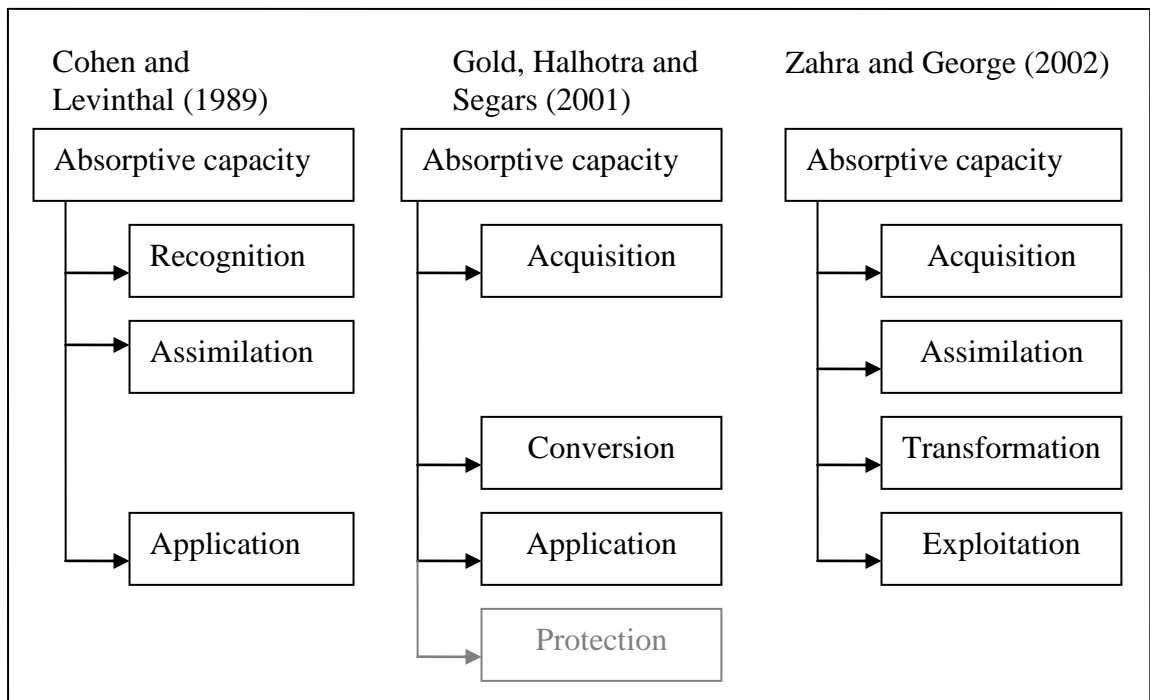
subsequently transform and exploit it. This requires the organisation to have considerable in-house expertise and understanding of how the required knowledge is managed (Mowery *et al* 1996; Tasi 2001). Specifically, absorptive capacity results from a prolonged process of resourcing knowledge development and accumulation of knowledge within the organisation (Mowery *et al* 1996). Cohen and Levinthal (1990), Gold and colleagues (2001) and Zahra and George (2002) view absorptive capacity as dynamic yet controllable, enabling managers to redefine and deploy the firm's knowledge-based assets.

There are also two important roles inherent in absorptive capacity (Cohen & Levinthal 1990). The first is the accumulating effect of continuous knowledge management and transfer and the second is the possession of skills by managers and employees within the whole of the organisation to engage in the knowledge management process. To achieve this, the organisation needs to proactively invest in the development of its absorptive capacity (Zahra & George 2002) and support its application through employee oriented interventions such as training, performance appraisals and internal communication (Minbaeva *et al* 2003). Having an absorptive capacity also provides the organisation with the ability to adapt to a changing environment, rather than react (Daghfous 2004) which is a choice that organisations continually face in the challenge for survival and growth.

Gold and colleagues (2001) extended the Cohen and Levinthal (1989) capabilities and identified four components inherent in absorptive capacity (Figure 2.1). These are

acquisition, conversion and application. A fourth component, namely protection was also considered important for the competitive nature of the manufacturing sector. Zahra and George (2002) further examined the capabilities and referred to as them acquisition, assimilation, transformation and exploitation. Three of Gold and colleague's original capabilities (acquisition, conversion and application) line up with Zahra and George's capabilities (acquisition, transformation, and exploitation) and along with assimilation, make up the four constructs to be used in this research (Figure 2.1). The similarities are explained briefly below and in more detail in the following sections. Gold and colleagues (2001) capability of 'protection' refers to the protection of intellectual property and is not something that the Australian Residential Aged Care industry currently has, so is not included in this research.

Figure 2.1 Identification of Components of Absorptive Capacity



A summary of definitions of the four capabilities inherent in absorptive capacity is provided below.

- Acquisition. This term refers to a organisation's capability of identifying and acquiring externally generated knowledge (Zahra & George 2002) along with the improved use of existing knowledge through the development of new internal knowledge (Gold *et al* 2001).
- Assimilation. The concept of assimilation is the organisation's routines and processes that allow analysing, processing, interpreting and understanding internally developed and externally sourced knowledge (Zahra & George 2002).
- Transformation. Referred to as the 'conversion' process by Gold and colleagues (2001). This term reflects the organisation's capability for developing and refining the routines that facilitate combining existing knowledge and newly acquired knowledge (Zahra & George 2002). Transformation occurs where the new knowledge is integrated and distributed within the organisation (Gold *et al* 2001).
- Exploitation. This concept refers to the organisation's routines that allow refining, extending and leveraging existing competencies (Zahra & George 2002) and is oriented towards the actual use of knowledge (Gold *et al* 2002).

These capabilities are not necessarily dependent on each other, nor can they easily be placed on a continuum. Rather, they are capabilities that provide opportunity to identify different aspects of how an organisation manages its knowledge. An alternative view to there being four separate capabilities is offered by Todorova and

Durisin (2007) who argue that transformation is a substitute for exploitation and is linked to assimilation. Moreover, whilst the Zahra and George's (2002) model identifies four separate capabilities (Figure 2.1), acquisition and assimilation are referred to as 'potential' capabilities and transformation and exploitation as 'realised' capabilities. Potential capabilities (acquisition and assimilation) provide the organisation with the means of building the knowledge base, whilst realised capabilities (transformation and exploitation) are those that lead to organisational outcomes. According to Zahra and George (2002) further reduction of the four capabilities into two (potential and realised) takes the scope of absorptive capacity to a position where the individual organisation's strengths and weaknesses can be identified. The focus of this research is to begin the examination of knowledge management in the Residential Aged Care industry. Analyses of data from organisations are therefore centred on the four capabilities as apposed to the 'potential' and 'realised' capabilities.

There are a number of factors that impact on an organisation's absorptive capacity (Cohen & Levinthal 1990; Zahra & George 2002; Daghfous 2004; Jones 2006). These include individual's willingness to communicate, relationships between work teams and individuals, the level of exposure to workplace knowledge, the structure of the organisation and the workplace improvement strategies utilised by the organisation. Each of these factors has informed the development of the survey instrument.

The importance of the individual within the knowledge management process is a factor that is highlighted in the literature by Kim (1990), Senge (1990), Locke and Jain (1995), Grant (1996), Argote (1999), Huber (1991), Autio and colleagues (2000) and Lehr and Rice (2002). This literature emphasises the need to have systems that guide the individual throughout the whole knowledge management process and is reflected within the absorptive capacity construct (Cohen & Levinthal 1990). An objective of this research is to examine knowledge management in a service environment, through analysis of data on individuals' perceptions regarding the effectiveness of the four absorptive capacity capabilities (acquisition, assimilation, transformation and exploitation) in their organisations.

2.7 HYPOTHESIS DEVELOPMENT

2.7.1 Absorptive Capacity

It is proposed that absorptive capacity and its four capabilities provide a framework to examine how effectively knowledge is perceived to be managed by Residential Aged Care organisations. Specifically, the management of knowledge begins with identification of that knowledge by individuals, its subsequent importation and internal development, resultant assimilation throughout the organisation and finally exploitation where it is needed.

Hypothesis: 1 The higher the perceived level of absorptive capacity in an organisation, the higher the perception of effective knowledge management in the organisation.

2.7.2 Acquisition

The acquisition of knowledge can result from collaboration between individuals or between organisations (Gold *et al* 2001). This collaboration has two primary functions. The first is acquiring new knowledge from external sources and the second is creating new knowledge out of existing knowledge, with both functions being critical to an organisation's performance (Tasi 2001). To achieve this Lane and Lubatkin (1998) and Zahra and George (2002) contend that the organisation has to develop three attributes to guide the managers and employees. These are the intensity or capability that the organisation has towards the acquisition of new knowledge, the speed with which the organisation approaches the acquisition, and the strategic direction the organisation takes in the acquisition of new knowledge. The quality of the knowledge to be acquired is also something that Gold and colleagues (2001) note needs to be pre-determined. That is, an organisation should specifically identify what new knowledge is required and articulate the relevance of obtaining within the organisation.

The framework needed to manage knowledge acquisition has to be comprehensively and formally documented, providing clear guidance for all employees (Kakabadse *et al* 2001). The communication strategies that facilitate how the acquisition operates within the organisation are influenced by organisational structure and culture (Kakabadse *et al* 2001, Chandra & Kumar 2003), determined by the leadership of senior management (Cohen & Levinthal 1990; Gold *et al* 2001; Abodor 2008; McInerney 2002). Strong relationships between managers and employees can result in

the re-evaluation and creation of knowledge (Kakabadse *et al* 2001). When the process is well documented, and communication between managers, supervisors and employees is strong, employees will then know that developing or obtaining new knowledge is important to the organisation. The employees will also have an understanding of how this occurs, maximising the likelihood of their becoming engaged in the process.

Internal acquisition of new knowledge results from organisational processes and procedures that are focused on the transformation of tacit to explicit knowledge (McInerney 2002). External acquisition of new knowledge can come from benchmarking, employees attending seminars and courses, the engagement of consultants, or through passive processes such as providing up-to-date journals and relevant literature for employees to read (Daft & Huber 1987; Lane & Lubatkin 1998). Attendance at seminars and courses may foster the expectation that employees will bring the new knowledge back to the workplace and share it with their colleagues. Identifying the attributes of intensity, speed and strategic direction, along with communication and networking strategies engaged by the organisations, is the basis from which to assess the organisation's focus on knowledge acquisition.

Hypothesis: 2 The higher the perceived level of capability for acquisition of new knowledge in the organisation, the higher the perceived level of effective knowledge management.

2.7.3 Assimilation

The concept of assimilation refers to the organisation's routines and processes that allow analysis, processing, interpretation and shared understanding of the knowledge being imported from external sources (Zahra & George 2002). Additionally the concept includes knowledge that is developed internally from the conversion of tacit knowledge into explicit knowledge (Gold *et al* 2001). As new knowledge is generally specific to the organisation or individual who supplies it, Zahra and George (2002) state there is a need for the recipient (organisation or individual) to be able to comprehend and appropriately interpret and internalise it. This interpretation and internalisation can be evidenced by the application of four approaches (Purvis *et al* 2001). These include the use of rules and directives such as work procedures, the incorporation of refined knowledge into existing knowledge, development of coordinating routines that focus on the work-related efforts of employees and the use of teams and meetings in decision making (Gray 2000). The use of teams in the assimilation process provides the opportunity to address complex, non-routine issues that result from the combined thinking power of the group (Gray 2000; Purvis *et al* 2001). Forming these teams is recognised as a significant managerial challenge because of the complexities of having a number of people work collaboratively and is an indication of flexible, organic organisations rather than a rigid and bureaucratic structure (Gray 2000).

Assimilation therefore involves the transfer of knowledge into the organisation, the development of internal knowledge and sharing new knowledge across the

organisation. Szulanski (1996) identified four factors likely to influence this transfer and sharing of knowledge. These include the source of the knowledge, the recipient of the knowledge, the context in which the knowledge is transferred and the characteristic of the knowledge. The first three factors (source, recipient and context) have been incorporated into items measuring assimilation. The fourth factor, knowledge characteristic, was not measured in the questionnaire as it refers to the actual knowledge being transferred, which does not fall within the parameters of this research.

Successful knowledge transfer and sharing within an organisation must address a number of issues (Dyer & Nobeoka 2000; Dixon 2002). These include motivating all employees to openly share valuable knowledge, preventing ‘free-riders’ who accept the transfer of knowledge but do not readily pass it on and reducing the costs associated with finding and assessing different types of valuable knowledge (Dyer & Nobeoka 2000; Dixon 2002). Successful knowledge transfer and sharing also occurs when there is common oral language and written communication between managers and employees (Grant 1996; Reinmoeller 2004; Curad & Bontis 2006).

In the literature which focuses on the challenges of knowledge transfer and sharing in the public healthcare sector, Taylor and Wright (2004) identified factors that significantly influence the process at the organisational level within that sector. The results highlight that managers should seek feedback and respond to suggestions made

by employees on how to improve work practices. The importance of the manager's role relates to the need for ongoing coordination, operational direction and leadership.

Knowledge management requires the assimilation of knowledge and skills by both individuals and groups who take responsibility for their actions and subsequently 'own' what they learn (Grieves & Mathews 1997). Knowledge transfer and sharing can also create opportunities for the organisation to meet the changing needs of customers (Pepitone 2002; Kim & Lee 2006). The assimilation process is therefore considered to have a significant impact on the extent to which knowledge is effectively managed within organisations, which is reflected in the following hypothesis:

Hypothesis: 3 The higher the perceived level of capability for assimilation of new knowledge in the organisation, the higher the perceived level of effective knowledge management.

2.7.4 Transformation

Transformation is the organisation's capability to develop and refine routines that facilitate the combination of existing knowledge with newly acquired and assimilated knowledge. This capability requires the organisation to either add the newly acquired knowledge to existing knowledge if that is achievable, or reinterpret the newly acquired knowledge (Zahra & George 2002). Gold and colleagues (2001) view this absorptive capacity capability as the conversion of new knowledge into a useful form for the organisation to distribute and make available throughout the organisation. By doing so, redundant aspects of the knowledge can be removed and specialised

knowledge can be integrated (Gold *et al* 2001). The removal of redundant knowledge and integration of specialist knowledge occurs as a result of the organisation having a comprehensive understanding of the value of the knowledge that is required in order to meet the needs of clients. The organisation can therefore be selective in relation to the type and amount of new knowledge it develops or imports.

Perceptions of successful transformations can be assessed with questions relating to what knowledge individuals perceive as being most useful and where this new knowledge resides (Stover 2004). Managers and employees who are engaged in understanding the knowledge that exists within their organisation will also have an understanding of the processes that are in place to manage that knowledge (Gao *et al* 2003), including where knowledge resides and how it is applied in the workplace. This level of understanding is sought to be measured through the survey instrument in this research. Responses may provide an indication of whether the routines and processes that guide individual employees are clear, and whether the work procedures are perceived to be current by the respondents.

Actions such as refocusing the organisation's view of its position in the market and recognition of new opportunities are outcomes of the organisation's ability to join existing knowledge with new knowledge (Zahra & George 2002). Recognition of the market position and opportunities are indications that managers clearly define the strategic and business direction the organisation is taking, what is required and how to achieve it. Maintaining up-to-date work procedures through the introduction of new

knowledge (Daghfous 2004) is another indication that the organisation has the capability of transforming new knowledge. Managers have a role in ensuring that all employees are aware of the existence of new knowledge (Simon & De Gaus 1998; Zahra & George 2002) which can be facilitated through the existence of routines that ensure awareness is maintained (Daghfous 2004), as well as networking and training opportunities (Bhatt 2002). It is also important to reinforce the point that transforming knowledge that has been imported or developed internally cannot occur unless the organisation has a clear understanding of its existing knowledge base (Cohen & Levinthal 1990).

The transformation process is therefore believed to have a substantial impact on how organisations effectively manage knowledge. Having this capability provides the organisation with the capacity to combine targeted external knowledge or knowledge developed from within the organisation through integration with skills and processes that already exist. The following hypothesis refers:

Hypothesis: 4 The higher the perceived level of capability for transformation of new knowledge in the organisation, the higher the perceived level of effective knowledge management.

2.7.5 Exploitation

The exploitation capability is the application of new knowledge (Cohen & Levinthal 1990) or actual use of the knowledge (Gold *et al* 2001). Exploitation is an organisational capability that targets or deploys knowledge to improve “existing initiatives or encourage new initiatives” (Zahra & George 2002, 190)

Organisations that exploit knowledge do so through monitoring and measuring efficiency of various tasks undertaken within the organisation (Gold et al 2001), ultimately providing the managers and supervisors with an understanding of what is occurring in the workplace. Managers have a role in knowledge exploitation by seeking from and providing feedback to employees (Coulson-Thomas 2004). Such feedback can then be utilised to make changes to work processes and procedures, as well as assess how satisfied employees are with their work. The above approach focuses the organisation's explicit knowledge as an exploitation driver (Coulson-Thomas 2004). The exploitation of new knowledge requires routines that facilitate the organisation making the best use of existing competencies (Zahra & George 2002; Liebowitz 2004). Worker competencies are critical to all workplaces (Liebowitz 2004) and the successful exploitation of new knowledge enhances the skills that already exist within the organisation as well as extends them. Zahra and George (2002) noted that organisations will generally exploit knowledge to some degree without necessarily having 'exploitation' routines; having the capability provides structure, procedures and a systematic approach to making use of new knowledge. The results may include the creation of new operating systems and work processes (Zahra & George 2002).

The application of new knowledge and subsequent exploitation can benefit service organisations and clients in many ways. Examples are identifiable through such initiatives as adjusting strategic direction, problem solving and improved business

efficiencies (Gold *et al* 2001). Other tangible outcomes of new knowledge being successfully exploited include evidence of employee satisfaction, enhanced organisational image and increased profitability (Coulson-Thomas 2004). The successful knowledge exploitation of knowledge is particularly relevant to the Residential Aged Care industry because of the need to enhance existing competencies to meet the changing economic and legislative environment (Andrews-Hall *et al* 2007) and needs of the clients (National Aged Care Roundtable 2010). In response to the above, the following hypothesis is proposed:

Hypothesis: 5 The higher the perceived level of capability for exploitation of new knowledge in the organisation, the higher the perceived level of effective knowledge management.

2.8 THE INDUSTRY CONTEXT

The following section outlines the literature as it relates to the service industry and one important part of the industry, Residential Aged Care. Aspects of the service industry and Residential Aged Care emerged as potentially being important influences on how knowledge is managed. These include the job role (manager or employee), the profit motives of the organisation, the size of the organisation, the length of time the organisation has been in business and mandatory accreditation. These are discussed in greater detail below.

2.8.1 Service Industry

The context in which this research is being undertaken is in the service industry. Knowledge management in the manufacturing industry has received significant

research attention (Roth & Menor 2003). Conversely little research attention has been extended to organisations within the service industries to date (Kandampully 2002). With service industries making up an increasing proportion of modern economics (Kaner & Karni 2010) the paucity of research relating to knowledge management in the service environment presents an opportunity to close the gap in this important arena.

The service industry traditionally imports systems such as technology, financial and staff control from the manufacturing industry (Alon 2002). The production control-based processes, such as standardisation (Pepitone 2002; Chandra & Kumar 2003), elimination of discretion, quantitative measures and time management (Pepitone 2002) are important factors that enable manufacturing organisations to produce their outputs (Massa & Testa 2004). The effectiveness and efficiency of such factors require minimal input from individuals involved in the whole process.

Service work on the other hand, has high dependence on human involvement and performance (Pepitone 2002). The service industry embodies significant human knowledge supported by individuals who retain and maximise knowledge, to an extent not found in the manufacturing context (Lindsay *et al* 2003). Service may therefore be perceived to sit at the opposite end of a discretion continuum to manufacturing, with the processing and sharing of knowledge by service workers being an expression of their personal expertise, experience and creativity, as opposed to the manufacturing industry which may not always require these attributes (Bhatt 2002).

Regan (1963; cited in Grievés & Mathews 1997) provided seminal research on three relevant characteristics of a service organisation. These are inseparability, which is the simultaneous production and consumption of a service, intangibility or the inability to touch or see the service, and heterogeneity, the implicit lack of consistency in service (Lettieri *et al* 2004). These characteristics are relevant to the management of knowledge in the service environment because they highlight a significant degree of ambiguity and consequent uncertainty for managers, supervisors and employees when applying knowledge to the workforce (Grievés & Mathews 1997). Acquiring and utilising new knowledge in a service environment requires the organisation to build mechanisms which reduce the ambiguity and resultant uncertainty and include a supportive and inclusive culture through policies and processes that guide employees. According to Grievés and Mathews (1997) service organisations that define control parameters, this way whilst enabling innovation and discretion to occur in the delivery of the service, are better placed to benefit from knowledge management initiatives.

With a shift in Australia from manufacturing to service industries (Australian Bureau of Statistics (ABS) 2008) there is opportunity to examine the knowledge management processes that underly operational functions within a service environment (Kandampully 2002). The growth in services has also provided both a challenge and an opportunity for managers to utilise emerging knowledge to the advantage of the organisation (Kandampully 2002).

2.8.2 Residential Aged Care Industry

An important participant in the service industry is Residential Aged Care which is under increasing pressure to do more with less (Andrews-Hall 2007). Effective management of knowledge can provide improved processes on which organisations can capture available expertise (Liebowitz 1999) and use this to meet the challenges of the future.

Services associated with Residential Aged Care in Australia evolved from the concept of ‘rest homes’ in the first half of the 20th century for people who could self-fund (Fine & Stephens 1998), which then developed into for-profit and not-for profit homes in the post-World War II era (Sax 1993). Not-for-profit nursing homes received government benefits and financial grants during the post-World War II period and for-profit nursing homes received their funding from private health insurers and self-funded residents (Kendig & McCallum 1990; Sax 1993). Funding arrangements changed to the provision of subsidies by the Australian Commonwealth Government for all ‘approved’ nursing homes from 1963 (Mannix 1999) and included both for-profit and not-for-profit organisations.

Eighty-five percent (85%) of operational funding for all Residential Aged Care organisations is prescribed by the *Aged Care Act 1997*, drawn from the Australian Commonwealth Government through subsidies paid directly to the organisation for the care of individual residents (Armstrong & Witham 2001). The payment of these subsidies is strictly governed and monitored through application of the legislation,

with resulting constraints affecting economic outcomes as well as service design and delivery in these organisations (Hogan 2004). The legislation and associated funding impacts on the ability of Residential Aged Care organisations to deliver the services expected of it by government and the community (Hogan 2004; Andrews–Hall *et al* 2007). Examples of legislative constraints referred to by Hogan (2004) include the prescription of type and timing of service to be delivered to residents and the standardisation of how organisations will react to certain matters, such as the management of pain. In addition to the impact of the legislation, a shift to more home-based aged care services results in the admittance of residents who have increasing care and medical needs. The demand on Residential Aged Care services in Australia is expected to increase up to the year 2020 due to a sharp increase in the aging population, as well as the prevalence of dementia in the general population (Courtney *et al* 2007; Csesko & Reed 2009; Gray & Heinsch 2009). A consequence of the government’s policy and increasing demand on services is the prospect of further pressure on the allocation of resources and workloads of care employees (Andrews – Hall *et al* 2007).

2.8.3 Industry Context

With a significant percentage of a Residential Aged Care organisations’ operating budget coming from one highly-regulated government source, which is expected to be applied in the same way by all operators, the strategies through which the organisations manage their knowledge may or may not be similar. This research utilises three business demographics of Residential Aged Care to examine the

similarities and differences of management structures and processes, as well as their subsequent impact on knowledge management in organisations. These demographics are: profit motive, business size (reflected in bed numbers) and the length in time in which the organisation has provided Residential Aged Care services. These three demographics have been chosen because they represent the main differences that exist between the organisations within the industry.

Profit Motive

Knowledge management as a business concept, according to Teng and Havamdeh (2002), has traditionally been placed in the realm of 'for-profit' organisations such as those in the manufacturing industry. In this context the main aim of knowledge management is to improve operations and subsequent flow-on profits. Non-profit organisations on the other hand, have traditionally only focused on enhancing customer satisfaction and increasing public faith in the organisation (Teng & Havamdeh 2002). These authors believe that not-for-profit organisations also have the ability to limit spending to match allocated funds, an outcome that is also actionable through knowledge management. In a research of for-profit and not-for-profit healthcare organisations, Picone and colleagues (2002) observed that whilst there is little to no difference in the way that the different ownership types operate, the variation in financial incentives implies that there may be a behavioural difference between for-profit and not-for-profit organisations.

Organisational Size

The size of the organisation (Residential Aged Care organisation) is considered to have an impact on the relationship between absorptive capacity and what is and what is not perceived to be effective knowledge management. This is because larger organisations possibly have more resources at their disposal than smaller organisations (Daghfous 2004) and access to technology (Beijerse 2000; Moffett & MacAdam 2006). Larger organisations are also potentially better able to innovate and develop knowledge, although smaller organisations may be able to respond to change because of their size (Daghfous 2004). Moffett and McAdam (2006) found that smaller organisations potentially place too much emphasis on technology as an enabler and without the appropriate people and culture this is likely to fail to deliver on the organisational goals.

Time in Business

As well as the size of the organisation, the level of experience acquired by the organisation was identified by Daghfous (2004) as a potential influence on the way the organisation approaches knowledge management. That is, the longer the organisation has been in the business of providing Residential Aged Care services, the more adapt it is likely to be at understanding what knowledge is required where to find it or how to develop it. This research will seek to ascertain whether there is a difference in the perception held by all employees in how their organisation is engaged in managing knowledge and whether the length of time the organisation has been in business influences this.

The impact of these variables (employee role, profit motive, size of the business, time in business) are not hypothesised, rather they are included in the research as additional analyses because they represent an employment and important industry context differences within the participating industry. The literature also highlighted two additional industry context variables, based around financial processes. These are the size of budget allocation (Daghfous 2002) and whether or not the organisation meets their annual financial targets in the financial year (Coulson–Thomas 2004). Similar to business size, the larger the budget size, the greater the likelihood an organisation may innovate and develop knowledge. Meeting financial targets is a potential indicator that the organisation has the knowledge through which to achieve the goals centred on the business focus. The impact of these variables is also not hypothesised, nor are they analysed and were included in the survey instrument for possible comparison and future analysis.

2.8.4 Accreditation

The Residential Aged Care industry is highly regulated and controlled by federal legislation, the requirements of which enforce the Commonwealth Government's strategy towards mandatory accreditation and continuous improvement processes. The accreditation process seeks verification that four main standards are maintained. These standards are titled Management, Care, Environment and Policies and encapsulate a total of forty four (44) quality outcomes. Ongoing funding for residents admitted to a

Residential Aged Care organisation is wholly reliant on achieving and maintaining compliance in all outcomes.

Of the forty four outcomes, six (6) are relevant to this research and its examination of the effectiveness of knowledge management. Whilst there is an unidentified emphasis placed on Residential Aged Care organisations to manage knowledge, the six outcomes have a knowledge management focus, these being continuous improvement, four education and employee development outcomes and human resource management. Further when accreditation is undertaken evidence is assessed and results are issued, accreditation can be awarded for one, two or three years depending on how well the organisation is perceived to manage the processes. Obtaining the full three-year accreditation necessitates additional indication of the standard of quality systems and indirectly the effectiveness of knowledge management within the quality system.

The primary beneficiaries of quality health care and continuous quality improvement are the residents and their families. Knowledge management in this context and environment focuses on understanding and meeting the resident's needs and preferences on how they wish to live their life (Batalden & Splaine 2002). The outcome of continual quality improvement has two imperatives (Batalden & Splaine 2002). These imperatives are the redesigning of care, through such quality initiatives as continually searching for improved ways of delivering care and updating procedures and the subsequent improvement of service to residents. Measuring the

elements of a quality system provides an opportunity to expand the practice of quality improvement within the Residential Aged Care sector and offers an additional insight into the effectiveness of the knowledge management process.

2.8.5 The Role of Managers in the Knowledge Management Process

Managers commonly expect that employees are, by default, engaged in the knowledge management process. However, as organisations are essentially a collective of individuals, they will act as individuals if left alone (Chourides *et al* 2003). Even when individuals are tasked to work within a team they will vary in their willingness and opportunity to share knowledge. This may potentially result in individuals retaining their tacit knowledge and failing to convert some of it to explicit knowledge. Moreover, other than traditional methods of control and monitoring such as finance management and production processes, there are no specific knowledge management tools or strategies available to assist managers with the management of knowledge (Bhatt 2002; Gao *et al* 2003).

An important management function is therefore, to facilitate people working together by actively engaging in the knowledge management process, with subsequent development of new knowledge (Chourides *et al* 2003). Nonetheless, simply making employees engage in the knowledge management process is unachievable (Gettler & James 2002); the real challenge for management is to understand how to create and use knowledge collectively amongst all employees. Management's role is to drive these supportive cultures and processes, rather than drive the employees (Grace &

Butler 2005). Given the important role that managers appear to have in the knowledge management process, there should be a significant difference in the perceptions held by the managers and employees in relation to their understanding of the knowledge management process within their organisation.

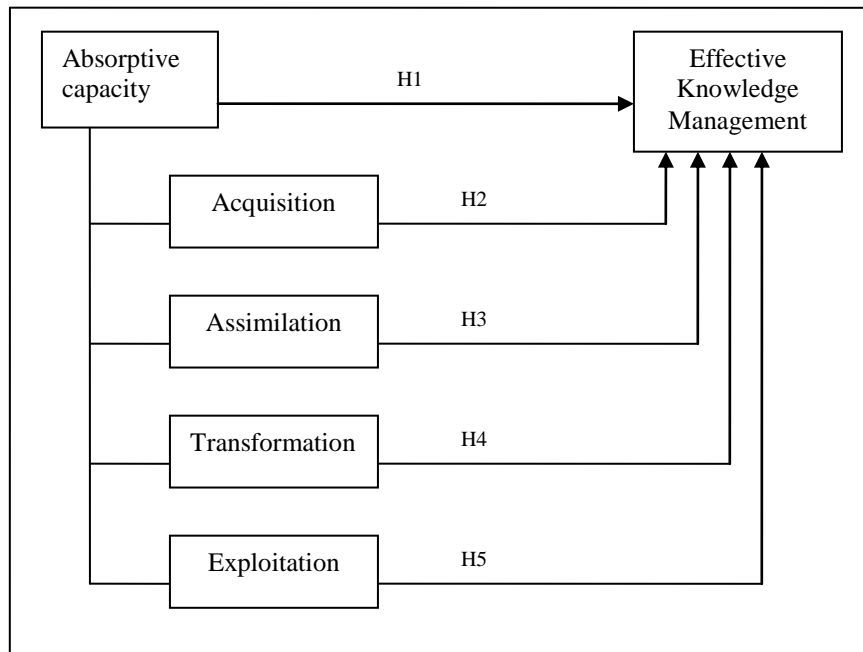
2.9 CONCEPTUAL FRAMEWORK

The service industry has been shown to be different to manufacturing, but is nonetheless under-represented in the research literature (Alon 2002). With this in mind, the concept of absorptive capacity informed the development of a framework and serves as a platform from which to examine knowledge management in the service industry, specifically in Residential Aged Care. This concept has inherent within it four (4) capabilities (acquisition, assimilation, transformation and exploitation) that can assist an organisation to develop, import, share and exploit new knowledge. Each of the capabilities focus on a different aspect of managing knowledge, starting with understanding knowledge that the organisation already possesses, identifying the knowledge that is needed and acquiring the latter from within or external to the organisation. New knowledge, either imported or developed internally needs to be processed, interpreted and combined with existing explicit knowledge, transformed into a form of knowledge that all employees can recognise and use and that is exploited to the advantage of the organisation. Absorptive capacity and its four capabilities are examined individually in this research to test their relative strength in explaining the knowledge management processes in Residential Aged Care organisations. The framework does not infer that the absorptive capacity capabilities

are necessarily connected or a continuum; each capability can potentially have an impact on effective knowledge management to varying degrees.

The conceptual framework for this research (Figure 2.2) facilitates a comparison of managers and employees perceptions of how well their organisation acquires, assimilates, transforms and exploits knowledge and resultant effectiveness in managing that knowledge. The two sets of perceptions are examined separately to explore if the role of a manager and employee are different in the way they perceive the effectiveness of knowledge management. Three industry context variables (profit motive, business size and time in business) are also examined to test if they in turn alter the perceived effectiveness of knowledge management in a service organisation.

