STRL

Software Technology Research Laboratory

Investigating Knowledge Sharing Among Employees in Saudi Governmental Organisations: An Empirical Study

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List of Abbreviations

ATT: Attitude

BI: Behavioural Intention

BN: perceived beliefs of benefit

FR: perceived beliefs of fear

ICT: Information and Communication Technology

IS: information System

ISM: Information System Management

IT: Information Technology

KM: Knowledge Management

KMS: Knowledge Management Systems

KS: Knowledge Sharing

KSA: kingdom of Saudi Arabia

KSB: Knowledge sharing behaviour

Mg: perceived management influence

Org. N: Perceived Organisational norm

PBC: Perceived Behaviour Control

SN: Subjective Norm

Tend: Tendency

TPB: Theory of Planned Behaviour

TR: Trust

TRA: Theory of Reasoned Action

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Dedication

I dedicate my work to my family, a deep feeling of gratitude to my loving parents and wife for their endless encouragement, love and patience.

I am especially thankful for my little children Deemah, Abdullah and Reema, for enduring living away from home and for their love that made me survive and continue.

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Abstract

Knowledge is seen as competitive asset for organisations in today's knowledge-based economy. Knowledge sharing (KS) has its importance in that employees' knowledge would not turn into organisational knowledge before it is shared all through the corporation. However, scant research has investigated the factors influencing the employees' knowledge sharing within organisations in Saudi Arabia. The purpose of this research was to investigate the underlying factors and relationships that determine the employees' knowledge sharing behaviour within the Saudi governmental organisations. The theoretical framework of this research is based on the theory of reasoned action (Fishbein and Ajzen, 1982) and the theory of planned behaviour (Ajzen, 2005). This research developed and validated a conceptual model that best explains knowledge sharing among the employees within Saudi governmental organisations. Mixed-method research design was employed to investigate the factors influencing employees' knowledge sharing behaviour. Furthermore, the study adopted, developed and validated instruments to measure the proposed model key constructs. The main research tool was a survey employing a questionnaire distributed to a sample of 383 employees in five Saudi organisations followed by semi-structured interviews with seven employees.

The study synthesised a model of knowledge sharing in which the employees' intention shapes knowledge-sharing behaviour, while intention is determined by the employees' attitude (ATT), subjective norm (SN), perceived behavioural control (PBC), trust (TR) and propensity or tendency (Tend) to share knowledge. In addition, the model examined the antecedents of the three main beliefs; ATT, SN and PBC. By

deconstructing the beliefs, this research looks deeper into the factors influencing knowledge sharing. Moreover, the study looked at the relationship between some of the employees' demographics and their intentions to share knowledge. The findings of this study revealed that four of the research five factors that were proposed to explain knowledge sharing intention were significant determinants of the employees' intention to share knowledge. In addition, the findings of the study found evidence for the impact of the decomposed beliefs on ATT, SN and PBC. Yet, time was not found to influence the employees' PBC. Furthermore, the study findings showed that the employee's level of education, their organisation's sector and size are correlated with their intention to share knowledge.

In particular, the results show that the employees in Saudi organisations contribute their knowledge because of their natural tendency to share their knowledge, their perceptions of control over contributing their knowledge to other employees, their positive attitude towards sharing knowledge and trust; but surprisingly they are not motivated by the social norms regarding sharing knowledge in this specific context. As such, it is crucial to foster the employees' propensity to share their knowledge as well as eliminate any obstacles on the way to knowledge sharing. Moreover, it is important to enhance the employees' favourable attitudes and perceptions towards knowledge sharing. Furthermore, this study also demonstrated that trust is a key factor in shaping the employees' intentions to share knowledge, hence, organisation management should foster a trusting culture to reap the benefits of knowledge sharing. Finally, it is hoped that this research will stimulate not only more research on the effects of knowledge sharing, but also more studies in the Saudi context.

Chapter One

Background

1.1. Introduction

As a result of the explosion of IT, improving education levels and growing research and development efforts, the mass of information and knowledge is mounting rapidly. Increasingly knowledge is seen as an important asset to organisations. Nonaka and Takeuchi (1995) Davenport and Prusak (2000) Choo (1998) maintain that the future belongs to individuals gifted with knowledge. In fact, knowledge is, as Drucker (1993) argues, the only meaningful resource in the new economy. Davenport and Prusak (2000) give the reason why knowledge is a valuable asset to the organisation, because it leads to "wiser decisions about strategy, competitors, customers, distribution channels and product and service life-cycle" (p.6).

The value of knowledge in the organisation has been a significant area of research in organisational literature. Drawing upon the resource-based perspective of the firm, scholars note that knowledge is a valuable, rare and inimitable resource; and thus it is the basis of the organisation's sustained competitive advantage (Donate and Canales, 2012; Barney, 1991; Grant, 1996). Researchers have argued that knowledge is the most strategically major resource of the organisation (Grant, 1996).

Nevertheless, the mere existence of knowledge as Alavi and Leidner (2001) note is not enough. What is of more value is the organisation's capability to successfully exploit this knowledge to create new knowledge assets and to act upon them. As

argued by some researchers, much of organisational knowledge dwells within individuals (Nonaka and Takeuchi, 1995), particularly, in the employees who create, recognise, archive, access, and apply knowledge in carrying out their tasks. As a result, the flow of knowledge across individuals and organisational borders is ultimately determined by the employees' knowledge sharing behaviour (Bock et al., 2005). Gundling (2003) notes "the ability to transfer knowledge smoothly and efficiently across borders has become an important competitive differentiator". If knowledge sharing is restricted within the organisation, the likelihood is that knowledge gaps will crop up and affect the performance of the organisation as a whole (Baird and Henderson, 2001).

1.2. Rationale for Research

Cheng et al. (2009) amongst others, pointed out to the knowledge sharing (KS) dilemma in knowledge management. There is a threat that the unique knowledge will be unavailable or lost once the employees leave the organisation for any reason such as retirement, job change, downsizing, etc. Ipe (2003) states that unless the organisation encourages the sharing of knowledge among its employees, ''it is likely to lose this knowledge when individual employees leave…[and] even if individuals stay with the organisation, the full extent of their knowledge may not be realised and utilised" (p. 343). In other words, without mechanisms for sharing knowledge and experience, knowledge may get lost when employees leave (Carley, 1992).

Knowledge sharing connects individuals and organisations by transferring knowledge from an individual to an organisational level; consequently, it gives the competitive value for the organisation (Ipe, 2003). Van den Hooff and de Ridder (2004)

assert, "only when individual and group knowledge are translated to organisational knowledge can the organisation start to effectively manage this resource. Therefore, determining which factors promote or impede the sharing of knowledge within groups and organisations constitutes an important area of research" (p. 117).

In spite of the extensive research in the area of knowledge management, several researchers noted that research addressing issues and factors pertinent to knowledge sharing is fairly limited (Wang, 2005; White, 2007). Moreover, in the Saudi context, knowledge management research in general and knowledge sharing in particular is very scant. With few exceptions, earlier research has been conducted primarily in Anglo-American settings (Chow et al., 2000). In fact, research has reported differences between Western and Asian individuals in knowledge-seeking behaviours and work values (Smith et al., 1994; Hodgetts and Luthans, 1997; Chow et al., 2000). Chow et al. (2000) point out that the applicability of the extant research findings to non-Anglo-American contexts would seem dubious. Thus, there is a need to investigate the factors that influence the employees' knowledge sharing (KS) within the Saudi organisational context.

1.3. Research Question and Aims

The study seeks to answer this question:

What are the underlying factors and their relationships that determine the employees' knowledge sharing behaviour within Saudi governmental organisations?

The aims of this research are:

1. To propose a conceptual model that best explain knowledge sharing among the employees within Saudi governmental organisations.

2. To identify the most significant factors that promote or hinder knowledge sharing among the employees within Saudi governmental organisations.

3. To identify similarities and differences between knowledge sharing factors in Kingdom of Saudi Arabia (KSA) and other cultures through comparison of the results of this empirical study with previous findings.

This thesis proposes a conceptual model based on prominent theories and earlier research to explain knowledge sharing among the employees within Saudi governmental organisation. Moreover, it will fill a gap in the literature by identifying the factors that influence knowledge sharing within the Saudi context as well as comparing the study results with previous findings.

1.4. Context of Study

The context of this research is the governmental organisations in Saudi Arabia. This sections offers a brief background about Saudi Arabia. It also gives a description of the organisations selected for the collection of the data.

1.4.1. *Saudi Arabia*

Saudi Arabia is located in the far south west of Asia and in the centre of what is called the middle east (see Figure 1). It occupies most of what is called the Arabian Peninsula. It has extended coast along the Red Sea to the west and the Arabian Gulf to

the east. It is surrounded by Arab countries from the north: Jordan, Iraq and Kuwait. Qatar, the United Arab Emirates and Bahrain are Saudi's neighbours from the east, while the Sultanate of Oman and Yemen make the country's southern borders. Saudi Arabia has an area of 829,995 sq mi (2,149,690 sq km) and it encompasses the world's largest sandy desert called the Empty Quarter or the Rub Al-Khali (Zuhur, 2012).

Figure 1: Saudi Arabia

The geography and climate of Saudi Arabia are diverse. The desert covers most parts of the country. However, there are green mountains in the southern west of the country with some peaks nearing 3,000 meters (see Figure 2). The climate of the country varies from area to area. Overall, Saudi Arabia has hot dry climate and the average temperature is 35.5 °C in the summer and 24 °C in winter. In the Sarawat mountains and the northern regions such as Tabuk, snow may fall during the winter (Dew, 2003).

Figure 2: Saudi Arabia

The population of Saudi Arabia is estimated at 29,207,277 according to 2010 census. The capital city is Riyadh with population of 4.725 million, followed by Jeddah. The majority of the inhabitants are of the Arab race, although, there are Saudis who are of Asian and African origins in the western region of AlHijaz. The religion of Saudi Arabia is Islam and for the Muslims around the world, Saudi Arabia is the birthplace of Islam and homeland to Islam's two holiest cities in Makkah and Almadinah (Zuhur, 2012).

1.5. Significance of Study

The goal of this study is to advance understanding of the factors that facilitate or impede knowledge sharing within governmental organisations in general and in Saudi Arabia in particular. There has been a rich literature on knowledge sharing; yet, much of this literature has been in the developed countries and less in the developing countries (Syed-Ikhsan and Rowland, 2004). In the Saudi context, the field of knowledge

management is yet in its infancy and thus, there is a need for more research to enrich and benefit both knowledge sharing theory and practice in Saudi Arabia. To the researcher's knowledge, there has not been a study on the topic of knowledge sharing in the governmental or public organisations within the context of Saudi Arabia. The current study, therefore, seeks to fill a gap in the literature by identifying the factors that influence knowledge sharing within the Saudi context and provide useful information for those who are interested in the management of knowledge within public and government organisations.

There is more than one reason for conducting this research. First and foremost, there is a pressing need to identify the most important factors that facilitate or hinder knowledge sharing among the employees in the Saudi governmental organisations. This research seeks to identify the factors that influence sharing knowledge and will have practical implications for addressing knowledge loss or hoarding in governmental organisations in Saudi Arabia. Moreover, this research will contribute to the field of knowledge management by proposing and testing a conceptual model that best explain knowledge sharing as well as identifying the most significant factors that promote or hinder knowledge sharing among the employees within Saudi governmental organisations. finally, it will contribute to knowledge management theories by identifying similarities and differences between knowledge sharing factors in KSA and other cultures.

1.6. Research Approach

There are several different research methods and approaches. Nevertheless, the appropriateness of the methods adopted is determined by the type of information a researcher aims to obtain from a study (Mason, 2002; Tashakkori and Teddlie, 2003). A distinction is usually made between quantitative and qualitative research methods.

Frequently, qualitative research is done as a preliminary step towards quantitative research. Qualitative study is useful to start from scratch to identify the important areas in a particular field or in order to see which topics emerge as to provide the basis of a quantitative study. Quantitative research may be conducted when published studies already exist.

Creswell (2007) points out that the reason for conducting a qualitative research before quantitative research is that, the qualitative research can explore initially to best identify variables, constructs, taxonomies, and theories to test, as well as aid in the identification of items and scales to help develop a quantitative instrument. Alternatively, the reason for conducting a qualitative research after quantitative research is that, to enrich the quantitative result, or to obtain more detail information for further interpretation as to what they mean or when more detailed views of selected participants can help to explain the quantitative, survey result (ibid).

My proposed research topic has a well-developed theoretical ground (it is not a new area of research, for example the concept of knowledge sharing (KS) has been defined and studied earlier) (Bock and Kim, 2002). Knowledge sharing has been already studied in different disciplines, e.g. management, sciences, medicine and business.

Moreover, extant research has identified numerous KS-related constructs and determinant variables, e.g. leadership role, trust, incentive, etc. For these reasons, a quantitative research will be conducted using a survey method to collect a cross-sectional data from the employees at governmental organisations in Saudi Arabia. The survey then will be followed by semi-structured interviews to gain understanding of unexpected results. Further details will be discussed in chapter four.

1.7. Originality and Contribution to Knowledge

This study is expected to add to the field of knowledge management, specifically knowledge transfer and sharing in several ways:

It would contribute to theories of knowledge management by proposing and validating a model for understanding knowledge sharing.

It would identify the most important factors that advance or obstruct knowledge sharing among the employees within a Saudi governmental organisations.

It would fill a gap in the literature on knowledge sharing, particularly in the Saudi context by demonstrating the factors influencing knowledge sharing in Saudi Arabia and compare these factors with other cultures.

It would offer recommendations on best practices for promoting knowledge sharing in governmental organisations.

1.8. Organisation of Thesis

The present thesis are organised as follows: the opening Chapter provides an introduction to the study by outlining the thesis rationale, questions and aims and a description of the study context. It also discusses the significance of the study as well as the chosen research approach and contribution to knowledge. Chapter Two offers an extensive review of the literature on the research key concepts and guiding theoretical frameworks. Chapter Three describes the research conceptual model by discussing the model constructs and study variables. Chapter Four provides a presentation of the research selected methods to collect and analyse the data. Chapter Five is devoted to the research instrument. It describes the process of its development and validation in various piloting rounds. Chapter Six is a presentation of the study results. Chapter Seven offers a discussion of the results and conclusion to the research. Figure 3 outlines the stages of conducting the current thesis.

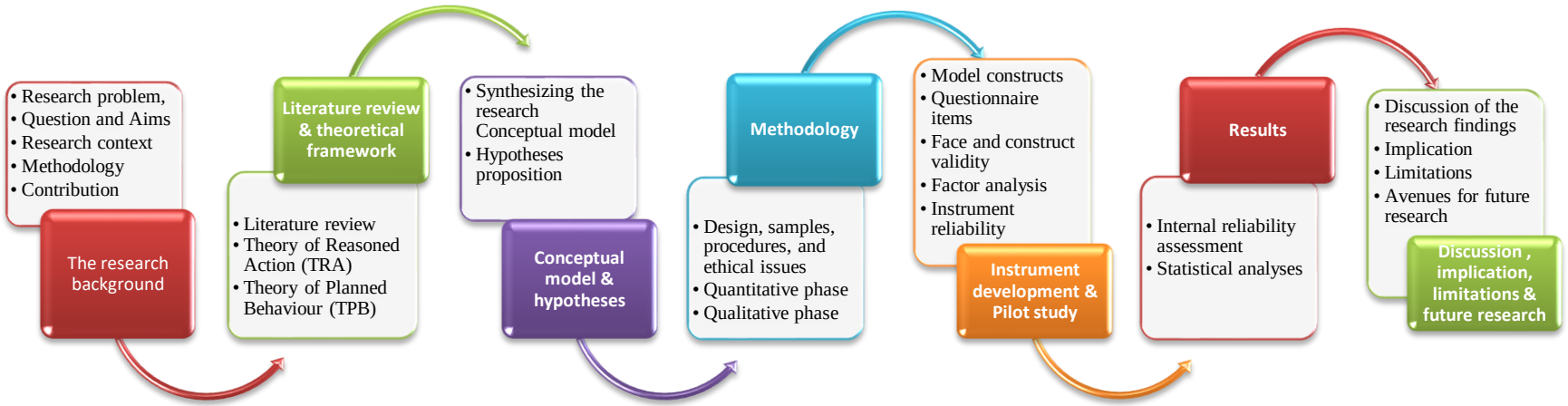


Figure 3: Thesis stages outline

1.9. Summary

- This introductory chapter has outlined the research background and the research problem.
- This chapter has also proposed the research question and aims.
- It has sketched the context in which the study is conducted. It has outlined the methodology adopted in this study.
- Finally, It has stated the contribution of this study and summarised the organisation of this thesis.

The next chapter will review the literature on the key concepts in the thesis as well as describe the theoretical framework of the study.

Chapter Two

Literature Review and Theoretical Framework

2. Introduction

Several scholars have pointed out to the often mistaken assumption that "human behaviour including sharing occur naturally" (Soo, 2006, p: 1). They assert that converting individual knowledge into organisational knowledge can be challenging because individuals may refuse to share knowledge for a number of different reasons (Bock et al., 2005). Prior research has highlighted various factors that influence individual's willingness to share knowledge (Bock and Kim, 2002; Bock et al., 2005; Wasko and Faraj, 2005). Some factors are pertinent to the individual employee such as attitude while others are external such as social and organisational factors. This study seeks to explain knowledge sharing within organisations by proposing a model that integrates both types of factors, i.e. individual and external. Based on extensive review of previous literature on knowledge sharing, the researcher identified some factors that are expected to influence knowledge sharing among the employees and formulates several hypotheses that will be tested in a later stage of the research. This chapter will present the theoretical background of this study. It will provide a detailed account of knowledge and knowledge sharing. Next, it will offer a description of the theories that form the basis of the study: the theory of reasoned action (TRA) and the theory of planned behaviour (TPB).

2.1. Knowledge and Knowledge Sharing

In the contemporary knowledge-based economy, knowledge is seen as the basic economic resource rather than the traditional factors of production (Drucker, 1993). As a result, interest has been growing on the topic of knowledge management since the eighties of the previous century. Wiig (1997) defines knowledge management and states its main objectives as "to make the enterprise act as intelligently as possible to secure its viability and overall success and to otherwise realise the best value of its knowledge assets." (p.1). One of the mechanism by which knowledge is managed is knowledge sharing. The following section defines knowledge and knowledge sharing.

2.1.1. *Knowledge*

There have been many attempts to identify knowledge since the early ages of Plato and Aristotle (Gordon, 2000). Nevertheless, these early attempts as Nonaka and Takeuchi (1995) mentioned were "far from perfect in terms of logic" and "heavily laden with skepticism" (p.21). Knowledge is a complex concept (Blackler, 1995; Gordon, 2000; Casselman and Samson, 2005). Therefore, a logical start to understand the concept is to differentiate between three, often used as synonyms, concepts: knowledge, information and data (Davenport, 1997).

Data is "a set of discrete, objective facts about events" (Davenport and Prusak, 2000, p. 2). Organisations need data and some depend very much on it. Although it is considered as raw essential materials for the creation of information, data has little relevance and purpose in itself (ibid). Davenport and Prusak (2000) define the second construct information as "a message, usually in the form of a document or an audible

or visible communication" (p.3). It follows that information as any message; has a sender and a receiver. Moreover, what is important about information is that it is intended to have an impact on the receiver (ibid). Contrary to data, information has relevance and purpose. Thus, information is a crucial means or material for creating knowledge (Nonaka and Takeuchi, 1995). Davenport and Prusak (2000) maintain that by adding value and meaning to data, it becomes information and this can be achieved by several important methods that begin with the letter C: contextualised, categorised, calculated, corrected and condensed (p. 4).

Knowledge, on the other hand, is a broader and deeper concept. Nonaka and Takeuchi (1995) see it as, "a dynamic human process of justifying personal belief toward the truth" (p.58). Knowledge in their theory of organisational knowledge creation is similar to information in that it is about meaning and is 'context-specific', yet, it is different from information in that it is about beliefs as well as about actions. Their definition focuses on the active and subjective nature of knowledge. Davenport and Prusak (2000) also define knowledge, but emphasising its complexity:

"Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organisations, it is often becomes embedded not only in documents or repositories but also in organisational routines, processes, practices, and norms" (p.5).

Their very comprehensive definition makes clear that knowledge is not simple, but rather, is a blend of several elements such as experience, judgment and values. Further,

knowledge is part of the individual, and therefore, not easy to 'capture'. As information is obtained from data, knowledge is obtained from information by activities such as comparison, consequences, connections and conversation (Davenport and Prusak, 2000). Table 1 below summarises and exemplifies the differences between the three concepts according to Davenport's taxonomy (Davenport, 1997).

Table 1: Data, Information and Knowledge

Data	Information	Knowledge
Simple observations of the states of the world Easily structured Easily captured on machines Often quantifiable Easily transferable	Data endowed with relevance and purpose Requires unit of analysis Need consensus on meaning Human mediation necessary	Value-added information from the human mind including reflection, synthesis, context Hard to structure Difficult to capture on machine Often tacit Hard to transfer
Example of data	**Example of information**	**Example of knowledge**
Real-time stock prices Temperature now is 90°F	Analyst's report of a stock - uptrend or downtrend This is hot for Fall	Fund manager's decision to buy or sell the stock We need not wear a jacket today

2.1.2. *Types of knowledge*

Several scholars have conceptualised knowledge in different ways. Yet, Michael Polanyi's (1966) taxonomy of knowledge as tacit *vs*. explicit, has been the basis for most of these attempts. Tacit knowledge as Choo (1998) puts it "is personal knowledge that

is hard to formalise or communicate to others. It consists of subjective know-how, insights, and intuitions that come to a person from having been immersed in an activity for an extended period of time'' (p. 8). It typically exists only in the mind of the individual (Casselman and Samson, 2005). Nonaka and Takeuchi (1995) describe it as 'subjective' and 'context-specific', thus, it is hard to share. In an organisation, tacit knowledge is vital and is used by the organisation members to perform their tasks and to make sense of situations (Choo, 1998). Examples of tacit knowledge are the individual internal skills, intuition, mental models, beliefs and perspectives that often derived from experience (Connelly, 2000). Moreover, this type of knowledge is practical, action-oriented that is rarely articulated explicitly. Tacit knowledge is improvised in that it can be a respond to an unpredictable situation. As such, tacit knowledge is transferred by mentoring, internship, brainstorming, networking, chatting and storytelling.

On the other hand, explicit knowledge, or the 'know what' tends to be more 'context-free' and 'objective' (Nonaka and Takeuchi, 1995). Explicit knowledge includes academic knowledge that is documented in formal language (electronic media or print). In other words, it is 'coded' in a systematic way (Choo, 1998) and thus more communicated and easily transmittable (Nonaka and Takeuchi, 1995). Explicit knowledge can be found in product specifications, manuals, a scientific formula, and computer programs (Connelly 2000). This type of knowledge can be transferred in an organisation by trainers designing syllabus guided by organisational goals and needs. Sharing explicit knowledge is possible by extracting it from persons, coding it, storing it and reusing it when needed. This can be easily achieved by using ICT tools such as

email, forums, e-learning applications, knowledge management systems...etc (Smith, 2001.

Choo (1998) in his discussion of organisational knowledge added cultural knowledge to the tacit-explicit dichotomy. He proposes that cultural knowledge,

"consists of cognitive and affective structures that are habitually used by organisational members to perceive, explain, evaluate and construct reality…[it] includes the assumptions and beliefs that are used to describe and explain reality, as well as the conventions and expectations that are used to assign value and significance to new information." (p.112).

The organisation can utilise cultural knowledge to give meaning to information and provide helpful values and rules (Choo, 1998).

Moreover, based on whether knowledge can be codified and/or easily diffused, Boisot (1995, cited in Choo, 1998) categorises knowledge into proprietary, public, personal and commonsense. The type of knowledge that can be easily stored or put down in writing without losing information is termed codified; whereas uncodified knowledge is hard to store or capture in writing or any systematic way. Diffused knowledge can be easily shared with others; while undiffused knowledge remains personal to individuals either because it is difficult to communicate with others or because one wishes not to communicate. Knowledge that can be codified diffuses more quickly than uncodified one (Boisot, 1995).

In Boisot discussion, codified and diffused knowledge parallels explicit knowledge whereas uncodified and undiffused knowledge resembles tacit knowledge. According to Boisot's (1995) classification, public knowledge is the structured knowledge that is recorded in textbooks, research journals and all sorts of printed resources. It is both codified and diffusible. Commonsense knowledge is less codified but diffused. It is acquired through personal experiences in the society. Personal knowledge is idiosyncratic and difficult to communicate as it relates to the individual's experience. Proprietary knowledge is knowledge that an individual or group acquires and codifies as to make sense of specific situations. In speaking of the knowledge in organisations, personal, proprietary and commonsense knowledge are relevant to the organisation's internal knowledge. Proprietary knowledge is unique to the organisation. Personal knowledge is the basis of all organisational knowledge (Boisot, 1995).

2.1.3. *Knowledge Sharing*

Recognising the value of knowledge and the need to a successful management of knowledge is essential to develop new capabilities and innovations in organisations. Knowledge sharing among individuals in organisation is perceived to be the most essential process for knowledge management (Bock and Kim, 2002; Renzl, 2008). However, knowledge is not ubiquitously shared (Teece, 2008). Thus, knowledge initiatives based on the naïve assumption that knowledge flows freely between members of an organisation is doomed to fail (Davenport and Prusak, 2000). Similarly, Choo (1998) maintains that "as long as knowledge remains personal to individual members so that it cannot be shared easily; organisations cannot multiply the value of this expertise" (p. 105).

Individuals will not share their knowledge because they believe that their knowledge is valuable and important. Therefore, useful knowledge needs to be shared among the members of the organisation. Bock and Kim (2002) state that this can be achieved by fostering the motivation to knowledge sharing. Nonaka and Takeuchi (1995) reveal the secret behind the success of the Japanese firms,

"knowledge that is accumulated from the outside is shared widely within the organisation, stored as part of the company's knowledge base, and utilised by those engaged in developing new technologies and products" (p.6).

Knowledge sharing is important because it provides a link between the employees and the organisation "by moving knowledge that resides with individuals to the organisational level, where it is converted into economic and competitive value for the organisation" (Ipe 2003, p.342). By knowledge sharing, the wheel is not reinvented.

2.1.4. *Knowledge Sharing Definition*

Lee (2001) defines knowledge sharing as the "activities of transferring or disseminating knowledge from one person, group or organisation to another" (p. 324). Therefore, the knowledge and expertise of the individual employee will be shared and used by his colleagues in the organisation. Ipe (2003) also defines it as "the act of making knowledge available to others within the organisation. Knowledge sharing between individuals is the process by which knowledge held by an individual is converted into a form that can be understood, absorbed, and used by other individuals" (p.341).

In order to share and exploit the knowledge of the employee, Ipe's definition entails firstly, converting knowledge in a form that is comprehensible by others. Nonaka and Takeuchi (1995) postulate four different modes of knowledge conversion. These are: 1. from tacit knowledge to tacit knowledge, which they call socialisation; 2. from tacit knowledge to explicit knowledge, what they call externalisation; 3. from explicit knowledge to explicit knowledge, or combination; and 4. from explicit knowledge to tacit knowledge, or internalisation.

According to Davenport (1997), sharing knowledge is often unnatural. Further, he maintains that knowledge sharing is a voluntary act, which implies an action taken by individual who participates in the knowledge exchange even though there is no compulsion to do so (ibid.). Stenmark (2001) also argues that individuals are not likely to share knowledge without strong personal motivation. Therefore, instead of telling or ordering the individuals to share what they know, motivating them is more effective to encourage knowledge sharing (Ipe, 2003).