Figure 2.2 Conceptual Framework – Effective Knowledge Management



2.10 SUMMARY

This chapter provides previous research literature relating to knowledge management and absorptive capacity, as well as development of hypotheses for this thesis. It presents the research context of workplace knowledge being either personal or organisational, the need for this knowledge to be effectively managed by the organisation and how individuals play a key role in the knowledge management process. The constructs of absorptive capacity and its four capabilities of acquisition, assimilation, transformation and exploitation are presented as a means of examining knowledge management in a service environment. The literature review leads to the development of five hypotheses, reflected in the conceptual framework of the research (Figure 2.2). It is hypothesised that absorptive capacity and the four capabilities significantly influence how effective an organisation is perceived by its employees to manage its knowledge.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

Chapter Two reviewed the relevant literature relating to knowledge management and its linkage to the concept of absorptive capacity. The conceptual framework was developed from the literature to enable the role of knowledge management to be placed in the context of the Residential Aged Care industry. This was also presented in Chapter Two.

This chapter will present the methodology used for this research, followed by a description of the research design, model of analysis, research setting and sampling. The next section describes the survey instrument, developed from the knowledge management literature and scales used to test the hypotheses.

3.2 JUSTIFICATION FOR THE METHODOLOGY

This research consisted of a cross-sectional design, with data drawn from the residential aged care industry to examine the relationships between absorptive capacity and effective knowledge management. The hypotheses were developed from the literature and are reflected in the theoretical framework (Figure 2.2), with the findings and conclusion arising from the application of empirical methods and

supported by statistical analyses. The cross-sectional design emerged as the most appropriate approach when reviewed from an ontological and epistemological perspective. The ontology for this research is the positivist paradigm where reality is believed to exist and be apprehendable, as well as being objective and apart from the researcher (Creswell 1994). As positivist research, the methodology assumptions utilise a deductive process, which looks at cause and effect and requires accuracy and reliability (Creswell 1994).

The aim of this research is to predict whether there is a positive relationship between absorptive capacity, the four absorptive capacity capabilities (acquisition, assimilation, transformation and exploitation) and effective knowledge management in Residential Aged Care organisations. The research attempts to predict whether industry context has any impact on the effectiveness of knowledge management in Residential Aged Care organisations, measured through the absorptive capacity concepts. The epistemology, or method of knowing, used in this research is therefore empirical with hypotheses proposed and verified through collection and analysis of relevant quantitative data (Creswell 1994). A survey instrument was developed to measure respondent's perceptions of knowledge management within their organisation and resultant effectiveness of these processes.

Data analysis was carried out using the Structural Equation Modeling (SEM) technique. SEM is a second generation multivariate technique (Barclay, Higgins & Thompson 1995), providing a means of simultaneously assessing the reliability and

validity of the measures of constructs and estimating the relationships between the constructs (Barclay, Higgins & Thompson 1995). The use of SEM is common in cross-sectional design and data analysis (MacCallum & Austin 2000). A significant and relevant advantage to using SEM and in particular, Partial Least Squares (PLS), is that PLS does not require normal distribution of the variables (Moore & Chang 2006) as found in the data obtained for this research. SEM has been widely used for instrument validation and model testing in organisational research (Chau 1997) and takes a confirmatory approach rather than an exploratory approach to data analysis (Tan 2001). Other advantages of using a confirmatory factor analysis technique with data analysis are that the hypothesised model is tested statically to determine the extent by which the model is consistent with the data collected from the respondents (Tan 2001) and the use of latent variables in the model analysis provides a means of accounting for effects of random measurement errors (Grapentine 2000).

3.3 RESEARCH PROCEDURE

Data for this research was collected through an ex-post facto quantitative survey of Residential Aged Care organisations in Western Australia. The process undertaken for the research is represented in Figure 3.1. A literature review was the starting point for this research, followed by the development of the items and scales. The questionnaire items were checked for clarity in an initial pilot research, followed by a further pilot research in a high care Residential Aged Care organisation. Thereafter, data was collected through the survey for testing of hypotheses and further analysis of relationships between the variables inherent in the knowledge management process.

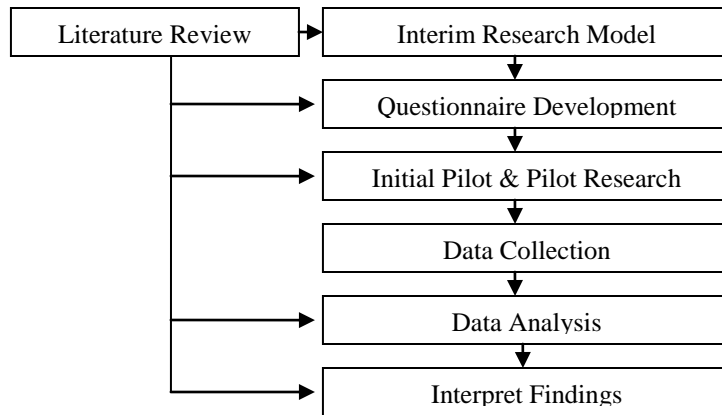


Figure 3.1 Research process

3.4 DESCRIPTION OF RESEARCH SETTING

3.4.1 Residential Aged Care Industry

An important participant in the service industry is Residential Aged Care. Services associated with Residential Aged Care in Australia evolved from the concept of rest homes in the first half of the 20th century for people who could self-fund (Fine & Stephens 1998) and developed into for-profit and not-for profit homes in the post-World War II era (Sax 1993). Not-for-profit nursing homes received government benefits and financial grants during the post-World War II period and for-profit nursing homes received their funding from private health insurers and self-funded residents (Kendig & McCallum 1990; Sax 1993). Funding arrangements changed to the provision of subsidies by the Australian Commonwealth Government for all ‘approved’ nursing homes from 1963 (Mannix 1999) and included both for-profit and not-for-profit organisations.

The Residential Aged Care industry in Western Australia is made up of 207 metropolitan high-care and low-care organisations, as well as 53 dedicated rural high-care and low-care organisations. These include non-profit religious and non-profit non-secular organisations, and for-profit organisations. They are situated in single site and multi-site structures, the size of which range from 6 beds (usually forming part of Regional Public Hospitals) to a 160 bed fully dedicated structure. The average number of beds in Residential Aged Care industry is however, 60 beds.

A total of 35 organisations from the Residential Aged Care industry participated in this research. This number comprised of 30 organisations from the not-for-profit sector and 5 organisations from the for profit sector, with 28 from metropolitan Perth and 7 in regional Western Australia. This cross-section of participating organisations is representative of the industry, as shown in Figure 3.2.

Table 3.1 Representation of the Western Australian Residential Aged Care Industry

Category	% of Industry in WA	% of Responses
For Profit	26%	14%
Not for Profit	74%	86%
Metropolitan	85%	82%
Regional	15%	18%

To achieve the objectives of this research, this thesis examines the perceptions of employees and managers in Residential Aged Care organisations towards the effectiveness of how knowledge is managed in their organisation. The survey instrument was distributed to a cross section of Residential Aged Care organisations in Western Australia.

3.5 DESCRIPTION OF SAMPLE CHARACTERISTICS

SEM was used for data analysis of the model in this research. As a general rule the research requires a minimum sample size of 10 times the number of predictors, (Barclay, Higgins & Thompson 1995). For this research there are 29 items, requiring a minimum sample size of 290 participants. In total, 1,360 questionnaires were distributed to 35 organisations with 549 responses received, representing a 41% return rate. This rate of return may be considered satisfactory (Menon *et al* 1999) allowing representation of the Residential Aged Care industry in Western Australia.

3.6 Data Collection

Senior operational care managers were randomly approached, seeking their approval to have the questionnaires distributed in their organisations. This initially involved contacting the Chief Executive Officers of a number of the organisations to gain their approval or to establish contact with the relevant person within the organisation who would champion the distribution of the surveys. In all initial contacts, the Chief Executive Officer referred the researcher to the senior operational care manager or equivalent. It quickly became apparent that the most appropriate person to contact in the first instance was the senior operational care manager, as they were able to determine if distributing the surveys was operationally appropriate at that point in time and the benefit to be gained from doing so. As stated, many of the organisations approached agreed to participate. Those organisations that declined to participate did so for a variety of reasons relating to operational requirements. The questionnaire was distributed to all care employees in participating organisations and coded to allow

identification of those respondents who were managers and those who provide direct care to residents (employees). In doing so this allowed for the direct comparison of responses between the two groups.

A standard covering letter was developed and attached to every questionnaire (Appendix B). The covering letter explained the purpose of the research, details of the university and supervisors, as well as university ethics approval. Participants were provided with an assurance that the results will be kept confidential, along with provision of the researcher's contact details. Some participating organisations also required additional ethics information specific to their organisation be listed on the covering letter.

Distribution of questionnaires followed a four stage process as suggested by Menon and colleagues (1999). The first was pre-notification to each of the organisation's managers, second was the promise of confidential feedback offered to all respondents in order to provide an incentive to participate, third the questionnaire and covering letters were sent to the organisations and fourth, where required, follow-up reminder calls were made to the organisation managers to encourage them to have the questionnaires confidentially distributed.

The time period for the survey distribution was scheduled for a less busy part of the working year in the Residential Aged Care industry. The period between April to July was chosen, as anecdotal industry feedback indicated that this period followed budget

completion and was therefore less hectic in terms of managers and employees meeting administrative deadlines.

Following discussion with senior operational care managers, the questionnaires were distributed as a part of a questionnaire pack. The packs were delivered to each organisation and consisted of a questionnaire for the organisation manager (Section 1), a pre-determined number of questionnaires (guided by the bed numbers of the organisation) for the care employees (Parts 2 and 3), a covering letter for each participant, a sealable envelop for each participant, a letter providing additional information for the care manager, a flyer 'selling' the research and a sealed box in which the sealed envelopes could be placed. Organisation care managers were encouraged to place the questionnaires and sealed box in a prominent position in the employee tea room or the employees work station. Copies of the covering letters and flyers are provided in Appendix B. Distribution of the packs was carried out in accordance with the wishes of the organisation care managers. Each sealable envelope had a prominent sticker placed on it, identifying the researcher, the title of the research and the university school supervising the research.

Rural-based organisations were sent a different pack that included stamp addressed envelopes instead of a sealed box as it was considered that envelopes would provide more efficient delivery of completed questionnaires. The return rate was 35% for country organisations in comparison to 45% from metropolitan organisations. The greater number of questionnaires returned through the strategy of a sealed box may be

due to the relative ease of placing the questionnaire in a box, rather than having to post the envelope.

A confidential anonymous log was maintained to record organisations that were approached and those which agreed to participate. The log facilitated an ongoing audit of how many questionnaires were distributed, the size of the organisation, the location (metropolitan or rural) and the profit motive of the participating organisations. As the questionnaires were distributed and received over a four month period in 2007, all responses were checked immediately and the response data recorded on the log. This facilitated an ongoing view of the progress and accumulation of completed questionnaires. The log also ensured sufficient numbers of completed questionnaires were received from a cross-section of different organisations and structures in the Residential Aged Care Industry.

3.7 PILOT STUDY

Two pilot strategies were undertaken to review and refine the survey instrument. Piloting questionnaires can assist to address shortcomings in research design and administration, and can also provide an opportunity to assess the clarity of the instructions and facilitate meaningful analysis (Hair *et al* 1998). Content validity was established through pre-testing of the data obtained from the pilot research (Lin & Lee 2004), focusing on instrument clarity and question wording.

3.8 METHOD OF ANALYSIS

Data analysis for this research was principally conducted by SEM using Partial Least Squares (PLS) and PLS-graph (Chin 1982). This approach was chosen because it offers the opportunity to bridge the theoretical and empirical gap (Fornell & Lacker 1981) and is viewed as the best tool for early stage research (Asoh *et al* 2007). PLS is also appropriate for this research as the primary outcome of this research is prediction oriented leading to testing hypotheses and testing the entire model is inappropriate in this research. Chin (1998) and Xu and Quaddus (2005) found that SEM-based procedures provide a substantial advantage over first-generation techniques because it provides improved flexibility for theory and data interplay.

3.9 CONSTRUCTS

Illustrated in Figure 3.2, the research model was developed from literature relating to knowledge management and absorptive capacity. The latter is developed as a second-order construct, reflected by four first order constructs, namely acquisition, assimilation, transformation and exploitation. Effective knowledge management is a first-order construct that is reflected by seven indicators. The relationship between the constructs is discussed in section 3.10.

The concept of absorptive capacity provides a means to identify the fundamental aspects of whether knowledge management is occurring within the Residential Aged Care industry. There is no assertion that absorptive capacity is a superior knowledge management system, or is any better than any other system. Rather, it is felt that being

able to look at the organisations from the single concept of Absorptive capacity and also being able to break the process down to four components acquisition, assimilation, transformation and exploitation provides a good opportunity to expand the current understanding of knowledge management within a service environment and in particular the Residential Aged Care industry. The hypotheses are therefore framed in terms of Residential Aged Care, not because there is a belief that it only applies to Residential Aged Care, but because the research only has data from the Residential Aged Care industry.

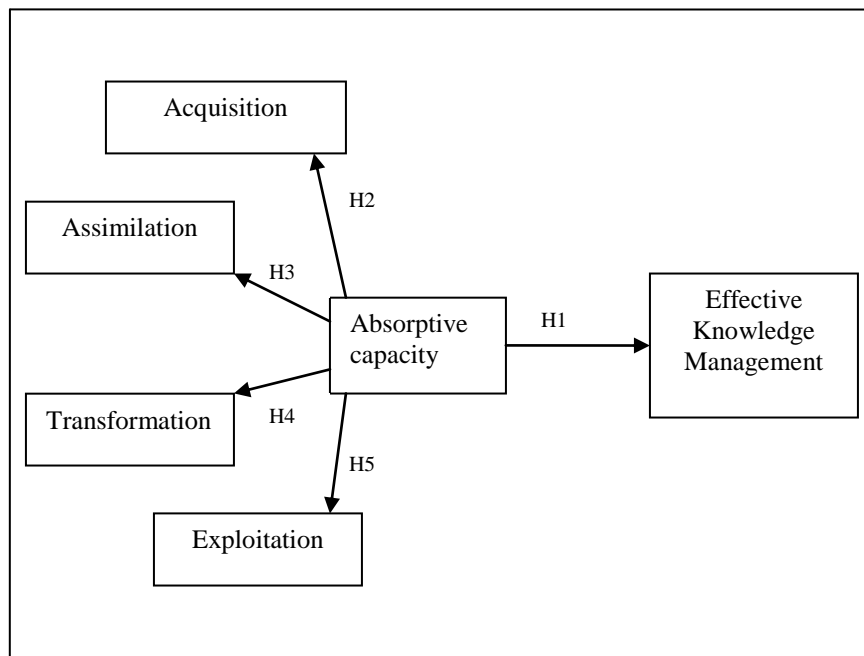


Figure 3.2 Structural Equation Model

3.10 RELATIONSHIP BETWEEN ABSORPTIVE CAPACITY AND EFFECTIVE KNOWLEDGE MANAGEMENT

Following the argument of Cohen and Levinthal (1990), Gold and colleagues (2001) and Zahra and George (2002), which claim that firms who possess an absorptive capacity are able to successfully leverage knowledge, this research argues that effective knowledge management is attributed to the organisation being able to acquire, assimilate, transform and exploit new knowledge. The knowledge management and absorptive capacity literature explains that organisations require key technical, structural and cultural infrastructures (Zhou & Fink 2003) and that these are a predictor of effective knowledge management. In addition, organisations with an existing knowledge base are able to manage their knowledge (Cohen & Levinthal 1990) and the resulting knowledge is the product of the interaction between explicit and tacit knowledge (Martensson 2000).

3.10.1 Relationship between Acquisition and Effective Knowledge Management

This research argues that effective knowledge management can be attributed to the organisation having the ability to accumulate knowledge (Gold *et al* 2001), has a strong understanding of what knowledge is required and has the capacity to acquire it (Zahra & George 2002).

3.10.2 Relationship between Assimilation and Effective Knowledge Management

The literature indicates that the assimilation of new knowledge is the result of the new knowledge being understood by the organisation's employees (Zahra & George 2002) and shared within the organisation (Kim & Lee 2006). This being the case, effective knowledge management is believed to be the outcome of this occurring.

3.10.3 Relationship between Transformation and Effective Knowledge Management

Effective knowledge management results from the combining or transforming of existing knowledge with new knowledge (Cohen & Levinthal 1990) and occurs through the development and use of key routines. Transformation is an organisational capability that involves the adding of new knowledge or the reinterpretation of the knowledge to form new schemas (Zahra & George 2002) which requires that the organisation has a clear understanding of its existing knowledge and the capability to convert the new knowledge.

3.10.4 Relationship between Exploitation and Effective Knowledge Management

The construct of exploitation of new knowledge involves the refining, extending and leveraging of existing competencies (Zahra & George 2002). The exploitation of these competencies leads to organisational efficiencies and benefits as well as effective knowledge management (Gold *et al* 2001).

3.11 STRUCTURAL EQUATION MODELLING

SEM is a multivariate statistical technique and was chosen because of its strength in instrument validation and organisational behaviour research model testing (Chau 1997). SEM is a second generation model (Gefen *et al* 2000), provides a simultaneous assessment of the structural and measurement model and provides more flexibility than first-generation techniques, such as factor analysis and multiple regression (Chin 1998; Gefen *et al* 2000; Asoh *et al* 2007). This is particularly relevant for this research as the main focus is on the perceptions held by managers, supervisors and employees on how effective they feel knowledge is being managed in their organisation and the instrument was mostly developed from the literature, rather than from previous research.

3.11.1 The Structural Equation Model (SEM)

The model developed for this research is a first and second order factor model (see Figure 3.2), with effective knowledge management being shown in the literature to be a predictor of many positive outcomes for organisations (Zhou & Fink 2003). Validity is assured by the convergent validity of the first order latent variables being adequate. In the research model all paths connecting absorptive capacity to the first order latent variables are above 0.7 (Chin 1998) and all items converge on the same construct (Palacios-Marques & Garrigos-Simon 2005). The path connecting absorptive capacity to effective knowledge management is also above 0.7.

Kolmogorov-Smirnov's test for normality indicates that none of the items measured in this research are distributed normally ($p < .001$). This however is not a problem for SEM, as the bootstrap resampling procedure (Chin & Todd 1995) accounts for this. Reliability of the constructs was assessed for internal consistency as well as convergent validity. This assessed the reliability of measurements within the absorptive capacity and effective knowledge management constructs as well as the validity of the measurements between the absorptive capacity and effective knowledge management constructs. The unidimensionality, or cross loading of the items was not assessed. By not assessing the unidimensionality, caution needs to be made when reporting the results (Asoh *et al* 2007). However, the correlation of constructs was assessed thus providing evidence of the extent to which each construct is different to the others (Barclay, Higgins & Thompson, 1995).

Internal consistency is presented in PLS as the Composite Reliability (CR) and is similar to Cronbach's Alpha and should be greater than 0.70 (Fornell & Lacker 1981). Convergent validity is the extent to which a set of items thought to reflect a construct converge with each other and act as if they are measuring the underlying construct (Asoh *et al* 2007). The measurement of convergent validity is average variance extracted (AVE) and must be above 0.50, as below this indicates that more of the construct is attributed to error than not (Fornell & Lacker 1981).

3.11.2 Reflective and Formative Variables

Development of the manifest variables or indicators for the lower order latent variables (acquisition, assimilation, transformation, and exploitation), the higher order latent variable (absorptive capacity) as well as effective knowledge management could have resulted in them being either formative or reflective. Formative indicators form or cause a change in the underlying concept while reflective indicators are affected by the same underlying concept and precede the latent variable (Chin 1998; Santos, Wei & Chan 2005). Fortunately PLS is able to model both formative and reflective indicators, as it is a component-based approach (Anderson & Gerbing 1988, Chin 1998) rather than covariance-based, such as LISREL (Chin 1989). With no previous studies to guide the development of the indicators, the final decision of whether they were formative or reflective had to emerge from the theoretical underpinnings of the construct (Barclay, Higgins & Thompson, 1995). Being formative, the indicators would need to be the cause variables that provide the condition under which the latent variables were formed (Santos, Wei & Chan 2005). Rather than being the cause of the latent variables, the indicators arose to be a function of the constructs and therefore reflective (Moore & Chang 2006). The responses to all the indicators are the respondent's perception of the degree to which they agree or not with the statements that make up the indicators. This perception is a function of how each of the participants views the different elements of the knowledge management processes in their organisation, so the pathways lead outward to each manifest variable and are hence reflective of the latent variables (Appendix D).

3.12 MEASUREMENT INSTRUMENT

Knowledge management is characterised by conceptual foundation and scope confusion (Firestone & McElroy 2005). That is, whilst there is widespread agreement on the importance of knowledge there are differences amongst researchers as to what constitutes useful knowledge and ways in which it should be managed (Begona Lloria 2008; Handzic *et al* 2008). Disagreement may be attributed to knowledge management being relatively new to the organisational behaviour literature and therefore prone to misconceptions (Handzic *et al* 2008), the contribution of numerous academic disciplines and the subsequent eclecticity of theory surrounding knowledge management. Knowledge management is a multi-dimensional construct (Darroch 2003) drawn from a mixture of theories that emerge from a wide spectrum of theoretical traditions such as philosophy, computer science and economics (Nonaka & Peltokorpi 2006). As such, and noted previously, there was no one source of literature available to guide the development of the instrument scales. Consequently, there was a need to develop the instrument from a number of previous studies and literature, including the theory of absorptive capacity.

3.12.1 Demographic Information and Measures of Construct

The questionnaire consisted of 77 items, represented in three sections (Appendix A). Section One consisted of 38 questions relating to industry context, knowledge management functions and requirements for accreditation. Section One was completed by the most senior operational manager within the organisation. Only three (3) of these items were used in the analysis of the model, with the remainder used for

additional industry specific interest. The three items were used to identify responses to the additional analysis variables (profit motive, business size, and length of time the organisation has been in business). Section Two consisted of eight questions relating to demographic data, including age, gender, tenure in the job and industry and position title. These items were used to establish whether or not the sample population is representative of the industry. The fourth moderating variable (employee role) was also included in this section to identify whether or not the respondent supervised employees. Section Three consisted of 36 questions relating to the theoretical constructs of absorptive capacity, four (4) absorptive capacity capabilities and effective knowledge management in the organisation. Sections Two and Three were completed by all employees, including the senior operational manager, residential care managers and direct residential care employees.

For the purposes of this research, the measurement scales were developed mainly from the knowledge management literature (Davenport 1997; Daft & Huber 1987; Grant 1996; Davenport 1997; Lane & Lubatkin 1998; Purvis *et al* 2001; Dyer & Nobeoka 2000; Wong & Radcliffe 2000; Davenport 2001; DeTienne & Jackson 2001; Gold *et al* 2001; Kakabadse *et al* 2001; Tasi 2001; Bhatt 2002; Giroux & Taylor 2002; McInerny 2002; Zahra & George 2002; Chandra & Kumar 2003; Ipe 2003; Coulson-Thomas 2004; Bose 2004; Daghfous 2004; Taylor & Wright 2004; Grace & Butler 2005), and six previous studies (Gold *et al* 2001; Zhou & Fink 2003; Brockman & Morgan 2003; Chen & Chen 2005; Kim & Lee 2006; Willem & Buelens 2007). The

literature relating to the specific absorptive capacity and effective knowledge management items are indicated in Tables 3.4 - 3.8.

3.12.2 Section One: Industry Context and Knowledge Management Outcomes

Section one of the questionnaire sought to collect data on three main areas: the industry context, knowledge management functions and accreditation outcomes. As noted above the majority of these items were included to provide some specific industry analysis and were not used to analyse the model. In this section respondents ticked 2 “yes” and “no” items and 11 multi-category items, relating to the context of their particular organisation.

3.12.2.1 Industry Context

Industry context items were obtained from the literature, and respondents were provided with up to five (5) category options against which to indicate the profile of their organisation. These included:

- Profit motive; that is, the organisation being run for profit or not-for-profit (Picone *et al* 2002; Teng & Havamdeh 2002) segmented as either for profit or not-for-profit.
- Business size indicated by number of beds (Daghfous 2004) which were segmented into a range from under 30 beds to over 120 beds.
- Duration of time that the organisation has provided residential aged care services (Daghfous 2004) segmented into a range from 1 to 5 years to over 20 years.

Two financially based Industry Context items were also included in the instrument to provide extra data on the organisations, in case additional analysis was required.

These are:

- Budget allocation (Daghfous 2004) segmented into a range from less than \$3m to greater than \$10m;
- Whether or not the organisation met their financial target in the previous financial year (Coulson-Thomas 2004) segmented into a range from no budget outcomes met to all outcomes were met.

3.12.2.2 Knowledge Management Outcomes and Actions

This part of Section One, adapted from Beijerse (1999), included items relating to knowledge management actions and outcomes. Respondents were asked to choose from between four and five response options (see Table 3.2). These included:

- Seven (7) items seeking information on specific actions, including meeting financial targets and the introduction of new knowledge to the workplace.
- Seventeen (17) items on specific knowledge management outcomes.

Table 3.2 Items Measuring Knowledge Management Outcomes and Actions

Construct	Items	Reference
Effectiveness of Knowledge Management	<ol style="list-style-type: none"> 1. Did the organisation meet its financial target in the last financial year? (For example was a budget established and the outcomes met) 2. How often are employees meetings held in your workplace for care employees? 3. How often are new ideas discussed in these meetings? 4. Does the organisation benchmark its residential care activities with other residential care organisations? 5. The organisation has in-house trainers whose job it is to ensure skills and knowledge is passed onto care employees? 6. The organisation provides the care employees with access to up to date residential care journals or publications? 7. The organisation sends care employees to outside training courses and workshops? 8. We have access to good computer systems that provide information on Resident care for the employees. 9. We have effective in-house mentoring for senior employees. 10. We have effective in-house mentoring for all care employees. 11. We work as a team. 12. We support teambuilding initiatives. 13. We conduct regular work meetings. 14. We always conduct debriefings following incidents or events to discuss what happened. 15. We have an effective quality assurance program. 16. We produce comprehensive reports on internal processes. 17. We always provide feedback to suppliers on the goods and services they supply. 18. We have organisational handbooks that outline work processes on how work should be done. 19. We conduct skills gap assessments of the care employees. 20. We have a strong focus on best practice activities. 21. Care managers provide close supervision of their employees. 22. We have a comprehensive training and education plan in place. 23. Employees are always given time at work to develop new ideas. 24. The nursing home invests resources into research and development. 	Beijerse 1999; Picone <i>et al</i> 2002.

3.12.2.3 Accreditation Outcomes

This part included six (6) items on specific mandatory industry accreditation outcomes and one item on the length of time the organisation was awarded accreditation (see Table 3.3). Accreditation outcomes were measured by asking the respondents to indicate whether or not (“yes” or “no”) the particular outcome had been achieved and how many years the organisation had been awarded accreditation at the most recent audit.

Table 3.3 Items Measuring Accreditation

Construct	Items
Mandatory Accreditation Outcomes	<ul style="list-style-type: none"> • Outcome 1.1 Continuous Improvement? • Outcome 1.3 Education and Employees Development? • Outcome 1.6 Human Resource Management? • Outcome 2.3 Education and Employees Development? • Outcome 3.3 Education and Employees Development? • Outcome 4.3 Education and Employees Development? • At the most recent accreditation audit, how many years accreditation was the organisation granted?

3.12.3 Section Two: Demographic Data

The demographic data section consisted of eight items relating to information regarding respondent’s age, gender, position in the organisation and length of tenure in the industry and with their current employer (see Table 3.4).

Table 3.4 Items Measuring Demographics

Construct	Items
Demographics	<ul style="list-style-type: none"> • What is your gender? • What is your age? • How long have you worked in the residential aged care industry? • How long have you worked for your current employer? • How many hours per week are you rostered to work? • What is your position title? Do you supervise employees? (If you answered ‘yes’ to the above question, approximately how many employees do you supervise?)

3.12.4 Section Three: Absorptive Capacity and Effective Knowledge Management

Section Three was designed to measure respondents' perceptions regarding 29 items measuring the four absorptive capacity capabilities and 7 items relating to effective knowledge management. Items in Section Three were drawn from Cohen and Levinthal's (1990) absorptive capacity, Gold and colleagues (2001) and Zahra and George's (2002) absorptive capacity capabilities and Brockman and Morgan's (2003) effective knowledge management.

As noted above, at the time of developing the research questionnaire no single or relevant instrument was identified in the literature to test the hypotheses of this research. This resulted in the issues being identified in the literature and previous studies (Gold & colleagues 2001; Zhou & Fink 2003; Brockman & Morgan 2003; Chen & Chen 2005; Kim & Lee 2006; Willem & Buelens 2007), and developed into items for the testing of hypotheses.

3.12.4.1 Acquisition

Eleven (11) items were developed to measure the construct of acquisition. This construct refers to the organisation acquiring new knowledge, either by developing it internally or acquiring it from an external source, such as networking and attending outside courses. The construct is measured by determining the extent to which the organisation is perceived to have a focus on understanding what type of new knowledge is required; communication existing between all employees; networking

occurs within the organisation and with outside organisations, employees are encouraged to attend outside courses to attain specific knowledge and skills, the organisation provides access to industry journals and articles for employees as a source of new knowledge, and the organisation has a focus on quality and continuous improvement. Respondents were asked to indicate their level of agreement on a 5 point Likert-type scale on those items listed in Table 3.5. The acquisition process is believed to have a significant impact on how knowledge is managed within Residential Aged Care organisations. The acquisition of new knowledge can provide Residential Aged Care organisations with the opportunity to source the competencies required to meet the challenges currently being experienced. There is a need for Residential Aged Care organisations to focus on and improve the competencies that will provide Residential Aged Care organisations with the ability to meet the needs of the residents.

Table 3.5 Items measuring Acquisition

Construct	Item	References
Acquisition	<ol style="list-style-type: none"> 1. Our organisation has procedures in place to ensure work practices are assessed and work is carried out in the best possible way. 2. I am satisfied with the level of communication between my supervisor and me. 3. On the whole, employees in this organisation are willing to share information with each other. 4. There is opportunity to meet employees who work in other residential care organisations and discuss aspects of residential care. 5. I am encouraged to attend outside courses and workshops to help me in my work. 6. The courses and workshops we attend always provide us with new knowledge to bring back to the workplace. 7. There are articles and journals to read on residential care in my workplace. 8. My organisation is always looking for new ways to improve care for the residents. 9. If I attend an outside course I am expected to share what I learn from the course with my colleagues. 10. I work for an organisation that believes that care procedures can always be improved. 11. I am encouraged to read material on residential care at work. 	Daft & Huber 1987; Davenport 1997; Lane & Lubatkin 1998; Dyer & Nobeoka 2000; Davenport 2001; DeTienne & Jackson 2001; Kakabadse <i>et al</i> 2001; Tasi 2001; Bhatt 2002; McNerny 2002; Chandra & Kumar 2003; Ipe 2003, Daghfous 2004; Taylor & Wright 2004; Grace & Butler 2005.

3.12.4.2 Assimilation

Four (4) items were developed to measure the construct assimilation. The items focus on assessing the organisation's ability to analyse, process, interpret and understand the information and knowledge being imported from external boundaries and that which is developed internally. The assimilation dimension reflects the extent to which the organisation is perceived to provide guidance to employees on where they can locate information and knowledge on work procedures, workplace meetings are used to disseminate methods for improvements to workplace procedures; supervisors are encouraged to seek the opinion of employees and the use of teams to disperse existing

and new knowledge. The four items that measure the assimilation construct are shown in Table 3.6.

Table 3.6 Items measuring Assimilation

Construct	Item	References
Assimilation	<ol style="list-style-type: none"> 1. My organisation provides a lot of guidance on where I can locate information and knowledge on how to provide care for the residents. 2. We have meetings at work to discuss how we can improve the care for the residents. 3. The organisation expects my supervisor to seek my opinion on how to improve the resident's care. 4. Working in teams allows me to share information and knowledge with other employees. 	Grant 1996; Purvis <i>et al</i> 2001; Giraux & Taylor 2002; McInerney 2002; Wright & Taylor 2004.

3.12.4.3 Transformation

A further five (5) items were developed to measure the construct transformation. The construct is measured by the extent to which the organisation is seen to develop and refine routines of work processes that facilitate the integration of existing knowledge with newly acquired and assimilated knowledge. Transformation is characterised by the members of the organisation understanding what knowledge is held within the work procedures, the employees are able to build on existing knowledge; there are routines that ensure new knowledge is passed on to all employees and managers are directed to inform employees of new information. The four items that capture the transformation construct are shown in Table 3.7.

Table 3.7 Items measuring Transformation

Construct	Item	References
Transformation	<ol style="list-style-type: none"> 1. Our work procedures for providing care for residents are always up to date. 2. My organisation constantly introduces new ideas on caring for the residents. 3. There are certain strategies (e.g., in-house training and meetings) that are followed to ensure employees receive the latest information on caring for the residents. 4. My supervisor always lets me know when new information on how to provide resident care is available. 5. I believe that my organisation cares about what the community thinks of our services. 	Grant 1996; Wong & Radcliffe 2000; DeTienne & Jackson 2001; Bhatt 2002; Zahra & George 2002; Daghfous 2004.

3.12.4.4 Exploitation

Nine items (9) were developed to identify whether the organisation was perceived to refine, extend and leverage existing competencies, therefore being able to exploit new knowledge. The exploitation dimension reflects that the members of the organisation have an understanding of the competencies required by employees to do their job, the organisation has a strategic plan that proactively guides the business direction and was regularly updated, the organisation has strategic goals that focuses on business improvements; the members of the organisation are conscious of what outside people think of the organisation and have a willingness to improve the image, the organisation monitors and proactively influences workplace efficiencies and the organisation has a focus on and a willingness to provide feedback to employees and in turn improve employees satisfaction. The 9 items that measure the exploitation construct are shown in Table 3.8.

Table 3.8 Items Measuring Exploitation

Construct	Item	References
Exploitation	<ol style="list-style-type: none"> 1. I work for an organisation that places importance on developing specific skills of all care employees. 2. My organisation has a strategic plan. 3. The organisation’s strategic plan is reviewed at least once per year. 4. My organisation is committed to ensuring the business is run well. 5. My organisation makes changes to its strategic direction when new knowledge is brought into the organisation. 6. My organisation is always evaluating our work practices. 7. My supervisor is aware of whether I am satisfied at work or not. 8. My organisation uses feedback from employees to make changes. 9. My supervisor gives me regular feedback on my performance. 	Davenport 1997; Gold <i>et al</i> 2001; Bhatt 2002; Zahra & George 2002; Coulson-Thomas 2004; Daghfous 2004; Bose 2004; Taylor & Wright 2004.

3.12.4.5 Effective Knowledge Management

Seven (7) items were developed to measure the construct of effective knowledge management. The items ask respondents to indicate their perceptions of the processes the organisation has in place to ensure all employees can access and use specific stored knowledge (relating to dementia care). The construct is measured by respondents’ perceptions of whether they are able to find what they need to know about dementia care, whether the procedures relating to dementia care are easy to read and let them know what they should do next, whether adequate training is given by the organisation on dementia care; the respondent felt that there were processes that ensured that the latest developments in dementia care were up to date, whether workplace meetings include issues relating to dementia care, whether respondents feel that if they have a problem on some aspect of dementia care that there is information

available at work and if respondents need to know something about dementia care, they can ask someone at work. The seven items that capture the effective knowledge management construct are shown in Table 3.9.

Table 3.9 Items Measuring Effective Knowledge Management

Construct	Item	References
Effective Knowledge Management	<ol style="list-style-type: none"> 1. I can find everything I need to know about dementia care at work. 2. The dementia care procedures are easy to read and let me know what I should do next. 3. I am given adequate training by my organisation on dementia care. 4. My organisation keeps on top of the latest developments in dementia care. 5. Our workplace meetings include issues relating to dementia care. 6. If I have a problem on some aspect of dementia care, there is information available at work for me to read on how to solve it. 7. If I need to know something about dementia care, I can ask at work. 	Beijerse 1999; McInerney 2002; Brockman & Morgan 2003; Gao <i>et al</i> 2003; Lloria 2008

3.12.5 Scales of Measurement

Section Three is composed of 29 questions measuring the attitude that care employees and managers have on the four absorptive capacity capabilities and the seven items measuring effective knowledge management. A 5-point Likert scale was used, with 1 representing “Strongly disagree” and 5 representing “Strongly agree”. Likert scales are generally assumed to be more reliable than a single item measurement and have proven to be useful in attitude measurements as they provide the respondent with the opportunity to indicate the extent to which they agree with a statement (van der Velde *et al* 2004). An additional scale (6) was added to facilitate the respondent to answer “don’t know”, so as to avoid forcing a potentially inaccurate response or leaving the

question blank. Each Likert scale question complies with the rules suggested by van der Velde and colleagues (2004) in which they are short, easy to read and only apply to a single issue.

3.12.6 Accreditation in Residential Aged Care

The outcome of continual quality improvement in health care has two imperatives, namely the redesigning of care and the improvement of service (Batalden & Splaine 2002). The primary beneficiaries of quality care are not necessarily the care providers, but the residents and their families. Knowledge in this context and environment focuses on understanding the residents' needs and preferences and the care that can be offered to meet those needs and preferences (Batalden & Splaine 2002).

The Residential Aged Care industry is highly regulated and controlled by federal legislation. A major aspect of the Commonwealth's management strategy in recent years has been to enforce mandatory accreditation and continuous improvement processes. The accreditation process seeks verification in four standards, encapsulated in a total of forty four (44) outcomes. Six (6) of the forty four outcomes are particularly relevant to this research and its examination of knowledge management. These are continuous improvement, four education and employees development outcomes and human resource management. Accreditation can be awarded for one, two or three years, depending on how well the organisation is perceived to manage the processes.

At the time of conducting the survey for this research, the majority of organisations had only undergone their second round of mandatory accreditation audits. As such the importance attached to each of the results, particularly the length of time the organisation is awarded accreditation, will not be emphasised. The items and subsequent analysis is included in this research because of the criticality of the mandatory accreditation process within the industry. Further, to exclude it would potentially leave a gap in the overall examination of knowledge management in Residential Aged Care and not fully inform future research. Analysis of the data will therefore be descriptive and for information purposes only.

The items used to examine the six quality outcomes are twenty three of the twenty nine items in Section three, and are listed in Table 3.10.

Table 3.10 Items Measuring Accreditation Outcomes

Education and Employees Development (in all 4 Standards)	Quality improvement	Human Resource Management
There is opportunity to meet employees who work in other residential care organisations and discuss aspects of residential care.	Our organisation has procedures in place to ensure work practices are assessed and work is carried out in the best possible way.	I am satisfied with the level of communication between my supervisor and me.
I am encouraged to attend outside courses and workshops to help me in my work.	My organisation is always looking for new ways to improve care for the residents.	We have meetings at work to discuss how we can improve the care for the residents.
The courses and workshops we attend always provide us with new knowledge to bring back to the workplace.	If I attend an outside course I am expected to share what I learn from the course with my colleagues.	The organisation expects my supervisor to seek my opinion on how to improve the resident's care.
There are articles and journals to read on residential care in my workplace	Working in teams allows me to share information and knowledge with other employees.	My organisation is always evaluating our work practices.
If I attend an outside course I am expected to share what I learn from the course with my colleagues.	My organisation has a strategic plan	My supervisor is aware of whether I am satisfied at work or not.
I am encouraged to read material on residential care at work	My organisation is always evaluating our work practices.	My supervisor gives me regular feedback on my performance.
Working in teams allows me to share information and knowledge with other employees.		
My organisation constantly introduces new ideas on caring for the residents.		
There are certain strategies (e.g., in-house training and meetings) that are followed to ensure employees receive the latest information on caring for the residents.		
My supervisor always lets me know when new information on how to provide resident care is available.		
I work for an organisation that places importance on developing specific skills of all care employees.		

3.12.7 Goodness of Fit

Gefen and colleagues (2000) identified that whilst PLS Graph does not have overall model fit statistics, it does estimate t-values for all loadings. Reliability was achieved with all scales achieving coefficient alphas of at least 0.70 (Tippins & Sohi 2003; Lin & Lee 2004).

3.13 SUMMARY

This chapter described the methodology for the research. Justification for the use of a quantitative methodology is provided, as well as the use of a cross-sectional design. Description of the research setting and description of the sample characteristics followed. The development of the measures from the constructs used in the conceptual framework was described. Data collection and an explanation of how the answers were scored were also presented in the chapter. The final section of the chapter outlines the advantages and justification for the use of SEM, in particular PLS Graph in the analysis of the data.

CHAPTER FOUR

RESULTS – DATA ANALYSIS

4.1 INTRODUCTION

This Chapter presents descriptive statistics and SEM, using data collected from a cross-sectional questionnaire survey of Residential Aged Care employees in Western Australia to test the hypothesis listed in Figure 4.1. The chapter is divided into two sections, beginning with an analysis of the demographic and descriptive data and finishing with SEM, concluding with a summary of the findings of the two data sets.

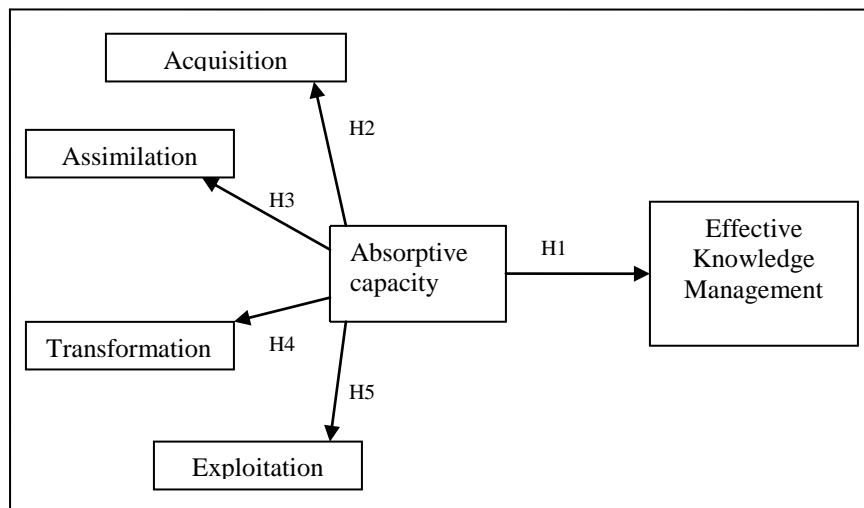


Figure 4.1 Structural Equation Model – Effective Knowledge Management

4.2 PILOT RESEARCH

An initial pilot research of the questionnaire was conducted with 45 Master of Business Administration (MBA) students. These participants were chosen because of

their availability and their ability to critically comment on the structure, content and flow of the questionnaire. Whilst none indicated that they had any involvement in the target industry, their participation provided valuable feedback on how user-friendly the instrument was and on whether or not each item was understood. The initial pilot provided valuable feedback on the clarity of the questions. Changes to the instrument resulting from the initial pilot included conversion of Section One and Section Two items from open ended questions, to nominal questions and all items in Section Three to 5 point Likert-type scale questions. In addition to these structural changes, feedback on eight of the items indicated that the questions were not well understood and as a consequence the wording of all eight questions were subsequently revised for the pilot. The responses to all eight items were found to be valid in the main research.

The results and feedback from the initial pilot were incorporated into the pilot instrument and a further pilot research was conducted with representatives from the Residential Aged Care industry. By conducting a full pilot research, the researcher was able to prove construct reliability and make any required changes prior to distribution of the main research to the residential aged care respondents. Whilst Sections 1 and 2 are not Likert-type scales, the same principles were applied to these items to maintain consistency with the Likert-type items in Section 3. That is, the items are short, easy to read and only apply to a single subject (van der Velde *et al* 2004).

4.3 DESCRIPTIVE STATISTICS

This section presents descriptive statistics and begins with a presentation of the demographic distribution. Thereafter this is followed by an assessment of normality, relationships, distribution of the responses, an assessment of the predictive values, quality outcomes and mandatory accreditation, profiling of the lowest and highest scoring organisations and finishes with effectiveness of knowledge management.

4.3.1 Demographic Distribution

Tables 4.1 to 4.6 present the demographic information of the respondents. Five hundred and forty nine (549) surveys were returned, with all being usable. The demographic variables are not used in the statistical analysis, but instead are used to assist with the interpretation of the analysis results. Three of the demographic characteristics (gender, occupation and age) are also used to provide some indication that the survey is representative of the industry, as reflected in the most recent documented profile of Residential Aged Care workers in Australia (Richardson & Martin 2004).

Gender: Ninety-three point eight percent (93.8%) of respondents were female and 6.2% were male. This compared to the Richardson and Martin (2004) data (94% and 6%) indicating that from a gender perspective, the sample is representative of the Australian aged care workforce and that the workforce appears to be dominated by females (see Table 4.1).

Table 4.1 Gender Characteristics of the Survey

	Percent	Richardson and Martin Research Percent
Male	6.2	6
Female	93.8	94
Total	100.0	100.0

Occupation: The occupation of the respondents for this research was similar as those identified by the Richardson and Martin (2004) research and represent the four care occupations within aged care. All four occupations align closely with the Richardson and Martin (2004) results and provide an indication that the sample is representative of the Australian aged care workforce (see Table 4.2).

Table 4.2 Occupation Characteristics of the Survey

Occupation	Percent	Richardson and Martin Research Percent
Registered Nurse	17.8	21.6
Enrolled Nurse	13.2	13.0
Care Assistant	61.2	57.1
Therapist (including therapy assistants)	7.8	8.2
Total	100.0	99.9

Age: The age categories of the research did not line up exactly with those of the Richardson and Martin (2004) research. However, an examination of the data indicates that there are similarities between the two groups, starting with the lowest age group around the 20 year range and steadily increasing to 55 years, before decreasing significantly. The largest cohort at sixty-eight point seven percent (68.7%) falls into the 40 to 60 year range. This provides some further indication that the sample is representative of the Australian aged care workforce (see Table 4.3).

Table 4.3 Age Characteristics of the Survey

Age (Richardson and Martin Groups)	Percent	Richardson and Martin Research Percent
Under 20 (16 to 24)	1.6	5.4
20 to 29 (25 to 34)	7.8	12.1
30 to 39 (35 to 44)	15.1	25.0
40 to 49 (45 to 54)	29.5	40.1
50 to 60 (55 to 64)	39.2	16.5
Over 60 (over 65)	6.7	0.9
Total	100.0	100.0

Duration with the current employer and time worked in the industry: Sixty-five percent (65%) of respondents have worked in the industry for less than 5 years and 40% have been with their current employer for less than 5 years. When compared with the high age cohort, it would appear that a significant number of the workforce is entering this service industry late in life (see Table 4.4).

Table 4.4 Duration of Employment Characteristics of the Survey

Sample Area	Sample Detail	Number of Responses	% of Responses
Worked for the Employer	Under 1 year	44	8.0
	1 to 5 years	178	32.4
	6 to 10 years	125	22.8
	11 to 15 years	83	15.1
	16 to 20 years	60	10.9
	Over 20 years	59	10.7
Worked in the Industry	Under 1 year	114	20.8
	1 to 5 years	246	44.8
	6 to 10 years	86	15.7
	11 to 15 years	65	11.8
	16 to 20 years	22	4.0
	Over 20 years	16	2.9

Work hours per week: Sixty-two percent (62%) of respondents work less than 30 hours per week, with the greatest cohort working between 21 and 30 hours per week (see Table 4.5).

Table 4.5 Hours of Work Characteristics of the Survey

Sample Area	Sample Detail	Number of Responses	% of Responses
Hours Work Per Week	Full time	45	8.2
	Under 10 hours	21	3.8
	11 to 20 hours	109	19.9
	21 to 30 hours	210	38.3
	More than 30 hours	164	29.9

Supervise employees: Half of the respondents (n=280) reported that they have some supervisory responsibilities. When considering that only 50 respondents had management or supervising as their primary role and supervised more than 10 people, it indicates that supervising others in some capacity is a significant part of the caring role in this industry. The ‘Supervise Employees’ item was used to separate managers and employees for further analysis of the variable employee role (see Table 4.6).

Table 4.6 Supervision Characteristics of the Survey

Sample Area	Sample Detail	Number of Responses	% of Responses
Supervise Employees	Yes	280	51.0
	No	269	49.0
Number of Employees Supervised	Less than 5	142	25.8
	Between 5 and 10	62	11.3
	More than 10	50	9.1
	Not applicable	295	53.7

4.3.2 Non-Response Bias

This research utilised methods similar to that of a mail survey, with the surveys being sent to residential aged care workplaces in Western Australia and all care employees in the organisation invited to participate. Non-response bias occurs in mail surveys when the responses provided by the research participants differ substantially from those who do not (Armstrong & Overton 1977; Lambert & Harrington 1990) and therefore can not be generalised to the target industry. It has been proposed that the best way to protect against non-response bias is to reduce the non-response itself (Armstrong & Overton 1977; Lambert & Harrington 1990) and get the non-response down to below 30%. Lambert and Harrington (1990) suggested that for mail surveys with return rates below 40% there is a need to have the potential for non-response bias addressed and that return rates above 40% are less of a concern. Whilst the response rate for this research is 41% there remained a need to explore if there were any options available to provide sufficient confidence that the sample is representative of the Residential Aged Care organisations in Western Australia.

Armstrong and Overton (1977) suggested a variety of ways to deal with the potential of non-response bias, including a comparison with known values, estimating methods and extrapolation techniques. The estimating and extrapolation techniques were excluded because both require the returned surveys to be separated into waves (Armstrong & Overton 1977) and compared against data from other sources. With all participating metropolitan organisations utilising the once-off return box method for returning surveys, all completed surveys from these organisations essentially came to

the researcher at the same time and therefore, not in waves. As the surveys were distributed anonymously and the returned responses are also anonymous, there was no way of effectively determining who had not responded. Therefore, as there was no way of separating the responses and there are no other data sources available on which estimating and extrapolation could be conducted, the only methods available were to optimise the return rate and conduct a comparison with known values.

Optimising response rates from mail surveys utilises techniques such as preparing the participants of the existence of a survey, the use of effective return mechanisms, assurance of confidentiality and following-up the participants (Lambert & Harrington 1990), all of which were used in this research. Managers and employees were approached and encouraged to participate prior to distribution as part of the access permission process, whereby sealed boxes were provided to metropolitan organisations and stamped addressed envelopes were provided for regional organisations. Furthermore, flyers were provided for each organisation encouraging participation and follow-up phone calls and visits were conducted with most organisations.

The profile of respondents compared closely to the most recent documented known values, being the profile of Residential Aged Care workers in Australia (Richardson & Martin 2004). Three important demographic variables compare favourably with the Richardson and Martin (2004) data, being gender, occupation and age (see Tables 4.1 to 4.3). These provide some confidence that the data collected for this research is

representative of the Australian Aged Care industry. When combined with the 41% response rate it suggests that a low non-response bias is likely.

4.3.3 Assessment of Normality

The normality of data distribution is a fundamental assumption of the multivariate analysis. Normality refers to the shape of the distribution of the data for each variable, as a cluster around the mean in a symmetrical pattern known as a normal curve (Hair *et al* 1998). Assessment of the kurtosis and skewness of the data distribution can indicate whether the data is normally distributed or not and if the variation from the normal distribution is large, indicating validity of the test results (Hair *et al* 1998). Kurtosis is the flatness or peakedness of the distribution compared to the normal distribution (Hair *et al* 1998) and is considered to be non-normally distributed when the data has a significant non-zero univariate kurtosis (Hair *et al* 1998). Skewness refers to the symmetry of the distribution compared to the normal distribution, with a value outside the -1 to +1 range indicating a substantially skewed distribution (Hair *et al* 1998).

The analysis indicates that none of the questions were normally distributed, with all items having a significant positive or negative Skewness and the Kolmogorov-Smirnov with Lillifors having a significance level less than 0.05. As a consequence, equivalent Non-parametric tests were run against all the parametric tests, indicating the same result in the majority of cases. This result can, in part, be explained by the

high number of responses received (549). The mean, standard deviation (SD), skewness and kurtosis of the responses for each construct are presented in Appendix C.

4.3.4 Distribution of Responses

Examination of each construct in relation to the above descriptive statistic is presented in the following section.

4.3.4.1 Acquisition

There are eleven (11) items making up the acquisition construct (Table 4.7). The item *“I work for an organisation that believes that care procedures can be improved”* reported the highest score (mean score = 4.26 on a maximum of 5). Item *“There is opportunity to meet employees who work in other residential care organisations and discuss aspects of residential care”* reported the lowest score (mean score = 2.50 on a maximum of 5). Overall the mean for the construct is 3.71 (on a maximum of 5), with a Cronbach’s Alpha of .903 indicating that the participants perceive that there are a number of processes and actions across the organisation that assist with the acquisition of new knowledge from outside the organisation or from within.

Table 4.7 Distribution of the Acquisition Items

Question	Mean	Lowest	Highest
Procedures	4.09	4.05	4.18
Communication with manager	3.89	3.76	3.93
All employees share information	3.86	3.75	3.88
Opportunity to network	2.50	2.56	2.37
Attend outside courses	3.73	3.49	3.78
Courses provide new knowledge	3.87	3.86	3.87
Journals in the workplace	3.66	3.65	3.74
Organisation looks for improvements	3.91	3.91	3.93
Expected to share new knowledge	3.53	3.53	3.53
Organisation believes that care procedures can be improved	4.26	4.26	4.26
Encouraged to read material on care at work	3.47	3.45	3.55

4.3.4.2 Assimilation

There are four (4) items making up the assimilation construct (Table 4.8). The item, “*Working in teams allows me to share information and knowledge to other employees*” reported the highest score (mean score = 4.01 on a maximum of 5). Item “*The organisation expects my supervisor to seek my opinion on how to improve the resident’s care*” reported the lowest score (mean score = 3.46 on a maximum of 5). The mean for the construct is 3.78 (on a maximum of 5) with a Cronbach’s Alpha of .861, indicating that the participants perceive that there are mechanisms with the organisation that assist them to assimilate new knowledge.

Table 4.8 Distribution of the Assimilation Items

Question	Mean	Lowest	Highest
Organisation provides guidance on locating information	3.81	3.72	3.84
Meetings to discuss improvements	3.73	3.70	3.96
Supervisor seeks my opinion	3.46	3.44	4.44
Team work allows us to share knowledge	4.01	4.01	4.04

4.3.4.3 Transformation

The transformation construct consists of five (5) items (Table 4.9). The item “ *I believe that my organisation cares about what the community thinks of our service*” reported the highest score (mean score = 4.26 on a maximum of 5). The item “*Organisation introduces new ideas*” reported the lowest score (mean score = 3.47 on a maximum of 5). The mean for the construct is 3.78 (on a maximum of 5), with a Cronbach’s Alpha of .902, indicating that the participants perceive that the transformation of new knowledge can occur in their organisations.

Table 4.9 Distribution of the Transformation Items

Question	Mean	Lowest	Highest
Procedures are up to date	3.76	3.75	3.81
Organisation introduces new ideas	3.47	3.47	3.51
Strategies in place to ensure employees receive new information	3.79	3.77	3.90
Supervisor informs us of new information	3.62	3.57	3.65
Organisation cares what the community thinks of it	4.26	4.26	4.27

4.3.4.4 Exploitation

Within the exploitation construct there are nine items (Table 4.10). The item, “*The Organisation has a strategic plan*” reported the highest score (mean score = 3.94 on a maximum of 5). Item “*My supervisor gives me regular feedback on my performance*” reported the lowest score (mean score = 3.43 on a maximum of 5). The mean for the construct is 3.78 (on a maximum of 5) with a Cronbach’s Alpha of .953, indicating that the participants perceive that exploitation of new knowledge does occur in their organisation.

Table 4.10 Distribution of the Exploitation Items

Question	Mean	Lowest	Highest
Organisation places an importance on new skills	3.75	3.74	3.76
Organisation has a strategic plan	3.94	3.94	3.95
The strategic plan is reviewed each year	3.84	3.81	3.94
Organisation is committed to run the business well	3.92	4.00	4.06
Organisation changes direction when new information is available	3.90	3.91	3.92
Organisation evaluates work practices	3.90	3.89	3.98
My supervisor is aware if I am satisfied	3.65	3.62	3.68
Organisation uses employees feedback	3.70	3.67	3.73
Supervisor gives employees regular feedback	3.43	3.36	3.44

4.3.5 Profiles of the Highest and Lowest Scoring Organisations

The highest and lowest scoring organisations were determined by sorting the means for effective knowledge management and the means for the four absorptive capacity capabilities. Of the thirty five participating organisations, the five highest and lowest scoring organisations are clearly positioned at the extremes of how all the employees perceive them (highest = 4.5078 and lowest mean = 2.7777 for effective knowledge management). Of all four absorptive capacity capabilities, exploitation had the highest and lowest means at 4.6042 and 2.5776 respectively, which may indicate that because exploitation is outcome focused that its existence or otherwise is quite obvious to the participants. These are profiled in more detail below.

4.3.5.1 Highest Scoring Organisations

The top five scoring organisations by absorptive capacity capability means (see table 4.12) are:

- Organisation 19 - A 40 bed, metropolitan, not-for-profit facility that has the highest effective knowledge management mean (4.5078) and all four absorptive

capacity capability means are in the highest five means for their category, with three capabilities having the highest mean (acquisition, transformation and exploitation). The questionnaire return rate for this organisation was 48%.

- Organisation 28 - A 40 bed, metropolitan, not-for-profit facility that has the second highest effective knowledge management mean (4.3679) with all four absorptive capacity capability means amongst the highest five means for their category. The questionnaire return rate for this organisation was 45%.
- Organisation 4 - A 60 bed, metropolitan, not-for-profit facility that has the third highest effective knowledge management mean (4.2215) with all four absorptive capacity capability means amongst the highest five means for their category. The questionnaire return rate for this organisation was 33%.
- Organisation 9 - A 52 bed, metropolitan, for profit facility that has the fourth highest effective knowledge management mean (4.2196) with three of the four absorptive capacity capability means amongst the highest five means for their category (assimilation, transformation and exploitation). The questionnaire return rate for this organisation was 53%.
- Organisation 26 - A 50 bed, metropolitan, not-for-profit facility that has the fifth highest effective knowledge management mean (4.1257) with three of the four absorptive capacity capability means amongst the highest five means for their category (acquisition, assimilation and exploitation). The questionnaire return rate for this organisation was 48%.

Table 4.11 Highest Five Organisations by Effective Knowledge Management and Absorptive Capacity Capability Means

Organisation No	Effect. KM	Acquisition	Assimilation	Transformation	Exploitation
19	4.5078	4.4545	4.5625	4.5625	4.6042
28	4.3679	4.2626	4.6204	4.4722	4.5247
4	4.2215	4.1049	4.4423	4.2628	4.4241
9	4.2196	4.0409	4.3413	4.3413	4.4587
26	4.1257	4.1212	4.2500	4.1389	4.2453

4.3.5.2 Lowest Scoring Organisations

The five lowest scoring organisations by absorptive capacity capability means (Table 4.11) are:

- Organisation 22 - An 80 bed, metropolitan, not-for-profit organisation has the lowest effective knowledge management mean (2.7777) as well as the lowest mean for all four absorptive capacity capabilities. The questionnaire return rate for this organisation was 28%.
- Organisation 24 - An 80 bed, metropolitan, not-for-profit facility and has the second lowest effective knowledge management mean (2.9611) and all four absorptive capacity capability means are amongst the lowest five means for their category. The questionnaire return rate for this organisation was 26%.
- Organisation 21 - A 30 bed, country, not-for-profit facility which has the third lowest effective knowledge management mean (2.9868) as well as all four absorptive capacity capability means are amongst the bottom five means for their category. The questionnaire return rate for this organisation was 57%.
- Organisation 12 - A 65 bed, metropolitan, for profit facility which has the fourth lowest effective knowledge management mean (3.1850) as well as all four

absorptive capacity capability means are amongst the bottom five means for their category. The questionnaire return rate for this organisation was 35%.

- Organisation 20 - A 65 bed, metropolitan, not-for-profit facility and has the fifth lowest effective knowledge management mean (3.2310) as well as two of the four absorptive capacity capability means are amongst the bottom five means for their category (acquisition and transformation). The questionnaire return rate for this organisation was 38%.

Table 4.12 Lowest Five Organisations by Effective Knowledge Management and Absorptive capacity Capability Means

Organisation No	Effect. KM	Acquisition	Assimilation	Transformation	Exploitation
22	2.7777	2.9653	2.8750	2.7321	2.5776
24	2.9611	2.9790	3.0641	2.9423	3.1340
21	2.9868	3.0923	3.0185	2.8750	3.0027
12	3.1850	3.3054	3.1964	3.0298	3.1275
20	3.2310	3.2455	3.6778	3.3833	3.4325

4.4 ADDITIONAL ANALYSIS

4.4.1 Accreditation

The analysis of the quality outcomes and mandatory accreditation is conducted for industry interest only, and has no relationship with the model analysis. Knowledge management has been shown to have strong links to quality assurance and can provide initiatives that support quality improvements and outcomes in Residential Aged Care. A comparison of the results from the top five and bottom five organisations indicates a polarised result for twenty two of the twenty three items used to assess accreditation and knowledge management. The only item that is the same for both groups is “Opportunity to Network”, which was consistent with item 3.4 “There is opportunity

to meet employees who work in other residential care organisations and discuss aspects of residential care”, scoring the lowest mean at 2.5 (from a potential score of 5). All other items clearly indicate that the managers and employees of the bottom five organisations do not perceive that the quality related initiatives are effective, scoring between Strongly Disagree and Agree (shown in red). Conversely managers of the top five organisations scored between Agree and Strongly Agree (shown in yellow), indicating that they perceive the initiatives are effective (Tables 4.13 to 4.15).

Table 4.13 Comparison of Top 5 and Bottom 5 Organisations for Quality Improvement

Quality Improvement Item	Bottom 5 Organisations		Top 5 Organisations		
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Procedures to ensure work practices are assessed	Red	Red	Red	Yellow	Yellow
Always looking for new ways to improve care	Red	Red	Red	Red	Yellow
The organisation believes that care procedures can be improved	Red	Red	Red	Red	Yellow
Procedures are always up to date	Red	Red	Red	Yellow	Yellow
Changes are made to strategic direction when new knowledge is acquired	Red	Red	Red	Yellow	Yellow
Feedback from employees to make changes	Red	Red	Red	Red	Yellow

Table 4.14 Comparison of Top 5 and Bottom 5 Organisations for Education and Employee Development

Education and Employees Development	Bottom 5 Organisations		Top 5 Organisations		
Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Opportunity to network					
Encouraged to attend outside courses					
Courses and workshops provide new knowledge					
I am expected to bring knowledge back from courses					
Articles and journal are available to read on aged care					
Encouraged to read material on aged care					
Teams facilitate the sharing of knowledge					
New care ideas are constantly introduced					
Strategies exist to ensure new information is made available					
Supervisor informs us of all new caring information					
The organisation places an importance on increasing skills					
Meetings take place to discuss how to improve care					

Table 4.15 Comparison of Top 5 and Bottom 5 Organisations for Human Resource Management

Human Resource Management	Bottom 5 Organisations		Top 5 Organisations		
Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The level of communication with supervisors is good					
My supervisor is expected to seek my opinion on how to improve care					
The organisation is always evaluating work practices					
My supervisor is aware if I am satisfied at work					
My supervisor gives me regular feedback on my performance					

All thirty five participating organisations reported that they achieved full compliance in all six identified accreditation outcomes. Thirty four (34) of the thirty five (35) participating organisations reported that at the most recent audit they were awarded the full three years accreditation, while one organisation was only awarded one year. This result was subsequently discussed with the agency that conducts the accreditation audits. The Accreditation Agency confirmed that at that point in time all aged care organisations had only undergone their second round of audits within the new system and that these results were not a true reflection of how effective the quality systems were.

With the above in mind, at a minimum these results provide an insight into the type of knowledge management activities that can support quality activities in Residential Aged Care and provide some base on which future research could take place.

4.4.2 Effective Knowledge Management Outcomes and Actions

Managers in participating organisations were asked to rate the existence of seventeen (17) knowledge management outcomes and seven (7) knowledge management actions. These outcomes and actions were obtained from the literature and their existence can provide an indication that the organisation is engaged in managing knowledge. These are included in the analysis to support the journey to build a body of knowledge on knowledge management in a service environment and in particular Residential Aged Care (see Tables 4.16 and 4.17).

The results of the knowledge management actions and outcomes for the top five and bottom five organisations were examined to assess if there was any consistencies with the other results. The senior managers in the top five organisations rated their support for the actions and outcomes much higher than the bottom five organisations. The data for this observation are very small, so this result only serves to reinforce the view that there is a difference between the top five and bottom five scoring organisations.