In this research knowledge sharing is defined as follows:

The behaviour in which an individual shares his or her tacit or/and explicit knowledge (including experience, insight, understanding, information, manuals and documented knowledge) with another individuals or knowledge repositories.

This definition acknowledges the behavioural aspect of knowledge sharing. This knowledge can be tacit or/and explicit. It does not imply that both are necessarily

shared at the same time. The course of action involves donor and recipient, individual(s) or a contribution to knowledge repositories.

2.1.5. *Information and Communication Technology (ICT) and Knowledge Sharing (KS)*

Information and Communication Technology (ICT) plays a potential role in knowledge sharing process. As ICT performs a differential effects on supporting and motivation knowledge sharing in different settings. Knowledge has to be shared if it is to be useful and if it is to grow and develop.

A variety of knowledge management technologies and systems needs to be employed in organisations to effectively deal with the diversity of knowledge types and attributes. Furthermore, the complexity, resource requirements, and underlying tools and approaches of knowledge management processes vary based on the type, scope, and characteristics of knowledge management processes.

In recent years, knowledge management systems (KMS) have become popular tools that play a variety of roles in supporting the creation, transfer, disseminate and application of knowledge in organisations. These tools allow recording and capturing the employees' knowledge and experience to be used later by other employees.

The tools and systems should have ease of use (e.g. intuitive application and searchable catalogues) to enable communication and interaction as well as boost the human networks that already available. Moreover, this will help reduce duplication of efforts. However, the success of KMS depends on individuals' acceptance and use of these systems as IT plays a limited role in knowledge creation.

Knowledge management systems (KMS) refer to a class of information systems applied to managing organisational knowledge. That is, they are IT-based systems developed to support and enhance the organisational processes of knowledge creation, storage/retrieval, transfer and application.

Knowledge Management Systems, using various IT capabilities, lead to various forms of KM support. Three common applications of KMS:

Coding and sharing best practices: internal benchmarking.

Creation of corporate knowledge directories: map internal expertise.

Creation of knowledge networks: online forums for discussions.

KMS can help individuals and groups to share valuable organisational insights, to reduce redundant work, to avoid reinventing the wheel, to reduce training time for new employees and to retain intellectual capital.

ICT enhances knowledge sharing and creation. However, ICT constitutes only one of the many factors that affect the sharing of knowledge in organisations, such as organisational culture, structure, leadership, trust, incentives etc.

With the increased use of computers, different adaptations of technologies have been employed such as knowledge bases, knowledge repositories, group decision support systems, intranets and computer supported cooperative work. Other have been introduced to further enhance and capture expert knowledge to help users of the system diagnose problems such as expert systems and automated knowledge

acquisition. Moreover, with technology expansion, semantic technologies for search and retrieval and the development of e-learning tools for communities of practice have emerged. More recently, development of social computing tools (such as blogs and wikis) have allowed more unstructured, self-governing or ecosystem approaches to the transfer, capture and creation of knowledge. In addition, advanced computer software specialised for KS are also widely available nowadays. One example of latest Web 2.0 Knowledge Management Software is Knowledge Base Manager Pro with a Rich Internet Application for usage in commercial purposes.

2.2. Research Theoretical Framework

The theoretical framework of this research will be based on the theory of reasoned action (Fishbein and Ajzen, 1975, 1980) and its newer version, the theory of planned behaviour (Ajzen, 1985). The two theories aim to explain why individuals decide to perform particular behaviours. They focus on the conscious decision of individuals to undertake specific behaviours. The two models are different from other social psychology theories that attempt to explain general behavioural patterns. For example, some theories focus on how personality type affects general behavioural characteristics – e.g., passive-aggressive behaviour patterns. In contrast, the theories of reasoned action and planned behaviour are concerned with an individual's decision to engage in or not engage in a particular behaviour, such as sharing one's knowledge with others. The theories provide a detailed framework to understand and predict human behaviours and have had compelling support from rich empirical research (Taylor and Todd, 1995).

2.2.1. *Justification for Choosing Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB)*

The researcher has reviewed several theories used mostly in ISM, yet, the most appropriate ones for this research (that seeks to explain a behaviour at the individual level) were TRA and TPB as other theories were not suitable for the purpose of the research because either they were limited to understanding behaviours related to information technology adoption (e.g. Technology Acceptance Model (TAM) (Davis et al., 1989), Diffusion of Innovations Theory (Rogers, 1995) or are very broad such as the Contingency Theory (Woodward 1958). Nevertheless, some of the constructs in the research model are derived from different theories that will be touched upon later.

2.2.2. *Theory of Reasoned Action (TRA)*

The theory of Reasoned Action's (Fishbein and Ajzen, 1975) ultimate goal has been to predict and understand humans' behaviour. It was proposed "to account for behaviour of various kinds by reference to a relatively small number of concepts embedded within a single theoretical framework" (Ajzen and Fishbein, 1980, p.4). The theory is based on the assumption that humans are usually quite rational and systematically exploit the information available to them. In other words, people consider the implications of their actions prior to make a decision to engage or not to engage in a particular behaviour (Ajzen and Fishbein, 1980). The TRA implies that most actions of social relevance are under volitional control. It proposes that a person's intention to carry out (or not to carry out) a behaviour is the immediate determinant of the behaviour (Ajzen and Fishbein, 1980). Intention represents the individual's motivation in the sense of her or his conscious plan or decision to engage in the

behaviour (Conner and Armitage, 1998). However, intention is considered a necessary but not sufficient immediate determinant of behaviour (Ajzen, 1985). Further, the theory postulates that a person's intention is a function of two basic factors, one personal in nature and the other signalling social influence. The personal determinant or attitude toward the behaviour (ATT) is defined as "the individual's positive or negative evaluation of performing the behaviour" (Ajzen and Fishbein, 1980, p. 6). In other words, attitude refers to the individual's judgment that carrying out the behaviour is good or bad, i.e. he or she is in favour of or against executing the behaviour. The second determinant of intention is termed subjective norm (SN) and defined as "the person's perception of the social pressures put on him to perform or not perform the behaviour in question" (Ajzen and Fishbein, 1980, p. 6). Overall, the theory posits that individuals intend to perform a particular behaviour when they evaluate it positively and when they believe that important others think they should perform it. Figure 3 summarises the TRA.

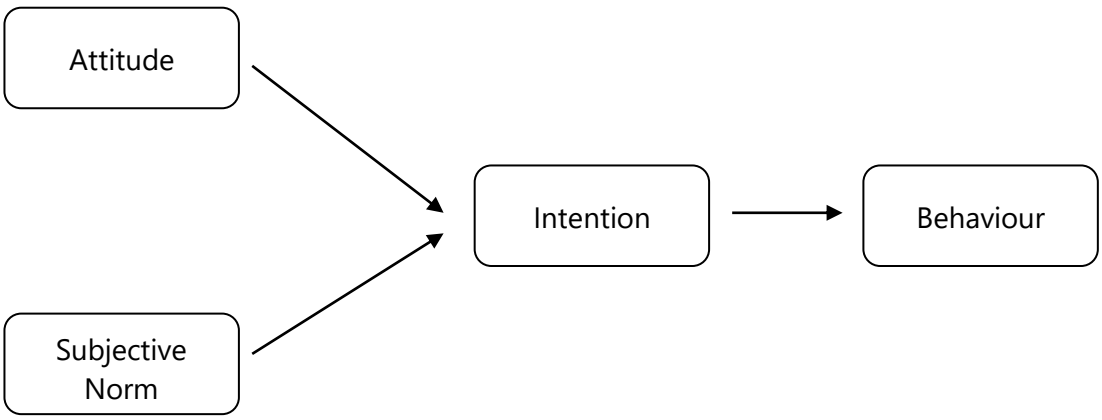


Figure 4: The Theory of Reasoned Action

The theory of reasoned action provides also an explanation of why certain people hold certain attitudes (ATT) and subjective norms (SN). According to the theory, attitudes toward a particular behaviour are a function of salient beliefs about that behaviour. A belief is the information an individual has about a specific object. In particular, the belief connects an object with some attribute (Fishbein and Ajzen, 1975). According to the theory, each salient belief relates the behaviour with some valued outcomes (Ajzen, 1985).

The theory also posits that subjective norms are also a function of normative beliefs, i.e. the individual's beliefs that specific people or groups think he should or should not perform the behaviour. The TRA proposes that individuals who believe that most referents, with whom they are motivated to comply with, think they should perform the behaviour will perceive social pressure to do so and vice-versa. Therefore, subjective norm may exert pressure to perform or not to perform a particular behaviour, independent of the individual's own attitude toward that behaviour (Ajzen and Fishbein, 1980).

The theory of Reasoned Action has been used in many studies with a wide variety of behaviours in diverse disciplines. Behaviours that have been studied with the TRA include, strategy choices in Prisoner's Dilemma games (Ajzen, 1971); blood donating (Pomazal and Jaccard, 1976); church attendance (King, 1975); voting (Ajzen and Fishbein, 1980); dieting (Sejwacs, Ajzen, and Fishbein, 1980), family planning (Crawford and Boyer, 1985); using condoms (Greene, Hale, and Rubin, 1997), and reporting alien abductions (Patry and Pelletier, 2001).

In addition, several meta-analyses were conducted to validate the theory. For example, Sheppard, Hartwick, and Warshaw (1988) conducted two meta-analyses to investigate the effectiveness of the theory. Based on 87 separate studies with a total sample of 11,566, they reported that the determinants of the theory, namely attitude toward the behaviour and subjective norms appeared to predict and explain intention quite well. Van den Putte (1991) conducted a more extensive meta-analysis using 113 studies. He also found that the relation between intention and attitude is stronger than the relation between intention and subjective norm. Similarly, Albarracín, Johnson, Fishbein and Muellerleile (2001) meta-analysed 96 studies to examine how well the theory of reasoned action predicted condom use. The meta-analysis gave support to the relationships between the constructs of the theory.

The theory of reasoned action provides a parsimonious account of the determinants of behaviour (Conner and Armitage, 1998). The work of Ajzen and Fishbein has not only provided a theoretical contribution to the understanding of behaviour, it has also offered an excellent set of instructions for implementing their theory.

However, the theory has received some criticisms. Generally, the theory was criticised regarding the limited scope of the behaviours it explains (Hale, Householder, and Greene, 2002). Behaviours requiring skills, resources, opportunities and cooperation of others in order to be accomplished are excluded from the domain of the TRA, or are poorly predicted by the TRA (Liska, 1984; Hale et al., 2002). Similarly, behaviours that are categorised as spontaneous, impulsive, habitual, the results of craving are also excluded because their performance may not be voluntary or involve a

conscious decision (Bentler and Speckart, 1979). In an effort to expand the range of behaviours explained by the theory of reasoned action, Ajzen (1985) proposed a modified version of the theory termed the theory of Planned Behaviour (TPB) that will be the topic of the next section.

2.2.3. *Theory of Planned Behaviour (TPB)*

The theory of reasoned action (TRA) applies to behaviours that are under volitional control. However, its predictive accuracy "diminishes when the behaviour is influenced by factor over which at least some individuals have only limited control" (Ajzen, 1985, p. 36). Ajzen (1985) proposed the theory of Planned Behaviour (TPB) to expand the theory of reasoned action and permits it to predict and explain behaviours that are not completely under the volitional control. Similar to the TRA, the TPB is also based on the assumption that human beings usually behave in a sensible way; they take account of available information and consider the implications of their behaviours (Ajzen, 2005). The theory hypothesises that an individual's intention to perform a behaviour is the most important immediate determinant of that behaviour. In addition, the theory postulates that intention is a function of three basic determinants, one personal in nature, one reflecting social impact and the third related to issues of control (Ajzen, 2005). The first determinant of intention is attitude or the person's positive or negative evaluation of performing a given behaviour. The second determinant is subjective norm or the individual's perception of social pressure to perform or not to perform the particular behaviour of interest. Finally, the theory adds the construct of perceived behavioural control (PBC) or "the sense of self-efficacy or ability to perform the behaviour of interest" (Ajzen, 2005, p. 118). Therefore, "intentions would be expected

to influence performance to the extent that the person has behavioural control, and performance should increase with behavioural control to the extent that the person is motivated to try" (Ajzen, 1991, p. 183). According to this theory, in short, people generally intend to perform behaviour when they judge it positively; when they feel social pressure to perform it and when they perceive that, they have the means and resources to do so (Ajzen, 2005). Figure 4 represents a graphical summary of the theory of Planned Behaviour.

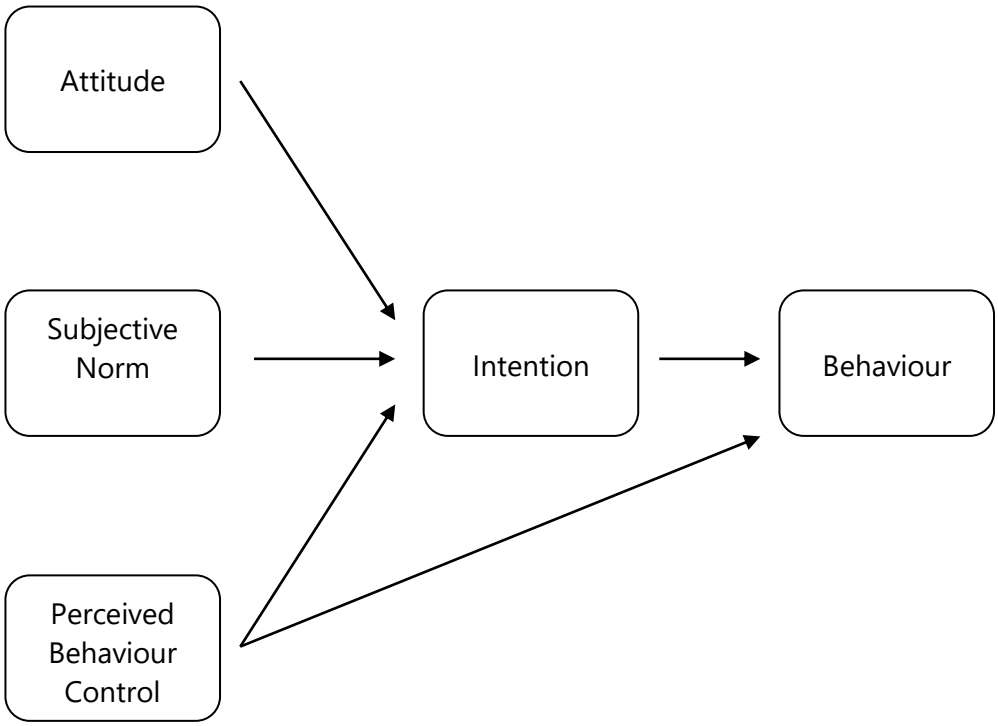


Figure 5: The Theory of Planned Behaviour

The Theory of Planned Behaviour (TPB) postulates that the most important determinant of an individual's behaviour is intention. An individual's intention to perform a behaviour is a combination of his attitude toward performing the behaviour, his subjective norm and his perceived behavioural control. According to the theory of Planned Behaviour, attitude toward a behaviour is the evaluation of this behaviour

whether favourable or unfavourable (Ajzen 2005). Subjective norm is the perceived social pressure to perform or not to perform the behaviour (Ajzen 2005). Perceived behavioural control is "ability to perform the behaviour of interest" (Ajzen 2005, p.118). It is determined by the individual's beliefs about the presence of factors that may facilitate or impede performance of the behaviour. In general, people intend to perform a behaviour when "they evaluate it positively, when they experience social pressure to perform it and when they believe that they have the means and opportunities to do so" (Ajzen, 2005, p.118).

Many factors whether personal or external can obstruct the performance of any behaviour. As such, behavioural intention can best be interpreted as an intention to try performing a particular behaviour. Successful performance of the intended behaviour is dependent on the individual's control over the different factors that may impede it. The theory of Planned Behaviour takes this view and proposes that intentions can only be expected to predict an individual's attempt to perform a behaviour, not necessarily its actual performance (Ajzen, 1985). Nevertheless, the theory does not address the actual control the individual may have in a particular instance; instead, the theory deals with the possible effects of perceived behavioural control on achievement of behavioural goal. The construct of perceived behavioural control, hence, accounts for some of the realistic constraints that may exist and offers useful information in addition to intention, which only reflects a person's willingness to perform a given behaviour (Ajzen, 2005).

The TPB has two important aspects. First, the theory hypothesises that perceived behavioural control has a direct link with intentions that is not mediated by attitude

and subjective norm. As (Figure 4) shows, the direct arrow goes from perceived behavioural control to intention illustrates this relationship. Second, the theory proposes a direct association between perceived behavioural control and behaviour. Ajzen contends, "in many instances performance of behaviour depends not only on motivation to do so but also on adequate control over the behaviour in question. It follows that perceived behavioural control can help predict goal attainment independent of behavioural intention to the extent that it reflects actual control with some degree of accuracy" (Ajzen, 2005, p. 119). Briefly, perceived behavioural control can influence behaviour indirectly through intentions as well as directly as it works as a proxy for a measure of actual control (Ajzen, 2005).

A substantial amount of research has applied, tested and extended the theory of planned behaviour. For example, Ajzen (1991) meta-analysed 16 studies which used the theory. These studies sought to explain and predict a variety of behaviours such as playing video games, losing weight, cheating, shoplifting and lying. The meta-analysis revealed that intentions and perceived behavioural control correlated quite well with behavioural performance. The two antecedent variables made a significant contribution to the prediction of behaviour. In most of the reviewed studies, intention was found to be the more important of the two predictors. Nevertheless, in a study on weight loss (Schifter and Ajzen, 1985) perceived behavioural control surpassed the contribution of intention. The study also revealed that the three predictors in the theory of planned behaviour could account for a substantial amount of variance in intentions. In a similar study, Armitage and Conner (2001) conducted a meta-analysis using 185 studies that

applied the theory of Planned Behaviour to explain also various behaviours and they reported similar conclusions.

The TPB has been found useful in explaining a wide range of behaviours (Ryu et al. 2003; Lin and Lee, 2004). Within knowledge management area, some studies have also adopted the above mentioned theories to explain knowledge management behaviours such as knowledge sharing, information transfer, etc. (e.g. Ford, 2004; Connelly, 2000).

The following chapter will describe the study model for explaining knowledge sharing and detail its constructs as well as review the literature pertaining to each one.

2.3. *Summary*

- This chapter has reviewed the literature on the key constructs of this study.
- Next, it provided a detailed account of the research theoretical framework.

The following chapter will illustrate the research conceptual model and postulate the study hypotheses.

Chapter Three

Research Model and Hypotheses

3. Introduction

The previous chapter has provided the theoretical framework underlying the research model. This chapter will describe this conceptual model and discuss how it was obtained. Moreover, it will extensively define the model's constructs and provide theoretical justification for selecting these constructs and the links between them. A total of twelve main as well as nine secondary hypotheses will be proposed after each construct discussion. Finally, the chapter will conclude with an illustration of the research model.

3.1. Research Constructs and Hypotheses

3.1.1. *Criterion Variables- Behaviour and Behavioural Intention*

Intention refers to the person's motivation in the form of his conscious plan to exert effort to perform behaviour (Eagly and Chaiken, 1993, p. 168). Fishbein (1967) in his work to explain the weak relationship between attitude and behaviour discriminated between intention and attitude. Rather than being viewed as a part of attitude, intention is now regarded as an independent construct. Building on the work of Dulany (1961) to explain the role of awareness in verbal conditioning, Fishbein (1967) proposed that intentions to perform a particular behaviour (or behavioural intentions- BI) are the proximal determinant of that behaviour. In TRA, Fishbein and Ajzen (1975) defined BI as "a person's subjective probability that he will perform some behaviour" (Fishbein and

Ajzen, 1975, p. 288). Moreover, the theory posits that an individual's intention to perform a particular behaviour is determined jointly by his or her attitude towards performing that behaviour and his or her subjective norm SN towards performing the behaviour. Subsequently, Ajzen (1985) added PBC as another primary determinant of BI. There is empirical evidence supporting the links between BI and the research proposed independent variables, namely ATT, SN and PBC as an important determinant of BI towards knowledge sharing.

There is substantial research validated the predictive power of intentions (Davis et al., 1989; Ajzen, 2005). For instance, Sheppard et al. (1988) analysed a rich body of research (87 studies), and reported a frequency-weighted average correlation for the intention-behaviour link of 0.53. Similarly, Sun and Zhang (2006) in another meta-analysis found that the correlation between intentions and behaviour displayed significant outcomes. In the same way, Jeyaraj, Rottman and Lacity (2006) in another large-scale meta-analysis (99 studies) reported a correlation of 0.88 between intention and future behaviour. Overall, intention has been reported to be a more accurate predictor of behaviour than other competing predictors such as realism of expectations, motivational force and satisfaction.

Nevertheless, Ajzen (2005) argued that there can be some factors that could influence one's intention to carry out an action such as time. As time passes, the chance that intentions might be impacted by unanticipated experiences increase. In a study by Sejwacz, Ajzen and Fishbein (1980), they found that the correlation between intentions and behaviours has decreased from 0.72 to 0.47 over a two-month period. However,

Armitage, (2005)reported the validity of the predictive power of intentions over a 3-month period. Essentially, when a sound measure of intention is obtained it will give a very accurate prediction of behaviour (Ajzen, 2005).

Therefore, based on the theoretical and empirical literature discussed here, it is hypothesised that:

H1: Sharing knowledge among the employees within Saudi governmental organisations and their intention to share knowledge are positively correlated.

3.1.2. *Factors Influencing Behaviour and Behavioural Intention*

Some scholars have pointed to the often mistaken assumption that "human behaviours including sharing occur naturally" (Soo, 2006, p: 1). They assert that converting individual knowledge into organisational knowledge can be challenging because individuals refuse to share knowledge for a number of different reasons (Bock et al. 2005). In the literature, there are several factors influencing sharing knowledge among employees in the organisational context. Some factors are pertinent to the individual such as attitude (ATT) toward knowledge sharing, while others related to the organisation such as subjective norm (SN) and perceived behavioural control (PBC). The factors reviewed below are identified based on a recent review of literature and a study conducted previously by the researcher on knowledge sharing within Saudi governmental organisation. The hypotheses will be stated after discussing each factor.

3.1.2.1. Attitude Toward Knowledge Sharing

In the literature of knowledge management, less attention has been devoted for the factors related to the individuals (Storey and Quintas, 2001; Samieh and Wahba, 2007).

Recent studies attempting to identify critical success factors for knowledge management strategies have highlighted the view that successful knowledge sharing in organisations hinges on human factors as well as organisational factors. This study identified attitude (ATT) toward knowledge sharing as an important individual factor.

Previous research has revealed that attitude is a key factor for a smooth knowledge sharing (Hislop, 2003; Kwok and Gao, 2006; Chen et al., 2009). Ajzen's (2005, p.3) defines attitude as a "disposition to respond favourably or unfavourably to an object, institution or event". According to Ajzen and Fishbein (1980), attitudes toward any object are determined by beliefs about that object. People form beliefs about an object by associating it with various attributes, then an attitude toward that object is acquired simultaneously and automatically. People will acquire a favourable attitude toward an object they believe has positive attributes, and they will have an unfavourable attitude toward an object they associate with negative attributes (Ajzen and Fishbein, 1980). As such, beliefs work as the fundamental source of shaping the individual's attitudes; hence, beliefs are the immediate determinants of an individual's attitude. The theory of reasoned action as well as its newer version, the TPB (Ajzen and Fishbein, 1980) postulate that attitude towards performing a behaviour determines intention to perform the behaviour which is, in turn, a factor influencing the behaviour under investigation. Several studies found that attitude is significant in influencing knowledge sharing (Ryu, Ho, and Han, 2003; Samieh and Wahba, 2007; Chen et al., 2009). Attitude towards knowledge sharing is defined as "the degree of one's positive feelings about sharing one's knowledge" (Bock et al., 2005, p. 107). Based on this discussion, this research proposes the following hypothesis:

H2: The employee's attitude towards knowledge sharing and the employee's intention to share knowledge are positively correlated.

As mentioned above, the TPB postulates that attitude (ATT) is determined by a set of salient beliefs about certain outcomes caused by the behaviours. The literature on knowledge sharing identified a number of beliefs as determinants of attitudes towards knowledge sharing. For example, Samieh and Wahba (2007) proposed that expected associations, expected contribution, level of understanding, self esteem and self consistency as beliefs influencing attitudes towards knowledge sharing. Ford (2004) proposed trust, ownership and perceived value of knowledge as beliefs determining attitude toward knowledge sharing. Similarly, a major motive for sharing one's knowledge is to "trade it for other knowledge or unspoken future obligations" (King, 2008). Tohidinia and Mosakhani (2010) identified anticipated reciprocal relationships, perceived self-efficacy and expected extrinsic rewards as precedents to attitude towards knowledge sharing.

This study, based on the TPB and following the studies of Ford (2004), Samieh and Wahba (2007) and Tohidinia and Mosakhani (2010), decomposed the construct of attitude into two salient beliefs elicited from the preliminary semi-structured interviews with employees from a Saudi organisation. These beliefs are: fear of losing one's job, power or privileges and benefits (Samieh and Wahba, 2007) obtained from sharing such as recognition, obtaining knowledge (reciprocal benefit) and reward from Allah.

3.1.2.2. Fear of Loss

Echoing Francis Bacon who said, 'Knowledge is power', Ghosh (2004) notes, "Knowledge is power. And if knowledge is power, then giving away power is something that is bound to get difficult. As people start hoarding their knowledge in the belief that they could manipulate this knowledge to ensure their own success, sharing becomes a myth" (p.3).

In the literature of knowledge management, various beliefs that underlie attitudes towards knowledge sharing were investigated. Fear of losing one's power is one of the beliefs that was found to shape the employees' attitudes towards knowledge sharing (Disterer, 2001). When the employee believes that he would loss (e.g. powerful position, promotion,..etc.) if he shares his unique work, skills or secrets, he would probably refrain from sharing this knowledge with the others in the organisation (Fraser et al., 2000; Connelly and Kelloway 2003; Al-Harbi, 2006). People tend to withhold rather than share if they believe that their knowledge is valuable and important.

As knowledge is seen as a source of power, i.e. it can be used to take action and to exert control, the employees may fear losing this power, if that knowledge is given to others (Davenport and Prusak, 2000; Disterer, 2001). If an employee perceives that power lies in the knowledge he possesses, he may hoard knowledge instead of sharing it (Goman, 2002). In a similar manner, Yu et al. (2004) contend that individuals with valuable specialised knowledge within the organisation may perceive knowledge sharing as a threat to their personal competitive advantage. This may cause a feeling of insecurity or threat of losing their value to the organisation and hence hinder

knowledge sharing (Renzi, 2006; Chennamaneni, 2006; Al-Harbi, 2006). Employees may also fear a loss of superiority and knowledge ownership after sharing their own personal knowledge (Bartol and Srivastava, 2002; Szulanski, 1996). Other researchers found that losing privileges is another fear caused by knowledge sharing (Cabrera and Cabrera, 2002; Husted and Michailova, 2002). In other words, by sharing important knowledge, individuals give up ownership of that knowledge and in so doing lose benefits derived from it (Gray, 2001; Davenport and Prusak, 2000).Accordingly, the following hypothesis is proposed:

H3: The employee's belief of fear of loss will be negatively correlated with their attitude towards knowledge sharing.

3.1.2.3. Benefits Obtained from KS

Roth (2003) has noted the importance of personal benefit in the context of knowledge sharing. Some researchers argue that the employees share their knowledge to earn recognition by others (Constant et al., 1994; O'Dell and Grayson, 1998; Hall, 2001; Kankanhalli et al., 2005). To be recognised as a "knowledgeable" employee or an "expert" can be sometimes more effective than pay-based incentives (Foong et al., 2002; Kamdar et al., 2002; Yi, 2005).

As mentioned earlier, sharing knowledge is a reciprocal activity. However, an employee may sometimes only share his knowledge if he feels that the recipient has a valuable knowledge that he needs at present or in future (Al-Harbi, 2006). In order for the employees to share their knowledge, they need sometimes to obtain benefits for

the activity (Kelloway and Barling, 1999). That is to say, some individuals act by "I help you if you help me; I withhold help if you act destructively" (Constant et al., 1994).

Spender (1996) contends that for the creation and sharing of knowledge, there should be a proper relationship between the individuals and their organisation. Moreover, the relationships between the individuals among themselves, particularly, between the knowledge donor and recipient are of paramount importance for a smooth knowledge sharing (Al-Harbi, 2006). Hansen (1999) found empirically that the relationships between the employees in different units have an impact on knowledge sharing. He also found that complex knowledge is shared by employees with strong relationships. Therefore, he argues that building strong social relationships network among employee, sections, divisions and departments within the organisation as a whole at all levels, vertical and horizontal will enhance and smooth the exchange and sharing of the knowledge.

Nevertheless, some employees share their knowledge without expecting an instant benefit from the recipient. They are motivated by the Islamic belief that benefiting others is rewarded greatly by Allah as simplified in the following saying of the prophet of Islam, Mohammed (Peace of Allah may be upon him): "None of you truly believes until he loves for his brother what he loves for himself."[1] (Al-Harbi, 2006). Therefore, it is expected within a Muslim context like the Saudi society, such a belief will have an impact on attitude toward knowledge sharing. It follows then; knowledge will not be

[1] Sahîh al-Bukhârî

smoothly shared if the employee does not hold any of these attitudes towards knowledge sharing. Thus, this research theorises the following hypothesis:

H4: The employee's belief of gaining a benefit will be positively correlated with their attitude towards knowledge sharing.

3.1.2.4. Subjective Norm Regarding Knowledge Sharing

Subjective norm is the second essential determinant of behaviour as proposed by Fishbein and Ajzen (1975, 1980) in their theory of reasoned action. This construct is sometimes termed social influence. It is defined by Ajzen and Fishbein (1980) as "the person's perception that important others desire the performance or non-performance of a specific behaviour" (p. 57). Important others are individuals whose preferences about an individual's behaviour in a particular domain are important to him or her (Eagly and Chaiken, 1993). Subjective norm originates from leaders, colleagues, families, or other relevant social groups, and may take the form of social support or social pressure (Ndubisi 2004; Clark and Ma, 2003).

However, subjective norm may or may not reflect what the important others actually think the individual should do. As proposed by the theory of reasoned action, the more an individual perceives that others who are important to him or her think they should engage in a behaviour, the more they will intend to do so. In other words, individuals are viewed as intending to perform the behaviours they think significant others believe they should perform. In contrast, if they believe important others think they should not perform the behaviour, they will intend not to do so (Ajzen and Fishbein, 1980). In a study by Chen et al., (2009) to explore factors influencing

knowledge sharing, they found subjective norm to be associated with knowledge sharing. This research proposes the following hypothesis:

H5: The employee's subjective norm towards knowledge sharing will be positively correlated with the employee's intention to share knowledge.

3.1.2.5. Management Influence

Within the organisation context, managers are a relevant group and their influence is expected to be significant. Prior research has studied the role of managers on enhancing or hampering knowledge sharing among the employees (Connelly, 2000; Ford, 2004; Connelly and Kelloway, 2003). Dyerson and Mueller (1999) argue that organisations are characterised by their "distinctive corporate languages, constructs and frameworks" (p. 633). If there were a lack of co-ordination between knowledge experts in the organisation, "learning in isolation, reinvention of the wheel, and a forgetting of valuable lessons learnt" would be prevailing (Dyerson and Mueller, 1999, p. 635). Similarly, knowledge becomes individualised, fragmented and not shared (Kim, 1993; MacNeil, 2003, 2004). Knowledge sharing can be then a challenging issue (MacNeil, 2004).

Research shows that managers have a major role in supporting knowledge sharing within the organisational context (Kelloway and Barling 2000; Martiny 1998; MacNeil, 2001; Goh, 2002). For example, Connelly (2000) found that perceived management commitment to knowledge sharing as an important factor influencing knowledge sharing. Managers can involve employees in developing problem-solving alternatives and enlarging organisational resources. They could also give employees extrinsic or

natural rewards to encourage them to share knowledge in an organisation. This reinforcement process would stimulate knowledge sharing because it could lead to a positive outcome (Skinner, 1938). Moreover, Connelly (2000) argues that certain actions and objects can symbolise leadership commitment to knowledge sharing and when the employees receive these symbols, such as an investment on technology for knowledge sharing, they will be impelled to share their knowledge. In a similar way, when managers communicate the attitude that knowledge, in order to solve organisational problems and increase the organisation's effectiveness "can exist at any level of the organisation and not exclusively in the upper levels of the hierarchy", it creates an environment of trust that encourages knowledge sharing (Goh, 2002; p. 28). In fact, managers can be seen as role models and their visible deeds increase the tendency of the employees to participate. For example, they may train employees on how to share knowledge effectively, help determine what knowledge is appropriate to share, ensure the quality of the knowledge shared, evaluate and reward knowledge sharing activities, help create a fair and trusting working environment in teams to facilitate knowledge sharing (MacNeil, 2003, 2004).

Further, leaders and managers play a role in the creation of knowledge sharing culture. Goh (2002) states that leaders who demonstrate procedural justice such as treating employees fairly, not blaming them for problems caused by new practices or failed experiments will contribute to creating a culture that "can significantly increase the propensity of the organisation's members to share knowledge and information freely with each other"(p. 26). This discussion leads to the following hypothesis:

H6: Perceived management influence will be positively correlated with the employee's subjective norm towards knowledge sharing.

3.1.2.6. Perceived Organisational Norms

Perceived organisational norms (Org. N.) regarding knowledge sharing is one of the elements of SN that has been addressed in a number of studies (Ford, 2004). It is defined as "the shared values, beliefs and practices of the people in the organisation'' (McDermott and O'Dell, 2001, p. 76). Perceived organisational norms is the tacit infrastructure of ideas that shape an organisation's members thinking, behaviour and perception of the work and business environment. It effectively creates a set of guidelines by which the members of the organisation work (Gurteen, 1999). Stoddart (2001) argues that knowledge sharing can only work if the norms of the organisation promotes it. An organisation that supports information sharing among its members is likely to establish effective and efficient processes as well as improve organisational life (Levine, 2001). Ahmed et al. (2002) argue that knowledge sharing can be promoted in the organisation depending on the right norms that are widely held by the organisation. They further point out that "if the wrong cultural norms exist, regardless of the effort and good intention of individuals trying to promote knowledge, little knowledge transfer is likely to be forthcoming as a result" (p. 59). Creating a knowledge sharing norms will not occur in an organisation unless its employees show a high level of co-operative behaviours (Goh, 2002).

Perceived organisational norms and its link to knowledge sharing has been investigated in several studies (Staples and Jarvenpaa, 2000; McDermott and O'Dell,

2001; Alavi, Kayworth and Leidner, 2003). DeLong and Fahey (2000) maintain that organisational norms determines "who is expected to control what knowledge, as well as who must share it, and who can hoard it" (p. 118). Moreover, Ford (2004) argues that organisational norms influences knowledge sharing, such that there are norms that are "more conducive to knowledge sharing than others" (p. 110). In other words, organisations where mistakes are tolerated, learning is encouraged and free time for discussion is available create norms that are more conducive to knowledge sharing (Davenport and Prusak, 1998). Organisational norms is often extolled in previous research as a critical factor for successful knowledge management (Ford, 2004). Hence, the following hypothesis is postulated:

H7: Perceived organisational norms will be positively correlated with the employee's subjective norm towards knowledge sharing.

3.1.2.7. Perceived Behavioural Control

Perceived behavioural control (PBC) is defined as "the sense of self-efficacy or ability to perform the behaviour of interest" (Ajzen, 2005, p. 118). It is determined by the individual's beliefs about the presence of factors that may facilitate or impede performance of the behaviour. In general, people intend to perform a behaviour when "they evaluate it positively, when they experience social pressure to perform it and when they believe that they have the means and opportunities to do so" (Ajzen 2005, p.118). Successful performance of the intended behaviour is dependent on the individual's control over the different factors that may impede it. Ajzen contends, "in

many instances performance of behaviour depends not only on motivation to do so but also on adequate control over the behaviour in question.

Conner and Armitage (1998) argue that perceived behavioural control involves internal and external control. Internal control includes intrinsic control factors such as skill or ability (e.g. the concept of self-efficacy, Bandura, 1977), while external control reflects extrinsic control factors such as opportunities or resources (e.g. the concept of facilitating conditions, Triandis's, 1977).

In a study by Yan and Farn (2009) to investigate employee's tacit knowledge sharing and behaviour within a workgroup, they found that perceived behavioural control in the form of internal control is significantly related to knowledge sharing intention. Accordingly, the following hypotheses are posited:

H8a: The employee's perceived behavioural control will be correlated with the employees knowledge sharing behaviour.

H8b: The employee's perceived behavioural control will be correlated with the employee's intention to share knowledge.

Prior research has identified other factors that do not belong to the individual employee but still have a great impact on his knowledge sharing behaviour. These factors include organisational factors such as the organisation reward system and availability of technology.

3.1.2.8. Facilitating Means

Technology is a key enabler in adopting an effective knowledge management strategy because it is an effective means for capturing, storing, transforming and disseminating information (Davenport et al., 1998; Syed-Ikhsan and Rowland 2004; Yang, 2008). In order to enhance knowledge resources and promote knowledge sharing, organisations are utilising Knowledge Management Systems (KMS). Alavi and Leidner (2001) define KMS as "a class of information systems applied to managing organisational knowledge. That is, they are IT-based systems developed to support and enhance the organisational processes of knowledge creation, storage/retrieval, transfer, and application" (Alavi and Leidner 2001, p. 114). Such a technology can transcend temporal and spatial barriers between employees, units and organisations and improve access to knowledge (Ruggles, 1998). For instance, a 'knowledge repository' can be established in which employees can contribute their expertise electronically.

While KMS are crucial, several authors argue that technology alone cannot ensure that knowledge will be shared. Davenport (1998a) contends, "…many managers still believe that once the right technology is in place, the appropriate information-sharing behaviour will inevitably follow". However, as Fu (2004) argues, employees may not be motivated to employ the technology and not all types of knowledge can be used with technology. He further maintains that "ICT may frustrate knowledge sharing when absent, but it is not likely that they will motivate people to share knowledge" (Fu, 2004, p. 28). Watson and Hewett (2006) claim that employees are more likely to share knowledge using KMS if they get training on how to use the systems.

Following Taylor and Todd (1995), this research proposes that PBC is determined by two control beliefs: facilitating conditions or means (e.g. KMS, access to knowledge and support resources) and time. Thus, the following hypotheses are proposed:

H9: The facilitating means for knowledge sharing will be positively correlated with the employee's perceived behavioural control over knowledge sharing.

H10: Time will be positively correlated with the employee's perceived behavioural control over knowledge sharing.

3.1.2.9. Tendency to Share Knowledge

Tendency to share knowledge has been investigated in a number of studies and treated in a rather different ways. For instance, Cyr and Choo (2010) defined this construct as 'a subjective norm, a willingness to share that constitutes an attitude or personal norm' (p. 825) Similarly, Jarvenpaa and Staples (2000) defined it as 'a personal norm reflecting the costs and benefits of sharing' (p.135). Ford (2004), however, treated one's tendency to share knowledge as a person's predisposition towards sharing his/her knowledge or as an individual trait. Saetang, Theodoulidis and Ekweozor, (2010) defined propensity to share knowledge as the "tendency of an individual to divulge his/her knowledge under any given circumstance" (p. 6).Ford (2004) argues that this construct is not-context-specific, yet it "reflects a trend of behaviour over a range of contexts" (p. 141). Ford (2004) sees it as "the individual's natural inclination or preference for sharing knowledge" (p. 142). In other words, the employee's propensity to share knowledge is voluntary in nature, and not overtly related to reward (Saetang, et al., 2010). As such, one's tendencies are more related to personality traits and are

affected by the greater context. Unlike intention to share, which is calculative in nature, tendency to share is less rational (Ford and Staples, 2010).

Constant et al. (1994) argued that people's tendency to share affects knowledge sharing behaviour. The individual who has a high tendency or propensity to share knowledge tend to value more highly the collective benefit resulting from sharing compared to the costs of sharing (ibid.). Research has found this factor to be related to intentions to share information (Jarvenpaa and Staples, 2000). It was also reported to mediate the link between self-interest reciprocity and intentions (Constant et al., 1994). Ford and Staples (2010) found propensity to share to have an impact on intention to share knowledge. Accordingly, this hypothesis is posited:

H11: The employee's tendency to share knowledge will be correlated with the employee's intention to share knowledge.

3.1.2.10. Trust

An organisation must have a culture that treasures trust to motivate its employees' interactions and knowledge sharing (Ngoc, 2005). Trust is thus frequently described as an important factor in the successful management of knowledge (Bukowitz and Williams, 1999; Shrm, 2009). Its role in an organisation's life has been highlighted by numerous studies (Popa, 2005; Renzl, 2008). Abrams et al. (2003) see trust as 'a central characteristic of relationships that promotes effective knowledge creation and sharing' (p.64-65). Knowledge management research indicates that trust nurtures overall knowledge sharing (Abrams et al., 2003). Yet, only few studies studied the influence of

this construct on knowledge sharing behaviours (Connelly and Kelloway, 2003; Ford, 2004).

Ford (2004) found in her research that trust is an important determinant for knowledge sharing behavioural intention and identified different types of trust (interpersonal and organisational). Thus, when investigating trust and knowledge sharing, it is important to specify the type of trust discussed (Ford, 2003). Organisational trust is defined as "a feeling of confidence and support in an employer…[it] refers to employee faith in corporate goal attainment and organisational leaders, and to the belief that ultimately, organisational action will prove beneficial for employees" (Gilbirt and Li-Ping Tang, 1998, p.322). This type of trust is required for initial levels of knowledge sharing (Ford, 2004).Interpersonal trust is defined as "the willingness of one person to increase his/her vulnerability to the actions of another person" (Aulakh, Kotabe and Sahay, 1996, p. 1007). This type is required for sharing more valuable knowledge. Interpersonal trust is thus one factor behind individual's decision to share knowledge (Renzl, 2008). In any case, a minimum threshold of trust is an essential condition for knowledge sharing (Dyer and Nobeoka, 2000).

With the presence of trust in the organisations, sharing confidential information is possible between different parties (Abrams et al., 2003; Dyer and Nobeoka, 2000). Connelly (2000) and Ipe (2003) noted that trust and knowledge sharing are both predicated on reciprocity and exchange. Ghosh (2004) contend that because individuals build up knowledge "at considerable expense of time, resources and energy, they

would not simply give it away unless they are assured that they are handing this information in good hands and that there is a good chance of reciprocity" (p. 3).

Trust becomes relatively easy to incorporate, if the individuals who are exchanging the knowledge are known to each other. Nevertheless, sharing knowledge across distributed, international organisations, trust becomes difficult to achieve (Ghosh, 2004).

Trust is required from both, the donor and recipient of knowledge. The recipient of knowledge must be able to trust that the knowledge he receives is correct and accurate, and equally, the knowledge donor must be able to trust that the knowledge he gives will not be misused (Buckman, 1998). In order to create trust among employees, individuals should believe that their willingness would be reciprocated. Trust and reciprocity are necessary for the creation of social networks that are essential to knowledge sharing (Burt 1992, Larson 1992). Based on the previous discussion, this hypothesis is proposed.

H12: Trust will be correlated with the employee's intention to share knowledge.

3.1.2.11. Demographic Variables

The demographic variables such as age, rank and experience have been found to play a role in relationships with knowledge sharing (Shermerhorn, 1977; Organ and Ryan, 1995; Connelly, 2000). Connelly (2000) points out that employees of different status interact differently with each other. This influences knowledge sharing behaviour. Lower level employees may share what they know with senior employees for reason

such as sense of obligation, respect and fear of retribution (Connelly, 2000). In addition, senior employees may share junior employees as a charity act or as there is no competition between them (ibid.). Similarly, if the organisation norms is characterised by a "small power distance", knowledge sharing among the employees is more likely to happen than if a "large power distance" norms exists (ibid.). Lower status employees such as those on contracts may refrain from sharing their knowledge, as they feel less secure than those who are permanent. Thus, the following set of 9 secondary hypotheses are posited. (Chapter Five provides the definition of each demographic variable).

H13a: The employee's nationality is correlated with his/her intention to share knowledge and with the actual knowledge sharing behaviour.

H13b: The employee's gender is correlated with his/her intention to share knowledge and with the actual knowledge sharing behaviour.

H13c: The employee's age is correlated with his/her intention to share knowledge and with the actual knowledge sharing behaviour.

H13d: The employee's level of education is correlated with his/her intention to share knowledge and with the actual knowledge sharing behaviour.

H13e: The employee's organisation's sector is correlated with his/her intention to share knowledge and with the actual knowledge sharing behaviour.

H13f: The employee's years with organisation is correlated with his/her intention to share knowledge and with the actual knowledge sharing behaviour.

H13g: The employee's organisation size is correlated with his/her intention to share knowledge and with the actual knowledge sharing behaviour.

H13h: The employee's level in organisation is correlated with his/her intention to share knowledge and with the actual knowledge sharing behaviour.

H13i: The employee's job status is correlated with his/her intention to share knowledge and with the actual knowledge sharing behaviour.

3.2. Research Conceptual Model

This research synthesised a conceptual model as shown in Figure 5 below for explaining knowledge sharing using constructs derived mainly from the theory of planned behaviour (TPB) and prior literature on KS. The following paragraphs explain the semantics of the research model shown in figure 5.

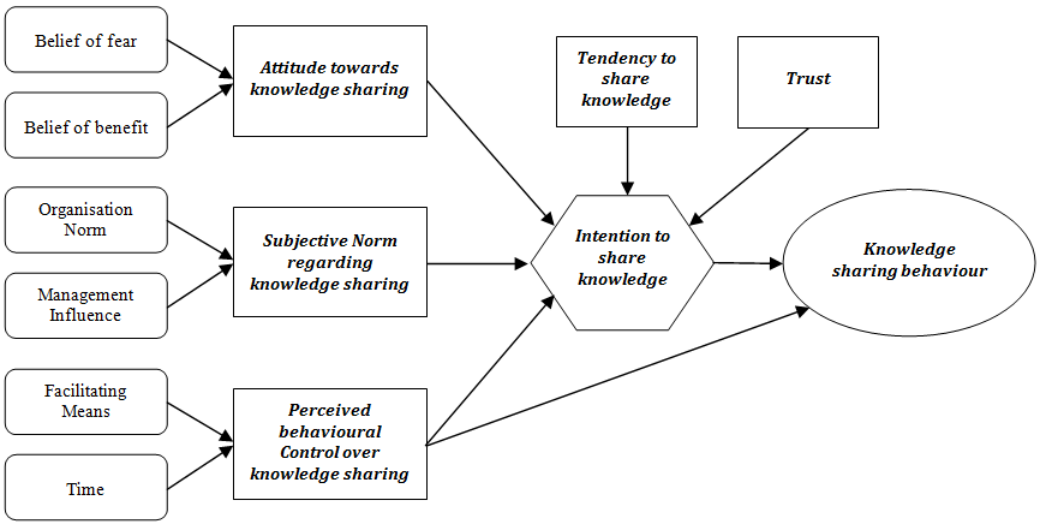


Figure 6:The research conceptual model

The TPB model has been adopted to explore the relationships between intention and actual behaviour of knowledge sharing and has served as a basis for empirical (Bock et al., 2005; Lin and Lee, 2004) and theoretical (Reychav and Weisberg, 2004) research that attempted to explain KS. Hence, it can be suggested that the base model of TPB is a valid model to explain knowledge sharing across different cultures.

Based on prominent theories in psychology and Information Systems Management (ISM), organisational literature and earlier research, the present study synthesises a conceptual model that best explain knowledge sharing among the employees within Saudi governmental organisations.

This thesis postulates that sharing knowledge in Saudi governmental organisations is determined by the employee's intention to share his or her knowledge as well as by their PBC over knowledge sharing. The model also posits that the employee's intention to share his or her knowledge is determined by a set of factors: the employees' attitude

towards knowledge sharing, their subjective norm regarding knowledge sharing, their perceived behavioural control over knowledge sharing, their tendency to share knowledge and trust.

The model also attempts to identify the determinants of the employees' attitude towards knowledge sharing. It hypothesises that two sets of beliefs are crucial in shaping the employees' attitude: beliefs of fear and benefit associated with sharing knowledge. Subjective norm regarding knowledge sharing is also hypothesised to be determined by the employee's perceived organisational norms and perceptions of management influence. Two factors are also posited as determinant of the employee's PBC: presence of facilitating means and availability of time.

Finally, the study hypothesises that the employee's intention to share knowledge and his actual behaviour of knowledge sharing are correlated with selected demographic variables: nationality, gender, age, level of education, organisation sector, years with organisation, size of organisation, level in organisation and job status.

3.3. Summary

- This chapter has described the model's constructs and provided theoretical justification for selecting the constructs.
- It has also posited the research hypotheses that delineate the relationship between the constructs of the model.
- The reasons for selecting the proposed links between the constructs have been discussed.
- The chapter has concluded with a description of the research conceptual model.

The following chapter will present the research design and methods.

Chapter Four

Methodology

4. Introduction

The literature highlighted that understanding the factors that influence the employees' knowledge sharing (KS) is important for an effective management of knowledge (Van den Hooff and de Ridder, 2004). Therefore, this thesis attempts to answering the following question:

What are the underlying factors and their relationships that determine the employees' knowledge sharing behaviour within Saudi governmental organisations?

The aims of this research are:

1. To propose a conceptual model that best explain knowledge sharing among the employees within a Saudi governmental organisation.

2. To identify the most significant factors that promote or hinder knowledge sharing among the employees within a Saudi governmental organisation.

3. To identify similarities and differences between knowledge sharing factors in KSA and other cultures through comparison of the results of this empirical study with previous findings.

This research, hence, aims to propose a conceptual model based on prominent theories and earlier research to explain knowledge sharing among the employees within a Saudi governmental organisation. Moreover, it will fill a gap in the literature by identifying the factors that influence knowledge sharing within the Saudi context as well as comparing the study results with previous findings.

This chapter will describe the research methods that will be used for answering the research questions. First, it will offer an overview of research methodology and the rationale for the selected methodology. Second, the chapter will describe the research design, particularly; it will illustrate the research techniques for data collection and research sample. Then, it will discuss the issues of reliability and validity of the research instrument. Next, the chapter will discuss data analysis strategy. Finally, the chapter will highlight how the study will ensure research ethics.

4.1. Overview and Philosophical Underpinning of Research Paradigms

4.1.1. *Quantitative and Qualitative Research Approaches*

There are several different research methods and approaches that can be used to answer the current research question and achieve its aims, yet, the appropriateness of the methods adopted is determined by the type of information a researcher aims to obtain from a study (Mason, 2002; Tashakkori and Teddlie, 2003). A distinction is usually made between quantitative and qualitative research methods. These methods are rooted in two different views and assumptions of what is reality, social reality, knowledge and how it can be acquired. Quantitative research is often associated with

positivism. Underlying the positivist view is the assumption that the world is relatively coherent, stable and uniform, that can be measured, understood, and generalised about (Gay et al., 2006). Positivism embodies a view of social reality as an external objective reality. It incorporates the practices and norms of the natural scientific methods and emphasises quantification in the collection and analysis of data (Bryman 2001; Walliman 2005). By contrast, qualitative research, which is typically associated with interpretivism, embodies a view of social reality as "a constantly shifting emergent property of individuals' creation" (Bryman, 2001, p. 20). A corollary of this latter view is a rejection of the natural scientific model in favour of an individualistic interpretation of the social world. Emphasis on words rather than numbers and on theory generation rather than theory testing is fundamental features of this approach (Bryman, 2001). However, this approach has been criticised for overlooking the external and structural forces that have a powerful role in shaping events and human behaviours (Cohen et al., 2007).

Despite the differences in the positivist and interpretivist views, Gay et al. (2006) assert that qualitative and quantitative research methods should not be considered oppositional. Instead, qualitative and quantitative methods represent complementary routes of the scientific method (Creswell and Plano Clark, 2007).

4.1.2. *Mixed Methods Research*

Over the last decade support of a mixed method approach to research has emerged strongly, and is becoming considered as a third paradigm with the aim to "bridge the schism between quantitative and qualitative research" (Johnson and

Onwuegbuzie, 2004, p. 15). The objective of mixed methods research is not to replace either of the qualitative or quantitative approaches but rather to draw from the strengths and minimise the weaknesses of both in single research studies and across studies (ibid).

4.1.3. *Rationale for Study Design*

The choice of the research method depends on the nature of the research question and objective (Punch, 2005; Gay et al., 2006). Frequently, qualitative research is done as a preliminary step towards quantitative research. Qualitative study is useful to start from scratch to identify the important areas in a particular field or in order to see which topics emerge as to provide the basis of a quantitative study. Quantitative study may be conducted when there is already published research on the topic.

Creswell (2007) points out that the reason for conducting a qualitative research before quantitative research is that, the qualitative research can explore initially to best identify variables, constructs, taxonomies, and theories to test, as well as aid in the identification of items and scales to help develop a quantitative instrument. Alternatively, the reason for conducting a qualitative research after quantitative research is that, to enrich the quantitative result, or to obtain more detail information for farther interpretation as to what they mean or when more detailed views of selected participants can help to explain the quantitative, survey result (ibid).

My proposed research topic has a well-developed theoretical ground (it is not a new area of research, for example the concept of knowledge sharing is defined and studied earlier (e.g. Bock and Kim, 2002). Chapters Two illustrated some of these

studies. Moreover, knowledge sharing has been already studied in different disciplines, e.g. management sciences, medicine, business etc. Moreover, extant research has identified numerous knowledge sharing related constructs and determinant variables, e.g. leadership role, trust, incentive, etc. The objective of this research is to investigate the factors that influence employees' knowledge sharing with a Saudi governmental organisation by proposing a model based on prominent theories in psychology and information systems management and organisational theories. This type of study can be classified as theory verification or theory testing research (Punch, 2005). In theory verification research, where there is usually a well-developed pre-specified framework, hypotheses are deduced from a theory and then tested. Quantitative method is commonly directed at theory verification studies (Punch, 2005). Building on certain theories, this research is concerned with examining relationships between some variables as a way to understand and explain a phenomenon.

In addition, the aim of the quantitative approach is "to collect evidence to formulate generalisations or laws that govern human behaviour. Thus, human behaviour can be predicted and controlled. Quantitative research is suited to theory testing and developing universal statements. It provides a "general" picture of a situation. Quantitative studies thus produce results that are generalisable across contexts (Schulze, 2003). Straub et al. (2004) mentioned the two applications of the quantitative approach,

1. "Comparison with existing theory, showing that the new theory advances knowledge. Specifically, it is necessary to show that the new theory has superior empirical substance and hence more predictive power.

2. Empirical testing aimed at falsifying the theory with data. When the data do not contradict the hypothesised predictions of the theory, it is temporarily corroborate. The objective of this test is to falsify, not to verify, the predictions of the theory. Verifications can be found for almost any theory if one can pick and choose what to look at."