Table 4.16 Knowledge Management Outcomes
(yellow shading highlights the range in which the majority of responses are scored)

Knowledge Management Initiative	Frequency				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Computer Systems	15	7	7	3	3
Manager Mentoring	8	2	10	10	5
Employees Mentoring	5	4	11	9	6
Teams	5	0	3	15	12
Teambuilding	6	0	7	11	12
Work Meetings	5	1	1	14	14
Debriefing	4	3	11	9	8
Quality Assurance	4	1	5	15	10
Reporting	5	1	11	11	7
Employees Feedback	5	4	13	7	6
Handbooks	5	3	3	12	12
Skills Assessment	5	4	12	11	3
Best Practice	4	2	8	10	11
Close Supervision	4	7	8	7	9
Education Plan	5	1	9	6	14
Time to Develop Ideas	0	4	12	9	9
Research & Development	6	6	13	4	1
Totals	91	50	144	163	142

Table 4.17 Knowledge Management Actions

Item	Result
The organisation met financial targets last financial year	93% (n=29) scored between some targets met and all targets met, with 32% (n= 10) most targets met
How often are employees meetings held	97% (n=30) employee meeting held at least three monthly
How often are new ideas discussed at meetings	87% (n=27) new ideas are discussed at most or all meetings
Does the organisation benchmark	55% (n=17) of organisation benchmark sometimes
Does the organisation have an in-house trainer	61% (n=19) have a part time trainer
Does the organisation provide journals for employees	92% (n=28) have one or more publications available for employees to read
How often do employees attend outside courses	92% (n=28) between one employee per month and one employee per three months attend an outside course

4.5 STRUCTURAL EQUATION MODELING

This section presents data analysis based on the methodology and analytical approach described in Chapter Three.

Twenty nine (29) items were originally used to make up the four reflective scales (11 for acquisition, 4 for assimilation, 5 for transformation and 9 for exploitation). Hypothesis testing was conducted with PLS graph (Chin 1998). This involved a two step analysis approach, as described by Barclay, Higgins and Thompson (1995). The first step is to conduct an assessment of the measurement model, where the relationship between the latent variables and their indicators are described (Santosa Wei & Chan 2005). The second step is an assessment of the structural model, where the relationship between the latent variables is described (Santosa, Wei & Chan 2005).

4.5.1 Measurement Model

The measurement model was assessed by examining individual item reliability, internal consistency and discriminant validity (Barclay, Higgins & Thompson 1995).

The original model was run with all twenty nine (29) items included. Eleven (11) items had loadings less than 0.7 so were discarded and the model rerun. Individual item reliability is deemed reliable as all item loadings (column 3 – Table 4.14) exceeded 0.70 (Santosa, Wei & Chan 2005). Barclay, Higgins and Thompson (1995) found that the process of model revision is not uncommon for newly developed scales. The reason for removal of the items was because they were deemed too unreliable (Barclay, Higgins & Thompson 1995) and removal of each item was carried out sequentially until all remaining items loaded at greater than 0.70 for each construct and the discriminate variability was adequate (see below). Of the original eleven items that made up the construct acquisition, only five remained in the measurement model; all four assimilation items were retained in the model; four of the five transformation items were retained and five of the original nine exploitation items were retained.

The full model can be found in Appendix E. Whilst 40% (n=12) of the items were removed, all constructs are still considered adequate because each has at least four items (Chin 1998) and the removed items were reviewed to ensure that an adequate cross-section of items remained for each construct, as identified in the literature. The

construct effective knowledge management is also listed in column 3 (Table 4.18), with all seven (7) items exceeding 0.70 and none needing to be removed.

Internal consistency is a measure of reliability and should be greater than 0.70 (Barclay, Higgins & Thompson 1995). Column 5 (Table 4.18) indicates that all constructs are greater than 0.70 and therefore demonstrate adequate internal consistency. Cronbach's alpha is provided in column 6 (Table 4.18) as a supporting measure and also indicates that the latent variables are reliable.

Discriminant validity is an indication of the extent that a construct is different to other constructs (Barclay, Higgins & Thompson 1995) and is measured by the Average Variance Extracted (AVE), which should equal or exceeds 0.50 (Fornell & Lacker 1981). The research model has an AVE for each construct greater than 0.5 (column 4 – Table 4.18) so convergence appeared to be adequate at this point.

Table 4.18 Convergent Validity of Measurement Model

Latent Variable	Item	Item Reliability	AVE	Internal Consistency	Cronbach's alpha
Acquisition	Q 1	.782	0.645	0.892	0.903
	Q 2	.758			
	Q 8	.865			
	Q 10	.820			
	Q 12	.715			
Assimilation	Q 11	.846	0.668	0.889	0.861
	Q 13	.855			
	Q 14	.789			
	Q 15	.777			
Transformation	Q 16	.821	0.729	0.915	0.902
	Q 17	.883			
	Q 18	.873			
	Q 19	.836			
Exploitation	Q 20	.837	0.665	0.888	0.953
	Q 26	.828			
	Q 28	.824			
	Q 29	.772			
Effective KM	Q 30	.829	0.645	0.927	0.955
	Q 31	.811			
	Q 32	.827			
	Q 33	.755			
	Q 34	.772			
	Q 35	.796			
	Q 36	.823			

Discriminant validity also includes an assessment of whether or not each of the constructs shares more variance with its measures than it does with other constructs in the model (Barclay, Higgins & Thompson 1995). Table 4.19 shows the correlation matrix of all constructs and reveals that the lower order construct acquisition is problematic, with the diagonal element not being greater than the off-diagonal element of the corresponding rows and columns. That is, the squared correlation between acquisition and the other constructs is not greater than the variance shared between them (Barclay, Higgins & Thompson 1995). This indicates that acquisition is being captured by the other three lower order constructs and is not significantly different.

Note that absorptive capacity is a second order construct, so discriminant validity does not apply.

Table 4.19 Correlation Matrix – Full Model

	Acq	Ass	Trans	Exp	EKM
Acquisition	.790				
Assimilation	.840	.821			
Transformation	.823	.812	.850		
Exploitation	.820	.776	.818	.820	
Effective Knowledge Management	.674	.682	.699	.706	.801
Absorptive capacity					.741

4.5.2 Model Revision

The model was revised with the construct acquisition removed. Internal consistency remains greater than 0.70 and therefore continues to demonstrate adequate internal consistency. The revised model has an AVE for each construct greater than 0.5 so convergence is adequate (Table 4.20). All diagonal elements of the matrix for the revised model are significantly greater than the off-diagonal elements for remaining constructs, so has an adequate discriminate validity (Barclay, Higgins & Thompson 1995) (Table 4.21). The revised assessment of discriminant validity does not reveal any further problems.

Table 4.20 Revised Convergent Validity of Measurement Model - with Acquisition Removed

Latent Variable	Item	Item Reliability	AVE	Internal Consistency	Cronbach's alpha
Assimilation	Q 11	.843	0.668	0.889	0.861
	Q 13	.855			
	Q 14	.792			
	Q 15	.778			
Transformation	Q 16	.823	0.729	0.915	0.902
	Q 17	.884			
	Q 18	.873			
	Q 19	.835			
Exploitation	Q 20	.836	0.665	0.888	0.953
	Q 26	.827			
	Q 28	.825			
	Q 29	.774			
Effective KM	Q 30	.829	0.644	0.927	0.955
	Q 31	.810			
	Q 32	.828			
	Q 33	.755			
	Q 34	.773			
	Q 35	.796			
	Q 36	.824			

Table 4.21 Revised Correlation Matrix - with Acquisition Removed

	Ass	Trans	Exp	EKM	Ab.Cap
Assimilation	.821				
Transformation	.813	.850			
Exploitation	.777	.812	.823		
Effective Knowledge Management	.679	.699	.706	.801	
Absorptive capacity				.741	.760

4.5.3 Structural Model

The structural model is essentially a hypothesised relationship between the research model and the latent constructs, so statistical conclusion validity is assessed by invoking a test of the null hypothesis for each path (Hamlon 2001). All four remaining path coefficients (column 4 – table 4.22) are significant at $\alpha = 0.01$, supporting all hypotheses.

Table 4.22 Path Coefficients and their t-values

Hypothesis	Path		Path coefficient (β)	t-value	Significance (two-tailed)
	From	To			
H1	Ab. Capacity	Eff. KM	0.720	30.09	$p < 0.01$
H3	Assimilation	Ab. Capacity	0.923	97.62	$p < 0.01$
H4	Transformation	Ab. Capacity	0.946	161.12	$p < 0.01$
H5	Exploitation	Ab. Capacity	0.928	110.62	$p < 0.01$

Figure 4.2 indicates the path coefficients for the full sample model with t-statistic obtained from bootstrapping 100 resamples (Chin & Todd 1995). All remaining paths are significant and support the hypotheses. The explanatory power of the model was assessed by observing the R^2 of the endogenous construct (Santosa, Wei & Chan 2005). Figure 4.2 indicates the R^2 value for effective knowledge management is above 0.10 (Falk & Miller 1992) at 0.564 so is adequate and explains 56% of the total variability for effective knowledge management. Table 4.23 presents the outcome of the hypotheses test.

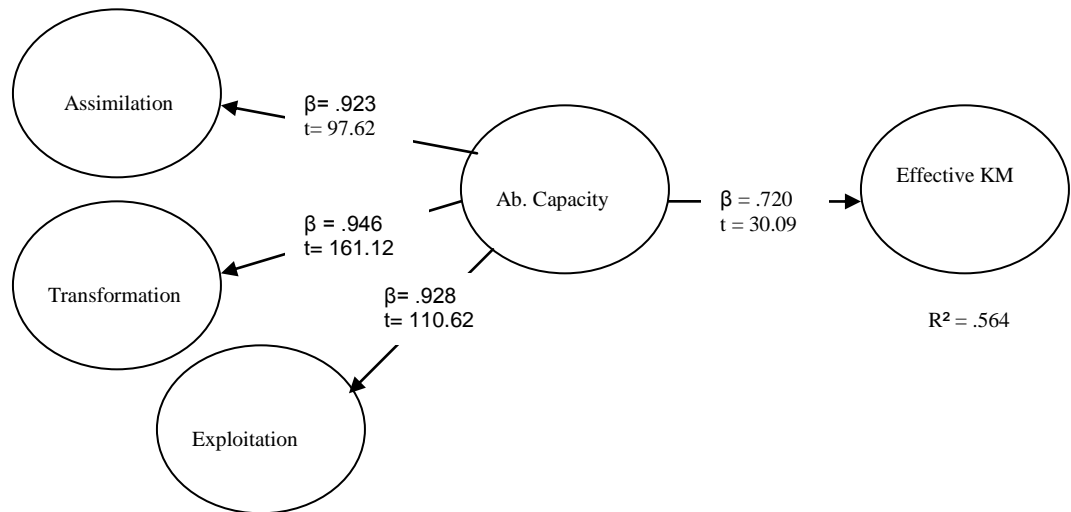


Figure 4.2 Structural Model Estimates

Table 4.23 Outcome of the Hypotheses Test

	Hypothesis	Outcome
H1	The higher the perceived level of absorptive capacity in an organisation, the higher the perception of effective knowledge management in the organisation.	Supported
H3	The higher the perceived level of capability for assimilation of new knowledge in the organisation, the higher the perceived level of effective knowledge management.	Supported
H4	The higher the perceived level of capability for transformation of new knowledge in the organisation, the higher the perceived level of effective knowledge management.	Supported
H5	The higher the perceived level of capability for exploitation of new knowledge in the organisation, the higher the perceived level of effective knowledge management.	Supported

The above results provide a number of observations from the structural model analysis. All paths are in the proposed directions, supporting the four remaining hypothesised relationships and are significant. Absorptive capacity explains 56% of the total variability for effective knowledge management, and in order, transformation, assimilation and then exploitation has the greatest impact on effective knowledge management.

4.5.4 Additional Analyses

PLS was used to test if there were any effect of manager's and employee' perception and the industry context variables of profit motive, size of the organisation and the time the organisations has been in business on the hypothesised relationships. All four models were consistent with the full revised sample model.

A pooled error t-test was calculated to determine the statistical significance of the different path coefficients by supervisor and employees, profit motive, size of the

organisation and the time the organisation has been in business. As the samples are not normally distributed and the variances of the groups unequal, the Smith-Satterthwait test was applied (Moore & Chang 2006). The results of the analyses are presented in table 4.24, below.

Table 4.24 Outcome of the Additional Analyses

Analyses	Outcome
The level of employment will have a significant impact on Effective Knowledge Management.	There are no significant differences in the path coefficients between Supervisors and Employees for all four paths (see table 4.25).
The profit motives of the organisation will have a significant impact on Effective Knowledge Management..	There are no significant differences in the path coefficients between all four Profit Motive paths (see table 4.28).
The size of the organisation will have a significant impact on Effective Knowledge Management..	There are no significant differences in the path coefficients between all four Size of the Organisation paths (see table 4.30).
The length of time the organisation has been in business will have a significant impact on Effective Knowledge Management..	There are no significant differences in the path coefficients between all four Length of Time in Business paths (see table 4.32).

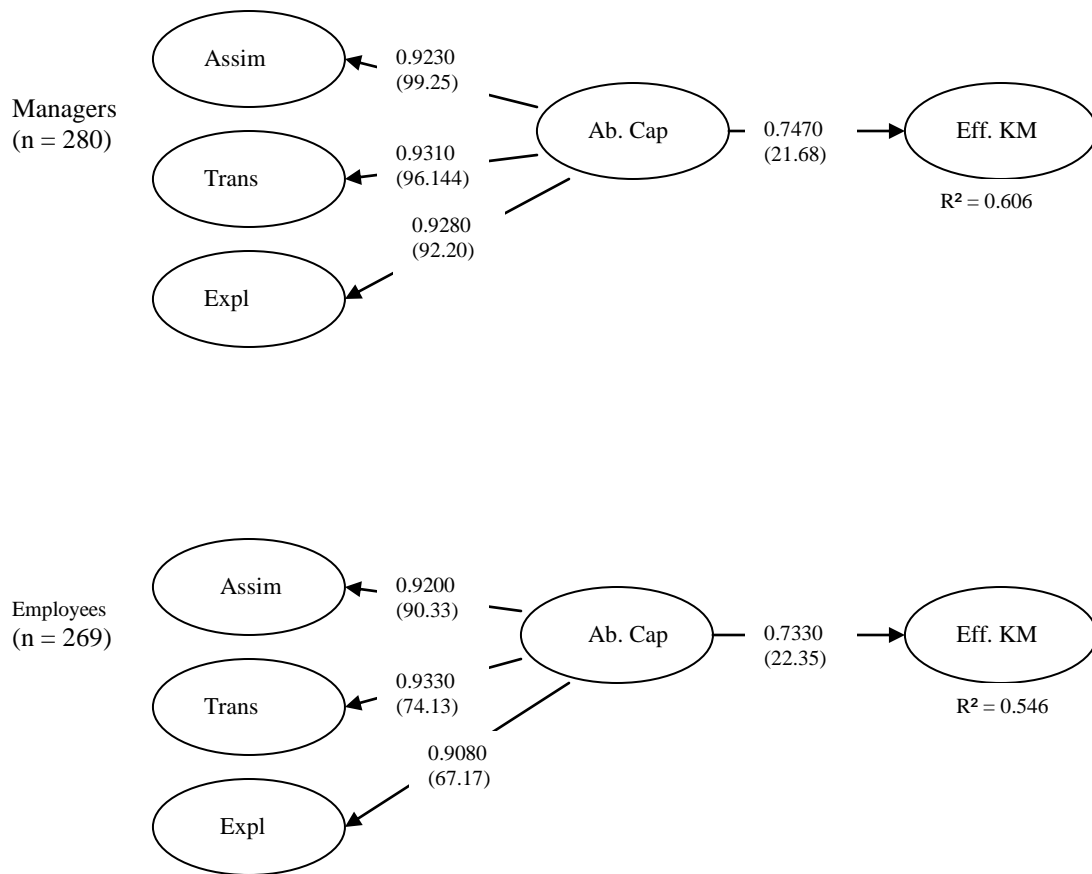
These are presented in more detail below.

4.5.4.1 Managers and Employees

Responses were divided into managers and employees by their response to item 2.7 (Do you supervise employees?), with supervisors n=280 and employees n= 269. All loadings, composite reliability and average variances extracted for both subsamples pass the required thresholds. These are shown in Table 4.25 and the resulting path models are shown in Figure 4.3.

Table 4.25 Factor Loadings, CR and AVE for Managers and Employees

PLS Factor Loadings of Items, Composite Reliability (CR), and Average Variance Extracted (AVE)				
	Managers		Employees	
	Loading	t-Statistic	Loading	t-Statistic
Assimilation Q 11	0.8508	50.29	0.8420	39.19
Assimilation Q 13	0.8540	54.80	0.8530	51.07
Assimilation Q 14	0.8063	26.77	0.7698	22.67
Assimilation Q 15	0.8011	28.91	0.7528	16.91
Transformation Q16	0.8326	37.95	0.8092	25.30
Transformation Q 17	0.8873	64.81	0.8812	60.52
Transformation Q 18	0.8700	45.18	0.8747	49.80
Transformation Q 19	0.8372	37.33	0.8358	30.61
Exploitation Q 20	0.8707	49.99	0.8015	33.31
Exploitation Q 26	0.8435	34.30	0.8099	24.81
Exploitation Q 28	0.8132	31.94	0.8328	31.67
Exploitation Q 29	0.7833	26.80	0.7700	21.66
Effective Q 30	0.8217	25.66	0.8334	32.39
Effective Q 31	0.8365	28.76	0.7730	16.64
Effective Q 32	0.8485	31.41	0.8041	24.89
Effective Q 33	0.7643	19.94	0.7351	16.34
Effective Q 34	0.7822	25.32	0.7503	19.36
Effective Q 35	0.8029	22.99	0.7874	16.65
Effective Q 36	0.8446	35.50	0.8000	28.62
Construct	CR	AVE	CR	AVE
Absorptive capacity	0.961	0.592	0.956	0.560
Assimilation	0.899	0.691	0.881	0.649
Transformation	0.917	0.735	0.913	0.724
Exploitation	0.897	0.688	0.880	0.646
Effective	0.933	0.664	0.918	0.615



Note: t-statistics greater than 1.995 are significant at $p < .05$

Figure 4.3 Path Model by Manager and Employee

Based on employment, the results suggest that no significant difference exists in the path coefficients between managers and employees (Table 4.26).

Table 4.26 Pooled Error t-Tests by Manager and Employees

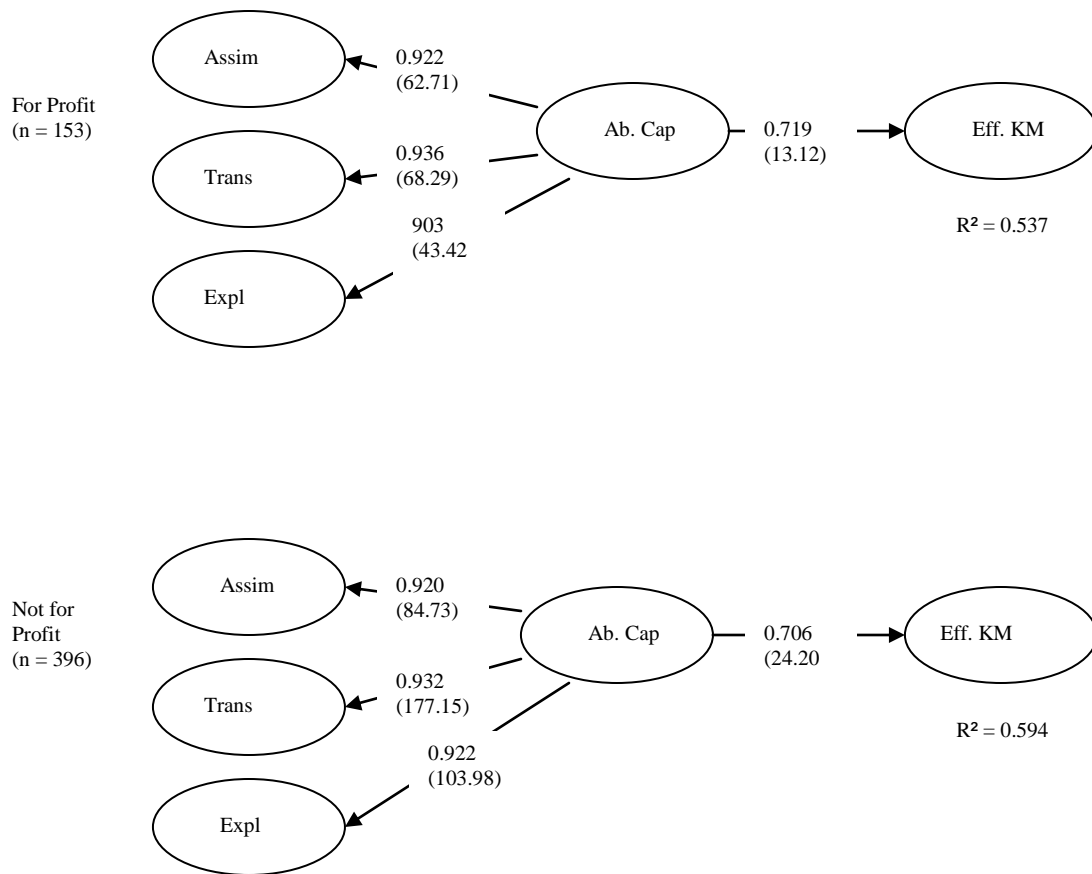
Path	Managers		Employees		t-Stat	P (2 tail)
	Path Coef	SE from B. Strap	Path Coef	SE from B. Strap		
Ab. Cap → Eff. KM	0.6970	0.0395	0.7121	0.0405	-0.2655	0.7912
Ab. Cap → Assim	0.9230	0.0091	0.9200	0.0122	0.1971	0.8442
Ab. Cap → Trans	0.9310	0.0096	0.9330	0.0123	-0.1282	0.8981
Ab. Cap → Expl	0.9280	0.0099	0.9070	0.0176	1.0399	0.3008

4.5.4.2 Profit Motive

Profit motive was divided into for profit and not-for-profit by their response to item 1.1 (What is the profit motive of your organisation?). For profit n=153 and not-for-profit n= 396. All loadings, composite reliability, and average variances extracted for both subsamples pass the required thresholds. These are shown in Table 4.27 and the resulting path models are presented in Figure 4.4.

Table 4.27 Factor Loadings, CR and AVE for Profit Motive

Factor Loadings of Items, Composite Reliability (CR), and Average Variance Extracted (AVE)				
	For Profit		Not for Profit	
	Loading	t-Statistic	Loading	t-Statistic
Assimilation Q 11	0.8541	37.52	0.8425	48.69
Assimilation Q 13	0.8683	43.68	0.8491	55.10
Assimilation Q 14	0.7584	15.78	0.8012	28.70
Assimilation Q 15	0.6799	9.45	0.8190	31.61
Transformation Q16	0.8040	16.78	0.8270	35.24
Transformation Q 17	0.8682	34.07	0.8908	77.33
Transformation Q 18	0.8877	38.55	0.8721	62.95
Transformation Q 19	0.8384	22.27	0.8334	49.79
Exploitation Q 20	0.8456	37.23	0.8316	38.57
Exploitation Q 26	0.8406	21.62	0.8228	29.47
Exploitation Q 28	0.8400	29.20	0.8147	35.68
Exploitation Q 29	0.7013	10.91	0.8016	41.56
Effective Q 30	0.8735	47.53	0.8065	27.62
Effective Q 31	0.7241	11.92	0.8579	43.27
Effective Q 32	0.7940	17.44	0.8428	42.44
Effective Q 33	0.7492	13.34	0.7530	21.31
Effective Q 34	0.7747	19.93	0.7776	26.97
Effective Q 35	0.7535	12.61	0.8177	32.46
Effective Q 36	0.7997	27.06	0.8344	46.24
Construct	CR	AVE	CR	AVE
Absorptive capacity	0.958	0.561	0.959	0.581
Assimilation	0.871	0.630	0.897	0.686
Transformation	0.912	0.723	0.917	0.733
Exploitation	0.883	0.655	0.890	0.669
Effective	0.917	0.612	0.932	0.662



Note: t-statistics greater than 1.995 are significant at $p < .05$

Figure 4.4 Path Model by Profit Motive

Based on profit motive, the results suggest that no significant difference exists in the path coefficients between for profit and not for profit (Table 4.28).

Table 4.28 Pooled Error t-Tests by Profit Motive

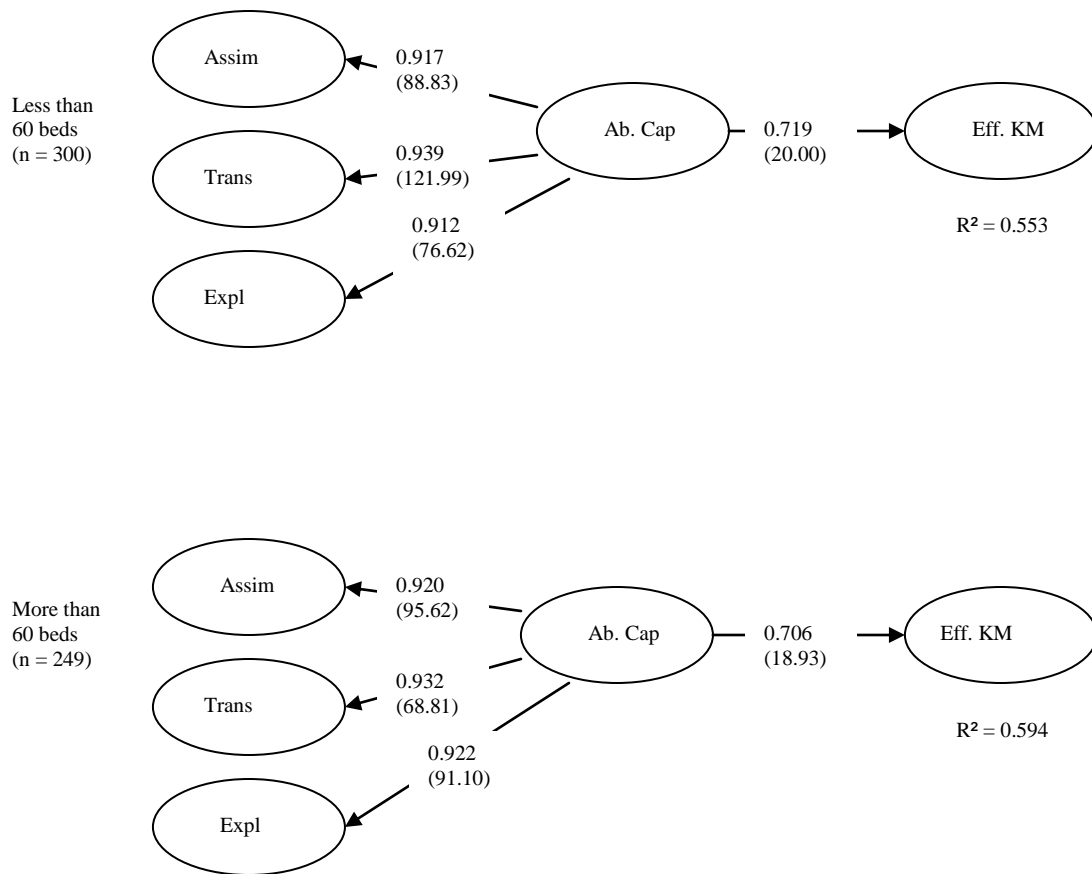
Path	For Profit		Not for Profit		t-Stat	P (2 tail)
	Path Coef	SE from B. Strap	Path Coef	SE from B. Strap		
Ab. Cap → Eff. KM	0.7060	0.0292	0.7190	0.0548	-0.1677	0.867
Ab. Cap → Assim	0.9200	0.0109	0.9220	0.0147	-0.0962	0.923
Ab. Cap → Trans	0.9320	0.0080	0.9360	0.0137	-0.2065	0.836
Ab. Cap → Expl	0.9220	0.0089	0.9030	0.0208	0.6459	0.519

4.5.4.3 Business Size

Responses were divided into Business Size (bed numbers) by their response to item 1.3 (How many licensed beds does the aged care facility have?). The Business Size category was divided into less than 60 beds (n= 300) and over 60 beds (n= 249) subsamples, as 60 beds is close to the average size of the aged care facilities in Western Australia. All loadings, composite reliability and average variances extracted for both subsamples pass the required thresholds. These are shown in Table 4.29 and the resulting path models are shown in Figure 4.5.

Table 4.29 Factor Loadings, CR and AVE for Business Size

Factor Loadings of Items, Composite Reliability (CR), and Average Variance Extracted (AVE)				
	Less than 60 Beds		Over 60 Beds	
	Loading	t-Statistic	Loading	t-Statistic
Assimilation Q 11	0.852	53.23	0.843	41.16
Assimilation Q 13	0.853	48.88	0.861	55.68
Assimilation Q 14	0.795	25.48	0.776	21.81
Assimilation Q 15	0.767	20.67	0.789	21.78
Transformation Q16	0.824	34.69	0.818	21.99
Transformation Q 17	0.853	52.15	0.889	55.42
Transformation Q 18	0.795	62.41	0.854	45.88
Transformation Q 19	0.767	45.89	0.804	27.19
Exploitation Q 20	0.839	35.30	0.834	40.99
Exploitation Q 26	0.849	35.82	0.804	23.85
Exploitation Q 28	0.834	38.64	0.810	30.44
Exploitation Q 29	0.768	22.09	0.772	22.97
Effective Q 30	0.833	33.37	0.830	24.33
Effective Q 31	0.754	15.90	0.869	46.26
Effective Q 32	0.824	25.15	0.833	33.92
Effective Q 33	0.762	18.72	0.748	17.18
Effective Q 34	0.796	31.69	0.750	20.84
Effective Q 35	0.811	25.86	0.773	16.41
Effective Q 36	0.823	46.16	0.825	34.14
Construct	CR	AVE	CR	AVE
Absorptive capacity	0.960	0.587	0.957	0.566
Assimilation	0.890	0.669	0.890	0.670
Transformation	0.922	0.747	0.907	0.710
Exploitation	0.894	0.678	0.881	0.649
Effective	0.926	0.642	0.928	0.649



Note: t-statistics greater than 1.995 are significant at $p < .05$

Figure 4.5 Path Model by Size of Organisation

Based on size, the results suggest that no significant difference exists in the path coefficients between organisations with less than 60 beds and organisations with over 60 beds (Table 4.30).

Table 4.30 Pooled Error t-Tests by Size of the Organisation

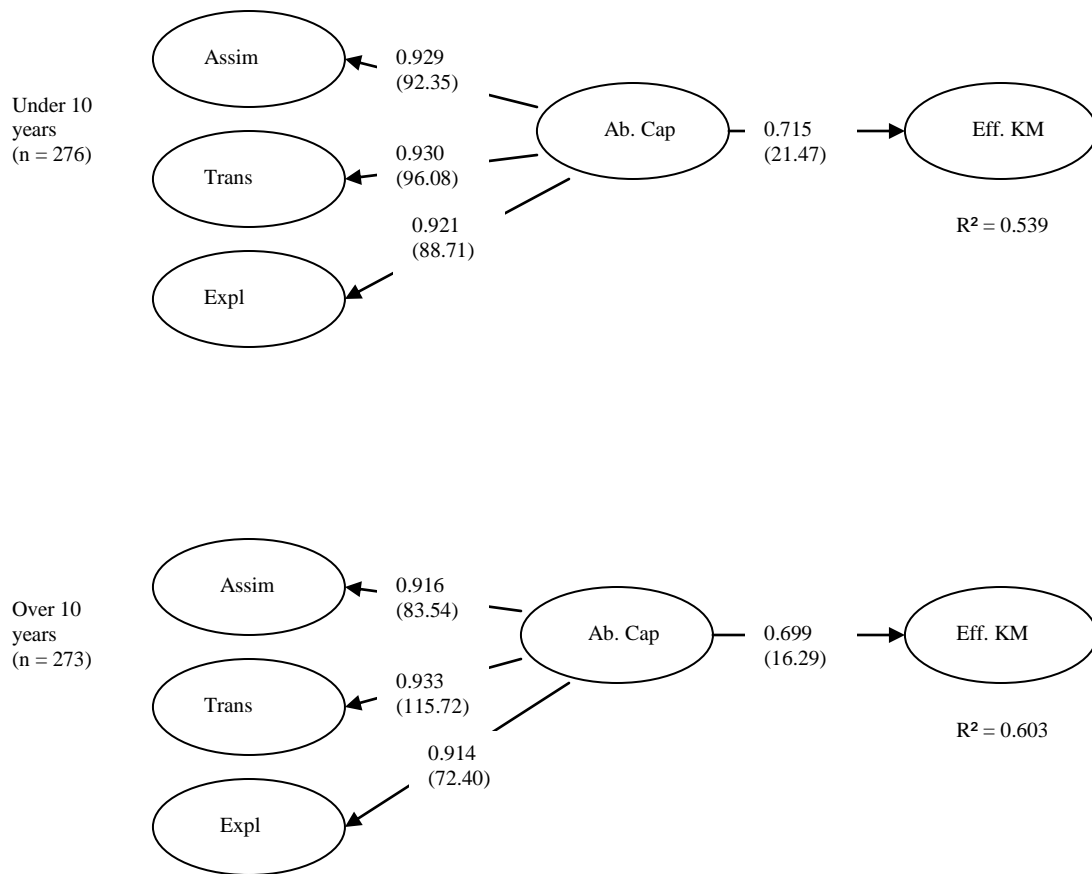
Path	Less than 60 Beds		Over 60 Beds		t-Stat	P (2 tail)
	Path Coef	SE from B. Strap	Path Coef	SE from B. Strap		
Ab. Cap → Eff. KM	0.719	0.0359	0.741	0.0088	0.5952	0.553
Ab. Cap → Assim	0.917	0.0103	0.925	0.0135	0.4711	0.638
Ab. Cap → Trans	0.939	0.0077	0.926	0.0102	0.0172	0.311
Ab. Cap → Expl	0.912	0.0119	0.925	0.0391	0.3181	0.751

4.5.4.4 Time in Business

Responses were divided into Time in Business by their response to item 1.3 (How long has the aged care facility been in business - i.e. how long has this aged care facility provided residential care services?). The Time in Business category was divided into under 10 years (n= 276) and over 10 years (n= 273) subsamples because 10 years is the mid point for the participating aged care facilities. All loadings, composite reliability and average variances extracted for both subsamples pass the required thresholds. These are shown in Table 4.31 and the resulting path models are shown in Figure 4.6.

Table 4.31 Factor Loadings, CR and AVE for Time in Business

Factor Loadings of Items, Composite Reliability (CR), and Average Variance Extracted (AVE)				
	Under 10 Years		Over 10 Years	
	Loading	t-Statistic	Loading	t-Statistic
Assimilation Q 11	0.8582	48.47	0.8321	46.00
Assimilation Q 13	0.8607	53.83	0.8479	43.88
Assimilation Q 14	0.7673	22.73	0.8097	28.25
Assimilation Q 15	0.7448	16.96	0.8121	29.54
Transformation Q16	0.8106	26.54	0.8293	34.21
Transformation Q 17	0.8698	52.39	0.8964	66.88
Transformation Q 18	0.8677	45.84	0.8810	61.46
Transformation Q 19	0.8197	29.46	0.8502	40.70
Exploitation Q 20	0.8349	39.74	0.8375	35.77
Exploitation Q 26	0.8370	34.61	0.8140	29.46
Exploitation Q 28	0.8361	41.27	0.8038	21.88
Exploitation Q 29	0.7433	21.24	0.7947	28.97
Effective Q 30	0.8458	40.55	0.8084	25.88
Effective Q 31	0.7753	20.08	0.8491	29.25
Effective Q 32	0.8083	22.37	0.8526	42.52
Effective Q 33	0.7293	16.29	0.7844	17.50
Effective Q 34	0.7460	23.36	0.8065	27.45
Effective Q 35	0.7303	15.09	0.8714	40.89
Effective Q 36	0.8121	33.67	0.8374	32.04
Construct	CR	AVE	CR	AVE
Absorptive capacity	0.957	0.568	0.959	0.582
Acquisition	0.889	0.617	0.893	0.629
Assimilation	0.883	0.655	0.895	0.682
Transformation	0.907	0.710	0.922	0.748
Exploitation	0.887	0.662	0.886	0.660
Effective	0.915	0.607	0.940	0.690



Note: t-statistics greater than 1.995 are significant at $p < .05$

Figure 4.6 Path Model by Time in Business

Based on time, the results suggest that no significant difference exists in the path coefficients between Under 10 years and over 10 years (Table 4.32).

Table 4.32 Pooled Error t-Tests by Time in Business

Path	Under 10 years		Over 10 years		t-Stat	P (2 tail)
	Path Coef	SE from B. Strap	Path Coef	SE from B. Strap		
Ab. Cap → Eff. KM	0.7150	0.0333	0.6990	0.0429	0.2947	0.774
Ab. Cap → Assim	0.9290	0.0101	0.9160	0.0110	0.8705	0.386
Ab. Cap → Trans	0.9300	0.0097	0.9330	0.0081	-0.2374	0.812
Ab. Cap → Expl	0.9210	0.0104	0.9140	0.0126	0.4285	0.669

4.6 CONCLUSION

An analysis of the demographic, descriptive, conceptual research model and structural equation model was presented in this chapter.

Demographic distribution of the data indicated that the research population are consistent with the Australian Residential Aged Care workforce, being female dominated, aged between 40 and 60 years and the majority are care workers. The research population mostly work less than 30 hours per week and have worked in the industry for less than 5 years.

The non-response bias was evaluated and with a 41% return rate, optimised response rates and the respondents being representative of the Australian Residential Aged Care workforce suggests that there is a low non-response bias. Data distribution indicates that the data from the research is not normally distributed. This can be explained by the high number of responses (n=549) and found to not present any concerns as the bootstrap resampling procedure within SEM accounts for this.

A review of the means clearly indicates that the five highest and five lowest scoring organisations sit at the extremes of how the employees perceive them. The profile of the five highest and five lowest scoring organisations is consistent with the results of the industry context analyses, whereby there is no significant difference between for profit and not-for-profit organisations, the size of the organisation and the length of time the organisation has been in business. Analysis of the items that are linked to accreditation in Residential Aged Care also highlight a vast difference between the five highest and five lowest scoring organisations. Twenty-two out of twenty-three items clearly indicated that the employees in the highest scoring organisations perceive that their organisation manages these aspects of knowledge management far more effectively than the five lowest scoring organisations.

A number of knowledge management actions and outcomes were identified in the literature as being indicators that an organisation is engaged in managing knowledge. The results varied, with indicators ranging from as high as 97% of participating organisations hold staff meeting every three months to 55% of organisations engage in some form of benchmarking. As with the comparison of the highest scoring and lowest scoring organisations, a review of the knowledge management actions and outcomes is included for information only.

The validity and reliability of the model constructs are confirmed through measurement model analysis and the structural equation model was analysed and tested. The measurement model for each construct was refined through a series of

analyses where items with low path loadings were removed from the model until a good model fit was obtained. The discriminant validity was assessed and found to be adequate in four of the five constructs. The construct acquisition was found to share more variance with its measures with the other lower order constructs than it did for itself.

Once the measurement model was accepted, the structural relationships between the constructs were tested. The relationships between latent variables were drawn from the literature and reflected in the hypotheses developed for this research, presented in Chapter Two. The hypotheses were analysed using PLS-Graph software. The analysis supported the four remaining hypotheses as follows:

- The higher the perceived level of absorptive capacity in an organisation, the higher the perception of effective knowledge management in the organisation.
- The higher the perceived level of capability for assimilation of new knowledge in the organisation, the higher the perceived level of effective knowledge management.
- The higher the perceived level of capability for transformation of new knowledge in the organisation, the higher the perceived level of effective knowledge management.
- The higher the perceived level of capability for exploitation of new knowledge in the organisation, the higher the perceived level of effective knowledge management.

Further analysis indicated that there were no significant differences between managers and employees and the three industry context variables (profit motive, size of the business and time in business). The model explains 56% of the total variability for effective knowledge management, with transformation, assimilation and then exploitation having the greatest impact on effective knowledge management in that order.

CHAPTER FIVE

DISCUSSION

5.1 INTRODUCTION

This research investigates the perceived relationships between absorptive capacity, the four absorptive capacity capabilities (acquisition, assimilation, transformation and exploitation) and effective knowledge management in the Residential Aged Care industry. In this Chapter, a discussion of the major findings of the research is presented. These findings are drawn from the descriptive statistics and structural relationships identified through the data analysis presented in Chapter Four. The chapter will start with a brief summary of the findings. This is followed by analysis of the measurement model, impact of the context factors on the identified relationships and comparison of the highest and lowest scoring organisations. The discussion will then consider knowledge management outcomes and actions and the links with accreditation. The chapter then concludes with a summary of the discussion.

Knowledge management provides the opportunity to improve organisational flexibility and human capital effectiveness (Rahe 2009). Knowledge management in the service industry, particularly the Residential Aged Care industry, has suffered from a lack of research when compared to the manufacturing industry, to which associated research has largely been applied (Beveren 2003). This research seeks to contribute to a better understanding of knowledge management in a service environment, using Residential Aged Care as a sample population. This industry is under constant pressure to care for

older Australians who are presenting with more complex medical and care needs (Csesko & Read 2009; National Age Care Roundtable 2010) along with increasing accountability for legislative and regulatory compliance (Andrews-Hall *et al* 2007). The management of knowledge provides the Residential Aged Care industry with an opportunity to improve resident care outcomes, through the provision of focused initiatives that meet the needs of the residents, referred to by Liew (2008) as purposeful customer service.

The effectiveness of knowledge management in Residential Aged Care was examined using the construct of absorptive capacity, referring to an organisation's management of existing knowledge whilst also developing, importing and utilising new knowledge (Cohen & Levinthal 1990). The hypothesised relationships between absorptive capacity, the four absorptive capacity capabilities (acquisition, assimilation, transformation and exploitation) and effective knowledge management provide the framework for this research.

In addition to the structural relationships identified, further analyses were carried out to examine specific aspects of the Residential Aged Care industry's knowledge management. These included the four context variables of respondents' job role, profit motive of the Residential Aged Care organisation, size of the organisation and length of time the organisations have been in business. Further descriptive analyses related to knowledge management outcomes and actions and accreditation-related

knowledge management were also undertaken. A discussion of the findings is presented below.

5.2 SUMMARY OF MAJOR FINDINGS

The theoretical model depicted in Figure 2.2 was developed from the literature and tested for hypothesised relationships between variables presented in Chapter Two. These variables include absorptive capacity, four absorptive capacity capabilities (acquisition, assimilation, transformation and exploitation), and effective knowledge management. Analyses were undertaken on cross-sectional data collected from managers and care employees in Western Australian Residential Aged Care organisations.

The proposed research framework was validated through statistical analyses using PLS-Graph structural equation modelling software. Further analysis of the data was also carried out using PLS-Graph. The items measuring effective knowledge management are reliable, with internal consistency and convergent validity, indicating that they adequately represent this construct. The exploratory power of the framework was found to be adequate, with Absorptive Capacity explaining fifty-six percent (56%) of the total variability for the latent variable, effective knowledge management.

The results of the structural equation modelling approach provide empirical evidence supporting four (4) of the five (5) Hypotheses. These were Hypotheses 1, 3, 4 and 5, all of which relate to absorptive capacity and three (3) of the absorptive capacity

capabilities (assimilation, transformation and exploitation). Hypothesis 2, which tested the relationship between perceived level of capability for acquisition of new knowledge and level of effective knowledge management was supported, but the discriminant validity test failed.

Further analyses to segment the data in relation to context variables (job role, profit motive, size of the organisation and time the organisation has been in business) failed to provide statistically significant findings.

5.3 HYPOTHESES FINDINGS

Four of the five hypotheses were fully supported (Hypotheses 1, 3, 4 and 5). These hypotheses proposed that the higher the level of perceived absorptive capacity, assimilation, transformation and exploitation of new knowledge in the organisation, the higher the perceived level of effective knowledge management. The absorptive capacity, assimilation, transformation and exploitation items are reliable; there is sufficient internal consistency and convergent validity, including adequate representation of each of the constructs. Absorptive capacity, assimilation, transformation and exploitation were also found to correlate significantly with effective knowledge management, thus supporting the four hypotheses.

Hypothesis 2 proposed that the higher the level of perceived acquisition of new knowledge in the organisation, the higher the perceived level of effective knowledge management. Reliability of the items was assured and internal consistency and

convergent validity indicated that they adequately represented the construct of acquisition. Whilst the results for the hypothesis were significant, the test for discriminant validity failed. That is, some acquisition items cross loaded across the assimilation, transformation and exploitation constructs. The significance of this and the other results is discussed in more detail below.

5.3.1 Absorptive Capacity and the Perceived Impact on Effective Knowledge Management

The research sought to demonstrate that a positive relationship existed between absorptive capacity and effective knowledge management. Testing of data drawn from the full data set supported this hypothesis, supporting the contention that there is a correlation between the perceived level of absorptive capacity and effective knowledge management. Absorptive capacity is represented by capabilities that facilitate the development of existing knowledge, as well as the importing and utilisation of new knowledge (Cohen & Levinthal 1990). New knowledge is acquired from outside the organisation or developed internally through the conversion of tacit to explicit knowledge (Zahra & George 2002). Assimilating new knowledge within the organisation allows knowledge to be interpreted by individuals and groups and shared across the organisation (Gold *et al* 2001). For new knowledge to be combined with existing knowledge, it has to be transformed into an entity that is recognised by all members of the organisation (Zahra & George 2002). Exploitation of new knowledge allows it to be combined with existing capabilities or developed into new

capabilities (Gold *et al* 2001), both of which are critical in the delivery of services to aged care residents.

In the complex, dynamic environment of Residential Aged Care, three aspects of managing knowledge have been shown in this research to be consistent across the absorptive capacity process. These are the role of managers, the existence of processes and routines that support knowledge management and the sharing of knowledge throughout the organisation. These findings are consistent with previous studies (Anantatmula 2008; Kase *et al* 2009; Theriou & Chatzoglou 2009) and reflect the contention that effective knowledge management relies on interpersonal relationships within the workplace.

Management of the knowledge process was identified by Burstein and colleagues (2008) as facilitating strategy for combining the 'right' knowledge, culture and resources and is inherent within the data collected for this research. The existence of an absorptive capacity and effective knowledge management in Residential Aged Care requires managers to exhibit communication, strategic thinking and collaboration skills, along with business acumen and effective leadership. These management skills deliver workplace cultures that support and encourage individuals to seek out new knowledge, share their tacit knowledge and use knowledge collectively (Gettler & James 2002; Lucas 2010; Sun 2010). This culture is classified by Alberts (2007) as a collectivist culture, as distinct to an individualistic culture; the former culture shares knowledge and the latter does not. The collectivist culture will value the opinion of

employees and enable joint decision-making, thus building trust amongst the employees and encourage sharing of knowledge (Sun 2010). Whereas the individualistic cultures has a stronger focus on individuals working on their own and in isolation.

The findings of this research have shown that in Residential Aged Care, a positive relationship between absorptive capacity and effective management of knowledge is influenced by a culture that reflects managers communicating with employees. In doing so, managers provide employees with exposure to new and innovative information on how to care for residents, inform employees when new information is available and initiate feedback to and from employees. Emphasis in such a culture is on sharing existing and new knowledge and is seen as an important responsibility of managers (Kishore *et al* 2006). Such a culture is based on trust, which Anantatmula (2008) identified as one that encourages employees to collaborate and innovate. For Residential Aged Care, the collaboration and innovation should have a focus on direct employee skills and can result in improved resident care.

Absorptive capacity and effective knowledge management in Residential Aged Care is positively influenced by workplace routines that provide consistency and direction on where and how employees locate new knowledge. The routines start with a policy that guides the managers to maintain up-to-date work procedures. Examples of these routines are policy and procedure indexes and new employee work books. Both of these examples contribute to learning (Sun 2010) by enabling employees to quickly

and easily locate the right information in a timely manner. Routines can be integrated into the organisation's administrative policies and procedures (Duvall 1999). The use of routines also facilitates managers in Residential Aged Care organisations to develop, store and apply new knowledge.

Knowledge is ineffective unless it is easily shared between individuals and departments (Grant 1996; Argote 1999; Huber 1991; Kim 1990; Locke & Jain 1995; Senge 1990; Autio *et al* 2000; Lehr & Rice 2002). Knowledge sharing is an important component of absorptive capacity that contributes to effective knowledge management in Residential Aged Care. The findings of this research indicate that, within Residential Aged Care, knowledge sharing can be most effective through the use of teams and workplace meetings. These strategies facilitate what Alberts (2007) identified as applying knowledge through interaction. The use of teams in the participating organisations is enabling and encourages the emergence of different care-related skills that exist amongst team members. This was also highlighted by Staples and Webster (2008), Lucas (2010) and Lovejoy and Sinha (2010), who noted that the success of the team will depend on how well the team members communicate internally and externally and the extent to which communication is geared toward problem solving. The use of teams facilitates a greater exchange of information through relationships and support and is further explained in a later section within this chapter.

For Residential Aged Care, these findings highlight how the existence of an absorptive capacity can result in effective knowledge management. Absorptive capacity encompasses management support for all aspects of knowledge management process, internal systems that facilitate the continual generation of new knowledge and the existence of processes and communication that encourage individuals to share their knowledge. The themes noted above provide a potential focus for more research in the service and Residential Aged Care industries and are discussed at greater length within this chapter.

5.3.2 Acquisition and the Perceived Impact on Effective Knowledge

Management

Acquisition refers to an organisation's ability to acquire knowledge from outside its boundaries and develop new knowledge internally. It was hypothesised that if an organisation engages in a deliberate process of acquiring new knowledge, either developing it internally or obtaining it from external sources, knowledge is likely to be perceived to be managed effectively. As noted previously, whilst the reliability of the acquisition items was assured and internal consistency and convergent validity indicated that they adequately represented the construct of acquisition, the test for discriminate validity failed. Whilst this result is not as strong as the other constructs a discussion is provided so as to advance industry understanding and to inform future research.

The findings of this research suggest that acquisition of new knowledge may not be perceived to be as important to Residential Aged Care organisations in relation to the other components of absorptive capacity. With the items measuring acquisition cross-loading onto assimilation, transformation and exploitation, it is possible that these organisations are focused on what they can do with existing knowledge rather than how it was obtained. The literature (Andrews-Hall *et al* 2007; Aged Care Financial Performance Survey 2010; National Aged Care Roundtable 2010) highlight that Residential Aged Care organisations are under legislative, funding and service pressure. Industry literature (Aged Care Human Resource Network 2010) also highlights that Residential Aged Care has an employee turnover of up to 35% per year. For this group of service providers, managing heavy workloads, employee recruitment and managing existing knowledge may be more than enough challenge, let alone seeking out new 'leading edge' knowledge.

Another possible explanation for why acquisition failed the discriminant validity test may be that the instrument did not adequately reflect the three knowledge acquisition areas that are identified in the literature as representative of the construct. The three areas to develop or acquire new knowledge, the existence of internal processes that facilitate this occurring (Lane & Lubatkin 1998; Zahra & George 2002; Lopez *et al* 2004); and the extent to which employees have a comprehensive understanding of the organisation's knowledge base (Lane *et al* 2006). A constant focus on knowledge acquisition and existence of processes to acquire knowledge can place the organisation in a good position to understand the type of new knowledge that is required and

subsequently be able to conduct purposeful knowledge acquisition. These capabilities were reflected in the instrument however, the third area of having a comprehensive understanding of the organisation's knowledge base was found to be inadequate. The need to understand the organisation's knowledge base was identified in the literature review however, the items developed to measure the extent of the understanding failed to adequately capture the respondents' perceptions in this research. This may indicate that the participating organisations neither focus nor have an understanding of the knowledge that they possess. This possible explanation is consistent with the argument raised above that the participating organisations are simply focused on today and not on what knowledge they need for tomorrow.

The findings in relation to the hypothesised relationship between acquisition and effective knowledge management nonetheless indicate agreement with Kakabadse and colleagues (2001) who stated that acquisition of new knowledge requires commitment from organisations to maintain and update work procedures. Research findings indicated that a formal and comprehensive process to guide Residential Aged Care employees in the acquisition of new knowledge is important. The support provided for the hypothesis highlights that within Residential Aged Care the acquisition of new knowledge can be achieved by the organisation actively searching for new ways to improve care and combining the search for care-related knowledge with regular assessments of work procedures. The search process should be guided by a policy that requires key employees review procedures at defined intervals. The timeframes for

the reviews need to be adhered to, with involvement of key stakeholders and senior managers held accountable for the outcomes.

Kakabadse and colleagues (2001), van den Hoff and de Ridder (2004), Liyanage and colleagues (2009), and Rahe (2009) suggested that the acquisition of new knowledge requires the establishment of strategies to facilitate two-way communication between managers and employees. The findings of this research provide evidence that, in Residential Aged Care, two-way communication between managers and employees inform managers of where there are deficiencies in knowledge and enables the organisation to acquire knowledge that is needed. Strategies to achieve this include the building of relationships across the organisation and supporting those relationships with documented processes which can lead to the creation of new knowledge and re-evaluation of existing knowledge. An example of the documentation could include communication plans that outline organisation structure, responsibilities and accountabilities. The communication strategies and documentation noted above are influenced by the senior management leadership style (Cohen & Levinthal 1990; Gold *et al* 2001; Abodor 2002; McInerney 2002) and supported by a culture and structure that has the senior manager continually setting the example of how to communicate with other employees (Chandra & Kumar 2003). In doing so, effective communication between employees, and employees and management result in an increased quality and appropriateness of the knowledge being acquired.

McInerney (2002) and Lopez and colleagues (2004) noted that there are many avenues for acquiring new knowledge, including developing knowledge within the organisation through its conversion from tacit to explicit knowledge, or acquiring the knowledge from outside the organisation. The findings of this research highlighted that the provision of journals and specific aged care material for employees to read is a potential strategy for introducing new knowledge in Residential Aged Care organisations. This strategy was noted by Daft and Huber (1987), and Lane and Lubatkin (1998) as being a passive approach which encourages employees to seek out the new knowledge, instead of being instructed through training and development. The provision of industry material is focused on providing the employees with up to date information on how other organisations and employees approach specific care tasks. Examples of these tasks include the management of residents' pain and specific skills for communicating with residents who live with a diagnosis of dementia.

The use of a passive approach to knowledge acquisition was further highlighted by the low number of employees who reported as attending outside courses. On average, only one (1) employee from each organisation attends an outside course every one to three months, resulting in as few as four employees attending external training and development each year. As well as this, 61% of participating organisations employ a part-time trainer, possibly indicating that the focus is more on internal support with the provision of industry material, rather than external knowledge gathering.

5.3.3 Assimilation and the Perceived Impact on Effective Knowledge

Management

The assimilation of new knowledge requires that the organisation has the capacity to analyse, process, interpret and understand new knowledge. The subsequent transfer of organisational knowledge is considered to be an important factor for organisational success (Lucas 2010) and the findings of this research strongly support this contention. The research results therefore support the proposition that the effective assimilation of knowledge involves new knowledge being shared and dispersed across the organisation.

The findings of this research indicate that knowledge assimilation in Residential Aged Care is improved when managers provide guidance to employees on where they can locate care-related knowledge. This can be achieved through the instigation and application of what Gray (2000) and Purvis (2001) referred to as ‘coordinating processes’. Residential Aged Care employee turnover is as high as 35% per year (Human Resource Aged Care Network 2010) and 65% of employees are new to the industry. With such a high turnover, there is a need for coordinating processes that are easy to manage and enable new employees to receive appropriate skills in a timely manner. Examples of these processes include simple directories or indexes of where the organisation’s policies and procedures are located and the use of new employee ‘buddy books’ that outline where information and resources are stored. These are a management responsibility and leads to the building and dissemination of

organisational knowledge, as well as reducing what Conley and Zheng (2009) noted can be the assimilation of knowledge occurring by chance.

Taylor and Wright (2004) suggested that managers need to react to information provided by employees and use this to implement improvements to work practices. The assimilation of new knowledge in Residential Aged Care has been shown in this research to be enhanced by managers actively seeking the opinion of employees on how to improve resident care. The data supports the contention that in doing so, managers recognise that employees have an understanding of how best to carry out the many tasks that make up the work processes.

New knowledge is generally specific to the individual or organisation that supplies it. There is a need, therefore, for the recipient to comprehend what is on offer and subsequently be well positioned to share it (Zahra & George 2002). Assimilation of new knowledge was identified in this research to be effective when individuals and groups 'own' what they learn and subsequently take responsibility for action that result from the learning. Successful assimilation of new knowledge in Residential Aged Care has been shown in this research to exist when the organisation has processes established to facilitate the interpretation and shared understanding of the knowledge. Again, this can be achieved through the use of teams which Gray (2000) and Purvis (2001) describe as combined thinking power and increases the opportunity and ability of employees to share complex knowledge with other team members. The use of teams allows for greater exchange of information as well as facilitating the use

of different skills that exist amongst team members (Lovejoy & Sinha 2010; Lucas 2010). Residential Aged Care teams involve employees from all care groups; Nursing, Care Assistants and Allied Health professionals. Ensuring representation of all groups in the teams provides the best opportunity to capture ideas and thinking from diverse contributors of care services and improves communication channels that extend beyond each of the work profession-based groups. Successful team outcomes depend on how the members communicate internally and externally (Staples & Webster 2008; Lucas 2010). The data from this research indicates that managers and employees in those participating organisations who perceive that they have good internal communication processes also perceive that they assimilate their knowledge. However, communication with external organisations appears to be less important as only fifty-five percent (55%) of organisations reported that they communicate with outside organisations.

Workplace meetings were also identified by respondents to be an effective method of sharing and ultimately assimilating new knowledge. Meetings facilitate interpretation of new knowledge through a group decision making process (Gray 2000; Purvis *et al* 2001) and capture the combined understanding of participants. Whilst such a strategy is indicated by the data in this research to be an important step to effective knowledge management it also appears to be difficult to implement within this industry. Residential Aged Care is a 24-hour; 7-day a week operation, with three rotating shifts each day. Employee attendance at meetings appears to be difficult to achieve as data from this research indicated that on average, meetings are held only every three (3)

months. Increasing the frequency of workplace meetings is therefore likely to increase the effectiveness of knowledge assimilation.

5.3.4 Transformation and the Perceived Impact on Effective Knowledge

Management

Shared knowledge will have little value unless it is transformed into explicit knowledge that is understood by all members of the organisation (Gold *et al* 2001). To achieve this routines are required to ensure that new and existing knowledge is combined (Zahra & George 2002). These routines are captured in documented policies and procedures which, for Residential Aged Care have a focus on improvements to those work processes that have a direct impact on meeting the needs of residents. An example of a routine is a policy that embeds continuous improvement into work practices.

Simon and De Gaus (1998) and Zahra and George (2002) contend that successful knowledge transformation requires that managers ensure that all employees are aware of the existence of new knowledge. The findings of this research supports this contention and indicate that within Residential Aged Care knowledge awareness can be achieved by ensuring employees are exposed to education through training and development. As noted earlier, the focus within the participating organisations appears to be on more internal training and development rather than external. Training and development was identified by Bhatt (2002), Fazizadeh and Reza-khoshhal (2008), Conley and Zheng (2009) and Ooi and colleagues (2009) as a

systematic approach to transforming knowledge through learning experiences. Learning requires a willingness of the employees to engage in knowledge seeking and to share with others (Akder 2009; Ooi *et al* 2009). The transformation of knowledge in Residential Aged Care occurs as a result of the training and development programs stimulating employees to share their expertise.

Zahra and George (2002) predicted that maintaining up-to-date work procedures is an indication that the organisation has the capability of transforming knowledge by using new knowledge to enhance existing knowledge and is consistent with the data collected for this research. Work procedures describe the day-to-day dealings and the organisation's normal and foreseeable behaviour, both of which are noted by Jensen and colleagues (2010) as an efficient way of capitalising on both tacit and explicit knowledge. Within Residential Aged Care, work procedures are required by legislation to be established for all aspects of care service delivery and enforced through accreditation. As all participating organisations were found to be accredited, each therefore had required procedures in place. The difference between those organisations that transform their knowledge and those that do not, is how effective the procedures are and how engaged the employees are in adhering to the procedures. Work procedures in Residential Aged Care have the added role of providing boundaries within which service to residents is delivered. In this context, care delivery is defined within formal procedures whilst also providing employees with the flexibility to react to changing resident needs throughout the shift. An example of this is seen in the daily task lists that are established and used to guide employees. The

lists outline what each employee is expected to complete during each shift, whilst providing flexibility for the employee to alter priorities as they encounter different service based scenarios. Data from participating organisations that perceived that they transformed new knowledge effectively confirmed that these procedures are established and that managers within the organisation apply a high importance to keeping them up to date.

5.3.5 Exploitation and the Perceived Impact on Effective Knowledge

Management

Exploitation is referred to in the literature (Zahra & George 2001; Liebowitz 2004) as being supported by organisational routines that facilitate refining and extending existing employee competencies. The findings of this research indicate that respondents who perceive their organisation to effectively exploit their knowledge, do so through improving care-related employee skills and the development of new care related skills. Advancing employee skills also requires an investment in supportive management processes (Goodman & Schieman 2010; Lucas 2010). Respondents felt that their knowledge was exploited positively when their managers supported and enabled development of their skills and abilities. Managers can achieve this by being aware of the skill level of each employee and facilitating specific training and development opportunities.

Findings from this research indicate that seeking input from and providing feedback to employees in relation to their work performance are management actions that

Residential Aged Care managers can do to exploit new knowledge. In doing so managers are positioned to utilise the feedback from employees to make changes to workplace processes and procedures. Yahya and Goh (2002) and Kinshore and colleagues (2006) noted that this can be achieved by assessing employee satisfaction and providing feedback to employees on their performance. Receiving and providing feedback to employees through performance management involves employees in decision making and allows managers to react appropriately to individual employees' needs (Yahya & Goh 2002; Daghfous 2004; Kishore *et al* 2006; Fazizadeh & Reza-khoshhal 2008). The link between performance management and knowledge management emerges through the important role that people have within the management of knowledge. Employees are expected to learn and understand their role and function effectively in the delivery of services. Effective knowledge management processes support employees to develop, receive, share and use new knowledge. Knowledge management processes do not however, provide managers with the processes to ensure that employees are engaged in the systems. This can be achieved most usefully through performance management. Further, as service delivery requires employees to display initiative and flexibility, performance management that supports knowledge management should therefore have a developmental focus, rather than be controlling. The discussion on performance management is further expanded below and in 5.7 Performance Management.

Monitoring and measuring the competence of employees are knowledge exploitation strategies (Gold *et al* 2001) and an important management function. The findings from

this research are consistent with this view and show that monitoring and measuring employee performance provides managers with a means by which they utilise new knowledge and update existing knowledge. Managers monitor and measure the effectiveness of work flows, processes and in the case of Residential Aged Care resident service outcomes. The monitoring can be either qualitative or quantitative (Conley & Zheng 2009). Quantitative examples within Residential Aged Care are monitoring the various clinical indicators, such as the number of resident falls and wounds, as well as Occupational Safety and Health (OSH) outcomes such as manual handling and needle stick injuries. An example of knowledge exploitation from a qualitative perspective within Residential Age Care is customer feedback. Organisations that encourage and receive customer feedback are positioned to make the appropriate changes to their systems in response to the feedback. Effective management of knowledge occurs as a result of monitoring and measuring outcomes because these actions have a focus on process improvement.

5.4 IMPACT OF CONTEXT FACTORS ON RELATIONSHIPS BETWEEN ABSORPTIVE CAPACITY AND EFFECTIVE KNOWLEDGE MANAGEMENT

The data was segmented for additional analyses based on the position roles of employees and three (3) industry context variables (profit motive, size of the business and time in business). Previous literature (Bhatt 2002; Picone *et al* 2002; Teng & Havamdeh 2002; Chourides *et al* 2003; Gao *et al* 2003; Daghfous 2004; Grace & Butler 2005) support the contention that each of these variables may influence the hypothesised relationships to greater or lesser degrees. This thinking may be

attributed to employees at various levels of seniority being more or less aware of the need for and support of knowledge management. Additionally, the effect of profit (or non-profit) motive, size of the organisation and associated resources available for knowledge management, and accumulated experience within the organisation were expected to facilitate effective knowledge management.

5.4.1 Manufacturing and Service Industries

As stated at the outset of this thesis, an objective was to consider effective knowledge management in the service industry, in light of a paucity of literature when compared to manufacturing. Whilst there was no intent to compare the two industries, the findings of the research showed that knowledge management and absorptive capacity constructs can be applied equally to both manufacturing and service industries. This finding is discussed in the following sections.

5.4.2 Comparison of Perceptions between Managers and Employees

The role that managers have in influencing and encouraging a positive knowledge management culture was expected to be reflected in the perceptions held by managers and employees, that is, how each group viewed the effectiveness of knowledge management in their organisation. Managers have a responsibility for knowledge management by enabling a workplace culture that facilitates people working together to develop and share knowledge. Data from managers and non-managers (employees) were divided by responses to the question; *do you supervise employers?* The intention was to assess if the role of manager or employee affected responses in relation to

absorptive capacity, the four capabilities (acquisition, assimilation, transformation and exploitation) and effective knowledge management. A total of 280 participants identified that they regularly supervised others and within this group, 50 participants identified that they supervised 10 or more employees. The pooled error t-Test was insignificant, indicating that there is no significant difference between the perceptions held by managers and employees regarding perceived effectiveness of knowledge management in their organisations.