The quantitative approach is, thus, deemed most appropriate to fulfil the proposed research aims and question.

Moreover, to overcome the limitation associated with the quantitative approach, it was decided to incorporate some qualitative data to get an in-depth understanding of the factors that influence employees' knowledge sharing behaviours, instead of relying totally on a quantitative approach. As such, a mixed method approach, which first uses the quantitative data to test the research model and hypotheses and then qualitative data to provide more in-depth answers to complement the findings from the quantitative data thus, enhancing the validity of the findings.

4.1.4. *Research Design*

A mixed methods design, specifically a sequential explanatory design (Creswell and Plano Clark, 2007) will be used, and it will involve collecting qualitative data after a quantitative phase to assist in explaining and interpreting the findings of a primarily

quantitative study. In the first, quantitative phase of the study, a survey method employing questionnaires will be used to collect cross section data from employees at a Saudi governmental organisations. The second, qualitative phase will be conducted using semi-structured interviews to shed more light on the quantitative findings. This phase can be especially useful when unexpected results arise from the quantitative study.

4.2. Research Techniques

The study will employ two techniques for collecting the data. The first and main technique will be the questionnaire and the secondary one will be the semi-structured interview. The questionnaire is "a highly structured method of data collection" (Wilson, 1998, p.102). It allows gathering data from a large sample over a short time. It is also flexible, impersonal and provides privacy (Walliman, 2001). However, some of the weaknesses of this procedure are the low response rate and the lack of opportunity to clarify issues (Wisker, 2001; Kumar, 1999). The semi-structured interviews will be used as a means of triangulation, i.e. to increase the validity of the data as well as give more insight of the research problem (Foster, 1998).

4.3. Research Sample

The conclusions of any research are determined largely by the nature of the samples used to collect data from (Gorard, 2004). The main feature of a good sample is its representativeness of the intended population (Stangor, 2007). Generalisation can be made about the population from the research sample only if the sample is carefully chosen to be representative of the population it was drawn from. The conclusion of the

current research will be generalised to the larger population of the KSA organisation employees; hence, it is necessary to design a sample that is representative with minimum sampling error.

A sample is defined as "a portion or subset of a larger group called a population" (Fink, 2003). The population is the entire group to be sampled and comprises of elements such as employees. Sampling is the process by which the elements of the sample are selected to represent the population. It is valuable for its efficiency and precision. Instead of studying the total population, using a sample involves less time, cost and effort in the collection and processing of data. Moreover, using a sample will increase the quality of the research (Lynn, 2002).

There are two types of samples: probability (or random samples) and non-probability or (or purposive samples) (Cohen et al., 2007). A probability sample involves a random selection of the elements (ibid). Examples of this type include simple random sample, stratified sample and cluster sample. Simple random involves selection of elements from a complete list or sampling frame one at a time and independently. Stratified sampling involves dividing initially the population into strata followed by a random selection of elements from each stratum in a way similar to simple random sampling. Cluster sampling involves a random selection of clusters (groups) of elements instead of individual elements. A probability sample provides an efficient way for choosing a sample that rightfully mirrors the variations existing in the population (Babbie, 2004). As a result, the findings from such sample can be generalised to the whole population more safely.

In contrast, a non-probability sample refers to the selection of any elements of the population in a non-random fashion. For example, a convenience sample involves choosing participants who are easiest to approach. Another example is a purposive sample which refers to the choice of respondents based on the personal judgments about their suitability (Pole and Lampard, 2002; Blaikie, 2003).

This research will study the factors influencing employees' knowledge sharing by focusing on a small part of the organisation. Yet, for policy-makers the findings resulting from the study will be useless if it only applies to no more than the studied sample. Therefore, the value of the research findings will be maximised if these findings can be generalised to the whole population of the organisations. The most appropriate way to achieve such generalisability of findings is to have a random sample. Therefore, this research will employ the probability random sampling method to choose the research sample to ensure its representativeness.

4.3.1. *Brief Account of Organisations Participating in Study*

In order to obtain information about the Saudi governmental organisations, the internet was used as a useful reference to locate the names and scope of many Saudi governmental agencies and organisations. For logistical and time constraints, the researcher only incorporated organisations in close geographical proximity to his location. This meant only distributing the survey questionnaire in the western part of Saudi Arabia: specifically, in Jeddah, Almadinah, Makkah and Yanbou. An initial decision was made to include organisations of different sizes and industries. However, consent

letters from some sectors were refused and access hitherto was denied to their employees.

Twenty five governmental organisations were chosen from a website that lists all the Saudi governmental bodies. These bodies consist of different types of governmental organisations including ministries, agencies, directorates, authorities, institutions, presidencies and administrations. The common aspect between these bodies is that they are all governmental and thus all processes (e.g. recruitment, promotion..etc.) go through procedures set by legislative bodies and laws, thus there is considerable power over bureaucracies.

However, of those twenty five governmental bodies, only five organisations responded to the researcher letters and granted permission to the distribution of the questionnaires. The following sections give a brief account of the participating governmental organisations.

4.3.1.1. Ministry of Education

The Saudi Ministry of Education was formed in 1953. It is a governmental body that oversees the primary, intermediate and secondary education in Saudi Arabia and contribute to the government's goals for education. Moreover, the ministry has responsibility for providing direction for education agencies and shaping strategic leadership and policy development. The ministry headquarter as all other ministries in the capital of Saudi Arabia, yet, there are main headquarters in other cities. In this study, the ministry of education main headquarter in Jeddah and in Almadinah were selected to distribute the main survey questionnaire. After several attempts to

communicate with the ministry secretary and human relations offices by emails and phone, a response received demanding more clarification regarding the method of distributing the questionnaire and confidentiality of responses. The researcher sent additional details about the research. After further communications, the consent form was obtained from the secretary's office. The researcher made numerous visits to the ministry of education headquarters in Jeddah and in Almadinah in order to communicate, distribute and collect the research questionnaires.

4.3.1.2. General Directorate of Border Guard

The foundation of this governmental organisation was initiated by the late King Abdul-Aziz, the first king of modern Saudi Arabia. The beginning of this directorate was started by establishing centres and patrols of the maritime surveillance, small sailing ships and camel riders in the eastern region to watch the coast. However, in 1993, the General Directorate of Border Guard has taken its today's status after undergoing several developments across the years.

This governmental organisation has several duties including: Guard the land and sea borders of the country, ports and harbours; and combat smuggling and infiltration. Early warning of any unusual movements on the border or close to it. Perform search and rescue operations; and provide guidance and assistance to sailing ships. Control security within the ports and harbours. Co-operate with official bodies in the scope as stipulated in the regulations in force and required by the public interest.

After receiving a phone response from the general directorate of border guard, the researcher arranged an appointment to distribute the questionnaire and then collect it.

The researcher distribute and collect the questionnaires physically over a number of visits since there was no email lists for this organisations' employees.

4.3.1.3. King Abdullah University of Science and Technology- KAUST

King Abdullah University of Science and Technology (KAUST) was established in 2009 in the small town of Thwal by a special decree from the king of Saudi Arabia. KAUST is a modern graduate research university that plays a crucial role in the development of Saudi Arabia. Research is central to KAUST's mission:

Research at KAUST – both basic and goal-oriented – is dedicated to advancing science and technology of regional and global impact. Research excellence inspires teaching and the training of future leaders in science and technology. In addition, research and education at KAUST energise innovation and enterprise to support knowledge-based economic diversification. KAUST is a catalyst for transforming people's lives through the synergy of science and technology, and innovation and enterprise,.

In approaching this university, more than two emails was sent to the office of the university dean. Over a period of two weeks and after some clarification emails, a permission was granted to distribute the questionnaire online. A message explaining the purpose of the study as well as the procedures to fill in the questionnaire was forwarded next with a link to the questionnaire.

4.3.1.4. Royal Commission for Jubail and Yanbu

The Royal Commission for Jubail and Yanbu was established in 1975 as an autonomous organisation of the Saudi Government. The organisation plans, promotes,

develops and manages petrochemicals and energy intensive industrial cities through partnerships with investors, employees, communities and other stakeholders. The Commission is governed by a Board of Directors and its Chairman reports to the Council of Ministers. The Chairman's office in Riyadh formulates the policies and oversees them besides implementing the same through the two Directorate Generals, one each for the cities of Jubail and Yanbu.

In this study, only the Directorate General in Yanbu was approached for logistical reasons. The researcher received a letter from the costumers' relations officer and arranged a meeting to distribute the questionnaire. However, further communication led to the decision to distribute the questionnaire online since a mailing list for the employees of this organisation was obtainable.

4.3.1.5. Umm Al-Qura University

Umm Al-Qura University was established as a College of Shari`a (Islamic Law) in Makkah in 1949. Hence, it is the first higher education institution in the country. Umm Al-Qura University is distinguished by its unique location in the Holy City of Makkah, and it's academic reputation in the fields of Islamic studies and scientific and applied disciplines. The university offers degrees in diverse subjects in its three campuses in Makkah including Shari'a and Islamic studies, Arabic Language and Arts, Engineering and Islamic Architecture and Medicine and Medical Studies.

Upon receiving a response to the email sent to the university's dean office, the researcher sent another email containing an explanation of the research purpose and link to the questionnaire. Another email was received from the dean's secretary

confirming the request. In distributing the questionnaire among the employees in this organisation, an email containing the cover letter for the questionnaire and a link to the questionnaire was forwarded to the university's mailing list through dean's office.

4.4. Ethical Considerations

It is imperative to address research ethics when human subjects are involved in a study. Research ethics refers to "the rights and responsibilities of those involved in research" (Oates, 2006, p. 54). Those involved in the research process may include: the researcher, other colleagues or assistants and the research participants (sometimes called respondents, subjects or informants). Oates (2006) provides five rights for the participants that the researcher should respect which are as follows: the right not to participate, the right to withdraw, the right to give informed consent, the right to anonymity and the right to confidentiality. In addition, the researcher has some responsibilities that help ensure the ethicality of his work. An ethical researcher: should not intrude unnecessarily into the participants' life; should behave with integrity; should follow appropriate professional codes of conduct; should not conduct plagiarism and should be an ethical reviewer (Oates, 2006).

The questionnaire is a useful tool to gather personal information from respondents, yet it can be considered as an intrusion into their lives (Cohen et al., 2007). In addition, questionnaires respondents are not passive participants; they may react to any item in the questionnaire if they feel it is offensive, irritating, biased or misleading (Cohen et al., 2007). It is, therefore important to address research ethics when using such a technique.

As a first step to ensure ethicality in the research, prior approval to conduct the study will be sought from De Montfort University (with which the researcher is affiliated) as well as from the Saudi governmental organisations (where the study will take place). Gravetter and Forzano (2003) maintain that the researcher should provide all available information about a study so that an individual can decide to participate or not. Therefore, the purpose of this research will be explained to the participating employees during administration. Secondly, a brief introduction to the research purpose will be provided on the cover sheet of the questionnaire. In the case of online questionnaire, a cover letter offering an introduction about the research, its purpose and contribution is shown before the questionnaire items appear. Thirdly, the employees will be informed (orally and on the cover sheet of the online questionnaire) that all the data arising from the research would be destroyed once the research is completed. Fourthly, on the cover sheet of the paper and online questionnaire the following issues will be made clear:

Respondents' right to withdraw at any stage;

Confidentiality of their identities and responses;

The respondents can be informed of the research results once it is finished by emailing the researcher on the provided email address.

4.5. Limitations of Survey Method

Although the survey design is the most useful method to gather large-scale data, this strategy has some limitations. If the purpose of the study, as Cohen et al. (2007)

state, "is to catch local, institutional or small scale factors and variables – to portray the specificity of a situation, its uniqueness and particular complexity, its interpersonal dynamics", then the survey is not an appropriate strategy. Further, surveys cannot offer fine details of the situation (or depth); rather, their focus is on breadth of coverage (Oates, 2006). As such, the survey strategy has a limited degree of explanatory potential (Cohen et al., 2007).

4.6. Information and Data Processing Procedures

4.6.1. *Data Analysis Strategy*

This section describes in detail the statistical tests that can be used to analyse the data and answer the research question. It starts with a brief account of the preliminary steps to be taken prior to data analysis. It outlines procedures of the selected statistical tests. The section also deals with the assumptions related to the chosen statistics.

4.6.2. *Coding Responses and Screening Data*

Data analysis strategy not only involves choosing the appropriate statistical analysis techniques, but also the initial steps to handle the data such as coding the responses and cleaning the raw data (Pallant, 2007). The coding process will start with defining and labelling each variable. Then the data will be entered into a statistical package (SPSS v 16). Next, the data will be screened to ensure the accuracy of entering scores. This involves locating any score that falls outside the range of possible values for a variable, i.e. looking at the frequencies, minimum and maximum scores, means and modes of all the variables. The subsequent step will assess the dataset for missing data, which is the focus of the next section.

4.6.3. *Missing Data*

Missing data is a frequently occurring problem in many studies. Missing data may occur because of a lack of knowledge of an item by the respondent, a data entry mistake or a respondent's refusal to answer certain items (Litwin, 2003). To avoid occurrences of the first case, the researcher will use a five-point Likert scale that provides an option of 'no opinion' or 'uncertain' which is equivalent to a middle category in a scale between "agree" and "disagree". In addition, careful data screening can help in remedying any entry mistake. However, in the instance of a respondent's refusal to respond to certain items, a thorough analysis of the missing data is necessary. Missing data can critically bias a research's conclusions and limit generalisability (Tabachnick and Fidell, 2007). Therefore, missing data should be addressed and treated.

4.6.4. *Choosing Appropriate Statistic*

Choosing the appropriate statistical technique depends on the research questions and the nature of the data (Pallant, 2007). To meet the purposes of this study, descriptive and inferential statistics will be used. Descriptive statistics are "the numerical, graphical, and tabular techniques for organising, analysing, and presenting data" (Argyrous, 2005, p. 14). The advantage of descriptive statistics is that they reduce a large set of data into more concise and clear forms to read. Examples of descriptive statistics that will be used in this research are frequency distribution, measure of central tendency (such as means, modes), measures of dispersion (e.g. standard deviation), histograms and pie charts. Inferential statistics refer to "the numerical techniques for making conclusions about a population based on the information obtained from a random sample drawn from that population" (Argyrous, 2005, p. 204). Inferential

statistics to be used in this research include correlation and multiple regression analysis. Correlation analysis, specifically Pearson's correlation coefficient, point-biserial correlation coefficient and Spearman rho correlation coefficient will be used to test the research hypotheses about the relationships between the study variables. Multiple regression analysis will be used to find out the most important factors influencing employees' knowledge sharing behaviour. Multiple regression analysis is a general statistical tool that can be used to predict a single dependent variable from the knowledge of one or more independent variables (Hair et al., 2006).

4.6.5. *Multiple Regression Analysis*

Broadly speaking, scientists are interested in explaining variance in a dependent variable. To this end, scientists study the relationships between the dependent variable and other variables (specifically, independent variables) (Pedhazur, 1997). Regression analysis is a method of analysing "the variability of a dependent variable by resorting to information available on an independent variable (Pedhazur, 1997, p. 3). However, when more than one variable is introduced, multiple regression analysis is used to simultaneously analyse the effects of several independent variables on a dependent variable.

4.6.6. *Assumptions of Statistical Analyses*

Statistical tests require specific assumptions in the data to be analysed (Field, 2005). When these assumptions are not met, the conclusions may not be trustworthy, leading to a Type I or Type II error (Osborne and Waters, 2002). As Pedhazur (1997, p. 33) points out, "Knowledge and understanding of the situations when violations of

assumptions lead to serious biases, and when they are of little consequence, are essential to meaningful data analysis". Therefore, screening the data for any violation of these assumptions is an important step to ensure valid conclusions. The next sections discuss the assumptions of the chosen tests.

4.6.7. *Homoscedasticity*

Homoscedasticity is the assumption that the residuals at each level of the predictors should have the same variance (Field, 2005). When the variances are very unequal, heteroscedasticity is present. This can lead to serious distortions of findings and seriously weaken the analysis (Osborne and Waters, 2002). However, Tabachnick and Fidell (2007) indicate that minor heteroscedasticity has slight effect on significance tests. This assumption can be checked by visual assessment of a plot of the standardised residuals (the errors) by the regression standardised predicted value (Osborne and Waters, 2002). In addition, the assumption can be also tested by inspecting the partial plots produced in SPSS regression analysis. If the dots in these graphs are spread out around the zero-line in a random fashion, this indicates homoscedasticity (Field, 2005). This visual method will be used to check the homoscedasticity assumption in this research.

4.6.8. *Normality*

Multiple regression analysis relies on the assumption that the variables have normal distribution (Osborne and Waters, 2002). As such, non-normally distributed variables, i.e. highly skewed or kurtotic, can distort relationships and significance tests (Osborne and Waters, 2002). Normality can be examined graphically or statistically. For example,

frequency histograms and P-P plots can help in assessing normality graphically. Examples of statistical measures of normality are skewness and kurtosis scores (Hair et al., 2006). Skewness implies the symmetry of a distribution (Meyers et al., 2006). Kurtosis gives information about the peakedness and flatness of the distribution (Pallant, 2007). When a distribution is normal, its skewness and kurtosis values are close to zero. A positive skew implies a distribution shifted toward the left while a negative skewness denotes a shift to the right. Negative kurtosis reflects a flat distribution whilst positive indicates a peaked distribution. In large samples, significant skewness is not very serious unlike its actual size. Therefore, Tabachnick and Fidell (2007) recommend looking at the shape of the distribution instead of only relying on the skewness value. This is also true for the kurtosis measure. Practically, skewness values should be within the range of ±2. Values greater than +3 (or less than -3) are assumed to be highly skewed(West et al., 1995). Some scholars suggest that the value for kurtosis should be also within ±2 or ±3 range (West et al., 1995).

To assess the assumption of normality in this research, all variables will be assessed in the data-screening stage by using SPSS v.16 for skewness and kurtosis.

4.6.9. *Sample Size*

Sample size in multiple regression analysis is important for two reasons. First, it has a direct and sizable impact on the statistical power of the regression analysis (Hair et al., 2006). Power in regression analysis means, "the probability of detecting as significant a specific level of R^2 or a regression coefficient at a specified significance level for a specific sample size" (Hair et al., 2006, p. 195). With very large samples, statistical

significance can be reached even if the effect is small. Such a case leads to inflated Type I error. On the other hand, with small samples, even large effect may not be easily detected leading to the risk of committing a Type II error (Tabachnick and Fidell, 2007). Hair et al. (2006) provide a useful table to identify the minimum R^2 that a specific sample size will detect as statically significant at certain α levels with a probability (power) of .80.

Secondly, sample size is important if the findings are to be generalised to the population. Hair et al. (2006) offer a general rule determining the required ratio of observations to independent variables required to allow generalisation. They suggest a minimum of five observations to each dependent variable or, better, 25 observations to each variable. Stevens (2001) suggests a ratio of 15 cases per predictor. When these levels are reached, the results can be generalisable given the sample is representative (Hair et al., 2006). In the same way, Tabachnick and Fidell (2007) provide a formula for computing sample size taking into consideration the number of independent variables of interest: N > 50 + 8m, where m is the number of independent variables. This rule assumes a medium-size relationship between the independent variables and the dependent variable at α=0.05 and with β= 0.20. As suggested by this rule, the sample of this study with twelve variables should exceed N=50 + 8(12) =146 participants.

4.6.10. *Linearity*

Linearity refers to the straight-line relationship between two variables. Multiple regression analysis can only give accurate estimates if the relationship between dependent and independent variables are linear in nature (Osborne and Waters, 2002).

Thus, linearity is an important assumption in multiple regression analysis. This assumption can be assessed by examining a scatter plot of residuals (i.e. the difference between the obtained and predicted dependent variable scores) against predicted dependent variable scores.

4.6.11. *Outliers*

An outlier is a case with an unusual extreme value (univariate outlier) or an anomalous combination of scores on two or more variables (multivariate outlier) (Hair et al., 2006). Outliers may occur for different reasons. For example, they may be a result of data entry error that can be easily corrected by checking the minimum and maximum values of the variable. In addition, outlier cases may not belong to the intended population. In this case, deleting them is the best solution. Outliers may have been correctly sampled, yet their presence indicates the real distribution of the variable under study. In this case, retaining the outliers is necessary unless they actually distort the statistics (Tabachnick and Fidell, 2007). Therefore, outliers should not be judged as either useful or problematic but rather analysed within the context of the study (Hair et al. 2006). However, because some statistical tests are very sensitive to outliers (e.g. multiple regression), these unusual values should be identified and treated (Pallant, 2007).

A univariate outlier is easily spotted by graphical methods such as box plots and normal probability plots. Statistically, the scores can be converted into *z*-scores and if any standardised score exceeds ±2.5, it is deemed a potential outlier (Tabachnick and Fidell, 2007). However, in larger samples (> 80), the threshold value of standard scores

ranges from ±3 to 4 (Hair et al. 2006). Tabachnick and Fidell (2001) suggest that any score exceeding ± 3.29 is an outlier.

In addition, it is important to examine multivariate outliers. These cases can be diagnosed by using Mahalanobis' D^2 measure (Tabachnick and Fidell, 2007). Mahalanobis D^2 is the distance of a case from the centroid of the remaining cases (Tabachnick and Fidell, 2007). This statistic can be obtained from the linear regression analysis in SPSS. Mahalanobis D^2 uses a chi-square distribution with degrees of freedom equal to the number of variables involved in the computation and a probability of $p < 0.001$ (Tabachnick and Fidell 2007).

4.6.12. *Multicollinearity and Singularity*

Multicollinearity implies extremely high correlation between variables (e.g. larger than .85) whereas singularity occurs when one variable is a combination of other variables (Tabachnick and Fidell, 2007). In multiple regression analysis, multicollinearity can decrease the predictive power of a predictor by the extent to which it is associated with the other predictors (Hair et al., 2006). In addition, multicollinearity and singularity may result in problems in the analysis by either hindering matrices inversion that is part of the calculation of the regression coefficient, or making them unstable (Tabachnick and Fidell, 2007). Multicollinearity and singularity can be diagnosed by looking at the correlation matrix of all the independent variables. The presence of a high correlation, i.e. 0.85 or larger, denotes multicollinearity (Field, 2005). Another method to check multicollinearity among pairwise or multiple variables is to check the variance inflation factor (VIF). This indicates if a variable has a strong relationship with the other

variables. Values of 10 or above signify multicollinearity (Field, 2005). Another related measure of multicollinearity is the tolerance statistic that equals (1-VIF). The rule of thumb for detecting problematic variables is that of tolerance values below 0.10.

4.7. Follow-Up Interviews

This research adopted the semi-structured interview technique to gather data in a follow up step. The purpose of conducting interviews was mainly to understand the reasons for the rejected hypotheses in the research.

The interview is a research technique. Kvale and Flick (2007)define the interview as a conversation that has a structure and a purpose determined by the interviewer and in which the researcher asks about, and listens to, what people relate in their own words about their lived world. As such, the interview is different from the daily spontaneous communication in that it does not occur by chance; rather it is planned (Oates, 2006). In fact, this technique is a professional interaction that involves careful questioning and listening (Kvale, 2007).

The interview can be employed as the major method for collecting data or can be used in combination with other techniques. The interview is especially a valuable tool when the goals of the study are to solicit in depth or sensitive information that the study participants might not be willing to put in writing or to delve into the participants' feelings or experiences that cannot be readily explored or portrayed (Oates, 2006, p. 187).

One disadvantage of the interview technique is the relatively large volume of data resulting. Moreover, interviewing is time consuming during the interviews and after when analysing the transcripts. Nevertheless, with the help of qualitative data software, the task of sorting and examining data becomes much easier (King, 2004).

There are three different types of the interview: structured interview, semi-structured interview and unstructured interview. A structured interview is also called a standardised interview. In this type of interviews, the same questions are asked of all respondents. Corbetta (2003) defines structured interviews as "interviews in which all respondents are asked the same questions with the same wording and in the same sequence."(p. 269). Bryman (2001) states that in a structured interview "The aim is for all interviewees to be given exactly the same context of questioning. This means that each respondent receives exactly the same interview stimulus as any other. The goal of this style of interview is to ensure that interviewees' replies can be aggregated" (p. 107). Therefore, the questions are often very specific and the answers are closed ended or fixed choice. The advantage of structured interviews is that the interviewer has control over the issues and the format of the interview that makes analysing, coding and comparing the data more straightforward (Kajornboon, 2005). Yet, the disadvantage of this type of interviews is that adhering to the interview guide too strictly may lead to missing valuable information.

The semi-structured interviews are non-standardised interviews. The interviewer has a list of key topics, issues and questions to be covered. As such, the order of the questions can be altered depending on the course of the interview. The interviewer is

free to explore, probe, and ask further questions in order to elucidate a point; nevertheless, he has to keep the focus on a specific theme (Patton, 2002). The strength of this type of interviews is that the interviewer has the freedom to probe deeper into the required topic. Moreover, the interviewer can clarify or rephrase the question if the interviewee needs so.

Unstructured interview is non-directed, i.e. it does not necessarily follow a detailed interview guide. Hence, it is more flexible and casual. The interviewees are encouraged to speak openly and give as much detail as possible; thus, each interview is different. This is valuable when little is known about an issue. However, the drawback of this technique is that it can accumulate a massive amount of information that is difficult to analyse and interpret (Kajornboon, 2005).

4.7.1. *Recruiting Participants*

In selecting interviewees, a purposive sampling approach was used. While originally 15 interviews were planned, only seven interviews were conducted due to time constraints. Interviews took place in the participants' own places since this was more convenient to them.

The primary condition for recruiting the sample for the semi-structured interviews was the diversity of the respondents. The researcher sought to find participants who have diverse demographics so that different perspectives can be obtained. In other words, all interviewees differed in the age, job status, years with organisation, level in organisation.

4.7.2. *Interview Guide*

An interview guide was prepared for this study. An interview guide is "the brief list of memory prompts of areas to be covered that is often employed in unstructured interviewing or to the somewhat more structured list of issues to be addressed or questions to be asked in semi-structured interviewing" (Bryman and Bell, 2011, p. 473). Bryman and Bell (2011) offered some tips in preparing the interview guide. The interview guide began by giving information about the researcher and the study. Moreover, the guide included general and specific questions about the interviews. In addition, it also had the topics to be covered in order to answer the questions.

4.7.3. *Carrying Out Interview*

The semi-structured interviews were performed to obtain a deeper understanding of some of the results. After analysing the questionnaire results, semi-structured interviews were conducted with seven employees from the participating governmental organisations. Furthermore, all the interviews lasted between 20 and 40 minutes and were conducted in Arabic. As Saunders et al. (2009) suggested, prior to commencing the interviews, the participants were asked whether it was possible to record the interviews clarifying that this is essential to make accurate transcripts of the conversations and to give undivided attention to the interviewees and their responses. An MP3 player was used to record the interviews. It was hoped that using this small devise would minimise any tense the interviewees might feel.

4.7.4. *Ethical Considerations of Interview Technique*

Kvale and Flick (2007) argue that ethical issues permeate interview research. Thus, it is essential to inform the interviewee of the purpose and procedure of the interviews

(Morgan and Symon, 2004). Primarily, an ethical approve was taken beforehand the commencement of the present study from De Montfort University Human Research Ethics Committee. Before the beginning of each interview session, the respondents were ensured of the confidentiality of the interview and that their identities will not be revealed in any published work arising from the research. It was clarified that only the researcher will have access to the data from the study. In addition, they were informed ahead about any potential risks involved. Similarly, participants were notified that they are free to withdraw from the study at any time without consequences.