One reason for this result may be found in the study by Stanley (2007), who identified that within the Residential Aged Care industry in Australia, managers are employed with minimum preparation and minimal ongoing support. This occurs as a result of the organisations focusing all their energy and available funding on direct resident care, rather than developing their managers. This is the result of prescriptive legislation that controls how the industry operates, along with a Government funding model that does not appear to actively support management training. Therefore, participating Residential Aged Care organisations are possibly just maintaining the legislative standards expected of them and are not able to extend their energies or funding towards management training and development. If this is the case, it is possible that participants who identified themselves as supervising other employees and working at management level may not be trained to facilitate the required cultural and management processes for effective knowledge management.

An alternative explanation for this finding may be found in the categorisation or self-selection of managers and employees. It is possible that participants who declared that they supervise employees do so informally rather than formally within their normal work routine. Many of these respondents may find themselves to be the most senior person on shift and feel some responsibility to ensure the required work is carried out. This being the case, some respondents may not necessarily be formally identified as a manager by their organisation and are therefore not provided with management skills and development to promote knowledge management. This could explain why the two cohorts (managers and employees) may not perceive the level of effectiveness of knowledge management in their organisations differently.

Indeed the finding is more likely to be a combination of both explanations noted above. Firstly, it is highly unlikely that half of the participants are managers. It is more likely that those participants who identified they supervise 10 or more employees can be formally identified as managers. There remains then an opportunity to advance management training within the industry, with the potential of also advancing the management of knowledge.

5.4.3 Industry Context Variables

Profit motive, business size and time in business are industry context variables that were also expected to have an impact on the hypothesised relationships. The results of the analysis are discussed in detail below.

5.4.3.1 Profit

The second variable, profit motive, was used to examine whether the profit motives of for-profit and not-for-profit organisations result in a difference in perception of effective knowledge management between the two profit groups. This difference was expected to stem from how the two groups focus their knowledge management activities to meet their required financial outcomes and based on the financial incentives of the two ownership types (Picone *et al* 2006). Whilst all organisations (for profit and not-for-profit) have similar intent to operate profitably, it was expected that the for-profit cohort of organisations were more likely to use knowledge management as a means of improving operations and profits (Teng & Havamdeh 2002) than the not-for-profit organisations. The result of the pooled error t-test indicated however that within the Residential Aged Care industry there is no significant difference between the for-profit and not-for-profit organisations. This result may have occurred because of the impact that the residential aged care funding model has on operations. This is discussed in greater length below.

5.4.3.2 Organisational Size

The third variable, size of the organisations was determined by the average organisational size within the industry, which is 60 beds. The impact of size was expected to result in a difference between organisations with more than 60 beds and organisations with less than 60 beds. It may be argued (Daghfous 2004) that larger organisations have more resources to support the management of knowledge and employees in such organisations have greater opportunity for training and

development to facilitate these processes and perceive they are doing so more effectively. The pooled error t-Test for these items was again insignificant, indicating no difference between organisations with less than 60 beds and greater than 60 beds across all four paths in the perceived effectiveness of their knowledge management processes. As with Profit, this result may have also occurred because of the impact that the residential aged care funding model has on operations and is discussed in greater length below. The lack of differentiation could also be attributed to a view held by Beijerse (2000) and Moffett and McAdam (2006) who found that successful implementation of knowledge management models and programs can be dependent on the people and organisational culture rather than the size of the organisation.

5.4.3.3 Length of Time in Business

The experience of the service organisation was expected to influence whether or not the participants had a higher level of understanding of how they managed the knowledge within their organisation (Daghfous 2004). The fourth variable, time the organisation has been in business, was examined to see if organisations providing services for more than 10 years accumulated more experience in managing their knowledge, and perceived they did so more effectively than organisations with less experience.

The length of time that an organisation has been providing Residential Aged Care services was used as a predictor of experience in learning and in managing knowledge. This was supported by the contention that the length of time the organisation had been

in business influenced the managers and employees' ability to understand the knowledge that was required and how it was developed. The data was separated at less than 10 years and greater than 10 years, as this is the mid-point for participating organisations operating in the Residential Aged Care industry. As with profit motive and size of the organisation, the pooled error t-Test for this industry context variable was insignificant, also indicating that there was no difference in the respondents' perceptions within organisations that had been in business for less than 10 years and those that have been in business over 10 years. The residential aged care funding model appears to be impacting on this variable as well and is discussed below.

5.4.4 Summary of Findings for Impact of Industry Context Variables on Effective Knowledge Management

A possible explanation for the insignificant result for all three industry context variables may relate to the funding model under which all Australian Residential Aged Care organisations operate. The main funder of this highly regulated industry is the Australian Commonwealth Government. The services that Residential Aged Care organisations provide to residents are dictated by the Commonwealth Government and monitored through Aged Care Standards and Accreditation Agency. In addition to this, 85% of a Residential Aged Care organisation's income comes from this one highly-regulated source. The services provided to residents are based on identified needs for individuals. Organisations are paid for services provided to residents regardless of the organisation's profit motive, size and length of time in business. For example, regardless of size, organisations have to apply the same care approach to the care of one resident, or one hundred residents. The knowledge required to provide

resident care would therefore appear to be the same in all organisations. Given the result, examination of these variables would benefit from being tested in another service environment.

Ongoing accreditation in Residential Aged Care is intricately linked to the ability of the organisation being able to charge a fee for resident care and therefore has a significant impact on how organisations approach business management. Further, the Accreditation process has undergone changes over the past 20 years, with the introduction of the current form of accreditation originally in 1998, with the first audits conducted around 2002. The current process of accreditation is more prescriptive in its management than it has been in the past. The increased level of prescription in accreditation has been accompanied by a similar increase in prescription in how service to residents is to be delivery. The initial and ongoing changes to the accreditation process may have impacted how the participating organisations manage their knowledge. That is, all employees within organisations have had to learn to operate within the current accreditation process, regardless of profit motive, size of the organisation and the length of time the organisation has been in business. At the time of the survey, all organisations would have shared the same stage of development in their understanding of the accreditation process. As accreditation has such a significant impact on the way the organisations operate they may have developed the same approach to care and managing their knowledge irrespective of their industry context. The links between accreditation and knowledge management are discussed further in this Chapter.

Other possible explanations for these findings may lie in the length of time the participants in this research have worked in Residential Aged Care, the age groups of employees, and the hours of work. Sixty-five percent (65%) of participants have worked in the industry for less than 5 years, the medium age is 50 to 60 years old, and 62% of participants work part-time. With such a high number of employees working part-time, new to the industry and entering the industry in their later working years there is a possibility that the employees are not influenced by the structure of their organisation. Instead, effective knowledge management may be more related to how the individual organisation is managed and operated by the managers.

5.5 COMPARISON OF HIGHEST AND LOWEST SCORING ORGANISATIONS

Participating organisations were ranked from highest to lowest by means scored for absorptive capacity and means scored for effective knowledge management. Of the 35 participating organisations, the five organisations that scored the highest absorptive capacity, and effective knowledge management means and the five that scored the lowest means were compared to assess any differences in managers' and employees' perceptions of knowledge management in their workplaces. Responses from the five highest scoring organisations indicated a higher level of absorptive capacity and effective knowledge management than their lowest scoring counterparts. These responses ranged from an average of 4.54 for absorptive capacity and 4.28 for effective knowledge management out of a possible score of 5 for the highest scoring

organisations. In comparison, the range for lower scoring organisations went from 2.78 for absorptive capacity and 3.02 for effective knowledge management.

The profile mix of the top five and bottom five scoring organisations are consistent with results of the pooled error t-test for the industry context variables. That is, no difference was found between profit and not-for-profit organisations, size of the organisation and time the organisation has in business. Within the top five organisations there were two 40-bed not-for-profit originations, a 50-bed not-for-profit, a 60 bed not-for-profit and a 52 bed for profit origination. Four of the top five organisations had been providing Residential Aged Care services for more than ten years and one for less than ten years. The bottom five organisations consisted of two 80 bed not-for-profit originations, a 30 bed not-for-profit, a 65 bed not-for-profit and a 65 bed for-profit origination. As with the top five organisations, four of the bottom five organisations had been providing Residential Aged Care services for more than ten years, and one for less than ten years.

The high average scores across absorptive capacity and effective knowledge management for the top five organisations were representative of a supportive workplace culture. Mowery and colleagues (1996) suggest that this culture comes from the managers within the organisation possessing an expertise on how knowledge is developed and managed. This culture and high level of absorptive capacity positions the organisations to adapt to a changing workplace environment, instead of just reacting (Daghfous 2004). A culture that supports knowledge management was

noted by Gold and colleagues (2001), Zhou and Fink (2003) and Bose (2004) as facilitating interaction and collaboration between individuals and groups and in turn enhances the ability to import or develop new knowledge, and disperse it across the organisation. These were qualities that were seen in the top 5 participating organisations.

The average return rate of the surveys for the top five scoring organisation was also found to be higher than the lowest scoring organisations, with 45.4% and 36.8% respectively, against an overall average of 41%. This albeit small variance in average return rates for the surveys may further reflect the existence of a general culture of engagement across the highest scoring organisations, as compared to the lowest scoring organisations.

The culture in the highest scoring organisations appears to be one that recognises the importance of new knowledge and encourages individuals and groups within the workplace to interact and engage in supporting and managing knowledge. The profile of the lowest scoring organisations appears to be one that sees little input being sought from employees, and has minimal communication occurring between employees and employees and managers. Many of the management and workplace practices within Residential Aged Care are essential to satisfy mandatory accreditation requirements. As such, the lower scoring organisation will have these established for accreditation compliance but their effectiveness is perceived by their employees as questionable.

5.6 ADDITIONAL ANALYSIS

Quantitative data was obtained from the most senior manager at each participating Residential Aged Care organisation. Due to the small number of senior managers (n=35) analysis was not possible through PLS Graph. The quantitative data were drawn from multi-choice questions which provide additional indications of the types of knowledge management outcomes and action that participating organisations engage in, as well as the link between accreditation and knowledge management. These are discussed below.

5.6.1 Knowledge Management Outcomes

Previous research (Beijerse 1999; Picone *et al* 2002) indicates that knowledge management occurs within an organisation when certain outcomes are evident. With participating organisations, 77% of the 35 senior managers (n= 27) viewed the use of teams as important and 66% supported the strategy of team-building in the workplace (n=23). Sixty-six percent (66%) of the managers also identified that they have workplace hand books in place to guide the employees on how to do their job (n=24). A little over half, or 57% of managers supported the use of education plans and provide their employees with the opportunity to advance their skills (n=20).

5.6.2 Knowledge Management Actions

Knowledge Management actions have been shown in the literature to be those management initiatives that directly impact on how well the organisation manages its knowledge (Beijerse 1999; Picone *et al* 2002). The self-identified senior managers

who participated in this research indicated that they facilitate employees meeting together at least every three months and that new ideas are discussed at most of these meetings. Two-thirds of the organisations that participated in the research have a part-time in-house trainer available to employees to assist them in advancing their skills. Further, respondents in these organisations stated they send at least one employee to an outside course up to four times per year. Most managers also stated that they provide work-related publications for employees to read. Only half of the managers stated they engage in some form of benchmarking their successes and processes against other organisations.

The outcomes and actions noted above highlight that the implementation of knowledge management in Residential Aged Care is obtainable and can be achieved as a part of every-day workplace management. In order for it to occur, however, managers have to engage and encourage employees to have ownership of new and existing knowledge. Managers must also provide continuous leadership of the knowledge management processes which have a focus on establishing and updating systems that facilitate knowledge management occurring.

5.6.3 Accreditation

Accreditation is mandatory for Australian Residential Aged Care organisations and consists of the need to show performance across 44 Standards. Ongoing funding is reliant on maintaining compliance with all Standards. The research items relating to

accreditation provide some insight into how knowledge management and quality improvements are linked in Residential Aged Care.

Comparison of data from the top five and bottom five scoring organisations indicated that there is a clear difference between the two cohorts. Twenty-three (23) items measured respondents' perceptions of the linkage between accreditation and knowledge management. Respondents from the top five highest-scoring organisations indicated "strongly agree" and 'agree' to 22 of these items. Respondents to those same items from the lowest scoring organisations indicated 'strongly disagree', 'disagree' or 'agree'. There is however, no statistical difference between the two groups in relation to the 23rd item "opportunity to network". This is consistent with other items relating to the organisation looking outside their workplace boundaries. Other examples of how the participating organisations restrict their view beyond the workplace are the small number of employees who attend outside courses and low support of research and development. Both of these are discussed in other sections within this Chapter.

Findings from this research indicate that quality improvement is enhanced in those organisations that have intent to actively seek out new knowledge to improve resident care. Senior managers and employees in the highest scoring organisations have a strong focus on assessing work practices and keeping them up to date. Employee feedback is used to make these changes to work processes and practices. This approach is viewed by Yahya and Goh (2002) as a quality culture which leads to continuous improvement and supportive of knowledge management processes.

Education and employee development are inherent in accreditation standards and are an important knowledge management quality initiative. Initiatives identified by respondents in this research include strategies to ensure that new skills information is made available and introduced into the workplace. These initiatives include: encouraging and facilitating employees to attend courses; requiring attendees to bring the new information back to the workplace from the courses and sharing it with other employees; providing journals and articles on aged care service delivery in the workplace for employees to read; facilitating meetings to discuss improvements in care delivery; and establishing teams to encourage the sharing of knowledge amongst the team members. In facilitating the above, managers play a pivotal role in supporting and ensuring they occur.

At the time the data was collected 34 of the 35 participating organisations were awarded three years accreditation, as a result of their accreditation audit. Such a time period, which could be from no accreditation, one year, two years, or three years, indicated how effective the organisations were managing their knowledge. Accreditation guideline literature highlight that if an organisation were to achieve the full three years accreditation, then their quality and management systems would be more effective than those of an organisation that failed the audit or were awarded one or two years. However, at the time of data collection Residential Aged Care organisations had just completed their second round of audits under the revised accreditation system. A senior manager from the Aged Care Standards and

Accreditation Agency reviewed the results obtained for this research and noted that as this version of accreditation was still new to the participating organisations, the accrediting of a three year period to each of the organisations was more a reflection of a desire to motivate rather than reward. As such, the time awarded for accreditation was not a true reflection of how established or effect the organisation's systems were. Future longitudinal collection of data from these organisations may support, or otherwise, this contention.

5.6.4 Implications of Knowledge Management Outcomes, Action and Accreditation

The actions, outcomes and accreditation processes referred to above may indicate that routines do exist to facilitate the development, storage, sharing and use of new knowledge (Audio *et al* 2000; Dyer & Nobeoka 2000). There is also evidence within the research findings that confirm that communication is being facilitated by the managers, which is imperative if knowledge is to be managed well. The research highlights the existence of knowledge management actions and outcomes and indicates that many of the participating organisations are engaged in some form of knowledge management activity. That is, there appears to be at least some proactive management of knowledge within the industry.

However, whilst senior managers believe they support knowledge management outcomes and actions, it is possible that they do so for other reasons, without fully understanding the potential value that proactive knowledge management can provide the organisation. That is, it is not clear whether these outcomes and actions are part of

deliberate knowledge management strategies or whether senior managers are guided by other motivations, such as accreditation and legislative compliance. For example, within the Residential Aged Care industry the outcomes and actions discussed above are regularly assessed by the Accreditation Agency, who views them as important mechanisms in the delivery of resident care. Evidence of these actions and outcomes within the research should be expected, especially as most participating organisations were awarded full three year accreditation. Regardless of the motivations for why managers support knowledge management actions and outcomes, doing so can have a positive impact on the service delivery and care of residents. This presents an opportunity to expand the research agenda to include the relationships between accreditation and knowledge management, with the intent of enhancing the management of knowledge.

5.6.5 Information Technology and Research and Development

The use of computer systems and research and development has been shown in other industries to enhance productivity and profitability and presents an opportunity for the service industry, including Residential Aged Care, to improve the management of knowledge. The literature highlights that computer systems are important for knowledge management (Duffy 2000; Gupta *et al* 2000) because computers provide an effective support mechanism. Very few of the participating senior managers believed that their organisation had adequate computer systems. Possible explanations for this result are the age of and training opportunities for employees, the cost of technology, and day-to-day work pressures. Sixty-eight percent (68%) of the

participating employees were between 40 to 60 years, 39% of the total sample population aged between 50 to 60. Sixty-one percent (61%) of employees come from a non-professional background. A combination of employee age and lack of formal training may have resulted in senior managers viewing the introduction of computer systems into the daily work routines of care as a task too difficult to undertake. The Residential Aged Care industry is also under constant cost and service delivery pressures, so it would also not be surprising if the industry did not view the implementation of computer systems as a high priority in the context of cost pressures and service delivery.

Research and development has been shown in the manufacturing industry to be a significant contributor to acquiring and utilising new workplace knowledge (Cohen & Levinthal 1990). However, senior managers in participating organisations involved in this research indicated that they did not support any form of research and development. The likely reasons for this is that residents are being admitted with higher care needs and the Commonwealth Government is imposing more and more controlling legislation on the Residential Aged Care industry. Both of these factors place Residential Aged Care under a constant and increasing pressure, from both regulatory and service delivery perspectives. It is not surprising therefore, that senior managers place a low priority on research and development when their focus remains on delivery of immediate care services.

5.7 PERFORMANCE MANAGEMENT

People have been shown in the literature (De Prins & Henderickx 2010) to be critical in the delivery of services and in this research crucial to achieving effective knowledge management. Appropriately trained and knowledgeable employees are needed to deliver the services required to meet the needs of the residents in Residential Aged Care (National Aged Care Roundtable 2010). Knowledge management systems provide the conduit for managers to be able to increase knowledge within the organisation, but do not necessarily provide managers with the systems to ensure that the employees are engaged in the learning. Performance management is one such process that can be used to enhance knowledge management. Performance management has a focus on the skills and functionality of employees, as well as relationships, through such activities as training and development and team work. Performance management has also been indicated in the broader literature to be a key driver of culture and a skilled workforce, and within this research clearly linked to knowledge management. There is however, little research on the connections between knowledge management and performance management (Edvardsson 2008; Fazizadeh & Reza-khosshal 2008; Pastor *et al* 2010). Whilst this research did not set out to identify this relationship, the connection between knowledge management and performance management became too compelling to ignore and provides an opportunity for further research.

5.8 KNOWLEDGE MANAGEMENT IN A SERVICE ENVIRONMENT

It is clear from the literature that there are marked differences between the manufacturing industry and service industry in relation to the roles employees perform in the workplace. Nonetheless, the intent of this research was not to compare the differences in knowledge management in the two environments. Rather, this research set out to contribute to the knowledge management literature by its examination in a service environment. Employees in manufacturing follow strict guidelines and processes, whereas employees in a service environment operate with a high level of ambiguity and discretion (Grieves & Mathews 1997; Lettieri *et al* 2004). Service workers therefore, have a high level of input into their day-to-day work and need to be fully engaged in the systems and processes in order to be effective in their jobs.

A high level of engagement is also required for knowledge management to be effective within the organisation. This is seen in the profile of the highest scoring Residential Aged Care organisations where strong employee engagement was evident, along with a focus on improving knowledge. Employees within the highest scoring Residential Aged Care organisations also perceive that their managers provide a high level of support and encouragement for them to do their work and to advance their knowledge. A result of this is a subsequent willingness by employees to develop and seek out new knowledge and share this with others. The workplace culture in these service organisations are inclusive and encouraging, with elements of openness and constant learning.

5.9 SUMMARY

This research examined knowledge management in the context of how effective it was perceived by managers and employees in the service industry, specifically Residential Aged Care. Knowledge management has the potential to contribute to resident care outcomes through the application of focused initiatives that meet the resident's needs. The research examined the effectiveness of knowledge management through the construct of absorptive capacity, and four absorptive capacity capabilities (acquisition, assimilation, transformation and exploitation).

Three (3) consistent themes were evident across all the results. Firstly, managers have a role in supporting employees to actively participate in the management of knowledge. Managers develop and facilitate a workplace culture that reflect strong communication between all employees and provides exposure to new information and ideas on caring for residents. Secondly, routines are required to support the knowledge management process. Workplace routines provide a consistent method for guiding employees on how they do their daily tasks and come in the form of policies and procedures. Thirdly, sharing of new knowledge between individuals and work groups is vital and has been shown in this research as best supported through the use of teams and workplace meetings. Work teams and meetings provide a means by which employees can exchange ideas and information and build a collective body of knowledge.

The acquisition of new knowledge within Residential Aged Care can be enhanced when a commitment exists within the organisation to maintain and update work procedures, and that this commitment extends to encouraging and facilitating employees to actively pursuing new knowledge. Open communication channels between employees and managers and employees will encourage relationships to develop between individuals and groups, and provides an avenue to create new knowledge. The participants of this study indicated that the availability of work related journals for employees to read provided a good source of new ideas and innovations. Additional to this Lane and colleagues (2006) highlight that in order to acquire new knowledge the organisation should start with understanding the knowledge base that already exists within the organisation, by such initiatives as mapping or documenting the knowledge. This is needed so that management are better positioned to target the internal development of specific new knowledge or to import targeted knowledge from outside its boundaries.

The assimilation of new knowledge is the sharing and dispersal of new knowledge and requires that employees be engaged in the process. The processes are led and communicated by managers. Through a focus on communication, managers provide guidance to employees on where new knowledge is located in support of service delivery. The opinions of all employees should be sought and valued by managers, providing a means by which employees have an input into the development and dispersal of the new knowledge. Workplace teams and meetings are utilised to engage

employees in the knowledge dispersal process and in leveraging the combined understanding held by all employees.

Transformation of new knowledge results in new knowledge being combined with existing knowledge and reinterpreted into a form that members of the organisation can understand and use. This is achieved through the introduction of ideas on how resident care can be improved and by the continual up-dating of work procedures and processes. Managers facilitate and encourage employees to engage in training and development, which provides employees with exposure to new work related knowledge.

Exploitation of knowledge in Residential Aged Care requires that managers facilitate the development of the specific skills and competencies that employees require to care for residents. Managers also enable employees to communicate with each other and with management and provide and receive feedback, which allows new ideas to emerge. Monitoring and measuring employee competence and work related outcomes were also shown to be an effective means by which knowledge can be exploited in Residential Aged Care.

Knowledge management in Residential Aged Care is not affected by whether the care giver is a manager or an employee. It is also not affected by the profit motives of the organisation, the size of the organisation or the time that the organisation has been providing care to aged residents. Under the current regulatory, funding and

accreditation systems, all Residential Aged Care organisations appear to provide the same level of service. Any difference in how well knowledge is managed within a particular organisation appears to be reliant on the skill and motivation of the senior manager.

Knowledge management has been shown to have an important supportive role in obtaining accreditation in Residential Aged Care. Quality outcomes are directly linked to continuous improvement in resident care and the existence of an absorptive capacity can contribute to this by ensuring that the best possible knowledge on providing care is sourced, available and applied.

Effective knowledge management in a service environment requires a combination of a supportive and encouraging workplace culture, engaged managers and employees, and management systems that reduce ambiguity and uncertainty for the employees. To achieve this, performance management practices support employee engagement, a positive culture and effective management of knowledge. This is achieved through facilitation of employee relationships, which is vital for knowledge development, learning and knowledge sharing. The two management systems should therefore not be viewed as separate, but instead, that performance management practices provide support for knowledge management.

CHAPTER SIX

CONCLUSION

6.1 INTRODUCTION

This thesis evaluates the relationships between absorptive capacity and the four absorptive capacity capabilities (acquisition, assimilation, transformation and exploitation) with effective knowledge management. Chapter One presents the purpose and justification for the research, a brief description of the methods used to collect and analyse data and the research questions. Chapter Two presents the literature review and conceptual framework. Chapter Three presents the design, methodology and justification for its use. Chapter Three also provides a description of the research setting, the pilot study and the model for analysis, along with the survey instrument and scales used to measure construct and test hypotheses. Chapter Four presents the data analyses using structural equation modelling techniques, as well as the results of analyses. The distribution of the responses, sample characteristics and analyses emanating from the measurement and structural model is also provided in this chapter. In Chapter Five the major findings are discussed, along with presentation of practical implications for business. These findings are drawn from the structural relationships identified in the data analyses.

Chapter Six summarises the practical implications for the service industry and specifically, the Residential Aged Care industry. Chapter Six will also consider the theoretical implications for the research and summarise the thesis context. Acknowledgement of the limitations of the research and recommendations for future research are also provided in this chapter.

6.2 IMPLICATIONS FOR ORGANISATIONS

This section will discuss the implications of this research on the area of knowledge management in a service environment, with emphasis on the Residential Aged Care industry.

6.2.1 Absorptive Capacity

Despite the discriminate validity of the construct acquisition not being supported, absorptive capacity and the four capabilities were nonetheless shown to be a useful framework for examination of knowledge management in the service industry. Three significant themes emerged in this research in relation to absorptive capacity. These were the role of managers, the existence of guiding routines and the sharing of knowledge throughout the organisation. These themes suggest that with the right systems and processes, knowledge is manageable in Residential Aged Care.

The findings confirm that managers have a direct role in the knowledge management process through the provision of leadership. This supports the view of Simon and De Gaus (1998) and Gao and colleagues (2003) who stated that knowledge management

provides a base from which managers can create and re-use knowledge and focus the energies of the organisation and employees on strategic issues. Where leadership is provided and managers are engaged in developing and utilising new knowledge the organisation is well positioned to capitalise on learning. Specific areas where leadership supports knowledge management include, actively supporting the maintenance of up-to-date work policies and procedures, gathering and using feedback from employees, encouraging employees to seek out new knowledge, developing teams as conduits to sharing knowledge and holding regular workplace meetings to disseminate new knowledge.

Whilst the application of knowledge management principles has been shown to be the same for manufacturing and service industries, there remains a difference in the use of routines. The service industry differs from manufacturing in relation to the requirement of employees to engage different clients as part of their day-to-day role. Unlike manufacturing, where tasks are largely standardised, the act of service is intangible and there are inconsistencies in the pace, scheduling and resultant level of performance of tasks (Grieves & Mathews 1997). Routines in the form of policies and procedures provide employees with required information and guidance on how they are to carry out their work (Zahra & George 2002). The use of routines within Residential Aged Care should focus on reducing ambiguity and uncertainty that may exist in the delivery of service to residents. To facilitate this, managers should take a direct role in ensuring that policies and procedures are kept up to date and include information that employees require to do their job. New knowledge needs to be

integrated into the policies and procedures as part of regular reviews. Employees should also be encouraged to provide feedback on those policies and procedures and have input into updating them. By doing so, the routines reflect the actual roles of service delivery and subsequent feelings of ownership by their holders.

Sharing knowledge across the organisation emerged as the third significant theme to be considered by Residential Aged Care organisations when managing knowledge. The dynamism inherent in knowledge sharing, as with leadership, is that it does not stand alone as a single action, but involves the development, storage and application of new knowledge, as well as support of all aspects of the knowledge management process. Employees should be encouraged and supported to be accepting of the need to share their knowledge and engaged in the knowledge sharing processes. Effective knowledge sharing also requires that employees be made aware of the existence of new knowledge. This research demonstrates that this can be achieved in Residential Aged Care through the formation of teams and workplace meetings and is consistent with the literature (Grant 1996; Argote 1999; Huber 1991; Kim 1990; Locke & Jain 1995; Senge 1990; Autio *et al* 2000; Dyer & Nobeoke 2000; Dixon 2003; Lehr & Rice 2002). In addition to this, knowledge sharing will occur when employees are provided with access to formal guidance on where knowledge is located (Gao *et al* 2003), which in Residential Aged Care can be in the form of policy and procedure indexes. The organisation's culture is ideally based on trust and encouraging of knowledge sharing and is the responsibility of managers to achieve (Taylor & Wright 2004). This

research has highlighted that within Residential Aged Care, the sharing of knowledge can provide some of the foundations on which knowledge management can occur.

6.2.2 Absorptive Capacity Capabilities

The availability of work related journals for employees to read at work has been shown in this research to be a good source of new ideas and innovation in Residential Aged Care. Knowledge acquisition within Residential Aged Care can also be improved through open communication within the organisation. Open communication facilitates relationships to flourish and provides an avenue to create new knowledge by allowing parties to discuss service issues and seek solutions.

Knowledge assimilation is the dispersal of new knowledge and requires full engagement by all employees at every level of the organisation to be effective. Knowledge assimilation is enhanced by the use of workplace teams and meetings as this facilitates leveraging and combining the group's joint understanding of matters that are raised and discussed. Assimilation can be further enhanced by managers guiding employees on where new service knowledge is located. Managers also have a role within the assimilation process to seek the opinions of all employees on how to improve service delivery.

Knowledge transformation in Residential Aged Care has been shown to be improved through the delivery of training and development programs as this provides an exposure to new work-related knowledge and facilitated employees sharing their

knowledge. Transformation of new knowledge can also occur in Residential Aged Care when existing knowledge is combined with new knowledge, as this enhances the knowledge that is already established. This can be achieved through a focus on maintaining up to date policies and procedures.

Exploitation is facilitated by integrating the new knowledge with existing employee skills and competencies. Knowledge exploitation can also be achieved within Residential Aged Care when managers facilitate two-way feedback to employees. The two-way feedback can be conducted through performance appraisals and managers informally seeking and providing feedback to employees on the job. In this situation, two-way feedback should have a focus on understanding and improving the employee's performance and satisfaction at work. Exploitation is also achieved when managers monitor and measure the effectiveness of employee competencies in carrying out their work.

6.3 GENERALISATION OF THE MODEL

The sample population is considered homogenous with the application of knowledge management systems universal to all service industries. The measurement items were adapted from the literature. The measurement items were developed so that they could be adapted to any service environment. Whilst there is references in Part Three of the questionnaire to residential aged care related tasks and processes, these can be altered to reflect other service industries requirements.

6.4 LIMITATIONS OF THIS RESEARCH

Whilst this research presents strong evidence regarding the impact of absorptive capacity and the absorptive capacity capabilities (acquisition, assimilation, Transformation and exploitation) on effective knowledge management, the results should be interpreted in light of the research limitations and consequent need for further research examination in other service areas and industries.

The cross-loading or uni-dimensionality of the items were not assessed and caution therefore needs to be applied when interpreting the results. However, internal consistency was demonstrated on all four absorptive capacity capabilities (acquisition, assimilation, transformation and exploitation) and discriminant validity was assured at the construct level for three of the four absorptive capacity capabilities (assimilation, transformation and exploitation), thus indicating that the constructs are different to each other.

The data collected for this research is from one sample of the service industry, namely Residential Aged Care. Whilst generalisation of the model can be applied, caution needs to be taken when applying the results to another specific service environment or wider service industry. This is particularly relevant when the results of the additional analyses are considered. It is believed that, in part, the outcomes relate directly to circumstances specific to Residential Aged Care. The rationale behind how the industry context variable data set were determined would not necessarily apply to another service environment. The variables of profit motive, business size and time in

business remain relevant to other service areas, it is just how the variables are separated for examination that requires alteration. Within the sample industry, the 'size of organisation' variable was determined at greater than and less than 60 beds; this number was chosen because it reflects the average size of a Residential Aged Care organisation. The 'time in business' variable was determined at greater than and less than 10 years, because this is the mid point at which the participating organisations had operated Residential Aged Care Services.

Different employee work groups (nurses, allied health and care assistant) were not segmented for analysis in this research. Dividing data into professional groups may provide further insight into perceptions of knowledge management effectiveness for respective positions within organisations.

The absorptive capacity capability acquisition failed the discriminant validity test, and was found to share all the measurement items with the other capabilities and therefore not significantly different from them. There are two possible reasons for this result. Firstly, due to the impact of legislation and funding pressures, participating organisations may be more focused on what they can do with existing knowledge, rather than expending energy on developing or obtaining new knowledge. Secondly, this result may have occurred because of failure of the items selected to represent the construct. The literature (Lane & Lubatkin 1998; Zahra & George 2002; Lopez *et al* 2004; Lane *et al* 2006) highlights three areas of focus for acquisition. These are a desire to develop internally or acquire new knowledge from outside the organisation's

borders, the existence of processes that support this happening and the possession of a comprehensive understanding of the knowledge that already exists within the organisation. The survey instrument failed to measure the third area (an understanding of existing knowledge) adequately. Additional items that specifically focus on capturing the perceptions of respondents on the existence of knowledge across the whole organisation would have potentially provided adequate discriminate validity for the reliability of this construct.

The use of a self-reporting questionnaire is problematic as respondents attach their own meaning to the questions being asked (Zikmund 2003). Potential respondent bias was addressed prior to distribution through the structure and presentation of items, and keeping them as simple and clear as possible. This goal was further enhanced through the use of a pilot study. Emphasis on confidentiality was also used in an effort to keep bias to a minimum. An assurance of anonymity may also have provided the respondent with perceived opportunity to respond freely, answering each question without the fear of identification.