At the commencement of the interview, the interviewees were given information about the researcher as well as about the purpose of the study. Moreover, it was clarified how the data will be used, and told that they can have access to the research findings by giving them the researcher's email.

4.8. Summary

- This chapter has focused on the methodology that will be adopted in this study.
- It has outlined the research design.
- Specifically, it has described the various strategies and research techniques that will be used in the research.
- It has discussed the design, samples, procedures, and ethical issues pertinent to the study.
- It has also outlined the advantages and limitations of the survey method.
- It has delineated information and data processing procedures
- In this research, the mixed-method research design will be employed to investigate the factors influencing employees' knowledge sharing behaviour.
- The research will involve the collection of qualitative data after a quantitative phase to explain the quantitative data in more depth.
- In the first, quantitative phase of the study, the survey strategy employing the questionnaire technique that will use to collect data from a simple random sample of employees at a Saudi organisations.
- The second, qualitative phase will employ semi-structured interviews with some employees to help explain unexpected quantitative results.

The next chapter will describe the development and validation processes of the research instrument.

Chapter Five

Survey Instrument Development and Pilot Study

5. Introduction

The previous chapter has discussed the research methodology. Straub (1989) argues that piloting and validating the study instrument would result in more truthfulness to the scientific research. Going through systematic validation can be seen as triangulation since validated scales are adopted several times and across various settings(Straub, 1989). During the process of validation, scrutinising the model constructs will eventually result in more theoretically meaningful constructs and variable relationships (Bagozzi, 1980). This in turn, consolidates the scientific endeavour and sheds confidence in the findings whereas doubts are casted on findings and conclusions if the research instrument is not validated (Straub, 1989).

Furthermore, piloting the study is critical for planning and conducting the main study (Connelly, 2008). Van Teijlingen and Hundley (2001) define pilot studies as "mini versions of a full-scale study, as well as the specific pre-testing of a particular research instrument such as a questionnaire or interview schedule" (p. 1). As such, a pilot study adopts the exact same methods and actions to those will be used in the main study (Cohen et al., 2007). Through conducting a pilot study, the researcher can test out the clarity of the scale items and directions as well as the length and complexity of the questionnaire. He can also obtain feedback on the validity and reliability of the questionnaire items. Furthermore, piloting the study is helpful for later statistical

analysis and coding of the data. The researcher can also have an idea on any logistical obstacles that may face him later (Cohen et al. , 2007).

As Straub (1989) describes, "in the process of validating an instrument, the researcher is engaged, in a very real sense, in a reality check. He or she finds out in relatively short order how well conceptualisation of problems and solutions matches with actual experience of practitioners" (p. 148), for the abovementioned reasons, a pilot study was carried out to check the required procedures for distributing and collecting the questionnaire and gather enough data to validate it.

It is essential to say that, in constructing the research questionnaire, the researcher conducted an initial stage or a review of the extant literature to locate knowledge sharing factors and scales to measure them. The previous chapter has partly described how measurement items were developed by adopting scales items that had been validated in prior studies and then modified them to fit this study context. This chapter continues the development process by piloting and validating the questionnaire items.

5.1. Research Constructs

Table 2 below provides the operationalisation of the research constructs as well as the main sources of their scale items.

Table 2: Operationalisation of Research Constructs

Construct		Definition	Key Reference	No. Items
Knowledge sharing behaviour (KSB)		The behaviour in which the individual shares his or her tacit or/and explicit knowledge; experience, insight and understanding with another individual or knowledge repositories in the organisation	Self-developed	3
Behaviour al Intention to KS (BI)		The degree of the employee's belief that he will engage in knowledge-sharing behaviour	Chow and Chan (2008)	3
Attitude towards KS (ATT)		The degree of the employee's favourable or unfavourable feeling about sharing one's knowledge	Ajzen (2006)	4
Subjective Norm about KS (SN)		The degree of the employee's perceived social pressure from important others to share knowledge	Ajzen (1991)	4
Perceived Behavioural Control over KS (PBC)		The perceived ease or difficulty of sharing knowledge	(Ajzen, 1991)	4
Behavioural beliefs	Belief of fear (FR)	The degree to which the employee believes that sharing knowledge will be fear provoking	Self-developed	4
	Belief of benefit (BN)	The extent to which the employees are willing to share their knowledge with others for beneficial compensation	Self-developed	8

Normative beliefs	Management influence (Mg)	The employee's perceived management pressure to share knowledge	Self-developed	5
	Perceived Organisational norms (Org. N)	The degree to which the employee has collective goals, missions and visions with other people in the organisation	Chow and Chan (2008)	6
Control beliefs	Time	The extent to which lack of time is seen as impeding the employees from sharing their knowledge with others	Self-developed	1
	Facilitating Means (FM)	The degree to which an employee believes that other means enhances his or her ability to share knowledge with other	Self-developed	4
Trust (TR)		The degree of the employee willingness to be vulnerable to the actions of other people	Aulakh et al, 1996	5
Tendency (Tend)		The degree to which the employee has a propensity to exert effort to share his or her knowledge with others	Self-developed	3

To obtain variability in the answers, all the constructs, apart from the demographic ones, were measured on a five-point likert scale.

The next section outlines each construct's measurement. Appendix 3 presents the research questionnaire. Appendix 4 shows how each question in the study questionnaire connects with the research model's constructs.

5.1.1. *Knowledge Sharing Behaviour (KSB)*

Lee (2001) defines knowledge sharing as the "activities of transferring or disseminating knowledge from one person, group or organisation to another" (p. 324). Ipe (2003) also defines it as "the act of making knowledge available to others within the organisation. Knowledge sharing between individuals is the process by which knowledge held by an individual is converted into a form that can be understood, absorbed, and used by other individuals" (p.341). In this research knowledge, sharing is defined as *the behaviour in which an individual share his or her tacit or/and explicit knowledge; experience, insight and understanding with another individual or knowledge repositories*. This definition acknowledges the behavioural aspect of knowledge sharing. This knowledge can be (tacit or/and explicit). It does not imply that both are necessarily shared at the same time. Table 3 below outlines the items used to tap the construct of KSB.

Table 3: Items Measuring KSB

Constructs	Items	Source	Q. No.
Knowledge sharing behaviour (KSB)	I share my knowledge and expertise with other members in the this organisation Very rarely 1 2 3 4 5 very frequently	Francis et al. (2004)	Q13
	I share my explicit knowledge and expertise with other members in the this organisation Very rarely 1 2 3 4 5 very frequently	Self-developed	Q14
	I share my tacit knowledge and expertise with other members in the this organisation Very rarely 1 2 3 4 5 very frequently	Self-developed	Q15

The first statement measure KSB was adopted from The Francis et al. (2004). Another two statements were developed by the researcher himself. KSB measure used a five-point Likert scale anchored by Very rarely = 1 and Very frequently = 5. The mean of the three items will be taken as the measure of KSB.

5.1.2. *Behavioural Intention(BI)*

In this study, Behavioural Intention (BI) has been operationalised to capture the strength of an employee's subjective willingness to share his knowledge and expertise with other members in his organisation. Francis et al. (2004) defined BI as a "person's motivation in the sense of his or her conscious plan to exert effort to carry out a behaviour" (p. 32). BI signifies how much the individual is willing and planning to try carrying out a specific behaviour(Ajzen, 1991). When a given behaviour is not seen as hard to perform, it can be accurately expected from the individual's intentions regarding this behaviour (Ajzen, 1991). Table 4 below shows the items used to measure BI.

Table 4: Items Measuring BI

Constructs	Items	Source	Q. No.
Behavioural Intention (BI)	I will share my knowledge and expertise with other members in this organisation in the future. Extremely unlikely 1 2 3 4 5 Extremely likely	Bock et al. 2005	Q10
	I intend to share my knowledge and expertise with other members in this organisation more frequently in the future. Extremely unlikely 1 2 3 4 5 Extremely likely		Q11
	I will try to share my knowledge and expertise with other members in this organisation in a more effective way. Extremely unlikely 1 2 3 4 5 Extremely likely		Q12

The three statements measuring BI were adopted from Bock et al. (2005). The alpha score for this sub-scale as reported by Bock et al. was high, α = .93. The BI measure used a five-point Likert scale anchored by Extremely unlikely = 1 and Extremely likely = 5. The mean of the three items will be taken as the measure of BI.

5.1.3. *Attitude (ATT)*

Ajzen and Fishbein (1980) in their theory (TRA) proposed that the individual's intentions to perform a behaviour can be predicted with considerable accuracy from his or her attitudes toward that behaviour . Attitude (ATT) is "the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in question" (Ajzen, 1991, p. 188). Attitude toward knowledge sharing is operationalised in this research as an employee's overall evaluation of adopting knowledge sharing. In measuring this construct, the definition and items suggested by Ajzen (2006) were adopted. According to Ajzen the individual's attitude or his overall evaluation of a behaviour has two different elements: an instrumental element that is signified by adjectives like harmful or beneficial, and a more experiential element reflected in adjectives like boring or interesting. Our scale has adjectives of both elements as well as an overall evaluation adjective such as good or bad as recommended by Ajzen (2006). The scale in Table 5 beneath incorporates four items. Three items adopted from Ajzen (2006) and one item adopted from Chennamaneni (2006) with some modifications to suit the research context. The mean of the four items will be taken as a measure of attitude, with a high score signifying a more favourable attitude towards adopting knowledge sharing.

Table 5: Items Measuring Attitude

Constructs	Items	Source	Q. No.
Attitude (ATT)	To me, Sharing my knowledge and expertise with other members in this organisation is		Q1
	Very bad Idea 1 2 3 4 5 Very good idea	Ajzen (2006)	1(1 of 4)
	Very harmful 1 2 3 4 5 Very beneficial		1(2 of 4)
	Very boring 1 2 3 4 5 Very interesting		1(3 of 4)
	Very worthless 1 2 3 4 5 Very valuable	Chennamaneni (2006)	1(4 of 4)

5.1.4. *Subjective Norm (SN)*

TRA (Ajzen and Fishbein, 1980) postulated that the individual's intentions to perform a behaviour can be also predicted with high accuracy from his or her subjective norms (SN) toward that behaviour . The social influence is thus another important determinant of intention. Ajzen (1991) defines SN as the "perceived social pressure to perform or not to perform the behaviour " (p. 188). In other words, if a person holds that the significant individuals (referents) believe that he should do a specific behaviour, he may opt to do it despite his negative attitude towards performing it (Ajzen, 1985). In this research, SN scale captures the participating employees' beliefs about their important referents, in particular, their important others beliefs about the employees' sharing their knowledge with others. The items were adopted directly from Ajzen (2006) scale but modified to capture the behaviour of knowledge sharing. In Table 6 below there are four statements in this scale and the mean of the items will be taken as the measure of subjective norm, a high score of this

scale will stand for a high sense of influence from the important referents towards knowledge sharing.

Table 6: Items Measuring SN

Constructs	Items	Source	Q. No.
Subjective Norm (SN)	People who influence my behaviour (e.g. manager, colleague etc.) think that I should share my knowledge and expertise in this organisation. Strongly disagree 1 2 3 4 5 Strongly agree	Ajzen (2006)	Q2
	People who are important to me (e.g. manager, colleague etc.) think that I should share my knowledge and expertise in this organisation. Strongly disagree 1 2 3 4 5 Strongly agree		Q3
	People whose opinions I value (e.g. manager, colleague etc.) would approve of my knowledge and expertise sharing in this organisation. Strongly disagree 1 2 3 4 5 Strongly agree		Q5
	It is expected (e.g. by boss, colleague etc.) of me that I share my knowledge and expertise with other members in this organisation. Strongly disagree 1 2 3 4 5 Strongly agree		Q6

5.1.5. *Perceived Behavioural Control (PBC)*

To successfully carry out a behaviour, the individual's control of any hindering factors is as important as the individual's attitude and subjective norm towards performing the behaviour (Ajzen, 1985). Therefore, Ajzen (1985) incorporated a new theoretical construct in his modified version of TRA, that is perceived behaviour al control (PBC). PBC is "the perceived ease or difficulty of performing the behaviour" (Ajzen, 1991, p. 188). In the context of this research, the employee's perceived control

over sharing knowledge is measured by four items (as shown in Table 7 below) adopted with modification from Ajzen (2006), Chennamaneni (2006) and Francis et al (2004).

Table 7: Items Measuring PBC

Constructs	Items	Source	Q. No.
Perceived Behavioural Control (PBC)	Sharing my knowledge and expertise with other members in this organisation is currently within my control. Strongly disagree 1 2 3 4 5 Strongly agree	Chennamaneni (2006)	Q4
	It is under my capability to share my knowledge and expertise with other members in this organisation Strongly disagree 1 2 3 4 5 Strongly agree	Ajzen (2006)	Q7
	I am confident that I could share my knowledge and expertise with other members in this organisation if I wanted to. Strongly disagree 1 2 3 4 5 Strongly agree	Francis et al (2004)	Q8
	For me, to share my knowledge and expertise with other members in this organisation is Very difficult 1 2 3 4 5 Very easy		Q9

Responses to the first three items used a five-point Likert scale anchored by strongly disagree = 1 and strongly agree = 5. Responses to the fourth item used a five-point Likert type-scale anchored by very difficult = 1 and very easy = 5. The mean of the four items will be taken as the measure of PBC.

5.1.6. *Attitudinal Beliefs*

Ajzen and Fishbein (1980) argue that any behaviour can be successfully predicted from certain determinants. However, to further explain this behaviour , i.e. for a deeper level of understanding, the developers of the theory postulated that the these factors

can be further analyzed into beliefs. Ajzen (1991) explains "it is at the level of beliefs that we can learn about the unique factors that induce one person to engage in the behaviour of interest and to prompt another to follow a different course of action" (pp. 206-207). The review of the relevant literature in the preceding chapters helped in locating the attitudinal, normative and control beliefs and in identifying scales to measure them.

5.1.6.1. Beliefs of Fear

The construct of perceived beliefs of fear (FR) in this study can be defined as the degree to which the employee believes that sharing knowledge will be fear provoking. To measure this construct, four items (as shown in Table 8 below) were adopted from earlier studies and measured on a five point Likert scale. The second and third items anchored by Strongly disagree = 1 and Strongly agree = 5 while the first and fourth items anchored by Extremely unlikely 1 2 3 4 5 Extremely likely.

Table 8: Items Measuring FR

Constructs	Items	Source	Q. No.
Fear (FR)	Generally, I prefer to keep my expertise to myself. Extremely unlikely 1 2 3 4 5 Extremely likely	Kolekofski Jr. and Heminger (2003)	Q19
	I believe that by sharing my personal knowledge and expertise with other members in this organisation, will lead others to steal my ideas and reap rewards that are rightly mine Strongly disagree 1 2 3 4 5 Strongly agree	Jewels (2006)	Q23
	In sharing my knowledge and expertise in this organisation my future within the organisation would be at risk. Strongly disagree 1 2 3 4 5 Strongly agree		Q25

	Sharing my knowledge and expertise with other members in this organisation makes me lose my unique value. Extremely unlikely 1 2 3 4 5 Extremely likely	Chennamaneni (2006)	Q27

5.1.6.2. Beliefs of Benefit

The construct of perceived beliefs of benefit (BN) in this study can be defined as the extent to which the employee believes that sharing knowledge will be of benefit to him. To measure this construct, eight items (as shown in Table 9 below) were adopted from earlier studies and measured on a five point Likert scale. Six items were anchored by Extremely unlikely 1 2 3 4 5 Extremely likely while the two items were anchored by Strongly disagree = 1 and Strongly agree = 5.

Table 9: Items Measuring BN

Constructs	Items	Source	Q. No.
Benefit (BN)	I expect to get more job security when I share my knowledge and expertise with other members in this organisation . Extremely unlikely 1 2 3 4 5 Extremely likely	Jewels (2006)	Q26
	Sharing my knowledge and expertise with other members in this organisation improves others recognition of me. Extremely unlikely 1 2 3 4 5 Extremely likely	Chennamaneni (2006)	Q28
	I share my knowledge and expertise with other members in this organisation to improve my reputation Strongly disagree 1 2 3 4 5 Strongly agree		Q29
	I believe my status improves, when I share my knowledge and expertise with other members in this organisation. Strongly disagree 1 2 3 4 5 Strongly agree		Q30
	Sharing my knowledge and expertise with other members in this organisation will increase my chances	Jewels (2006)	Q31

	of promotion. Extremely unlikely 1 2 3 4 5 Extremely likely		
	When I share my knowledge and expertise with other members in this organisation, I believe that my queries for knowledge will be answered in the future. Extremely unlikely 1 2 3 4 5 Extremely likely	Chennamaneni (2006)	Q32
	Sharing my knowledge and expertise in this organisation would strengthen the ties between me and other members. Extremely unlikely 1 2 3 4 5 Extremely likely	Bock et al. (2005)	Q33
	Sharing my knowledge and expertise in this organisation would create strong relationships with other members who have common interests Extremely unlikely 1 2 3 4 5 Extremely likely		Q34

5.1.7. *Normative Beliefs*

In this study, the normative beliefs are defined as the pressure the employees feel from their managers and other colleagues. In addition, the normative beliefs include the employees' perceptions of the norms prevailing in their organisation regarding knowledge sharing. Therefore, this study has two normative beliefs: management influence and organisation norms. To measure the two constructs, various items were adopted from previous studies (Jewels, 2006; Connelly and Kelloway,2003) as well as developed by the researcher.

The scale in Table 10 beneath includes five items adopted from previous studies (self developed; Connelly and Kelloway, 2003) with some modifications to suit the research context. All the items were anchored by Strongly disagree = 1 and Strongly agree = 5. The mean of the five items will be taken as a measure of management influence. In addition, Table 11 beneath shows the scale for measuring organisation norms. It has six items adopted from previous studies (Jewels, 2006; Connelly and Kelloway,2003) with modifications to suit the research context. The first, second and

final items were anchored by Strongly disagree = 1 and Strongly agree = 5 while the third, fourth and fifth items were anchored by Extremely unlikely= 1 Extremely likely=5 The mean of the six items will be taken as a measure of perceived organisational norms.

Table 10: Items Measuring Mg

Constructs	Items	Source	Q. No.
Management influence (Mg)	Top management would expect me to share my knowledge and expertise with other members in this organisation Strongly disagree 1 2 3 4 5 Strongly agree	Jewels (2006)	Q35
	My manager would expect me to share my knowledge and expertise with other members in this organisation Strongly disagree 1 2 3 4 5 Strongly agree		Q36
	My colleagues would expect me to share my knowledge and expertise with other members in this organisation Strongly disagree 1 2 3 4 5 Strongly agree		Q37
	My manager does not really care if I share knowledge or not share my knowledge and expertise with other members in this organisation. (reverse coded) Strongly disagree 1 2 3 4 5 Strongly agree	Connelly and Kelloway (2003)	Q38
	My manager has told me to share more knowledge with other people in the organisation Strongly disagree 1 2 3 4 5 Strongly agree		Q46

Table 11: Items Measuring Org. N

Constructs	Items	Source	Q. No.
Perceived Organisational norms (Org. N)	The top management seems to be serious about getting employees to share their knowledge and expertise with each other Strongly disagree 1 2 3 4 5 Strongly agree	Connelly and Kelloway (2003)	Q39
	This organisation has a special knowledge sharing initiative (strategy) Strongly disagree 1 2 3 4 5 Strongly agree		Q40
	My personal vision is in agreement with my organisation vision. (Please comment if you do not know the organisation vision) Extremely unlikely 1 2 3 4 5 Extremely likely	Self-developed	Q41
	My personal values are in agreement with my organisation values. (Please comment if you do not know the organisation values) Extremely unlikely 1 2 3 4 5 Extremely likely		Q42
	My personal goals are in agreement with my organisation goals. (Please comment if you do not know the organisation goals) Extremely unlikely 1 2 3 4 5 Extremely likely		Q43
	I feel quite confident that my organisation always tries to treat me fairly Strongly disagree 1 2 3 4 5 Strongly agree		Q44

5.1.8. *Control Beliefs*

The control beliefs in this study are defined as the degree to which the employees belief they have enough time (T) to share their knowledge. Moreover, another construct is also termed facilitating means and is defined as the extent to which the employees perceive sharing their knowledge as possible in terms of the availability of IT tools, ability and language.

Table 12 below shows the time scale that incorporates one item adopted from Chennamaneni (2006). The item was anchored by Strongly disagree = 1 and Strongly agree = 5.

Moreover, to measure the facilitating means construct, three items (as shown in Table 13 below) were developed by the researcher and measured on a five point Likert scale anchored by Strongly disagree = 1 and Strongly agree = 5. The mean of the three items will be taken as a measure of facilitating means.

Table 12: Items Measuring Time

Constructs	Items	Source	Q. No.
Time (T)	I have enough time available to share my knowledge and expertise with other members in this organisation Strongly disagree 1 2 3 4 5 Strongly agree	Chennamaneni (2006)	Q47

Table 13: Items Measuring FM

Constructs	Items	Source	Q. No.
Facilitating Means (FM)	I have the necessary IT tools to share my knowledge and expertise with other members in this organisation Strongly disagree 1 2 3 4 5 Strongly agree	Self-developed	Q48
	I am able to share my knowledge and expertise with other members in this organisation easily Strongly disagree 1 2 3 4 5 Strongly agree		Q49
	I have a good level of language to understand and exchange knowledge and expertise with other members in this organisation Strongly disagree 1 2 3 4 5 Strongly agree		Q50

5.1.9. *Trust*

Abrams et al. (2003) sees trust as "a central characteristic of relationships that promotes effective knowledge creation and sharing" (p.64-65). Trust and reciprocity are necessary for the creation of social networks that are essential to knowledge sharing (Burt 1992, Larson 1992). Specifically, organisational trust which is defined as "a feeling of confidence and support in an employer" (Gilbirt and Li-Ping Tang, 1998, p.322) is required for initial levels of knowledge sharing; yet, interpersonal trust which is defined as "the willingness of one person to increase his/her vulnerability to the actions of another person" Aulakh et al. In this study, interpersonal trust is only investigated because it is the main motivator for knowledge sharing. Trust is conceptualised as a 'reciprocal faith in others' intention and behaviours' (Lee and Choi, 2003, p. 5). To measure the construct, five items were adopted from previous research (Mooradian, et al., 2006;Goffee and Jones, 1996; Jarvenpaa and Staples, 2001) with some modifications to suit the research. All five items in Table 14 were measured on a five point Likert scale anchored by Strongly disagree = 1 and Strongly agree = 5. The mean of the five items will be taken as a measure of trust.

Table 14: Items Measuring TR

Constructs	Items	Source	Q. No.
Trust (TR)	Most members in this organisation trust each other. Strongly disagree 1 2 3 4 5 Strongly agree	Self-developed	Q20
	When I get into difficulties, I know other members in this organisation would try to help me out. Strongly disagree 1 2 3 4 5 Strongly agree	Todd etal, 2006	Q21
	I can trust other members in this organisation to		Q22

	lend me a hand when I need it Strongly disagree 1 2 3 4 5 Strongly agree		
	People in this organisation share their ideas openly. Strongly disagree 1 2 3 4 5 Strongly agree	Goffee and Jones, 1996; Jarvenpaa and Staples, 2001	Q24
	People here do favors for others because they like one another Strongly disagree 1 2 3 4 5 Strongly agree		Q45

5.1.10.*Tendency*

Constant et al. (1994) also proposed that people's tendency to share affects knowledge sharing behaviour. People who have a tendency to share knowledge weigh more highly the social and personal benefit from sharing compared to the cost of sharing.

Table 15 below shows the tendency construct scale that incorporates item adopted from previous studies (Kolekofski Jr. and Heminger, 2003) with some alterations to fit the research context. The three items were measured on a five point Likert scale anchored by Strongly disagree = 1 and Strongly agree = 5. The mean of the three items will be taken as a measure of tendency.

Table 15: Items Measuring Tendency

Constructs	Items	Source	Q. No.
Tendency (Tend)	My first tendency is to share knowledge if someone requests it Extremely unlikely 1 2 3 4 5 Extremely likely	Kolekofski Jr. and Heminger 2003	Q16
	I tend to make my knowledge readily available Extremely unlikely 1 2 3 4 5 Extremely likely		Q17

	I am willing to share knowledge regardless of its worth Extremely unlikely 1 2 3 4 5 Extremely likely		Q18

5.1.11.*Demographics*

There is a rich literature discussing the significance of the individual factors in knowledge sharing. Thus, the second part of the questionnaire elicits information related to the employees' nationality gender, type of sector, organisation size, the participants' age group, level of education, year with organisation, level in organisation and job status. The questions were framed carefully to minimise confusion.

5.1.11.1. Nationality

Nationality is defined as the status of belonging to a particular country. Participants were asked to fill in his or her nationality.

5.1.11.2. Gender

The question seeks to determine the participant sex. Two options were specified, namely, male and female.

5.1.11.3. Sector

Sector is defined as the category of organisation. Five modes for organisation were classified, namely, government, education, health, finance, service, and the option of other to be specified if different.

5.1.11.4. Organisation Size

The question aimed at soliciting information about the organisation employees' number. Four range of employees' number, namely, under 100 employees, 101 – 500

employees, 501 – 1000 employees, 1001 – 5000 employees and the option of other to be specified if different.

5.1.11.5. Age Group

The question aimed at soliciting information regarding the participant age group. Six choices were specified in years, namely, 20 or younger, 21 to 30, 31 to 40, 41 to 50, 51 to 60 and 61 or older.

5.1.11.6. Level of Education

The questionnaire med at soliciting information regarding the employee's educational background and achievement. Four level were identified, namely, high school degree, post-secondary diploma, bachelor degree, master degree, doctorate degree and the option of other to be specified if different.

5.1.11.7. Years with Organisation

The question aimed at soliciting information about the employees' years with organisation. Six choices of experience years were asked, namely, less than 2 years, 2 to 5 years, 6 to 10 years, 11 to 20 years, 21 to 30 years, over 30 years and not applicable – never worked.

5.1.11.8. Level in Organisation

The question concerning the employees' major or rank provided four options: professional, advanced professional, management, executive, and the option of other to be specified if different.

5.1.11.9. Job Status

The question concerning the employees' job nature. Two types were specified namely, contract employee, permanent employee and the option of other to be specified if different.

5.2. Translation of Instrument

Since it was certain that a majority of the participating employees would be Arabs, the questionnaire was translated into Arabic. The translation process was done by native speakers of Arabic using the back translation technique(Francis et al., 2004). That is, the newly translated questionnaire items (Arabic) are translated back into the original language (English in this case) to ascertain uniformity with the original version.(Francis et al., 2004). The first step was done by the researcher with the assistance of another PhD student whose knowledge of the Arabic grammar is excellent. The second step involved translating the questionnaire Arabic version into English again. This step was done by the researcher and three PhD students who are native speakers of Arabic. This step of back-translation validates the equivalence of the two versions in meaning (Fife-Schaw, 2006). Finally, a series of modifications and discussions with the other assistants followed to ensure clarity of the questionnaire items.

5.3. Establishing Validity and Reliability of Research Instrument

This section describes the pilot study that aimed at assessing the research instrument validity and reliability. Moreover, the pilot study sought to check the clarity and layout of the questionnaire.

5.3.1. *Face Validity*

Straub (1989) asserts that establishing the validity of an instrument is very important to the conclusions drawn from any piece of research, "if validation of one's instrumentation is not present... then all other scientific conclusions are thrown into doubt" (Straub et al. , 2004). In this study, the first step to ensure the validity of the questionnaire items was to assess the face validity of the items. Face validity is a subjective evaluation of "how appropriate items or scales seem to a set of reviewers who have some knowledge of the subject matter" (Litwin, 2003, p. 33). Establishing face validity involves revising the questionnaire by a number of judges (Rubio, 2005). Those judges should have knowledge of the research topic. In view of that, two PhD students majoring in ISM were asked to review the questionnaire items in terms of relevance to the research constructs and questions. Next, the questionnaire was given to three respondents to check if there is any ambiguity in the wording as well as to identify any errors. They were also asked to comment on the time needed to fill out the questionnaire and its layout. Then, their feedback was used to modify the instrument.

5.3.2. *Construct Validity*

Instrument validity is concerned with whether this instrument assesses what it is meant to assess (Coolican, 2006). There are several forms of validity (e.g. face, construct, criterion-related). This section details how the questionnaire construct validity was assessed in the pilot stage. Construct validity has to do with operationalisation or measurement between the different constructs in a piece of research (Straub et al., 2004). It can be defined as "the extent to which a measured variable actually measures the conceptual variable (the construct) that it is designed to

assess" (Stangor, 2007, p. 92). Convergent validity and discriminant validity are two types of construct validity. Convergent validity is "the extent to which the measured variable is found to be related to other measured variables designed to measure the same conceptual variable" (Stangor, 2007, p. 93). Discriminant validity is the extent to which the construct is not similar to another construct with which it should not be similar in theory (Fink and Kosecoff, 2005).

One way of establishing construct validity is by examining the factorial validity of the constructs (Bagozzi, 1980). This is done by conducting factor analysis to assess the convergent and discriminant validity (Straub et al., 2004). That is, factor loadings of each item are checked to ensure that the items load cleanly (i.e. converge together) on their constructs or factors on which they are hypothesised to load; while simultaneously these items do not load on factors which they should not load on hypothetically (i.e. diverge).

Factor analysis is a statistical technique that requires a large sample to give good results (Brace, Kemp, and Snelgar, 2006). Generally, Kline (1994) states that there should be more respondents than variables. He suggests a minimum ratio of 2:1. In this study, there is 53 variables and thus following Kline's rule, at least 106 participnts are required to conduct factor analysis.

5.3.3. *Piloting Questionnaire*

It was initially essential to seek official permission to distribute the questionnaires where the study will take place. Permission was obtained from the Royal Commission for Jubail and Yanbu (RCJY). Before granting permission, director of public relations

reviewed the questionnaire, paying particular attention to the content No changes were made to the questionnaire. Before the distribution of the questionnaires, ethical issues were ensured. The researcher described the aims of the research and the purpose at this stage. The participants were told of their right to withdraw at any time and that their participation would be confidential as nobody other than the researcher would see the data. In addition to distributing the questionnaire physically, an identical online-version of the questionnaire was sent to all the employees in RCJY.

Table 16 below shows a summary of the participants' profile. Of the 152 questionnaires, 151 were usable. Only one questionnaire was discarded because it had unintelligible answers and constantly checked the first option of all questions.

Table 16: Profile of pilot study participants

Constructs	Category	Frequency	Percent
Nationality	Non-Saudi	52	34.4
	Saudi	99	65.6
	Total	151	100.0
Sex	Female	19	12.6
	Male	132	87.4
	Total	151	100.0
Sector	Government	79	52.3
	Education	54	35.8

	Health	4	2.6
	Finance	3	2.0
	Service	5	3.3
	Other	6	4.0
	Total	151	100.0
Organisation Size	Under 100 employees	7	4.6
	101 – 500 employees	25	16.6
	501 – 1000 employees	19	12.6
	1001 - 5000 employees	98	64.9
	Other	2	1.3
	Total	151	100.0
Age Group	21 to 30 years	33	21.9
	31 to 40 years	61	40.4
	41 to 50 years	42	27.8
	51 to 60 years	14	9.3
	61 or older	1	.7
	Total	151	100.0
Level of Education	High School Degree	8	5.3
	Post-secondary Diploma	14	9.3
	Bachelor Degree	72	47.7

	Master Degree	34	22.5
	Doctorate Degree	23	15.2
	Total	151	100.0
Years with Organisation	Less than 2 years	34	22.5
	2 to 5 years	34	22.5
	6 to 10 years	25	16.6
	11 to 20 years	37	24.5
	21 to 30 years	16	10.6
	Over 30 years	5	3.3
	Total	151	100.0
Level in Organisation	Professional	73	48.3
	Advanced professional	28	18.5
	Management	37	24.5
	Executive	4	2.6
	Other	9	6.0
	Total	151	100.0
Job Status	Contract employee	61	40.4
	Permanent employee	87	57.6
	Other	3	2.0
	Total	151	100.0

5.3.3.1. Establishing Construct Validity

In this research, exploratory factor analysis was used to help purifying the questionnaire. In other words, factor analysis will show the degree to which the questionnaire items seem to be capturing a specific construct (Costello and Osborne, 2005). Conducting an exploratory factor analysis involves generating a matrix of correlation coefficients for all potential pairs of the variables. Then, factors are extracted. In this study, the Principal Component Analysis (PCA) method was used to extract the factors since it is the most widely used method of extraction. Finally, the factors are rotated to facilitate the interpretation of the results (Kinnear and Gray, 2009). Factors rotation helps to make the pattern of loadings more understandable (Brace et al., 2006). In most of the statistical packages, there are two methods of rotation: orthogonal rotation such as Varimax and Equamax which give uncorrelated factors whereas oblique rotation such as direct Oblimin and Promax that permit the factors to correlate (Costello and Osborne, 2005). Selecting a rotation method depends on the goal of the factor analysis (Hair et al., 2006). The orthogonal method is used if cutting back the number of the variables is sought. The oblique rotation is usually adopted to obtain theoretically meaningful factors (Hair et al., 2006). In this research, an orthogonal rotation using the direct Varimax rotation technique was used because the goal is refine the questionnaire items (Hair et al., 2006).

The Table 17 below shows the Kaiser-Meyer-Olkin's (KMO)[2] measure of sampling adequacy and the Bartlett's test of Sphericity[3]. KMO value is .807 indicating a high

[2] KMO is a test of factorability, which assesses the amount of variance within the data that can be explained by factors (Brace et al., 2006). The KMO index ranges from 0 to 1 and can be

sampling adequacy for the factor analysis. Moreover, the *p*-value for Bartlett's test of Sphericity is zero, which means that the null hypothesis that no correlation exists among the variables is rejected. As such, both the KMO and Bartlett's tests indicated that it is appropriate to conduct factor analysis on this dataset.

Table 17: KMO and Bartlett's Test results

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**.807**
Bartlett's Test of Sphericity *P < .000	Approx. Chi-Square	5071.761
	df	1378
	Sig.	.000

In this study, the Kaiser-eigen values criterion was used to determine the optimal number of factors to be extracted. That is, only the factors with eigenvalues greater than one were retained. As a result, thirteen factors showed eigenvalues greater than 1. Moreover, Appendix 1 illustrates that the first few factors accounted for a great percentage of the total variance (71.506%).

Appendix 1 also shows the rotated matrix. For retaining the items, Gardner (2001) suggests that the items loading significance would be different for different sample

interpreted with the following guidelines: 0.90 or above is marvellous, 0.80 is meritorious, 0.70 is middling, 0.60 is mediocre, 0.50 is miserable and below 0.50 is unacceptable (Hair et al., 2006).

[3] The Bartlett's test of Sphericity tests for the overall significance of all correlations within a correlation matrix (Hair et al., 2006).

sizes. As a rule of thumb, he recommends that if the sample size is 100, the factor loading has to be over 0.40 for determining significance while if the sample size is less than 100, loading over 0.50 is significant. In effect, as the pilot study sample was 151, all items loaded higher than 0.40 would be considered significant. The results show that for all the items, loadings were greater than 0.40 except one item and was deleted. In addition, the majority of the items loaded on their factors as expected except for a few items that will be discussed next.

Four of the items of the trust (TR) sub-scale loaded on the first factor. The coefficients were all above 0.50 (.812, .801, .765, .558). Yet, one item (Q45) loaded unexpectedly on more than one factor. The item cross-loaded on the construct of trust and perceived organisational norms, thus it was decided to drop it as suggested by Straub et al. (2004). Thus, the first factor represents the underlying construct of TR.

The second factor represents the construct of perceived organisational norms (Org. N) as five of the items of the construct loaded on component 2. The coefficients of the three items were all above 0.50 (.852, .832, .807, .618, .564). Yet, one item (Q39) loaded unexpectedly on more than one factor. The item cross-loaded on the construct of Org. N. and Mg, thus it was decided to drop it as suggested by Straub et al. (2004). Moreover, item (Q44) is reworded to become clearer, "I believe that, this organisation tries to treat its members fairly" instead of "I feel quite confident that my organisation always tries to treat me fairly". Thus, the second factor represents the underlying construct of Org. N.

All four items of the attitude (ATT) construct loaded on component 3. Thus, the first factor represents the underlying construct of ATT. Items loadings for this factor were all above 0.80 (.853, .835, .817, .815). Thus, the third factor represents the underlying construct of ATT.

Seven of the items of the benefit (BN) sub-scale loaded on the fourth factor with loadings above 0.40 (.747, .616, .611, .528, .527, .506, .422). However, one item (Q30) loaded unexpectedly on more than one factor. This item loaded significantly (.528) on its construct BN and (.458) on the TR construct. Upon careful looking, it appeared that this particular item revolves around the employees' perception of status improvement, which can be considered as one aspect of benefit provided when the employee shares his/her knowledge. Therefore, it was decided to rewrite it in a positive way instead of dropping it from the scale. Moreover, one item (Q34) was dropped because it cross-loaded on more than one factor. Yet, Q33 has a similar meaning. Thus, the fourth factor represents the underlying construct of BN.

The fifth factor represents the construct of subjective norm (SN) as three of the items of the construct loaded on component 5. The coefficients of the three items were all above 0.60 (.801, .756, .692). Yet, one item (Q6) has less loading (.454). Upon careful inspection, it was decided to drop it from the scale as the three high score items are enough for this construct SN. Thus, the fifth factor represents the underlying construct of SN.

All four items of the fear (FR) construct loaded on component 6. The coefficients of the four items were above 0.60 (.849, .768, .766, .648). Nevertheless, one item (Q19)

loaded unexpectedly on more than one factor. This item loaded significantly (.648) on its construct FR and (-.428) on Tend construct. Therefore, it was decided to keep it and omit the word "generally" that gives the impression of propensity. Thus, the sixth factor represents the underlying construct of FR.

All three items of the knowledge sharing behaviour (KSB) construct loaded on component 7. The coefficients of the four items were above 0.60 (.771, .710, .698). Thus, the seventh factor represents the underlying construct of KSB.

All three items of the Tendency (Tend) construct loaded on component 8. The coefficients of the three items were above 0.50 (.722, .710, .556). Thus, the eighth factor represents the underlying construct of Tend. Thus, the eighth factor represents the underlying construct of Tend.

All four items of the perceived behaviour control (PBC) construct loaded on component 9. The coefficients of the four items were above 0.50 (.740, .732, .765, .522). Yet, one item (Q9) loaded unexpectedly on more than one factor. This item loaded significantly on its construct PBC and only (.401) on ATT. Yet, it was decided to keep it for this stage since the second loading is less than the first one. Thus, the ninth factor represents the underlying construct of PBC.

All three items of the behavioural intention (BI) sub-scale loaded on the tenth factor. The coefficients were all above 0.60 (.720, .684, .605). Thus, the tenth factor represents the underlying construct of BI.

Three of the items of the management influence (Mg) sub-scale loaded on the eleventh factor. The coefficients were all above 0.40 (.723, .613, .413). Yet, one item (Q46) did not load on any factor. Therefore, it was decided to drop it from the scale. Moreover, another item (Q37) loaded unexpectedly on the time factor; accordingly, it was decided to drop it. Thus, the eleventh factor represents the underlying construct of Mg.

All three items of the facilitating means (FM) construct loaded on component 12. The coefficients of the three items were above 0.50 (.741, .672, .591). Thus, the twelfth factor represents the underlying construct of FM.

Finally, the thirteenth factor represents the construct of Time (T) as its item loaded on component 13. The coefficients of this item was above 0.60 (.639). Thus, the thirteenth factor represents the underlying construct of T.

From the above presentation of the factor analysis on the pilot study data, the results show that construct validity in the form of both convergent and discriminant validity was evident in the research instrument. Nonetheless, few items showed unexpected loadings accordingly, they were modified or dropped altogether to improve the construct validity of the questionnaire items.

5.3.3.2. Establishing Questionnaire Reliability

The reliability of an instrument is "the extent to which it yields consistent results over repeated observations" (Eagly and Chaiken, 1993, p. 67). Checking the reliability of a scale is essential because if it is not reliable, it will not give worthwhile information (Graziano and Raulin, 2007). While there are many methods to assess reliability such as

test-retest reliability, parallel-forms reliability, split-half reliability), the internal consistency approach would be used in this research for measuring the instrument reliability. Internal consistency is assessed using the split-half reliability index, coefficient alpha (Cronbach, 1951) index or the Kuder-Richardson formula 20 (K R-20) (Kuder and Richardson, 1937) index. These indices estimate "the extent to which the test items all reflect the same attribute" (Struwig and Stead, 2001, p.132). One of the advantages of employing the internal reliability measure is that the researcher needs only a single administration of the instrument.

In this study, to establish the instrument reliability, Cronbach's alpha coefficient (α) is used (Stangor, 2007). This index is an estimate of the average correlation between all the items of the scale. Cronbach's alpha coefficient ranges from zero to 1.0 and high scores above 0.70 suggest that the scale is reliable (Nunnally, 1978). Nevertheless, very high levels of correlation between the items may imply redundancy or that scale items are addressing a narrow aspect of an attribute (Fitzpatrick et al, 1998).

The formula for Cronbach alpha is as follows:

$$\alpha = \frac{k}{k-1}\left(1 - \frac{\sum_{j=1}^{k} \sigma_{U_j}^2}{\sigma_X^2}\right)$$

where k is the number of components (K-items or testlets), $\delta^2 X$ the variance of the observed total test scores, and $\delta^2 Y_i$ the variance of component i for the current sample of persons.

In this study, the alpha values for the subscales are presented in the Table 18 below. Hinton et al (2004) suggested the following guidelines in interpreting reliability scores: 0.90 and above means excellent, 0.70–0.90 means high, 0.50–0.70 means moderate, 0.50 and below means low reliability. One subscale (Attitude) had an alpha of 0.90, which indicates excellent reliability according to Hinton et al. (2004). Nine subscales had alpha values ranged between 0.70–0.90, which are regarded high (Hinton et al., 2004). However, Mg and FM had the lowest alpha scores (α = 0.688 and 0.683 respectively). Nevertheless, according to Hinton et al. (2004), these are considered moderate reliability. The overall instrument reliability was 0.909 indicating a scale of excellent reliability.

Table 18: Reliability of the whole scale and subscales

Scale	α	No. of items	Reliability
ATT	.907	4	Excellent
SN	.815	3	High
PBC	.713	4	High
BI	.861	3	High
KSB	.795	3	High
Tend	.732	3	High
FR	.799	4	High
TR	.860	4	High

BN	.815	7	High
Mg	.688	3	Moderate
Org. N	.873	5	High
FM	.683	3	Moderate
Whole scale	.913	47	Excellent

5.4. Summary

- This chapter presented the survey instrument development and pilot study of this research.
- First, the chapter provided the definitions of our model constructs with their key references.
- Next, it described the questionnaire items used to measure each construct. Then, the research face and construct validity was assessed.
- The factor analysis showed that construct validity in the form of both convergent and discriminate validity was evident in the research instrument.
- Finally, the study instrument reliability of the whole scale and subscales were tested. The pilot study instrument displayed high levels of internal reliability.

The next chapter will discuss the main research results.

Chapter Six

Results

6. Introduction

The preceding chapters have discussed The development of the research survey instrument as well as pilot study. The present chapter describes results of the statistical analyses performed to test the thesis hypotheses. To reiterate, the current study sought to answer this question:

What are the underlying factors and their relationships that determine the employees' knowledge sharing behaviour within Saudi governmental organisations?

The aims of this research are:

1. To propose a conceptual model that best explain knowledge sharing among the employees within Saudi governmental organisations.

2. To identify the most significant factors that promote or hinder knowledge sharing among the employees within Saudi governmental organisations.

3. To identify similarities and differences between knowledge sharing factors in KSA and other cultures through comparison of the results of this empirical study with previous findings.

The first part of this chapter will display the main research questionnaire reliability analysis. Then, it will offer a description of the main study sample demographics. Next, the chapter will outline the study results. It will conclude with a summary.

6.1. Internal Reliability of Study Questionnaire

As discussed earlier in the previous chapter, examining the reliability of an instrument is important (Graziano and Raulin, 2007). Reliability of a scale is the degree "to which it yields consistent results over repeated observations" (Eagly and Chaiken, 1993, p. 67). In this research, Cronbach alpha (α) was adopted to assess the reliability or stability of the questionnaire items. Hinton et al. (2004) guidelines for interpreting the alpha coefficients were also followed[4]. As shown in Table 19 below, all Cronbach Alpha (α) scores for the study subscales passed the 0.60 level, which indicates moderate reliability.

Table 19: Reliability of the scale

Scale	α	No. of items	Reliability
Attitude	.94	4	Excellent
Subjective Norm	.79	3	High
Perceived Behavioural Control	.68	4	Moderate

[4] Hinton et al (2004) suggested the following guidelines in interpreting reliability scores: 0.90 and above means excellent, 0.70–0.90 means high, 0.50–0.70 means moderate, 0.50 and below means low reliability.

Behavioural intention	.84	3	High
Knowledge sharing behaviour	.77	3	High
Tendency	.69	3	Moderate
Trust	.83	4	High
Fear of loss	.82	4	High
Benefit	.80	7	High
Management	.60	3	Moderate
Organisational norms	.84	5	High
Facilitating means	.67	3	Moderate
Overall scale	.92	47	Excellent

The attitude scale had an alpha value of 0.94, which is regarded as an excellent reliability index (Hinton et al., 2004).Moreover, seven scales had alpha scores ranged between 0.70–0.90, which indicate high reliability (Hinton et al., 2004). In addition, four scales (PBC, Tendency, Mg and FM) had lower reliability scores. Nevertheless, according to Hinton et al. (2004), these are considered moderate reliability. Taken as a whole, the questionnaire alpha was 0.92 indicating an excellent reliability. These high reliabilities

according to Straub (1989) offer the scientific world greater confidence in the data generated through the scale because the "findings based on a reliable instrument are better supported, and parameter estimates are more efficient" (p.160).

6.2. Study Sample

Prior to testing the thesis hypotheses, it is useful to inspect the demographic information of the research sample. The following section describes the distribution of the sample respondents by selected variables including nationality, gender, sector, organisation size, age, level of education, years with organisation, level in organisation and job status. Respondents in the study were drawn from different Saudi organisations in, Jeddah, Almadinah and Yanbou. (See Chapter Four for more details).

6.2.1. *Distribution of Respondents by Nationality*

The information regarding respondents' nationality of employees indicated that 64% of the sample were Saudi nationals while the rest were from different nationalities. This is because these organisations were basically governmental bodies in which the priority in recruitment is for Saudis. The Table 20 below displays the different nationalities of the survey respondents. The pie chart below (Figure 6) illustrates the distribution of the employees according to the different nationality type.

Table 20: Nationality of respondents

Nationality	No. respondents	Percent	Valid Percent
American	6	1.6	1.6
British	2	.5	.5

Canadian	2	.5	.5
Egyptian	6	1.6	1.6
Filipino	6	1.6	1.6
Indian	33	8.6	8.6
Indonesian	1	.3	.3
Jordanian	20	5.2	5.2
Lebanon	3	.8	.8
Malaysian	13	3.4	3.4
Pakistani	38	9.9	9.9
Palestinian	1	.3	.3
Saudi	245	64.0	64.0
Sudanese	1	.3	.3
Other	6	1.6	1.6
Total	383	100.0	100.0

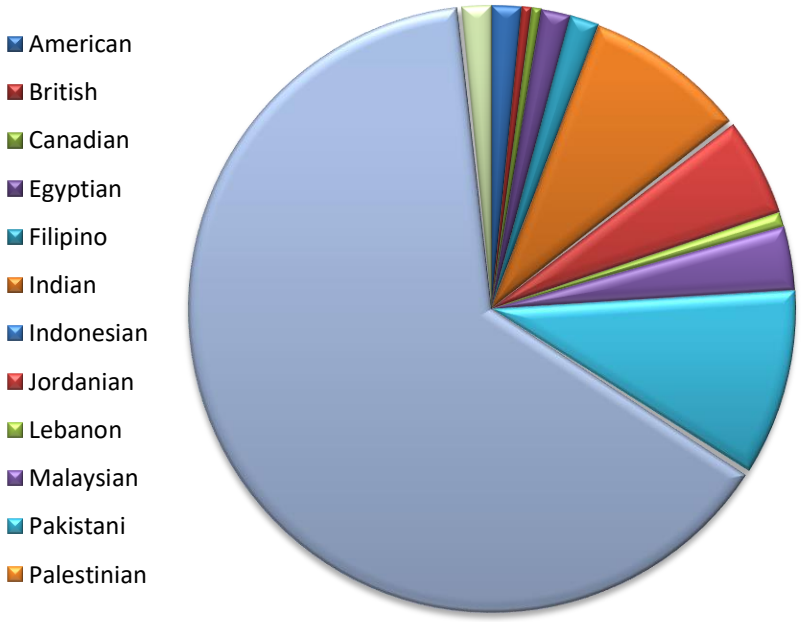


Figure 7: Distribution of respondents by nationality

6.2.2. *Distribution of Respondents by Gender*

The pie chart (Figure 7) below displays clearly that the sample of the study was skewed greatly towards the male employees. Out of 383 returned questionnaires, 349 (91.1%) were from male employees, while 27 (7%) were from females. This is can be understood against the cultural background of Saudi Arabia. Since the two sexes are segregated in most walks of life, the researcher was able mostly to reach male-dominant organisations.

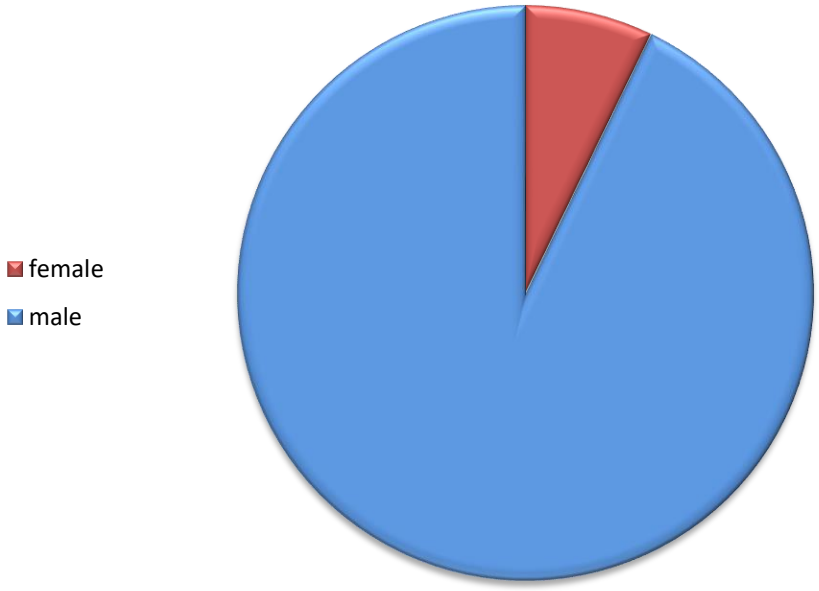


Figure 8: Distribution of respondents by gender

6.2.3. *Distribution of Respondents by Sector*

The pie chart (Figure 8) for the study sample below show that the respondents belonged to different sectors. Table 21 shows that the 37.9% were engaged in the industrial sector, specifically petrochemical productions. Moreover, 25.1% of the respondents belonged to the Army sector while 24.5% belonged to the educational sector. 5.2% of the sample engaged in the services sector whereas 2.6% worked in the finance division. Only 1.8% of respondents belonged to the health sector.

Table 21: Distribution of respondents by sector

Sectors	Frequency	Percent
Industry	145	37.9
Army	96	25.1
Education	94	24.5

Health	7	1.8
Finance	10	2.6
Service	20	5.2
Other	7	1.8
Total	379	99.0
Missing	4	1.0
Total	383	100.0

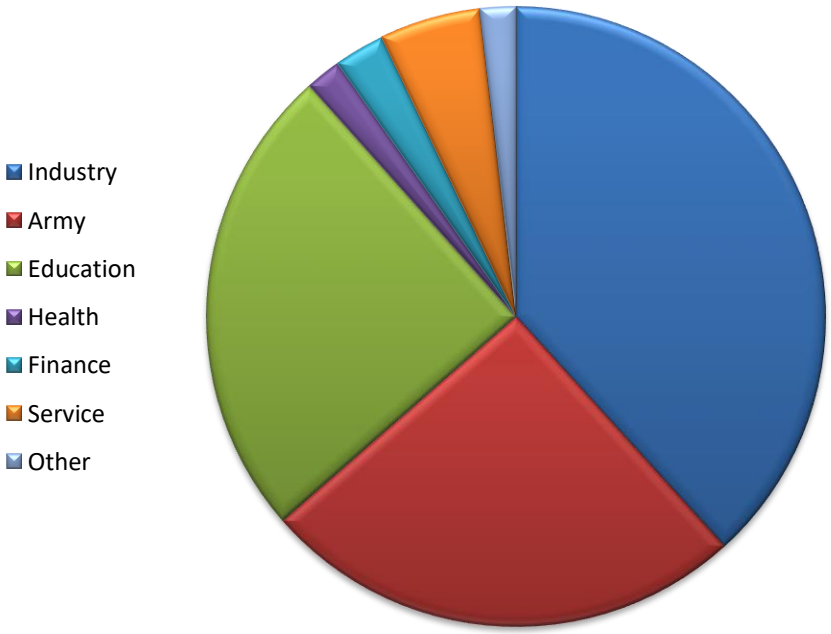


Figure 9: : Distribution of respondents by sector

6.2.4. *Distribution of Respondents by Organisation Size*

Table 22 below details the distribution of respondents by their organisation size. It displays that a great portion of the sample (40%) belonged to larger organisations (above 1001-5000 employees). The pie chart (Figure 9) illustrates the distribution in a clearer manner.

Table 22: Distribution of respondents by organisation size

Organisation size	Frequency	Percent
Under 100 employees	75	19.6
101 – 500 employees	64	16.7
501 – 1000 employees	61	15.9
1001 – 5000 employees	153	39.9
Other	16	4.2
Total	369	96.3

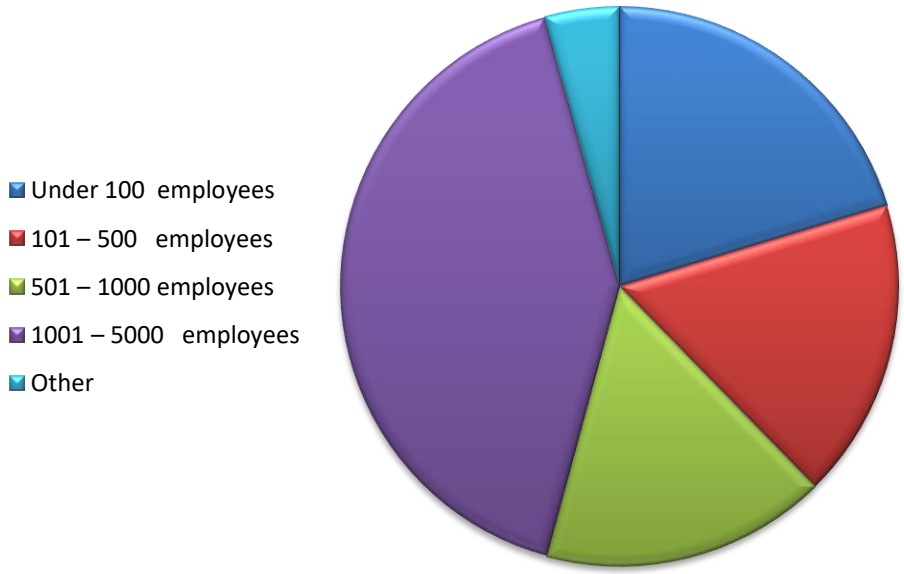


Figure 10: Distribution of respondents by organisation size

6.2.5. *Distribution of Respondents by Age Group*

The information regarding respondents' ages showed that most employees belonged to 31 to 40 years age group (41%). This was followed by respondents in the age group between 41 and 50 years (30%). Senior employees aged 61 and older as well as the youngest respondents (20 years or younger), represented the least groups of

employees (.5%). Table 23 below and pie chart (Figure 10) illustrate the distribution of respondents by age group.