The analysis of accreditation related data was conducted to provide advancement in Residential Aged Care knowledge, to inform managers and to provide a platform for future knowledge management and accreditation research in the industry. The comparison of the highest scoring and lowest scoring participating organisations also provided perceived insight into how well the organisation did or did not manage their

knowledge. However, additional caution needs to be applied because of the relative low number of organisations in the highest and lowest cohorts (n=10).

Additional Analyses:

- Fifty one percent (51%) of participants identified themselves as being in a position where they regularly supervise others. Comparison on this data were undertaken to see if there was a difference in perceptions held by supervisors and employees on effective knowledge management. The pooled error t-Test for all four absorptive capacity paths was insignificant. This result may be due to many who identified themselves as supervising others, not actually being formally identified as managers by their organisation. As the Residential Aged Care industry runs at minimal staffing levels on most shifts (National Aged Care Roundtable 2010), there are generally no direct managers on duty during evenings, nights and weekends. Therefore, many experienced care employees find themselves as the most senior person on shift, and may informally take responsibility for work flows. An alternative and more accurate measure would necessitate identification of the formal title of respondents, as stated in their individual job description.
- The three industry context variables (profit motive, size of the organisation and time the organisation has been in business) were also found to be statistically insignificant. The result for each was potentially influenced by the funding model that all Australian Residential Aged Care organisations are governed by. Eighty five percent (85%) of funding for care of residents in the Residential Aged Care industry is paid by the Australian Commonwealth Government through the

Department of Health and Aging. Funding is applied to residents for their individualised direct care and governed by prescriptive accreditation standards. The result of the funding model and existing standards provides potential standardised care, regardless of whether the organisation is for-profit or not-for-profit, or for size of the organisation. The Accreditation standards underwent significant changes in 1998, with the first round of audits in 2002. This resulted in the absence of difference between those organisations that have been in the business of providing residential aged care for more, or less, than 10 years. The results for all three industry context variables may alter over the next five years if no significant changes are made to the funding and accreditation models.

6.5 IMPLICATIONS FOR FUTURE RESEARCH

Analysis of data highlighted four issues that would benefit from further investigation. These include a specific Residential Aged Care industry issue and three general issues. The Residential Aged Care industry issue relates to the potential for improving or supporting accreditation in Residential Aged Care through a knowledge management approach. Secondly, the identification of acquisition items that will enable that capability to be more accurately measured. Thirdly, the links between performance management and knowledge management have been established in the broader literature and indicated in this research, so would benefit from being further explored in another service environment. Lastly, it would be useful to replicate the research in a more general service environment.

6.5.1 Accreditation

Accreditation is a critical issue that influences all aspects of how Residential Aged Care organisations provide care. Accreditation is mandatory for the industry, and ongoing funding from the legislative body (the Australian Commonwealth Government) is dependent on maintaining full accreditation. Analysis of data from this research indicated links exist between knowledge management and positive accreditation results in Residential Aged Care organisations. The knowledge management process is a potential avenue for Residential Aged Care organisations to enhance quality and accreditation. Specific data relating to all accreditation outcomes will assist in further examination of the role of knowledge management in Residential Aged Care.

6.5.2 Acquisition

The construct of acquisition is an absorptive capacity capability that facilitates organisations identifying and acquiring required new knowledge (Lane & Lubatkin 1998, Zahra & George 2002). Organisations also require a comprehensive understanding of their own knowledge base before they can successfully acquire new knowledge (Lane *et al* 2006). This aspect of acquisition was not adequately represented in this research, so would also benefit from further refinement.

6.5.3 Performance Management

Writers in the area of knowledge management (Edvardsson 2008; Fazizadeh & Reza-khoshhal 2008; Pastor *et al* 2010) noted the paucity of research attention paid to the

impact of performance management practices on knowledge management. This lack of attention is also evident in the health care and aged care industries. De Prins and Henderickx (2010) confirm in their research, undertaken in Aged Care, that an appropriately skilled workforce is crucial for delivery of care and the increasing need for performance management systems to assist with encouraging performance in that delivery. Knowledge management and performance management share common activities and goals in relation to teams, employee cooperation, communication flows and networks (Svetlik & Stavrou-Costa 2007; Pastor *et al* 2010). Research on the specific relationships that exist between the many aspects of performance management and knowledge management in a service environment would potentially provide the industry with a significant amount of information on which to enhance knowledge management.

6.5.4 Replication of this research in a more general service environment

As discussed in section 6.4 (Limitations of the Research), data from this research was collected in one specific section of the service industry. Applicability of the findings to the wider service industry will be reinforced through further research application in other service organisations. Further, while the measurement items developed for this research emphasise Residential Aged Care activities, they can be modified to reflect the work processes in any service environment.

6.6 CONTRIBUTION

There is extensive literature outlining the contribution of knowledge management in manufacturing (Alon 2002; Southon *et al* 2002; Roth & Menor 2003). Knowledge management research in a service environment is not well represented in the literature. Service differs from manufacturing with employees requiring a degree of discretion in how they carry out their work, due mainly to the continual contact that service employees have with their clients. This research fills a gap that exists by examining the perceptions held by service employees on how effective they perceive knowledge is being managed within their service organisation.

Knowledge management is also not well understood in the Residential Aged Care industry. This industry is a key service provider for an ever increasing aging population in Australia and is under constant financial and resource pressure (National Aged Care Roundtable 2010). Conducting the research in Residential Aged Care organisations provided an opportunity to document and examine different aspects of the industry as they relate to knowledge management. This research provides insight into how the accreditation process and related quality improvement may be enhanced through the use of knowledge management systems. Further, due to extensive legislative control in Australia, there is little difference in how individual Residential Aged Care organisations approach knowledge management. Effective knowledge management appears to relate more to internal leadership and management culture rather than the profit motives, size and experience of the organisation.

Previous writers (Cohen & Levinthal 1990; Gold *et al* 2001; Zahra & George 2002) also point out that the construct, absorptive capacity, can provide organisations with the ability to develop share and utilise knowledge. To date, previous research utilising absorptive capacity (Cockburn & Henderson 1998; Lane & Lubatakin 1998; Van den Bosch *et al* 1999; Autio *et al* 2000; Dussauge *et al* 2000; Jones & Craven 2001) considered the construct from a manufacturing perspective. Applying absorptive capacity to a service environment has extended the discussion and shown that the construct is as applicable to the service industry as it is to manufacturing.

The research also furthers the field of knowledge management by reinforcing three themes that are common to all aspects of the knowledge management process. This research has shown that the role of managers to guide, lead and support is vital if effective knowledge management is to occur; that routines and processes are required to support all aspects of knowledge management and that sharing knowledge occurs across the entire knowledge management process.

6.7 SUMMARY

This research examined the relationship between absorptive capacity and effective knowledge management in the Residential Aged Care industry in Western Australia. It also examined whether or not the role of employees and three (3) industry context variables affected the relationships. A research model was developed, identifying the independent variables (absorptive capacity, acquisition, assimilation, transformation and exploitation) and dependent variable (effective knowledge management).

A quantitative methodology based on a cross-sectional research design was developed for the research. The measurement scales used to measure constructs identified in the research model were developed from the literature. Data was collected from 1,360 Residential Aged Care employees in Western Australia. The survey questionnaire was distributed randomly throughout 35 organisations throughout the State. A total of 549 questionnaires were returned (41%), of which all were usable.

Data analyses was carried out using structural equation modelling statistical package Partial Least Squares and PLS – Graph (Chin 1982). The analyses involved a two-step process; analysis of the measurement model and then analysis of the structural model. The measurement model analysis confirmed the constructs as proposed in the research model, along with their validity and reliability. Discriminant validity tests however, confirmed that three of the four first order constructs (assimilation, transformation and exploitation) were separate. Acquisition was found to be loading onto the other three lower order constructs (assimilation, transformation and exploitation) and therefore not significantly different from them.

Structural model analysis examined the hypothesised relationships between variables. The analysis found that absorptive capacity, assimilation, transformation and exploitation correlated significantly with effective knowledge management. Acquisition also correlated significantly with effective knowledge management; however, because it was also found not to have discriminant validity discussion was included for information and to guide future research.

This research offers implications for management practice and future research. Three principles were consistent across absorptive capacity capabilities; they are management of the knowledge management processes, routines that support the process and sharing the knowledge between employees and departments. Knowledge management was found to be dependent on employees being engaged in the processes and systems. This is particularly relevant in the service environment due to the autonomy that all employees have in delivering services to their clients. A direct consequence of this is that employees need to be supported by managers to provide service through specific leadership and guidance strategies. Management's role is to implement focused actions such as regular policy and procedure reviews, facilitating two-way communication with employees and providing up to date industry information for employees to read and learn from. Other actions include facilitating and supporting the formation of effective work teams, holding regular meetings to disseminate new knowledge, facilitating employee attendance at training and development and measuring and monitoring the effectiveness of workplace competencies. Management must support knowledge sharing strategies and employees must be willing to share. The actions listed above and the sharing of knowledge can be enhanced through performance management routines and processes that are focused on supporting a workplace culture that facilitate knowledge management occurring as a normal part of day to day business.

The findings of this research are relevant to the service industry in general, as the research has shown that previous findings from the manufacturing industry are

applicable to the service environment. The findings of this research are also important to assist Residential Aged Care organisations develop knowledge management processes. With increasing demand and decreasing resources within the industry, Residential Aged Care organisations and the residents could benefit from the knowledge being managed more effectively. Absorptive capacity and the four absorptive capacity capabilities (acquisition, assimilation, transformation and exploitation) have been shown to be a useful framework for examining how knowledge can be managed in a service environment.

REFERENCES

- Australian Bureau of Statistics. Accessed online at <http://www.abs.gov.au>. 5 March 2008.
- Australian Bureau of Statistics. Accessed online at <http://www.abs.gov.au>. 6 January 2011.
- Abodor, H. (2008). "Competitive success in an age of alliance capitalism: how do firm specific factors affect behavior in strategic alliances?". *Advances in Competitiveness Research*. Vol 10. No. 1. pp. 71-100.
- Achterbergh, J. and Vriens, D. (2002). "Managing viable knowledge". *Systems Research and Behavioral Science*. Vol. 19, pp. 223-241.
- Aged Care Financial Performance. (2010). *Stewart Brown Business Solutions*.
- Ahmed, P., Lim, K. and Zairi, M. (1999). "Measurement practice for knowledge management". *Journal of Workplace Learning*. Vol. 11. Iss. 8. pp. 304-314.
- Akder, M. (2009). "A multi-level examination of quality-focused human resource practices and firm performance: evidence from the us healthcare industry". *The International Journal of Human Resource Management*. Vol. 20. No. 9. pp. 1945-1964.
- Albert, D. (2007). "A model of multidiscipline teams in knowledge creating organisations". *Team Performance Management*. Vol. 13. Iss. 5/6. pp. 172-184.

Alon, I. (2002). "Knowledge and innovation in the new service economy". *International Journal of Service Industry Management*. Vol. 13. Iss. 5. pp. 512-515.

Alvesson, M. (2001). "Knowledge work: ambiguity, image and identity". *Human Relations*. Vol. 54, Iss. 7. pp. 863-886.

Anderson, J. and Gerbing, D. (1988) "Structural equation modeling in practice: a review and recommended two-step approach". *Quantitative Methods in Psychology*. Vol. 103. No 3. pp. 411-423.

Andrews-Hall, S, Howe, A. and Robinson, A. (2007) "The dynamics of residential aged care in Australia: 8-year trend in admissions". *Australian Health Reform*. Vol. 31. No. 4. pp. 611-623.

Anantatmula, V. (2008). "Leadership role in making effective use of knowledge management". *The Journey of Information and Knowledge Management Systems*. Vol. 38. No. 4. pp. 445-460.

Andreu, R. and Sieber, S. (2005). "Knowledge integration across organisations: how different types of knowledge suggest different integration trajectories". *Knowledge and Process Management*. Vol.12. Iss. 2. pp. 153-161.

Argote, L. (1999). *Organisational Learning: creating, retaining and transferring knowledge*. Boston. Kluwer Academic Publishers.

Armstrong S. J. and Overton, T. S. (1977). "Estimating Nonresponse bias in mail surveys". *Journal of Marketing Research*. Vol. XIV. pp. 395-402.

Armstrong, F. and Witham, H. (2001). "Aged care: time to stop the exodus". *Australian Nursing Journal*. Vol. 8. Iss. 10. pp. 26-29.

Asoh, d., Belardo, S. and Crnkovic, J. (2007). "Assessing knowledge management: refining and cross validating the knowledge management index using structural equation modeling techniques". *International Journal of Knowledge management*. Vol. 3, Issue 2. pp.1-30.

Aujirapongpan, S., Vadhanasindha, P., Chandrachai, A. and Cooperat, P. (2010). "Indicators of knowledge management capability for km effectiveness". *VINE: The Journal of information and Knowledge Management Systems*. Vol. 40. No. 2. pp. 183-203.

Autio, E., Sapienza, H. and Almeida, J. (2000). "Effects of age at entry, knowledge intensity, and imitability on international growth". *Academy of Management Journal*. Vol. 35. No. 5. pp. 909-924.

Barclay, D., Higgins, and Thompson, R. (1995). "The partial least squares (pls) approach to causal modeling, personal computer adoption and use as an illustration". *Technology Studies*. Vol. 2. pp. 285-324.

Batalden, P. and Splaine, M. (2002). "What will it take to lead the continual improvement and innovation of health care in the twenty-first century". *Quality Management in Health Care*. Vol. 11. Issue 1. pp. 45-54.

Begona Lloria, M. (2008). "A review of the main approaches to knowledge management". *Knowledge Management Research and Practice*. Vol. 6. pp. 77-89

Beijerse, R. (1999). "Questions in knowledge management: defining and conceptualising a phenomenon". *Journal of Knowledge Management*. Vol. 3, Iss. 2, pp. 94-114.

Beijerse, R. (2000) "Knowledge management in small and medium-sized companies: knowledge management for entrepreneurs". *Journal of Knowledge Management*, Vol 4. No. 2. pp. 162–177.

Beveren, J. (2002). "A model of knowledge acquisition that refocuses knowledge management". *Journal of Knowledge Management*. Vol. 6. No 1. pp. 18-22.

Bhatt, G. (2002). "Management strategies of individual knowledge and organisational knowledge". *Journal of Knowledge Management*. Vol. 6, No. 1. pp. 31-39.

Binney, D. (2001). "The knowledge management spectrum – understanding the km landscape". *Journal of Knowledge Management*. Vol. 5. Issue 1. pp. 33-42.

Birkinshaw, J. (2001). "Making sense of knowledge management". *Ivey Business Journal*. Vol. 65. Iss. 4. pp. 32-37.

Bogdanowicz, M. S. and Bailey, E. K. (2002). "The value of knowledge and the values of the new knowledge worker: generation X in the new economy". *Journal of European Industrial Training*. Vol. 26, No. 2, pp. 125-129.

Bose, R. (2004). "Knowledge management metrics". *Industrial Management and Data Systems*. Vol. 104, No. 6. pp. 457-468.

Brewer, P. and Brewer, K. (2010). "Knowledge management, human resource management, and higher education: a theoretical model". *Journal of Education and Business*. Vol. 85. pp. 330-335.

Brockman, B. and Morgan, R. (2003). "The role of existing knowledge in new production innovativeness and performance". *Decision Sciences*. Vol. 34. Iss. 2. pp. 385-420.

Bryans, P. and Smith, R. (2000). "Beyond training: reconceptualising learning at work". *Journal of Workplace Learning*. Vol. 12. Iss. 6. pp. 228-235.

Cabrera, E. and Cabrera, A. (2005). "Fostering knowledge sharing through people management practices". *International Journal of Human Resource Management*. Vol. 16. No. 5. pp. 720-735.

Chandra, C. and Kumar, S. (2003). "Enhancing manufacturing operations effectiveness through knowledge based design". *Integrated Manufacturing Systems*. Vol. 14. No. 3. pp. 278-289.

Chau, P. Y. K. (1997). "Reexamining a model for evaluating information center success using a structural equation modeling approach". *Decision Science*. Vo. 28. No. 2. pp. 309-334.

Chen, M. and Chen, A. (2005). "Integrating option model and knowledge management performance measures: and empirical study". *Journal of Information Science*. Vol. 31. No. 5. pp. 381-393.

Cheng, C. and Huang, J. (2009). "Strategic human resource practice and innovation performance – the mediating role of knowledge management capacity". *Science Direct*. Vol. 62. pp. 104-114.

Chin, W. (1982). "Issues and opinions on structural equation modeling". *MIS Quarterly*. March. pp. vii-xvi.

Chin, W. (1998). "Issues and opinions on structural equation modeling". *MIS Quarterly*. March. Pp. vii-xvi.

Chin, W. and Todd, P. (1995). "On the use, usefulness, and ease of use of structural equation modeling in mis research: a note of caution". *MIS Quarterly*. June. pp. 237-246.

Chourides, P., Longbottom, D. and Murphy, W. (2003). "Excellence in knowledge management: an empirical study to identify critical factors and performance measures". *Measuring Business Excellence*. Vol. 7. No. 2. pp. 29-45.

Cockburn, I. and Henderson, R. (1998). "Absorptive capacity, coauthoring behaviour, and the organization of research in drug discovery". *The Journal of Industrial Economics*. Vol. 46. Iss. 2. pp. 157-183.

Cohen, D. and Levinthal, D. (1989). "Innovation and learning: the two of r & d". *Economic Journal*. Vol.99. pp. 569-696.

Cohen, D. and Levinthal, D. (1990). "Absorptive capacity: a new perspective on learning and innovation". *Administrative Science Quarterly*. Vol. 35. Iss. 1. pp. 128-153.

Conley, C. A. and Zheng, W. (2009). "Factors critical to knowledge management success". *Advances in Developing Human Resources*. Vol. 11 No. 3. pp. 334-348.

Coulson-Thomas, C. (2004). "The knowledge entrepreneurship challenge moving on from knowledge sharing to knowledge creation and exploitation". *The Learning Organisation*. Vol. 11. No. 1. pp. 84-93.

Courtney, M., O'Reilly, M., Edwards, H. and Hassell, S. (2007). "Development of a systematic approach to assessing quality with Australian residential aged care facilities: the clinical care indicators tool". *Australian Health Review*. Vol. 31. No. 4. pp. 582-592.

Cortada, J. and Woods, J. (2000). *The knowledge management yearbook 2000-2002*. Melbourne, Butterworth Heinmann.

Creswell, J. W. (1994). *Research Design Qualitative & Quantitative Approaches*. London. SAGE Publishing.

Csesko, M. and Reed, R. (2009). "Will residential aged care facilities meet long-term demand?". *Property Management*. Vol. 27. No. 9. pp. 58-74.

Curad, C. and Bontis, N. (2006). "The knowledge based view of the firm and its theoretical precursor". *International Journal of Learning and Intellectual Capital*. Vol. 3. No. 4. pp 367-381.

Daft, R. and Huber, G. (1987). How organisations learn: a communication framework. In N. Di Tomaso and S B Bacharach (Eds) *Research in the Sociology of Organisation*. Vol. 5. Greenwich, CT: FAI Press.

Daghfous, A. (2004). "Absorptive capacity and the implementation of knowledge-intensive best practice". *SAM Advanced Management Journal*. Vol. 69. Iss. 2. pp. 21-28.

Darroch, J. (2003). "Developing a measure of knowledge management behaviors and practices". *Journal of Knowledge Management*. Vol. 7. No. 5. pp. 41-54.

Davenport, T. (1997). "Ten principles of knowledge management and four case studies". *Knowledge and Process Management*. Vol. 4, No. 3, pp. 187-208.

Davenport, T. and Volpel, S. (2001). "The rise of knowledge towards attention management". *Journal of Knowledge Management*. Vol. 5. Iss. 3. pp. 212-222.

De Long, D and Fahey, L. (2000). "Diagnosing cultural barriers to knowledge management". *Academy of Management Executive*. Vol. 14. No. 4. pp. 113-127.

De Prines, P. and Henderickx, E. (2010). "Hrm effectiveness in older people's and nursing homes: the search for best (quality) practices". *Nonprofit and Voluntary Sector Quarterly*. Vol. 36. No. 4. pp. 549-571.

DeTienne, K. and Jackson, L. (2001). "Knowledge management: understanding theory and development". *Competitive Review*. Vol. 11 Issue 1. pp. 1-11.

DeTienne, K., Dyer, G., Hoopes, C. and Harris, S. (2004). "Toward a model of effective knowledge management and directions for future research: culture, leadership, and ckos". *Journal of Leadership and Organisational Studies*. Vol. 10. No. 4. pp. 26-43.

Dixon, N. (2002). "The neglected receiver of knowledge sharing". *Ivey Business Journal*. Vol. 66, Iss. 4, pp. 35-40.

Drott, M. C. (2001). "Personal Knowledge, Corporate Information: The Challenges for Competitive Intelligence". *Business Horizons*. pp. 31-37.

Duffy, J. (2000). "Knowledge management: to be or not to be?" *Information Management Journal*. Vol. 9. pp. 64-68.

Dussauge, P., Garrette, B. and Mitchell, W. (2000). "Learning from competing partners: outcomes and durations of scale and link alliances in europe, north america and asia". *Strategic Management Journal*. Vol. 21. pp. 99-126.

Duvall, C. K. (1999). "Developing individual freedom to act: Empowerment in the knowledge organization". *Participation & Empowerment*. [Electronic], Vol. 7, No. 8, pp. 204, Available: ProQuest [2003, 3 September].

Dyer, J. and Nobeoka, K. (2000). "Creating and managing a high-performance knowledge-sharing network: the toyota case". *Strategic Management Journal*. Vol. 21. pp. 345-367.

Earl, M. (2001). " Knowledge management strategies: towards a taxonomy". *Journal of Management Information Systems*. Vol. 18. Iss 1. pp. 215-234.

Edvardsson, I.(2008). "Hrm and knowledge management". *Employee Relations*. Vol. 30. No. 5. pp. 553-561.

Faulk, R. F. and Miller, N. B. (1992). *A Primer Soft Modeling*. Akron. OH. University of Akron Press,

Fazizaheh, A. and Reza-Khoshhal, M. (2008). "Strategic human resource practices and innovation performance – the mediating role of knowledge management capacity". Electronic copy, accessed on 11 November 2010 from <http://ssrm.com.abstract=1672243>

Fine, M. and Stephens, J. (1998). Innovation on the margins: aged care policies. In Bevan, C. J. (Ed.). *Successful Aging*. Sydney. Mosby.

Firestone, J. M. and McElroy, M. W. (2005). "Doing knowledge management". *The Learning Organization*. Vol. 12. Iss. 2. pp. 189-212.

Ford, D. and Chan, Y. (2003). "Knowledge sharing in a multi-cultural setting: a case study". *Knowledge Management Research and Practice*. Vol. 1. pp. 11-27.

Fornell, C. and Lacker, D. (1981). "Evaluating structural equation models with unobservable variables and measurement error". *Journal of Marketing Research*. Feb. pp. 39-50.

Freeman, L. (2002). "Information system knowledge: foundations, definitions, and applications". *Information System Frontiers*. Vol. 3. Iss. 2. pp. 249-266.

Galunic, C. and Rodan, S. (1998). "Resources recombinations in the firm: knowledge structures and the potential for Schumpeterian innovation". *Strategic Management Journal*. Vol. 19. pp. 1193-1201.

Gao, F., Li, M. and Nakamori, Y. (2003). "Critical systems thinking as a way to manage knowledge". *Systems Research and Behavioral Science*. Vol. 20. pp. 3-19.

Gefen, D., Straub, D. and Boudreau, M. (2000). "Structural equation modeling and regression: guidelines for research practice". *Communications of the Association for Information Systems*. Vol. 4. Article 7. pp. 1-77.

Gettler, L. and James, D. (2002). "Meta-knowledge: what you must know about knowledge". *Management Today*. October. pp. 16-19.

Giroux, H. and Taylor, J. (2002). "The justification of knowledge: tracking the translations of quality". *Management Learning*. Vol. 33, Iss. 4, pp. 497-518. Available: ProQuest [2003, 12 January].

Glazer, R. (1998). "Measuring the knower: towards a theory of knowledge equity". *California Management Review*. Vol. 40. Iss. 3. pp. 175-194.

Gold, H., Halhotra, A. and Segars, A. (2001) "Knowledge management: an organisational capabilities perspective". *Journal of Management Information Systems*. Vol. 18. Issue 1. pp. 185-214.

Goodman, N. and Schienan, J. (2010). "Using knowledge management to leverage training and development initiatives". *Industrial and Commercial Training*. Vol. 24. No. 2. pp. 112-115.

Grace, A. and Butler, T. (2005). "Beyond knowledge management: introducing learning management systems". *Journal of Cases on Information Technology*. Vol. 7. No. 1. pp. 53-70.

Grant, R. (1996). "Toward a knowledge-based theory of the firm". *Strategic Management Journal*. Winter Special Issue. pp. 109-122.

Grapentine, T. (2000). "Path analysis vs structural equation modeling". *Marketing Research*. Vol. 12 . No. 3. pp. 12-19.

Gray, C. (2006). "Absorptive capacity, knowledge management and innovation in entrepreneurial small firms". *International Journal of Entrepreneurial Behaviour and Research*. Vol. 12. No 6. pp. 345-360.

Gray, P. (2000). "The effects of knowledge management systems on emergent teams: towards a research model". *Journal of Strategic Information Systems*. Vol. 9. pp. 175-191.

Gray, M. and Heinch, M. (2009). "Aging in australia and the increased need for care". *Aging International*. Vol. 34. pp. 102-118.

Grievess, J. and Mathews, B. (1997). "Healthcare and the learning service". *The Learning Organisation*. Vol. 4, Iss. 3, pp. 88-100. Available: ProQuest [2003, 12 January].

Grover, V. and Davenport, T. (2001). "General perspectives on knowledge management: fostering a research agenda". *Journal of Management Information Systems*. Vol. 18. Issue 1. pp. 5-21.

Gupta, A., Iyer, L. and Aronson, J. (2000). "Knowledge management: practices and challenges". *Industrial Management and Data Systems*. Vol. 100. Iss. 1. pp. 17-25.

Hair, J., Babin, B, Money, A. and Samouel, P. (1998). *Essentials of business research methods*. London, WILEY.

Hanlon, D. (2001) in Santosa, P. I., Wei, K. K. and Chan, K. K. (2005). "User involvement and user satisfaction with information-seeking activity". *European Journal of Information Systems*. Vol. 14. pp. 361-370.

Handzic, M., Lagumdzija, A. and Celjo, A. (2008). "Auditing knowledge management practices: model and application". *Knowledge Management Research and Practice*. Vol. 6. pp. 90-99.

Hazlett, S., McAdam, R. and Gallagher, S. (2005). "Theory building in knowledge management in search of paradigms". *Journal of Management Inquiry*. Vol. 14. No. 1. pp. 31-42.

Hispol, D. (2003). "Linking human resource management and knowledge management via commitment". *Employee Relations*. Vol. 25. pp. 182-202.

Hlupic, V., Athanasia, P. and Rzevski, G. (2002). "Towards an integrated approach to knowledge management: hard, soft and abstract issues". *Knowledge and Process Management*. Vol. 9. No. 2. pp. 90-102.

Hogan, WP. (2004). *Review of pricing arrangements in residential aged care*. Publications Production Unit, Australian Government Department of Health and Aging.

Holsapple, C. and Joshi, K. (2002). "Knowledge management: a threefold framework". *The Information Society*. Vol. 18. pp. 47-64.

Holsapple, C. and Joshi, K. (2004). "A formal knowledge management ontology: conduct, activities, resources, and influences". *Journal of American Society for Information Science and Technology*. Vol. 55. No. 7. pp. 593-612.

Huber, G. (1991). "Organisational learning: the contributing processes and the literature". *Organisation Science*. Vol. 2. No. 1. pp. 88-115.

Human Resource Aged Care Network (2010) *Aged Care network, Western Australia*.

Ipe, M. (2003). "Knowledge sharing in organisations: a conceptual framework". *Human Resource Development Review*. Vol. 2. No. 4. pp. 337-359.

Jensen, S. H., Poultfelt, F. and Fraus, S. (2010). "Managerial routines in professional service firms: transforming knowledge into competitive advantage". *The Service Industry Journal*. Vol. 30. No. 12. pp. 2045-2062.

Jones. O, and Craven, M. (2001). "Expanding capabilities in a mature manufacturing firm: absorptive capacity and the tcs". *International Small Business Journal*. Vol. 19. Iss. 3. pp. 39-55.

Jones, O. (2006). "Developing absorptive capacity in maturing organisations". *Management Learning*. Vol. 37. No. 3. pp.355-376.

Jones, R. (2003). "Measuring the benefits of knowledge management at the financial services authority: a case study". *Journal of Information Science*. Vol. 29. No. 6. pp. 475-487.

Kakabadse, N., Kouzmin, A. and Kakabadse, A. (2001). "From tacit knowledge to knowledge management: leveraging invisible assets". *Knowledge and Process Management*. Vol. 3. No 3. pp. 137-154.

Kase, R., Paavwe, J. and Zapan. N. (2009). "Human resource practice, interpersonal relations, and interfirm knowledge transfer in knowledge intense firms: a social network perspective". *Human Resource Management*. Vol. 48. No. 4. pp. 615-639.

Kandampully, F. (2002). "Innovation as the core competency of a service organisation: the role of technology, knowledge and networks". *European Journal of Innovation Management*. Vol. 5, No. 1, pp. 18-26.

Kaner, M. and Karni, R. (2010). "Knowledge bas application for service system design". *Knowledge and Process Management*. Vol. 14. No. 4. pp. 260-274.

Kendig, H. L. and McCallum, J. (1990). "Greying australia: future impacts of population aging". *The Migrant Committee, National Population Council*. Canberra. AGPS.

Kim, D.H. (1990) *Towards learning organisations: integrating total quality control and systems thinking*. Cambridge. Pegasus Communications.

Kim, S. and Lee, H. (2006). "The impact of organisational context and information technology on employee knowledge-sharing capabilities". *Public Administration Review*. Vol. 66. No. 3. pp. 370-385.

King, A. and Zeithaml. (2003). "Measuring organizational knowledge: a conceptual and methodological framework". *Strategic Management Journal*. Vol. 24. pp. 763-772.

Kishore, K., Sandu, M. and Sidu. (2006). "Identifying and overcoming barriers to sharing". *Knowledge Management Review*. Vol.9. No 4. pp. 70-76

Klein, J. H. (2008). "Some directions for research in knowledge sharing". *Knowledge Management Research and Practice*. Vol. 6. pp. 41-46.

Kogut, B. and Zander, U. (1992). "Knowledge of the firm, combinative capabilities, and the replication of technology". *Organizational Science*. Vol. 3. pp. 383-397.

Lambert, D. M. and Harrington, T. C. (1990) "Measuring nonresponse bias in customer service mail surveys". *Journal of Business Logistics*. Vol. 11. No. 2. pp. 5-25.

Lane, P. and Lubatkin, M. (1998). "Relative absorptive capacity and interorganisational learning". *Strategic Management Journal*. Vol. 19. pp. 461-477.

Lane, P. J., Koka, B. R. and Pathak, S. (2006). "The reification of absorptive capacity: a critical review and rejuvenation of the construct". *Academy of Management Review*. Vol. 31. No. 4. pp. 833-863.

Lang, J. C. (2001). "Managerial concerns in knowledge management". *Journal of Knowledge Management*. Vol. 5. Iss. 1. pp. 43-61.

Lastri, D., Miura, I. and Takahashi, S. (2007). "Knowledge management model: practical application for competency development". *The Learning Organisation*. Vol. 14. No. 2. pp. 186-202.

Lehr, J. and Rice, R. (2002). "Organisational measures as a form of knowledge management: a multithoretic, communication-based exploration". *Journal of the American Society for Information and Technology*. Vol. 53. Iss. 12. pp. 1060-1073.

Lettieri, E., Borga, F. and Savoldelli, A. (2004). "Knowledge management in non-profit organisations". *Journal of Knowledge Management*. Vol. 8. No. 6. pp. 16-30.

Levinthal, L. (2008). "The role of understanding customer expectation in aged care". *International Journal of Health Care*. Vol. 21. No. 1. pp. 50-59.

Liebowitz, J. (1999). *Knowledge management handbook*. London. CRC Press.

Liebowitz, J. (2004). "Getting the most out of your organisation's knowledge management". *Competitive International Journal*. Vol. 7. Iss. 5. pp. 27-35.

Liew, B. (2008). "Strategic integration of knowledge management and customer relations management". *Journal of Knowledge Management*. Vol. 12. No. 4. pp. 131-146.

Lin, H. and Lee, G. (2004). "Perceptions of senior managers toward knowledge-sharing behaviour". *Management decision*. Vo. 42. pp. 108-125.