Table 23: Distribution of respondents by age group

Age group	Frequency	Percent
20 years or younger	2	.5
21 to 30 years	74	19.3
31 to 40 years	155	40.5
41 to 50 years	112	29.2
51 to 60 years	32	8.4
61 or older	2	.5
Total	377	98.4

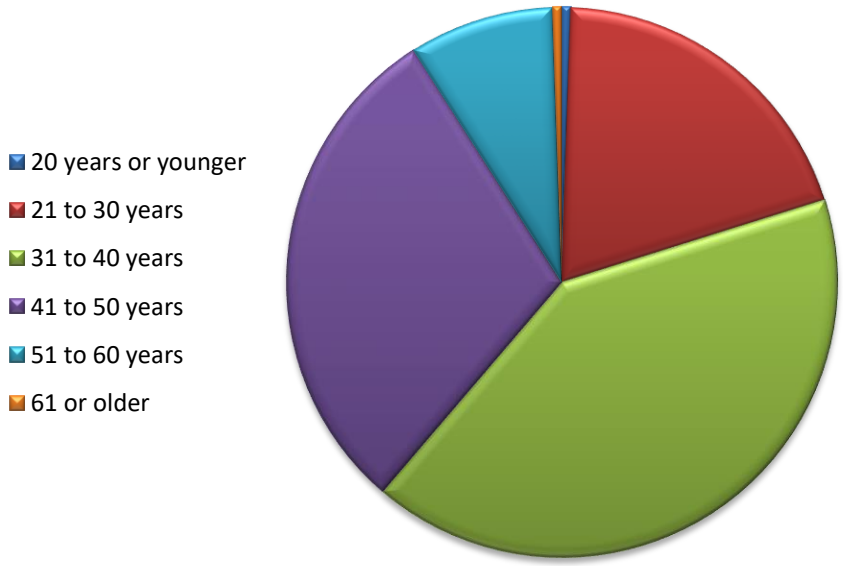


Figure 11: Distribution of respondents by age group

6.2.6. *Distribution of Respondents by Level of Education*

Table 24 below presents the distribution of respondents by their level of education. The information indicates that those who held a bachelor degree were the greatest group in the sample (43.3%) followed by those who hold a master degree (19%) then those who had a doctorate degree (15%). The pie chart (Figure 11) also displays the distribution the respondents by level of education.

Table 24: Distribution of respondents by level of education

Level of education	Frequency	Percent
High School Degree	39	10.2
Post-secondary Diploma	35	9.1
Bachelor Degree	166	43.3
Master Degree	72	18.8
Doctorate Degree	56	14.6
Other	11	2.9
Total	379	99.0

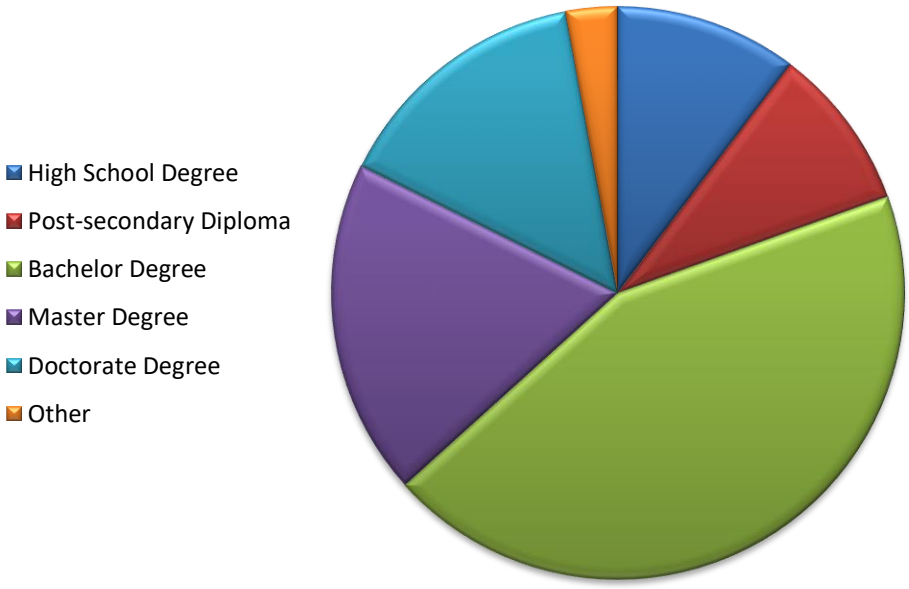


Figure 12: Distribution of respondents by level of education

6.2.7. *Distribution of Respondents by Years with Organisation*

As the pie chart (Figure 12) indicates, years with organisation ranged from less than two years to service of over thirty years. As can be seen from the Table 25 below, 12% of the employees in this sample have been working for no more than two years while 16% have been working between 2-5 years. Only 4% have been working for more than thirty years within his or her organisation. In general, the, employees have been at their organisations for a considerable time: some 27.4% have been at their current organisation between 11-20 years, while 21% have only been at their current organisation between 6-10 years, and 19% have been at their current organisation for over 21 years but less than 30 years.

Table 25: Distribution of respondents by years with organisation

Years with Organisation	Frequency	Percent
Less than 2 years	45	11.7
2 to 5 years	63	16.4
6 to 10 years	80	20.9
11 to 20 years	105	27.4
21 to 30 years	70	18.3
Over 30 years	14	3.7
Total	377	98.4

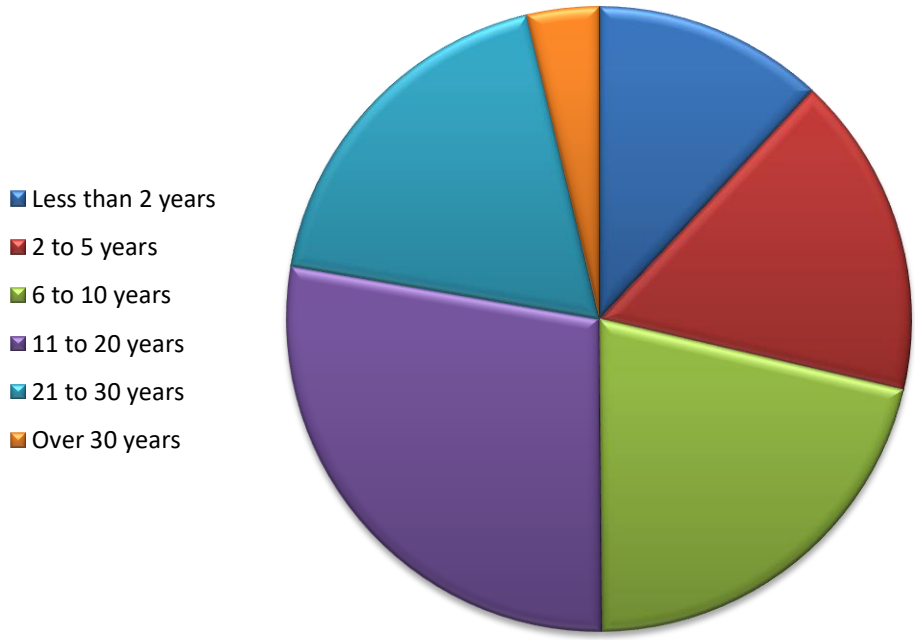


Figure 13: Distribution of respondents by years with organisation

6.2.8. *Distribution of Respondents by Level in Organisation*

The descriptive statistics for the employees level in organisation are summarised in Table 26 as well as in the pie chart below (Figure 13). The analysis showed that 39% of the respondents were working at the management level while 32% were working as professional and 17.5% as advanced professional. Only 7.3% were at the top level posts.

Table 26: Distribution of respondents by level in organisation

Level in Organisation	Frequency	Percent
Professional	123	32.1
Advanced professional	67	17.5
Management	148	38.6
Executive	28	7.3
Other	10	2.6
Total	376	98.2

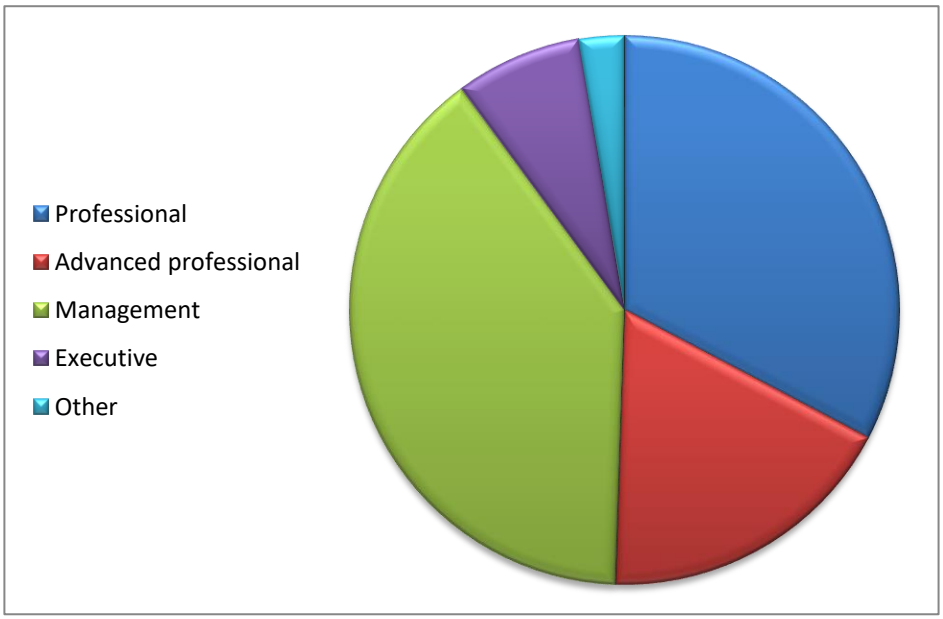


Figure 14: Distribution of respondents by level in organisation

6.2.9. *Distribution of Respondents by Job Status*

The Table 27 below details the distribution of respondents by job status. It displays that a great portion of the sample (70%) were permanent employees (the pie chart below shows clearly that this is about 2/3 of the sample) while 29% of the employees were on contracts.

Table 27: Distribution of respondents by Job Status

Job Status	Frequency	Percent	Valid Percent
Contract employee	108	28.2	28.9
Permanent employee	262	68.4	70.1
Other	4	1.0	1.1
Total	374	97.7	100.0

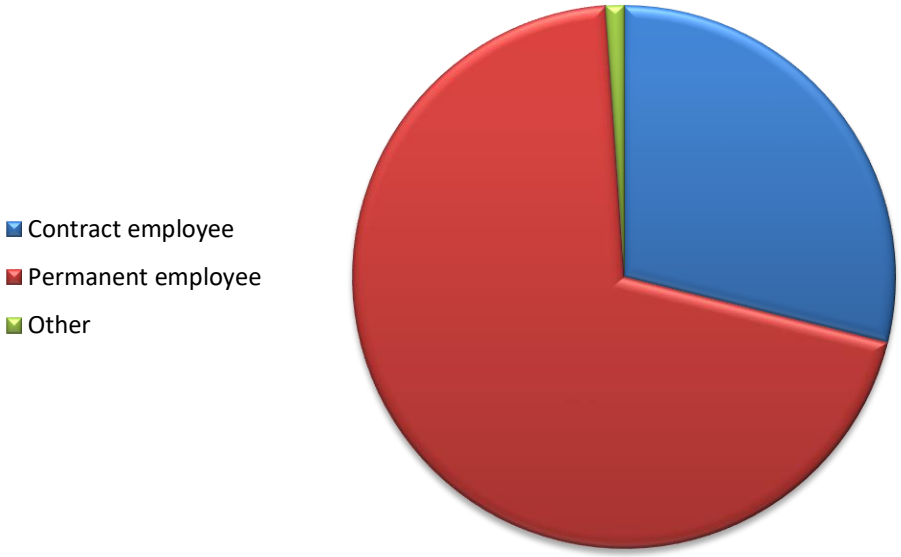


Figure 15: Distribution of respondents by Job Status

6.3. Results of Statistical Analyses

This section of the sixth chapter answers the research question through testing the research hypotheses and assessing the study conceptual model. The study posed the following question:

What are the underlying factors and their relationships that determine the employees' knowledge sharing behaviour within Saudi governmental organisations?

A total of 12 main as well as 9 secondary hypotheses were proposed to assist in answering the research question and achieve its aims.

6.3.1. *Testing Hypothesis H1*

The first hypothesis sought to investigate the relationship between knowledge sharing behaviour and behavioural intention to share knowledge among the employees within Saudi governmental organisations. In particular it was hypothesised that:

H1: Sharing knowledge among the employees within Saudi governmental organisations and their intention to share knowledge are positively correlated.

The Pearson product moment correlation coefficient was used to assess the strength of the relationship between the summated scales of the knowledge sharing behaviour and behavioural intention constructs. The formula for Pearson's correlation takes on many forms. A commonly used formula for the Pearson correlation coefficient r is as follows:

$$r = \frac{\sum XY - \frac{\sum X \sum Y}{N}}{\sqrt{(\sum X^2 - \frac{(\sum X)^2}{N})(\sum Y^2 - \frac{(\sum Y)^2}{N})}}$$

Where:

r = Pearson r correlation coefficient

N = number of value in each data set

∑xy = sum of the products of paired scores

∑x = sum of x scores

∑y = sum of y scores

∑x2= sum of squared x scores

∑y2= sum of squared y scores

Cohen (1988) suggested the following rules of thumb for interpreting correlations: r of 0.10 may be regarded as indicating a low level of correlation; r of 0.30 may be regarded as indicating a moderate degree of correlation; r of 0.50 may be regarded as indicating a marked degree of correlation.

There was a significant positive correlation between knowledge sharing behaviour and behavioural intention to share knowledge for the sample considered in this study (r = .485, N = 370, p < .0005, one-tailed). This correlation coefficient according to Cohen's conventions is regarded as a strong relationship. Thus, the hypothesis that KS behaviour and KS behavioural intention are positively correlated was supported.

6.3.2. *Testing Hypothesis H2*

In this study, it was hypothesised that:

H2: The employee's attitude towards knowledge sharing and the employee's intention to share knowledge are positively correlated.

Pearson's correlation coefficient, r, was used to estimate the strength of the relationship between these two constructs. The strength of the relationship between attitude and behavioural intention was (r = 0.40, N = 373, p < .0005, one tailed) which according to Cohen's 1988 rules of thumb is a moderate correlation. Nevertheless, Spector (2003) argued that in organisational research correlations rarely exceed 0.50, thus this correlation may be regarded as quite robust, hence, hypothesis H2 was supported. As such, for the sample used in this study, attitude towards knowledge sharing was significantly correlated with KS behavioural intention.

6.3.3. *Testing Hypothesis H3*

H3: The employee's belief of fear of loss will be negatively correlated with their attitude towards knowledge sharing.

In order to test this hypothesis, the Pearson Product Moment Correlation was also used. As expected the calculated value of the correlation coefficient was (r = -0.20, N = 371, p < .0005, one tailed) indicating a significant negative relationship, albeit weak, between the employee's belief of fears of loss and their attitude towards knowledge sharing. That is, when the employees' feelings of fears of losing their job or losing any privileges like getting a car or allowances are high there is also a corresponding fall in their favourable attitude towards sharing their knowledge in their organisation. Therefore the hypothesis is accepted.

6.3.4. *Testing Hypothesis H4*

H4: The employee's belief of gaining a benefit will be positively correlated with their attitude towards knowledge sharing.

The result of testing this hypothesis shows that there is a significant positive association between attitude and beliefs of benefit (r = .23, N = 371, p < .0005, one-tailed). The strength of this relationship is however low but significant correlation. The result implies that when the employees feelings that they may obtain benefits from sharing their knowledge increase, their favourable attitude towards sharing their knowledge grows. Therefore, hypothesis H4 is supported.

6.3.5. *Testing Hypothesis H5*

H5: The employee's subjective norm towards knowledge sharing will be positively correlated with the employee's intention to share knowledge.

The result of the correlation analysis for this hypothesis showed a value of (r = .36, N = 370, p < .0005, one-tailed) indicating a moderate but significant correlation between the two variables. Moreover, the link between the employees SN and their BI is positive. That is, higher perceived social pressure is associated with higher intention to share knowledge in their organisation. The fifth research hypothesis was thus accepted.

6.3.6. *Testing Hypothesis H6*

H6: Perceived management influence will be positively correlated with the employee's subjective norm towards knowledge sharing.

Pearson analysis was able to identify a statistically significant correlation between the constructs of SN and Mg (Pearson correlation r =.42, N = 375, p < .0005, one-tailed). This link is considered moderate according to Cohen's conventions. This result suggests that the higher the employees' feelings of support from their top management, the higher the social pressure they feel to share their knowledge. Therefore, hypothesis six was supported.

6.3.7. *Testing Hypothesis H7*

A Pearson product-moment correlation coefficient was computed to assess the relationship in the following hypothesis:

H7: Perceived organisational norms will be positively correlated with the employee's subjective norm towards knowledge sharing.

Pearson's correlation coefficient, *r*, was also used to estimate the strength of the relationship between SN and perceived organisational norms. There was a significantly positive correlation between the two constructs, (r = 0.32, N = 370, p < .0005, one-tailed). The magnitude of the relationship is however moderate consequently, hypothesis seven was supported.

6.3.8. *Testing Hypotheses H8a and b*

H8a: The employee's perceived behavioural control will be correlated with the employee knowledge sharing behaviour.

H8b: The employee's perceived behavioural control will be correlated with the employee's intention to share knowledge.

To test the first hypothesis, another Pearson product-moment correlation analysis was done. The analysis revealed that there is a significant positive relationship between the PBC and KSB (r =.50, N = 368, p < .0005, two tailed) this link is consider strong according to Cohen's conventions. Moreover, in testing hypothesis H8b, the results showed that there is a significant positive relationship between the PBC and BI (r = .44, N = 371, p < .0005, two tailed). The analyses showed moderate links according to Cohen's guidelines for interpreting *r*. These results imply that the greater the employees' perceptions of control over their KS, the greater their intentions will be

towards sharing their knowledge in their organisation. Moreover, the more the employees' perceptions of control, the more likely that they will share their knowledge.

6.3.9. *Testing Hypothesis H9*

H9: The facilitating means for knowledge sharing will be positively correlated with the employee's perceived behavioural control over knowledge sharing.

In order to test this hypothesis, Pearson product-moment correlation analysis was conducted. The outcome of this analysis showed a correlation coefficient of (r = .29, N = .372, p < .0005, one-tailed). This indicates a significant positive relationship between the two mentioned variables. This link is yet weak (Cohen, 1988).

6.3.10. *Testing Hypothesis H10*

H10: Time will be positively correlated with the employee's perceived behavioural control over knowledge sharing.

To test this hypothesis, Pearson product-moment correlation statistics was used. The results showed that there is a significant positive relationship between the PBC and time (r = .28, N = 377, p < .0005, one tailed). The analysis showed also a moderate link according to Cohen's guidelines for interpreting r. Thus, the hypothesis was supported.

6.3.11. *Testing Hypothesis H11*

H11: The employee's tendency to share knowledge will be correlated with the employee's intention to share knowledge.

The Pearson product-moment correlation analysis resulted in r = .48, N = 369, p < .0005, two tailed). This indicates a positive significant relationship between the employees' tendency and their intention to share knowledge. Furthermore, this relationship is strong. As such, the hypothesis was supported.

6.3.12. *Testing Hypothesis H12*

H12: Trust will be correlated with the employee's intention to share knowledge.

A Pearson product-moment correlation analysis was performed to assess this relationship. The results showed an r = .33, N = 371, p , .0005, two tailed). This suggests a significant positive association between trust and BI. Furthermore, the strength of the relationship is moderate. The greater the employees trust, the greater their intention to share their knowledge in their organisation. Thus, the hypothesis is supported.

6.3.13. *Testing Secondary Hypotheses*

Demographic variables and BI and KSB

This section describes the results of the statistical analyses conducted to uncover any statistical association between the study selected demographic variables (nationality, gender, industry, organisation size, age, level of education, years with organisation, level in organisation and job status) and behavioural intention to share knowledge as well as the actual behaviour of knowledge sharing. Since the variables of nationality and gender were measured on dichotomous scales, the point bi-serial correlation is used. The point-biserial correlation coefficient, referred to as *rpb*, is a

particular case of Pearson product moment correlation in which one variable is continuous and the other variable is dichotomous.

The analyses generated values of r = .04, N = 371, p = .483, 2-tailed and r = .03, N = 369, p = .573, 2-tailed for the relationship between gender and BI and KSB respectively. These results indicate insignificant relationships between gender and the two constructs of BI and KSB. For nationality, the results were r = .05, N = 377, p = .299, 2-tailed and r = .03, N = 376, p = .557, 2-tailed. It would appear, therefore, that for the sample considered in this research, gender and nationality are unrelated to each of behavioural intention to share knowledge and knowledge sharing behaviour.

As for the rest of the variables, the Spearman's rank order correlation is used to assess any association between the demographic variables and the continuous variables of BI and KSB. The Spearman rank order correlation coefficient is a non-parametric measure of the strength and direction of relationship between one ordinal variable and another continuous level variable. Spearman rank-order correlation is based on the ranks of the data values. It is computed by the following formula:

$$r_s = 1 - \frac{6\sum_{i=1}^{n} D_i^2}{n(n^2 - 1)}$$

Where D_i is the difference between the ranks of Xi and Yi.

Table 28 displays the results of these analyses. The values for Spearman's rho indicate insignificant correlations between sector, level in organisation and job status on the one hand and BI on the other. Moreover, sector, organisation size, age, years with organisation, level in organisation and job status were not correlated with KSB. However, the results show that there are significant correlation between organisation size (r_s = .111 , N = 363 , p < .05), age (r_s = .108, N = 372 , p < .05), level of education (r_s = .172, N = 374 , p < .01) and years with organisation (r_s = .102, N = 372 , p < .05), on the one hand and BI on the other hand. Furthermore, level of education was significantly correlated with KSB (r_s = .127 , N = 372 , p < .05).

Table 28: Results of Spearman's rank order correlation

		Sector	Organisation Size	Age	Level Of Education	Years With Organisation	Level in Organisation	Job Status
Spearman's rho	BI	.034	.111*	.108*	.172**	.102*	-.041	-.097
	KSB	.094	.084	.087	.127*	.094	-.033	-.080
** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).								

6.4. Assessing Contribution of Independent Variables on Dependant Variables

6.4.1. *Determinants of Actual Behaviour of Knowledge Sharing*

Regression analysis was used to assess the contribution of the two proposed factors of BI and PBC in explaining the actual behaviour of knowledge sharing. To meet the

assumptions of regression analysis, the linearity, constant variance, and normality of the data were examined. Since the scatter plots of the variables did not show any nonlinear relationships, the linearity assumption is satisfied. Plotting the studentised residuals against the predicted value indicated that none of the variable violates the constant variance. Moreover, the normal probability plot showed no violation of normality (see Appendix 2).

The correlation analyses were used to provide a clear idea of the issue of multicollinearity. The analyses showed no substantial correlations between the different variables (all the values of r were under .8); thus, there is no multicollinearity problem in the data.

$$Y=a + b1X1 + b2X2 + b3X3$$

Where Y is the value of the Dependent variable (Y), what is being predicted

a (Alpha) is the Constant or intercept

b1 is the Slope (Beta coefficient) for X1

X1 First independent variable that is explaining the variance in Y

b2 is the Slope (Beta coefficient) for X2

X2 Second independent variable that is explaining the variance in Y

b3 is the Slope (Beta coefficient) for X3

X3 Third independent variable that is explaining the variance in Y

s.e.b1 standard error of coefficient b1

s.e.b2 standard error of coefficient b2

s.e.b3 standard error of coefficient b3

Table 29 and Figure 15 show, the coefficient of determination for the KSB model was R^2 = .32, [F (2, 361) = 86.006, p <.001]. This result indicates that around 32% of the variance of the behaviour of knowledge sharing is accounted for by the linear combination of BI and PBC. The beta weights were examined to determine which predictor had the greatest contribution to explain the criterion (KSB). Table 29 shows that the highest beta weight was for BI (β=.35) followed by PBC (β=.32).

Table 29: Results for the KSB model

Variable	B	Std. Error	β
BI	.35	.050	.35
PBC	.39	.059	.32
R^2 = .32 **p <.0005*			

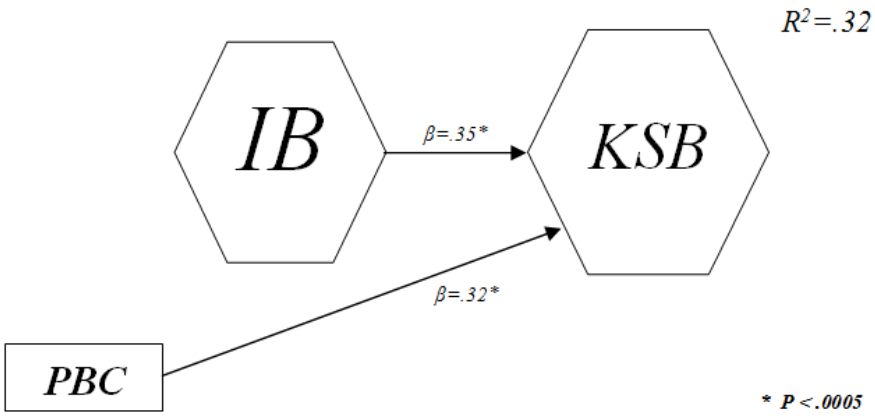


Figure 16: Results for the KSB model

6.4.2. *Determinants of Behavioural Intention to Share Knowledge*

Regression analysis was conducted to test the model explaining BI with behavioural intention to share knowledge as the dependent variable or the criterion and attitude (ATT) towards knowledge sharing, subjective norm (SN) perceived behavioural control , PBC, tendency (Tend) and trust (TR) to share knowledge as independent variables or predictors. Again, the assumptions of the used statistics were checked as did in the first regression analysis (see Appendix 2).