Lindsay, V., Chade, D., Mattsson, J, Johnston, R, and Millett, B. (2003). "Relationships, the role of individuals and knowledge flows in the internationalisation of service firms". *International Journal of Service Industry Management*. Vol. 14, No. 1, pp. 7-35.

Liyanage, S, and Barnard, R. (2003). "Valuing of firms' prior knowledge: a measure of knowledge distance". *Knowledge and Process Management*. Vol. 10. No. 2. pp. 85-98.

Liyanage, C., Elhag, T. and Ballal. T. (2009). "Knowledge communication and translation – a knowledge transfer model". *Journal of Knowledge Management*. Vo. 13. No. 8. pp. 118-131.

Lloria, M. (2008). "A review of the management approach to knowledge management". *Knowledge Management Research and Practice*. Vol. 6. pp. 77-89.

Lock, E.A. and Jain, V. K. (1995). "Organisational learning and continuous improvement". *The International Journal of Organisational Analysis*. Vol. 3. No 1. pp. 45-68.

Lopez, S., Pean, J. and Vaspuez Ordas, C. (2004). "Managing knowledge: the link between culture and organisational learning". *Journal of Knowledge Management*. Vol. 8. No. 6. pp. 93-104.

Lovejoy, W. and Sinha, A. (2010). "Efficient structure for innovative social networks". *Management Science*. Vol. 56. No. 7. pp. 1127-1145.

Lueg, C. (2001). "Information, knowledge, and networked minds". *Journal of Knowledge Management*. Vol. 5. No. 2. pp. 151-160.

Lucas, L (2010). "The role of team, culture, and capacity in the transformation of organizational practice". *The Learning Organisation*. Vol. 17. No. 4. pp. 419-436.

MacCallum, R. and Austin, J. (2000). "Applications of structural equation modeling in psychological research". *Annual Review of Psychology*. Vol. 51. pp. 201-227.

Mannix, J. (1999). Political context. In Stein, I. (Ed.). *Aged Australia*. Deakin, ACT. College of Nursing Australia.

Martin, B. (2000). "Knowledge management within the context of management: an evolving relationship". *Singapore Management Review*. Vol. 22. No. 2. pp. 17-37.

Martensson, M. (2000). "A critical review of knowledge management as a management tool". *Journal of Knowledge Management*. Vol. 4. Issue3. pp. 204-219.

Mason, D. and Pauleen, D. (2003). "Perceptions of knowledge management: a qualitative analysis". *Journal of Knowledge Management*. Vol. 7, Iss. 4, pp. 38-49.

Massa, S. and Testa, S. (2004). "Innovation or imitation? Benchmarking: a knowledge-management process to innovate services". *Benchmarking*. Vol. 11. Iss. 6. pp. 610-620.

McAdam, R. and McCreedy, S. (1999). "A critical review of knowledge management models". *The Learning Organisation*. Vol. 6. Iss. 3. pp. 91-101.

McInerney, C. (2002). "Knowledge management and the dynamic nature of knowledge". *Journal of the American Society for Information Science and Technology*. Vol. 53, Iss. 12, pp. 1009-1018.

Menon, A., Bharadwaj, S. G., Adidam, P. T. and Edison, S. W. (1999). "Antecedents and consequences of marketing: a model and a test". *Journal of Marketing*. Vol. 63. No. 2. pp. 18-40.

Minbaeva, D. Pederson, T., Bjorkman, I., Fay, C. and Park, H. (2003). "Mnc knowledge transfer, subsidiary absorptive capacity, and hrm". *Journal of International Business Studies*. Vol. 34. Iss. 6. pp. 586-599.

Moffett, S. and McAdam, R. (2006). The effect of organizational size on knowledge management implications: opportunities for smaller firms? *Total Quality Management and Business Excellence*. Vol. 17. No. 2. pp. 221-241.

Mohr, J., Abelson, T. and Barach, P. (2002) "Creating effective leadership for improving patient safety". *Quality Management in Health Care*. Vol. 11, Iss. 1, pp. 69-78.

Moore, T. and Chang, J. (2006). "Ethical decision making in software piracy: internal development and test of a four-component model". *MIS Quarterly*. Vol. 30. No. 3. pp. 167-180.

Mowery, D., Oxley, J. and Silverman, B. (1996). "Strategic alliances and interfirm knowledge transferr". *Academy of Management Journal*. Vol. 17, pp. 77-91.

Nanaka, I. and Takeuchi, K. (1995). *The Knowledge-Creating Company*. Oxford University Press.

Nanaka, I. and Peltokorpi, V. (2006). "Objectivity and subjectivity in knowledge management: a review of 20 top articles". *Knowledge and Process Management*. Vol 13. No 2. pp. 73-82.

National Aged Care Round Table (2010). Australian Commonwealth Government.

Nemanich, L., Kella, R., Vera, D. and Chin, W. (2010) "Absorptive Capacity in research and development: a conceptualization and empirical test". *Transactions and Engineering Management*. Vol. 57 . No. 4. pp. 674-688.

Ooi, K., Teh, P. and Chong, A. (2009). "Developing and integrating model of tqm and hrm on km activities". *Management Research News*. Vol. 32. No. 5. pp. 477-490.

Palacios-Marques, D. and Garrigos-Simon, F. (2005). "A measurement scale for knowledge management in the biotechnology and communications industries". *International Journal Technology Management*. Vol. 31. No. 4/4. pp. 358-374.

Pastor, I., Santana, M. and Sierra, C. (2010). "Managing knowledge through human resource practices: empirical examination on the Spanish automotive industry". *The International Journal of Human Resource Management*. Vol. 21. No. 13. pp. 2452-2467.

Pepitone, J. (2002). "A case for humaneering". *IIE Solutions*. Vol. 34. Iss. 5. pp. 39-45.

Picone, G., Chou, S. and Sloan, F. (2002). "Are for profit hospital conversions harmful to patients and medicare?" *The Rand Journal of Economics*. Vol. 33. No. 3. pp. 507-523.

Prusak, L. (1999). "Where did knowledge management come from". *IBM System Journal*, Vo. 40, Issue 4. <http://proquest.umi.com/pqdweb>. Accessed 25 May 2002.

Purvis, R., Sambumurthy, V. and Zmud, R. (2000). "The assimilation of knowledge platforms in organisations: an empirical investigation". *Organization Science*. Vol.12. No. 2. pp. 117-135.

Purvis, R., Sambamurthy, V. and Zmud, W. (2001). "The assimilation of knowledge platforms in organisations: an empirical investigation". *Organisation Science*. Vol. 12. No. 2. pp. 117-135.

Quintas, p., Lefrere, P. and Finkelstein, S. (1997). "Knowledge management: a strategic agenda". *Long Range Planning*. Vol. 30. No. 3. pp. 385-391.

Rahe, M. (2009). "Subjectivity and cognition in knowledge management". *Journal of Knowledge Management*. Vol. 13. Iss. 3. pp. 102-120.

Reinmoeller, P. (2004). "The knowledge based view of the firm and upper echelon theory exploring the agency of tmt". *International Journal of Learning and Intellectual Capital*. Vol. 1, No. 1. pp. 91-104.

Richardson, S. and Martin, B. (2004). "The care of older Australians. A picture of the residential aged care workforce". *National Institute of Labour Studies*.

Roth, A. and Menor, L. (2003). "Insight into service operations management: a research agenda". *Production and Operations Management*. Vol. 12. No. 2. pp. 145-165.

Santosa, P. I., Wei, K. K. and Chan, K. K. (2005). "User involvement and user satisfaction with information-seeking activity". *European Journal of Information Systems*. Vol. 14. pp. 361-370.

Sax, S. (1993). *Aging and Public Policy in Australia*. Sydney. Allen and Unwin.

Schultze, U. and Stabell, C. (2004). "Knowing what you don't know? Discourses and contradictions in knowledge management research". *Journal of Management Studies*. Vol. 41. No. 4. pp. 549-571.

Senge, P. (1990). *The fifth discipline: the art and practice of the learning organisation*. New York. Doubleday.

Simon, H. and De Gaus, A. (1998). *Journal of quality and participation*. Vol. 21, No 4, pp. 58-60.

Sing, M. and Kant, R. (2008) "Knowledge management barriers: an interpretation structural modeling approach". *International Journal of Management Science and Engineering Management*. Vol. 3. No. 3. pp. 141-150.

Sivadas, E, and Dwyer, F. (2000). "An examination of organizational factors influencing new product success in internal and alliance- based processes". *Journal Mark*. Vol. 64. pp. 31-49.

Smith, E. (2001). "The role of tacit and explicit knowledge in the workplace". *Journal of Knowledge Management*. Vol. 5. No. 4. pp. 311-321.

Southon, F.C., Todd, R. and Seneque, M. (2002). "Knowledge management in three organisations: an exploratory study". *Journal of American Society for Information Science and Technology*. Vol. 53. Iss. 12. pp. 1047-1059.

Stacey, R. (1996). *Strategic management and organisational dynamics*. 2nd ed. London. Financial Times Pitman Publishing.

Stanley, C. (2007). "Management change through management development: an individual case study". *Journal of management Development*. Vol. 26. No. 10. pp. 926-979.

Staples, S. and Webster, J. (2008). "Exploring the effects of trust, task interdependence and virtualness on knowledge sharing in teams". *Information Systems Journal*. Vol. 18. pp. 717-740.

Stover, M. (2004). "Making tacit knowledge explicit: the ready reference database as codified knowledge". *Reference Services Review*. Vol. 32. No. 2. pp. 164-173.

Sun, P. (2010). "Five critical knowledge management themes". *Journal of Knowledge Management*. Vol 14. No. 4. pp. 507-523.

Svetlik, I. and Stavrou-Costea, E. (2007). "Connecting human resource management and knowledge management". *International Journal of Manpower*. Vol. 28. No. 3/4. pp.197-206.

Szulanski, G. (1996). "Exploiting internal stickiness: impediments to the transfer of best practice within the firm". *Strategic Management Journal*. Vol. 17, pp. 27-43.

Tan, K. (2001). "A structural equation model of new product design and development". *Decision Sciences*. Vol. 32. No. 2. pp. 195-227.

Tasi, W. (2001). "Knowledge transfer in intraorganisational networks: effects of network position and absorptive capacity on business unit innovation and performance". *Academy of Management Journal*. Vol. 44. Iss. 5. pp. 996-1004.

Taylor, W. and Wright, G. (2004). "Organisational readings for successful knowledge sharing: challenges for public sector managers". *Information Resources Management Journal*. Vol. 17. No. 2. pp. 22-37.

Teng, S. and Havamdeh, S. (2002). "Knowledge management in public libraries". *Aslib Proceedings*. Vol. 54. No. 3. pp. 188-197.

Theriou, G. and Chatzoglou, P. (2009). "Exploring the best human resource management practice performance relationship: an empirical approach". *Journal of Workplace Learning*. Vol. 21. No. 8. pp. 614-646.

Tippins, M. and Sohi, R. (2003). "It competency and firm performance: is organisational learning a missing link". *Strategic Management Journal*. Vol. 24. pp. 745-761.

Todorova, G. and Durisin, B. (2007). "Absorptive capacity: valuing a reconceptualization". *Academy of Management Review*. Vol. 32. No. 3. pp. 774-786.

Tsoukas, H. and Vladimirou, E. (2001). "What is organisational knowledge". *Journal of Management Studies*. Vol. 38. No. 7. pp. 973-993.

Tyler, A. and Swailes, S. (2002). "Knowledge management in careers services: implications for connexions managers". *Career Development International*. Vol. 7, Iss. 4, pp. 234-243.

Van den Bosch, F., Volberda, H. and de Boer, M. (1999). "Coevolution of firm absorptive capacity and knowledge environment: organisational forms and combinative capacity". *Organisation Science*. Vol. 10. Iss. 5. pp. 551-568.

Van den Hoff, B. and de Ridder, J. (2004). "Knowledge sharing in context: the information of organizational commitment, communication climate and cmc using knowledge sharing". *Journal of Knowledge Management*. Vol. 18. Iss. 6. pp. 117-132.

Van der Velde, M., Jansen, P. and Anderson, N. (2004). *Guide to management research methods*. Victoria. Blackwell Publishing.

Willem, A. and Buelens, M. (2007). "Knowledge sharing in public sector organisations: the effect of organisational characteristics in interdepartmental knowledge sharing". *Journal of Public Administration Research and Theory*. Vol 17. pp. 581-606.

Wong, W and Radcliffe, D. (2000). "The tacit nature of design knowledge". *Technology Analysis and Strategic Management*. Vol. 12. Issue 4. pp. 493-512.

Xu, J. and Quaddus, M. (2005). "Adoption and diffusion of knowledge systems: an australian survey". *The Journal of Management Development*. Vol. 24. pp. 335-361.

Yahya, S. and Goh, W.K. (2002). "Managing human resources towards achieving knowledge management". *Journal of knowledge Management*. Vol 6. Iss. 5. pp. 457-468.

Zahra, S. and George, G. (2002). "Absorptive capacity: a review, reconceptualisation, and extension". *Academy of Management Review*. Vol. 27. No 2. pp. 185-203.

Zhou, A. Z. and Fink, D. (2003). "Knowledge management and intellectual capital: an empirical examination of current practice in Australia". *Knowledge Management Research and Practice*. Vol. 1. pp. 86-94.

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APPENDICES

How would you rate each of the following? 1 for strongly disagree ; through to 5 for strongly agree – Please circle your response for each question.		Strongly disagree			Strongly agree		Don't know
		1	2	3	4	5	6
1.14	We have access to good computer systems that provide information on resident care for the employees.	1	2	3	4	5	6
1.15	We have effective in-house mentoring for senior employees.	1	2	3	4	5	6
1.16	We have effective in-house mentoring for all care employees.	1	2	3	4	5	6
1.17	We work as a team.	1	2	3	4	5	6
1.18	We support teambuilding initiatives.	1	2	3	4	5	6
1.19	We conduct regular work meetings.	1	2	3	4	5	6
1.20	We always conduct debriefings following incidents or events to discuss what happened.	1	2	3	4	5	6
1.21	We have an effective quality assurance program.	1	2	3	4	5	6
1.22	We produce comprehensive reports on internal processes.	1	2	3	4	5	6
1.23	We always provide feedback to suppliers on the goods and services they supply.	1	2	3	4	5	6
1.24	We have organisational handbooks that outline work processes on how work should be done.	1	2	3	4	5	6
1.25	We conduct skills gap assessments of the care employees.	1	2	3	4	5	6
1.26	We have a strong focus on best practice activities.	1	2	3	4	5	6
1.27	Care managers provide close supervision of their employees.	1	2	3	4	5	6
1.28	We have a comprehensive training and education plan in place.	1	2	3	4	5	6
1.29	Employees are always given time at work to develop new ideas.	1	2	3	4	5	6
1.30	The nursing home invests resources into research and development.	1	2	3	4	5	6

1.31	At the most recent accreditation audit, did the organisation achieve a “comply” for: Outcome 1.1 Continuous Improvement? <input type="checkbox"/> Yes <input type="checkbox"/> No
1.32	Outcome 1.3 Education and Employees Development? <input type="checkbox"/> Yes <input type="checkbox"/> No
1.33	Outcome 1.6 Human Resource Management? <input type="checkbox"/> Yes <input type="checkbox"/> No
1.34	Outcome 1.8 Information Systems? <input type="checkbox"/> Yes <input type="checkbox"/> No
1.35	Outcome 2.3 Education and Employees Development? <input type="checkbox"/> Yes <input type="checkbox"/> No
1.36	Outcome 3.3 Education and Employees Development? <input type="checkbox"/> Yes <input type="checkbox"/> No
1.37	Outcome 4.3 Education and Employees Development? <input type="checkbox"/> Yes <input type="checkbox"/> No
1.38	At the most recent accreditation audit, how many years accreditation was the organisation granted? <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years <input type="checkbox"/> 3 years <input type="checkbox"/> Other

Part 2: Demographics - To be answered by all employees and managers

Please indicate the answer that classifies you best:

2.1	What is your gender? <input type="checkbox"/> Male	<input type="checkbox"/> Female	
2.2	What is your age? <input type="checkbox"/> Under 20 years <input type="checkbox"/> 40 to 49 years	<input type="checkbox"/> 20 to 29 years <input type="checkbox"/> 50 to 60 years	<input type="checkbox"/> 30 to 39 years <input type="checkbox"/> Over 60 years
2.3	How long have you worked in the residential care industry? <input type="checkbox"/> Under 1 year <input type="checkbox"/> 11 to 15 years	<input type="checkbox"/> 1 to 5 years <input type="checkbox"/> 16 to 20 years	<input type="checkbox"/> 6 to 10 years <input type="checkbox"/> Over 20 years
2.4	How long have you worked for your current employer? <input type="checkbox"/> Under 1 year <input type="checkbox"/> 11 to 15 years	<input type="checkbox"/> 1 to 5 years <input type="checkbox"/> 16 to 20 years	<input type="checkbox"/> 6 to 10 years <input type="checkbox"/> Over 20 years
2.5	How many hours per week are you rostered to work? <input type="checkbox"/> Full time <input type="checkbox"/> 21 to 30 hours per week	<input type="checkbox"/> Under 10 hours per week <input type="checkbox"/> More than 30 hours per week	<input type="checkbox"/> 11 to 20 hours per week
2.6	What is your position title? <input type="checkbox"/> Registered Nurse <input type="checkbox"/> Therapist	<input type="checkbox"/> Enrolled nurse <input type="checkbox"/> Therapist assistant	<input type="checkbox"/> Care Assistant <input type="checkbox"/> Manager / Supervisor
2.7	Do you supervise employees? <input type="checkbox"/> Yes	<input type="checkbox"/> No	
2.8	If you answered 'yes' to the above question (Q 2.7), approximately how many employees do you supervise? <input type="checkbox"/> Less than 5 <input type="checkbox"/> Not applicable		
	<input type="checkbox"/> Between 5 and 10	<input type="checkbox"/> More than 10	

Part 3: To be answered by all employees and managers

No.	How would you rate each of the following? 1 for strongly disagree ; through to 5 for strongly agree – Please circle your response for each question.	Strongly disagree					Strongly agree					Don't know 6		
		1	2	3	4	5	1	2	3	4	5			
3.1	Our organisation has procedures in place to ensure work practices are assessed and work is carried out in the best possible way.													6
3.2	I am satisfied with the level of communication between my supervisor and me.													6
3.3	On the whole, employees in this organisation are willing to share information with each other.													6
3.4	There is opportunity to meet employees who work in other residential care organisations and discuss aspects of residential care.													6
3.5	I am encouraged to attend outside courses and workshops to help me in my work.													6
3.6	The courses and workshops we attend always provide us with new knowledge to bring back to the workplace.													6
3.7	There are articles and journals to read on residential care in my workplace.													6
3.8	My organisation is always looking for new ways to improve care for the residents.													6
3.9	If I attend an outside course I am expected to share what I learn from the course with my colleagues.													6
3.10	I work for an organisation that believes that care procedures can always be improved.													6
3.11	My organisation provides a lot of guidance on where I can locate information and knowledge on how to provide care for the residents.													6

3.12	I am encouraged to read material on residential care at work.	1	2	3	4	5	6
3.13	We have meetings at work to discuss how we can improve the care for the residents.	1	2	3	4	5	6
3.14	The organisation expects my supervisor to seek my opinion on how to improve the resident's care.	1	2	3	4	5	6
3.15	Working in teams allows me to share information and knowledge with other employees.	1	2	3	4	5	6
3.16	Our work procedures for providing care for residents are always up to date.	1	2	3	4	5	6
3.17	My organisation constantly introduces new ideas on caring for the residents.	1	2	3	4	5	6
3.18	There are certain strategies (eg., in-house training and meetings) that are followed to ensure employees receive the latest information on caring for the residents.	1	2	3	4	5	6
3.19	My supervisor always lets me know when new information on how to provide resident care is available.	1	2	3	4	5	6
3.20	I work for an organisation that places importance on developing specific skills of all care employees.	1	2	3	4	5	6
3.21	My organisation has a strategic plan.	1	2	3	4	5	6
3.22	The organisation's strategic plan is reviewed at least once per year.	1	2	3	4	5	6
3.23	My organisation is committed to ensuring the business is run well.	1	2	3	4	5	6
3.24	My organisation makes changes to its strategic direction when new knowledge is brought into the organisation.	1	2	3	4	5	6
3.25	I believe that my organisation cares about what the community thinks of our services.	1	2	3	4	5	6
3.26	My organisation is always evaluating our work practices.	1	2	3	4	5	6
3.27	My supervisor is aware of whether I am satisfied at work or not.	1	2	3	4	5	6
3.28	My organisation uses feedback from employees to make changes.	1	2	3	4	5	6
3.29	My supervisor gives me regular feedback on my performance.	1	2	3	4	5	6
3.30	I can find everything I need to know about dementia care at work.	1	2	3	4	5	6
3.31	The dementia care procedures are easy to read and let me know what I should do next.	1	2	3	4	5	6
3.32	I am given adequate training by my organisation on dementia care.	1	2	3	4	5	6
3.33	My organisation keeps on top of the latest developments in dementia care.	1	2	3	4	5	6
3.34	Our workplace meetings include issues relating to dementia care.	1	2	3	4	5	6
3.35	If I have a problem on some aspect of dementia care, there is information available at work for me to read on how to solve it.	1	2	3	4	5	6
3.36	If I need to know something about dementia care, I can ask at work.	1	2	3	4	5	6

Thank you for answering these questions. Is there anything else that you would like to add?

Michael Preece

APPENDIX B

COVERING LETTER AND FLYER

Dear Care Staff,

The attached questionnaire has been designed to learn the views that residential care professionals hold towards the management of knowledge and skills in their organisations. This research hopes to contribute towards a better understanding of the factors that enable residential care organisations to effectively manage the knowledge held within the organisation and by individual staff.

The findings of this research will form the basis of my Doctoral thesis on Knowledge Management and Knowledge Sharing in the Residential Aged Care Industry (under the supervision of Assoc. Professor Verena Marshall and Professor Mohammed Quaddus, Curtin Graduate School of Business). I appreciate the work experience you hold, and hope you will share your thoughts and feelings on this subject.

I assure you that the answers you provide in this survey will be treated with the strictest confidence. The reporting procedure will be in statistical terms only, without reference to individuals, or easily identifiable groups of staff members.

I will also be pleased to provide you with feedback on the findings of this research, and offer my contact telephone numbers below.

Thank you for your help.

Yours sincerely,

Michael Preece

Tel:

Mob:

..... ✂

WIN Two Movie Tickets

Everyone who completes a questionnaire is eligible to go into a draw to win 2 movie tickets. When you have completed the questionnaire please tear off this entry form, write your name and work place below and place the form in the sealed return box. There are 10 double tickets to be won and the winners will have the tickets sent to their work place.

Name: _____ Work Place: _____

Residential Aged Care Research

Knowledge Management

This research has been designed to learn the views that residential aged care professionals hold towards the management of knowledge and skills in their organisation.

The research is being conducted by Michael Preece, who is an RN and doctoral student at Curtin University. The findings of the research will form the basis of his doctoral thesis and will contribute to both theory and practice within this most important industry.

All care staff are encouraged to participate by completing the confidential and brief questionnaire.



Completion of the questionnaire should take no more than 10 minutes. When you have completed the questionnaire, please place it in the pre-paid envelope and post it to Michael at Curtin University.

Everyone who completes a questionnaire is eligible to go into a draw to win one of ten double movie passes.

APPENDIX C

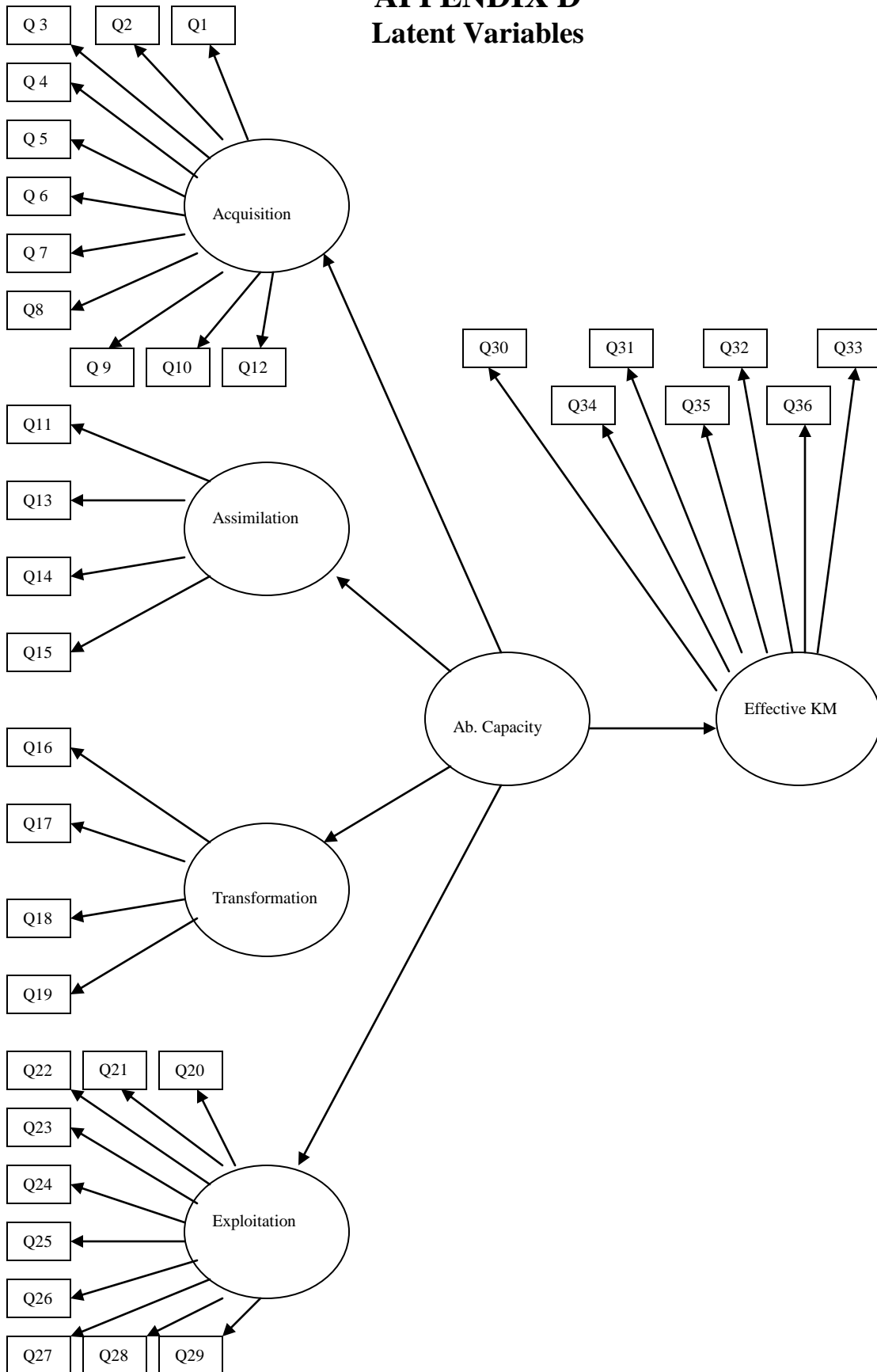
DESCRIPTIVE STATISTIC RESULTS FOR ABSORPTIVE CAPACITY, ABSORPTIVE CAPACTY CAPABILITIES AND EFFECTIVE KNOWLEDGE MANAGEMENT

Construct	Item	Observed item	Mean	SD	Skewness	Kurtosis
Acquisition	3.1	Our organisation has procedures in place to ensure work practices are assessed and work is carried out in the best possible way.	4.09	.960	-.854	.143
	3.2	I am satisfied with the level of communication between my supervisor and me.	3.89	1.156	-.852	-.122
	3.3	On the whole, employees in this organisation are willing to share information with each other.	3.86	1.065	-.876	-.304
	3.4	There is opportunity to meet employees who work in other residential care organisations and discuss aspects of residential care.	2.50	1.318	-.482	-.863
	3.5	I am encouraged to attend outside courses and workshops to help me in my work.	3.73	1.235	-.737	-.406
	3.6	The courses and workshops we attend always provide us with new knowledge to bring back to the workplace.	3.87	0.971	-.639	-.062
	3.7	There are articles and journals to read on residential care in my workplace.	3.66	1.125	-.533	-.466
	3.8	My organisation is always looking for new ways to improve care for the residents.	3.91	1.081	-.873	-.108
	3.9	If I attend an outside course I am expected to share what I learn from the course with my colleagues.	3.53	1.135	-.553	-.398
	3.10	I work for an organisation that believes that care procedures can always be improved.	4.26	0.922	-1.320	-1.552
	3.12	I am encouraged to read material on residential care at work.	3.47	1.266	-.488	-.723

Assimilation	3.11	My organisation provides a lot of guidance on where I can locate information and knowledge on how to provide care for the residents.	3.81	1.111	-.714	-.219
	3.13	We have meetings at work to discuss how we can improve the care for the residents.	3.73	1.167	-.830	-.162
	3.14	The organisation expects my supervisor to seek my opinion on how to improve the resident's care.	3.46	1.258	-.549	-.702
	3.15	Working in teams allows me to share information and knowledge with other employees.	4.01	1.010	-.979	-.576
Transformation	3.16	Our work procedures for providing care for residents are always up to date.	3.76	1.071	-.668	-.135
	3.17	My organisation constantly introduces new ideas on caring for the residents.	3.47	1.148	-.449	-.580
	3.18	There are certain strategies (eg., in-house training and meetings) that are followed to ensure employees receive the latest information on caring for the residents.	3.79	1.053	-.712	-.080
	3.19	My supervisor always lets me know when new information on how to provide resident care is available.	3.62	1.76	-.485	-.693
	3.20	I work for an organisation that places importance on developing specific skills of all care employees.	4.26	1.125	-.687	-.211
Exploitation	3.21	The organisation's strategic plan is reviewed at least once per year.	3.75	1.052	-.911	-.319
	3.22	My organisation is committed to ensuring the business is run well.	3.94	1.094	-.858	-.161
	3.23	My organisation makes changes to its strategic direction when new knowledge is brought into the organisation.	3.84	1.071	-.996	-.376
	3.24	I believe that my organisation cares about what the community thinks of our services.	3.92	1.025	-.783	-.133
	3.25	My organisation is always evaluating our work practices.	3.90	0.980	-1.549	-2.253
	3.26	My supervisor is aware of whether I am satisfied at work or not.	3.90	1.067	-.798	-.017
	3.27	My organisation uses feedback from employees to make changes.	3.65	1.326	-.680	-.693

	3.28	My supervisor gives me regular feedback on my performance.	3.70	1.182	-.680	-.693
	3.29	I can find everything I need to know about dementia care at work.	3.43	1.291	-.415	-.845
Effective Knowledge Management	3.30	The dementia care procedures are easy to read and let me know what I should do next.	3.53	1.209	-.466	-.646
	3.31	I am given adequate training by my organisation on dementia care.	3.53	1.148	-.460	-.526
	3.32	My organisation keeps on top of the latest developments in dementia care.	3.54	1.204	-.451	-.707
	3.33	Our workplace meetings include issues relating to dementia care.	3.67	1.34	-.547	-.485
	3.34	If I have a problem on some aspect of dementia care, there is information available at work for me to read on how to solve it.	3.48	1.23	-.448	-.682
	3.35	If I need to know something about dementia care, I can ask at work.	3.47	1.191	-.422	-.675
	3.36	The organisation's strategic plan is reviewed at least once per year.	3.93	1.106	-.903	-.106

APPENDIX D Latent Variables



APPENDIX E

FULL STRUCTURAL EQUATION MODEL RESULTS

Convergent Validity of Measurement Model					
Latent Variable	Item	Item Reliability	AVE	Internal Consistency	Cronbach's alpha
Acquisition	Q 1	.730	.475	0.892	0.903
	Q 2	.713			
	Q 3	.651			
	Q 4	.575			
	Q 5	.689			
	Q 6	.646			
	Q 7	.695			
	Q 8	.821			
	Q 9	.542			
	Q 10	.748			
	Q 12	.723			
	Assimilation	Q 11			
Q 13		.853			
Q 14		.788			
Q 15		.780			
Transformation	Q 16	.821	0.729	0.915	0.902
	Q 17	.883			
	Q 18	.873			
	Q 19	.836			
Exploitation	Q 20	.785	.453	0.888	0.953
	Q 21	.634			
	Q 22	.362			
	Q 23	.648			
	Q 24	.558			
	Q 25	.707			
	Q 26	.794			
	Q 27	.670			
	Q 28	.768			
	Q 29	.690			
Effective KM	Q 30	.828	0.645	0.927	0.955
	Q 31	.810			
	Q 32	.826			
	Q 33	.758			
	Q 34	.771			
	Q 35	.798			
	Q 36	.823			