Table 30: Results for BI model

Variables	B	Std. E	β
ATT	.166	.051	.159*
SN	.080	.048	.083
PBC	.239	.055	.208**
Tend	.318	.052	.302**
TR	.104	.046	.111***
R^2 = .37 *p = .001 **p <.0005 ***p = .023			

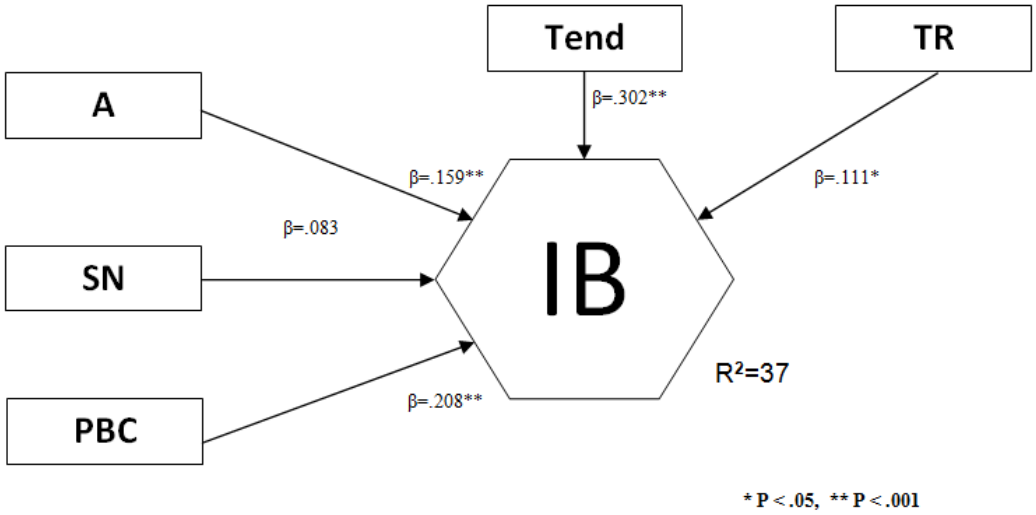


Figure 17: Results for the IB model

As Table 30 and Figure 16 above show, the coefficient of determination R^2 was 0.37, [F (5, 344) = 40.090, p <.0005] indicating that around 37% of the variance in behavioural intention to share knowledge is accounted for by the linear combination of ATT, SN, PBC, Tend and TR. To identify which independent variable was a significant contributor to the explanation of the dependent variable, the beta weights were checked. Table 30 displays that the highest beta weight was for tendency to share (β = .30); the second highest significant beta weight was for PBC (β = .21); while ATT (β = .16) came third. Trust was found to contribute the least to the explanation of BI (β = .11). However, SN was not found significant in this model. The question is why do the employees in a Saudi organisation scores low on SN towards sharing knowledge. This result is further explored in the semi-structured interviews.

6.4.3. *Determinants of Attitude*

A third multiple regression analysis was conducted to assess whether attitude (ATT) towards sharing knowledge is determined by two proposed beliefs: belief of gaining a benefit and belief of fear of loss. The analysis produced a model with an R^2 of .11 [F (2, 361) = 21.348, p <.0005] for the explanation of attitude. This means that only 11% of the variance in attitude towards knowledge sharing is explained by the proposed factors. However, at the same time, this suggests that 90% of the variation comes from other unexplored factors. To identify which independent factor was a significant determinant to the dependent variable, the beta weights were also inspected. Table 31 and Figure 17 show that belief of benefit had the strongest significant effect on attitude (β = .25) while belief of fear came next (β = -.22). The minus sign in the fear of lose signifies that feelings of fear contribute to a decrease in the favourable attitude towards knowledge sharing.

Table 31: Results for attitude model

Variables	***B***	***Std. E***	***β***
BN	.256	.051	.248*
FR	-.178	.040	-.220*
R^2 = .11 *p <.0005			

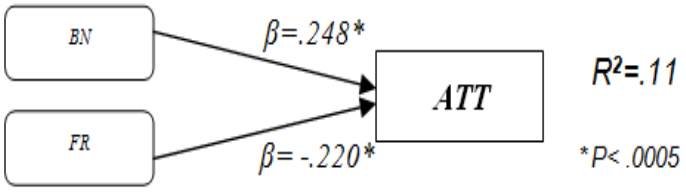


Figure 18: Regression results for the Attitude model

6.4.4. *Determinants of Subjective Norm*

To see what underlie the employees' SN, two salient beliefs were proposed to influence SN and this model was assessed by running regression analysis. Table 32 and Figure 18 show that the two normative beliefs contributed significantly the cofficint of determination R^2 was .21 [F (2, 361) = 49.121, p< .0005] and explained 21% of the variations in the employees' SN to share knowledge. Further, the results showed that management influence had the strongest significant effect on SN (β = .36), followed by organisation norms (β = .19).

Table 32: Results for SN

Variables	B	Std. E	β
Mg	.369	.051	.359*
Org C	.178	.046	.194*
R2 = .21 **p <.0005*			

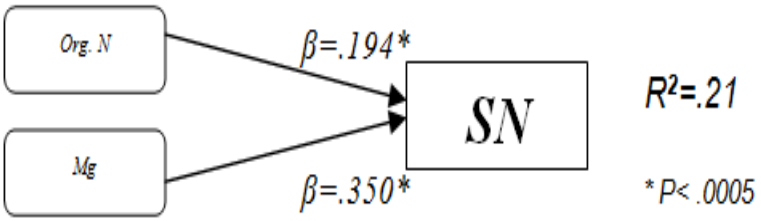


Figure 19:Regression results for the SN model

6.4.5. *Determinants of PBC*

Table 33 and Figure 19 show the results of the regression analysis conducted to determine the contribution of the proposed beliefs to the explanation of PBC to share knowledge. The results illustrates that facilitating means and time contributed significantly to the explanation of PBC [F (2, 369) = 16.974, p < .0005]. However, the model explained a rather very small amount of PBC, R^2 = .10. The facilitating means construct had a significant effect on PBC (β = .25), whereas time was not significant, thus, it did not exert any impact on PBC.

Table 33: Results for PBC

Variables	B	Std. E	β
FM	.228	.049	.254*
T	.046	.036	.070
R^2 = .10 *p <.0005			

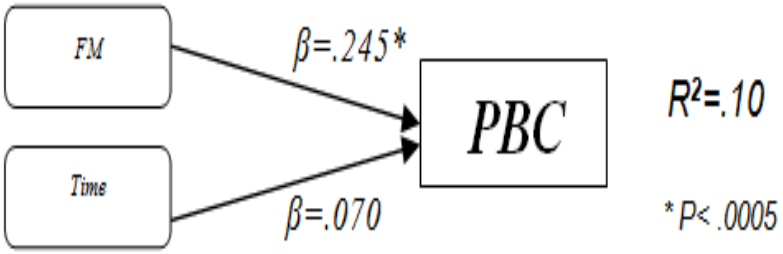


Figure 20: Regression results for the PBC model

6.5. Summary

- This chapter has presented the results of the survey study.
- First, it has provided the reliability assessment of the questionnaire and showed that the main study instrument displayed high levels of internal reliability.
- Second, the chapter has outlined the profile of the study sample.
- Third, it has described the statistical analyses conducted to answer the research question and fulfil its aims.

The next chapter will discuss the research results in light of the extant research.

Chapter Seven

Discussion, Implication, Limitations and Avenues for Future Research

7. Introduction

This final chapter will offer a discussion of the study results. It will firstly provide a summary to the thesis. Next, it will discuss the outcomes of the present study in light of the findings of extant research. Then, it will highlight the thesis contribution to theory. The chapter will also provide some practical recommendations, followed by a discussion of the study limitations and suggestions for future research. Finally, it will finish off with some concluding remarks.

7.1. Summary of Thesis

This section summarises the entire thesis by go over the main points in each chapter.

The first chapter has introduced the research background and stated the research problem. It has also put forward the research question and aims. Then, it has sketched the context in which the study is conducted. Moreover, it has briefly sketched the research methods adopted in this study. Finally, It has discussed the originality and contribution of this study and demonstrated the organisation of its chapters.

Chapter Two has reviewed the literature on the key constructs of the thesis. Next, it provided a detailed account of the research theoretical framework.

Chapter three has described the model's constructs and provided theoretical justification for selecting the constructs. Furthermore, it has illustrated the research conceptual model and postulated the study hypotheses that delineate the relationships between the constructs of the model. Finally, it has concluded with a description of the research conceptual model.

Chapter four has presented the research design and methods. Specifically, it has described the various strategies and research techniques that has been used in this research. Moreover, it has discussed the design, samples, procedures, and ethical issues pertinent to the study. The chapter has also described how the data was prepared for analysis. Furthermore, it has outlined the advantages and limitations of each technique used. It has discussed the relevant ethical issues in each phase.

Chapter five has illustrated the development and validation processes of the research instrument. It has operationalised (provided the definitions) the study model constructs with their key references. Next, it has stated the questionnaire items used to measure each construct. The chapter has also described the pilot study that was conducted to establish the validity and reliability of the questionnaire.

Chapter six has discussed the main research results. First, it has reported the reliability and validity assessment of the questionnaire. Second, the chapter has portrayed the profile of the study sample. It has also presented the results of the statistical tests of the research hypotheses. Finally, it described the results of the regression analyses of the research model.

Chapter seven offers a discussion of the research results in light of the extant research. It also describes the contribution of the study. Moreover, the chapter discusses the implications of the research findings. The chapter next offers suggestions for future research. It concludes with the limitations of the research and some concluding remarks.

7.2. Discussion of Research Findings

This study sought to explain knowledge sharing among the employees within Saudi governmental organisations which is important to the formation of a pro-sharing environment in organisations (Teo et al., 2006; Reychav and Weisberg, 2010). The thesis has posed the following question:

What are the underlying factors and their relationships that determine the employees' knowledge sharing behaviour within Saudi governmental organisations?

The aims of this research are:

1. To propose a conceptual model that best explain knowledge sharing among the employees within Saudi governmental organisations.

2. To identify the most significant factors that promote or hinder knowledge sharing among the employees within Saudi governmental organisations.

3. To identify similarities and differences between knowledge sharing factors in KSA and other cultures through comparison of the results of this empirical study with previous findings.

This study investigated the relationship between the criterion variables, BI and KSB and a set of proposed individual and external factors, including the employees' ATT, SN, PBC, Tend and TR to knowledge sharing. Moreover, this chapter looks in a holistic manner into these findings against the outcomes emerged from studies in different countries.

7.2.1.1. Identifying Factors Influencing KS Among Employees within Saudi Governmental Organisations.

This study focuses on the interrelationships between knowledge sharing intentions and behaviour on the one hand and a set of selected factors. Moreover, it attempts to explain the antecedents of knowledge sharing intentions – which is critical to the creation of a pro-sharing milieu in organisations (Teo et al., 2006; Reychav and Weisberg, 2010). In this study, a number of factors were hypothesised to be related to knowledge sharing. Behavioural Intention to share knowledge as well as the actual behaviour of sharing knowledge were the proposed dependent variables of this study. The investigated factors were derived from previous studies. Once the research constructs were operationalised and measured using validated scales, correlation statistical analyses were performed to assess the association between the selected factors and BI and KSB. A total of 12 main as well as 9 secondary hypotheses were proposed to assist in answering the research question and achieve its aims.

7.2.1.2. Behavioural Intention

The TPB model has been adopted to explore the relationships between behavioural intention (BI) and actual behaviour of knowledge sharing and has served as a basis for empirical (Bock et al., 2005; Lin and Lee, 2004) and theoretical (Reychav and Weisberg, 2004) research that explain the effect on KS. The findings showed that the employees' intention to share their knowledge is positively associated with their knowledge sharing behaviour. The link is strong and positive (*r*= .49) according to Cohen's (1988) guidelines. This finding implies that the stronger the employees' intention to share their knowledge in the organisation, the more likely they will share their knowledge with other employees in the organisation. As such, intention to share knowledge can be seen as a key variable associated with the actual behaviour of knowledge sharing within the study context. This finding is consistent with the majority of the earlier studies (Bock and Kim, 2002; Ajzen, 2005) and meta-analyses (Sheeran and Orbell, 1998; Armitage and Conner, 2001) on the Theory of Planned Behaviour that found empirical support for the link between behaviour and intention.

In a recent study from Pakistan, Ellahi and Mushtaq (2011) examined knowledge sharing behaviour among Pakistani bloggers. Their study revealed similar results, though reported a very high correlation between BI and KSB (r =.90). Moreover, in Iran, which is also a Middle Eastern context like the context of this study, Tohidinia and Mosakhani (2010) found similar results between intention and two types of knowledge sharing behaviour (collection, r=.42 and donation, r=.25). Similarly, Babalhavaeji and Kermani (2011) reported also a strong correlation between Iranian Library and information science faculties' intention and their actual sharing behaviour (r= .63). In a

Taiwanese setting, Lin and Lee (2004) found that managers' intention was positively related to employees' sharing behaviours (r= .41).

Nevertheless, in a European context, particularly, Greece, Chatzoglou and Vraimaki, (2009) found this link between intention and actual behaviour to be weak. Sheeran and Orbell, (1999) argued that some individuals who express positive and strong intention to perform a behaviour may choose not to undertake the behaviour especially when other events intervene. Once there is a temporal gap between forming intentions and the execution of the behaviour, intentions may not be a good indicator for behaviours.

Moreover, the findings of this study showed that BI was found to influence and explain KSB. In the TPB, intention is proposed as a key determinant of behaviour. The explanatory power of intention has empirical support from numerous studies and meta-analyses (e.g., Bock and Kim, 2002; Reychav and Weisberg, 2010; Alajmi, 2011). In the current study, BI accounted for.23% of the variance in KSB when it was entered in a regression model alone without PBC. Nevertheless, when PBC was entered in the analysis as suggested by TPB, the model explained .32% of the variance in KSB, yet, the contribution of BI (β=.35) was greater than that of PBC (β=.32).These results were echoed in a study conducted in Singapore by Sharma and Bock (2005) in which BI along with PBC explained .42% of knowledge sharing behaviour. However, in the United States, Chennamaneni (2006) reported a similar level of explanation for her model (R^2 = .41) with PBC (β=.41) contributing more to the explanation of knowledge sharing than BI (β=.32). Such inconsistent outcomes for the power of BI and PBC in explaining KSB can be attributed to the nature of the behaviour investigated (Armitage and Conner,

2001). However, in the current study the behaviour was 'to share knowledge' which is the same behaviour as in Chennamaneni study. The difference in the magnitude of the explanatory power is probably due to the study situations and the samples. The respondents in Chennamaneni were knowledge workers in one American higher education institute, whereas in this study, the respondents belonged to various Saudi governmental organisations including, services, education, army, etc.

Moreover, the semi-structured interviews showed that the employees in this study do not have control issues. That is, time and the necessary IT tools are available to them to share their knowledge. Ajzen and others (e.g. Godin and Kok, 1996) argue that other factors may play a role in influencing or moderating behaviour-intention relationship including PBC (Ajzen, 2005), behavioural expectation (Warshaw and Davis, 1984), job satisfaction and organisational commitment (de Vries et al., 2006; Lin, 2007a; Lin, 2007b) and past behaviour (Millar and Shevlin, 2003).

These findings have implications for organisations management. Creating an environment that encourage forming intentions to share knowledge is likely to lead to actual knowledge sharing since they are both related. For example, organisations should allow and facilitate communication channels and smooth interaction among their employees. For instance, holding meetings and social gatherings between their employees can offer good chances for knowledge sharing. The employees would be more attentive to the difficulties faced by other co-workers and colleagues and would probably put their knowledge sharing intention into action.

7.2.1.3. Attitude

In addition, the study findings revealed that attitude (ATT) towards knowledge sharing is positively correlated with behavioural intention to share knowledge (r =.40). Therefore, employees who believe that knowledge sharing is a useful and pleasant activity, i.e. hold positive attitude towards knowledge sharing, are likely to form stronger intentions to share knowledge in their organisations. Prior research showed a strong significant link between an individual's attitude toward knowledge sharing and his or her intentions to share knowledge with others (Kuo and Young, 2008; Bock et al., 2005; Alajmi, 2011; Ellahi and Mushtaq, 2011).

In addition, in this study, attitude was assessed for its ability to account for any variance in BI. The findings showed that attitude towards knowledge sharing was indeed a significant predictor of BI to share knowledge (explaining 37% of intention along with other factors). Its importance came second (β=.16) after PBC (β= .21) in explaining BI. This outcome is in line with what Tohidinia and Mosakhani (2010) found in an Iranian study. Again, attitude was the second (β=.50) significant factor in explaining BI to share knowledge among Iranian oil companies' employees. In Taiwan, Lin and Lee (2004) found that managers' attitude contributed to the explanation of intention to share knowledge. The same results were also reported in Singapore (Sharma and Bock, 2005). Nevertheless, in a Kuwaiti study which is a context very similar to the Saudi context of this study, Alajmi (2011) did not find attitude to be a predictor of BI. She attributed this insignificant result to the greater impact of the descriptive norms and knowledge sharing self-efficacy in her study.

These results have implications for promoting knowledge sharing within organisations. Organisation management should focus on fostering positive attitudes towards sharing knowledge among their employees. This can be achieved by raising the employees awareness of the importance of knowledge sharing for their organisation as well as for their own benefit. Moreover, if the organisation top management regard their employees' knowledge as an asset that should be capitalised by sharing it with the organisation, they should strive to encourage their employees to share their knowledge.

7.2.1.4. Subjective Norm

This study has also found a significant positive relationship between BI to share knowledge and subjective norm (SN) regarding knowledge sharing (r= .36). This outcome accords with other studies from different contexts (Tohidinia and Mosakhani, 2010 in Iran; Kaweevisultrakul et al., 2009 in Thailand).

Moreover, the current study hypothesised that the employees' subjective norms regarding sharing their knowledge to have an impact on BI. However, this hypothesis was not supported as SN was found to be insignificant once entered in the regression model to explain BI to share knowledge. Within the field of ISM, Davis and his associates (1989) found that SN had a negligible effect on behavioural intentions. Thus, Davis (1986) did not include this construct in his technology acceptance theory (TAM) that is built on TRA. The literature on knowledge sharing has equally reported similar insignificant role for SN in explaining BI (So and Bolloju, 2005, in Hong Kong). Chau and Hu (2001) reported also similar results when they investigated telemedicine adoption in

a healthcare setting in China. On the other hand, some researchers such as Lin and Lee (2004) from Taiwan as well as Alajmi (2011) from Kuwait found that SN was the most important factor influencing BI to share knowledge. This may suggest that some individuals rely heavily on other people's opinions in forming their decisions regarding sharing knowledge. In contrast, for other individuals, they feel or perceive little or no external pressure from other people to share knowledge. In the context of our study where the pressure from the important others was found irrelevant, it seems that sharing knowledge is perceived as an act that cannot be forced by others but rather requires nurturing as one employee explained in the semi-structured interview,

"..if I want to share my knowledge, I am not going to wait someone to tell me to do so, I will share if I feel there is a need and I want to do so....".

Another employee explained,

"since this is a governmental organisation and it is unlikely that anyone will throw you out the organisation or even punish you, you don't feel any pressure from others to share what you know....".

Käser and Miles (2002) argued that sharing activities are voluntary acts that cannot be forced.

Another employee brings in the notion of fairness in the organisation as he explicated,

"..this organisation treats their employees unfairly, I don't feel grateful to it...they deal with the employee who has relationships in a special way than the one who shares and contribute to the good of the organisation..., this is due to the bad recruitment procedures...they don't hire the qualified or the experienced one...the criteria is that if he has an association with the management....This will eventually lead to hatred and noncooperation among the employees....thus, I hesitate to share with other people in this organisation...".

Another employee stated,

"....I only share with direct managers as some managers and colleagues used to take ideas and claimed them to themselves,....".

An implication of the finding that the employees can share more knowledge if they feel greater influence from their important others to share knowledge is that top management as well as other influential employees such as supervisors and coordinators should be educated of the importance of knowledge sharing and urged to encourage their subordinate employees to share their knowledge and expertise. Similarly, the managers and supervisors can set good examples for their employees in their organisations when they share their knowledge and offer their help to other employees. Such an act can create a supportive environment and motivate knowledge sharing among the employees.

7.2.1.5. Perceived Behavioural Control

This study looked at the relationship between perceived behavioural control (PBC) and BI within the context of Saudi governmental organisations. The study findings

revealed that PBC and BI are significantly and positively correlated indicating that, as the employees perceive more control over sharing their knowledge, they intend more likely to share knowledge. That is, perceptions of greater control promote greater intention to share knowledge. Similar results were reported from studies in Korea (Lin and Lee, 2004), Singapore (Sharma and Bock, 2005) and Iran (Tohidinia and Mosakhani, 2010).

Additionally, based on TPB, PBC was proposed to explain BI to share knowledge. In this study, it was found that PBC contributes to the prediction of BI (β= .21) when it was entered in the regression model to explain BI. The greater the employee's perception that he has resources and opportunities, the fewer obstacles one expect and so has greater perceived control over the behaviour. This finding agrees with the studies of Lin and Lee (2004) in Korea and So and Bolloju (2005) in Hong Kong. Nevertheless, this finding is not in line with what Chatzoglou and Vraimaki (2009) found in their study in Greece and Goh and Sandhu (2011) in Malaysia. The discrepancies in the effect of PBC on BI as Chatzoglou and Vraimaki (2009) claim could be due to the nature of the studies' samples. Alternatively, Goh and Sandhu (2011) argue that PBC is only useful to explain knowledge donating and not knowledge collecting.

7.2.1.6. Tendency

This study proposed that the employee's tendency (Tend) to share knowledge is correlated with his or her intention to share knowledge. Tendency to share knowledge is an individual's predisposition toward sharing his/her knowledge (Ford, 2004). The findings of the study revealed that the employees' tendency to share knowledge was

positively related to their intention to share knowledge. That is, the higher the employee's tendency to share his/her knowledge, the higher their intentions to share their knowledge. This finding was also reported in a Canadian study by Ford (2003) that looked at knowledge workers' intentions to share knowledge.

Moreover, tendency to share was found to be the most important factor influencing intention to share knowledge when included in the study model. The employee's tendency to share his/her knowledge exerted the greatest impact on their intentions to share knowledge. This is consistent with the studies of Ford (2004) and Ford and Staples (2010) who found tendency to share one's knowledge to have an impact on intention to share knowledge. This outcome was also echoed in a number of studies investigated intentions of some pro-social behaviours (e.g. helping, sharing, and volunteering). In Canada, Wasko and Faraj (2000) studying why people contribute their knowledge to strangers in electronic networks of practice, found that people share their knowledge because they enjoy sharing their experiences and like to contribute to the good of community. This finding has an implication when taking up new employees. Recruiting individuals who have higher tendencies to share knowledge and who have predisposition to help and share could contribute to greater knowledge sharing, and at the same time reduce knowledge hoarding within the organisation.

7.2.1.7. Trust

The study suggested trust (TR) as a key factor that is related to intention to knowledge sharing. The finding of the study revealed that trust is correlated positively with intention to share knowledge. That is, the more the employees trust their

colleagues, the more willing they are to share his/her knowledge with their colleagues within the organisation. In addition, the finding showed that trust is a key factor in shaping the employees' intention to share knowledge when this construct was included in the study conceptual model. This finding agrees with prior literature (Cabrera and Cabrera, 2005). Knowledge sharing is a social activity that entails participation from several individuals. Most often, sharing knowledge under certain conditions are based on trust. Trust assists learning between colleagues (Heumer, Krogh, and Roos, 1998). As such, trust and knowledge sharing mutually support each other (Lee et al., 2006). This outcome is consistent with the results of studies from Canada (Ford, 2004; Ford and Staples, 2010) and from Korea (Lee and Choi, 2003). Davenport and Prusak (1998) point out that no matter what technology and rhetoric the organisation uses, knowledge initiatives will fail without trust. Undeniably, trust stimulates any atmosphere to be conducive to the sharing of knowledge between the employees (Nelson and Cooprider, 1996). In contrast, the lack of trust between the employees is a key obstacle to knowledge exchange (Szulanski, 1996).

When there is trust, the employees are more likely to share knowledge across all levels in the organisation. This finding has some implications. Whilst the organisation management cannot command that its employees should trust one another, it can, nevertheless, create an atmosphere that may nurture trust. Organisations can adopt strategies such as fostering open communication, encouraging interaction, exchanging of personal information, experiences and critical information and involving in decision-making (Mayer et al., 1995, Mishra and Morrisey, 1990). Similarly, to prevent distrust, management can instil institutional safeguards to prevent opportunistic behaviours

(e.g., McKnight and Cummings, 1998). Abrams et al. (2003) have offered a set of ten behaviours and practices that promote interpersonal trust. These are: (1) acting with discretion; (2) consistency between word and deed; (3) ensuring frequent and rich communication; (4) engagement in collaborative communication; (5) ensuring that decisions are fair and transparent; (6) establishing and ensuring shared vision and language; (7) holding people accountable for trust; (8) creating personal connections; (9) giving away something of value and (10) disclosing one's expertise and limitations.

Therefore, within the Saudi governmental organisations, it seems that fostering positive attitudes regarding sharing knowledge and a trusting environment can create a motivating atmosphere to share knowledge.

In general, the current study showed the consistency of most of its findings with the Theory of Planned Behaviour (Ajzen, 2005) and the earlier studies on knowledge sharing (Blue et al., 2001; Lin and Lee, 2004; So and Bolloju, 2005; Sharma and Bock, 2005; Kim and Lee, 2006; Kuo and Young, 2008; Tohidinia and Mosakhani, 2010). Moreover, the findings of the current study are consistent with the majority of the studies conducted in countries of diverse and different cultures. For example, in terms of the impact of ATT and PBC on BI, the findings were comparable to those of the research carried out by Lin and Lee (2004) in Taiwan, Bock et al. (2005) in South Korea, Tohidinia and Mosakhani (2010) in Iran and Alajmi (2011) in Kuwait. In terms of the insignificant effect of SN on BI to knowledge sharing, findings were similar to those of the research conducted by So and Bolloju (2005) in Hong Kong. Hence, it can be

suggested that the base model of TPB is a valid model to explain knowledge sharing across different cultures.

7.2.2. *Underlying Beliefs of ATT, SN and PBC to Knowledge Sharing*

This study, following the TPB, proposed a set of beliefs to be the determinants of ATT, SN and PBC to knowledge sharing. The impact of these factors was assessed using regression analysis. The previous chapter has outlined the results and this section discusses the findings against research conducted in other countries.

7.2.2.1. Attitudinal Beliefs

This study proposed that two attitudinal beliefs namely belief of loss and belief of benefit to be determinants of the employees' attitude towards knowledge sharing. The correlation analysis showed that the belief of loss to have a negative relationship with attitude while perceived benefit to have a positive link with attitude. Prior research indicated that knowledge sharing has risks as well as benefits. At certain times, the employees may not be willing to share their knowledge if they feel fear from the loss of superiority and knowledge ownership after sharing their unique ideas with others (Hislop, 2003; Yang, 2008). At the same time, the employees will share their knowledge if they perceive that such an exchange has advantages for them (Ellahi and Mushtaq, 2011).

Consistent with the study findings, research found that perceived benefits are positively related with knowledge sharing while perceived costs have a negative correlation with knowledge sharing (Wang and Noe, 2010). In India, Bordia et al. (2003) found a positive link between the perceived benefit and the intention to share

knowledge. In Singapore, Kankanhalli and associates (2005) found some perceived extrinsic and intrinsic benefits to be positively related to knowledge contribution to a knowledge repository. Nevertheless, Bock and Kim (2002) in Korea found the expected rewards to be negatively related to attitude toward knowledge sharing. Bock and Kim (2002) argue that the value of knowledge plays a role in the process of knowledge sharing. Fear of losing power is an obstacle to knowledge sharing when the knowledge is very critical. Clearly, knowledge is power in today's knowledge economy; so sharing knowledge means sharing power or perhaps even losing power. Davenport (1994) explains, "If information is power and money, people won't share it easily". When knowledge is perceived as power, it is likely to lead to knowledge hoarding instead of knowledge sharing (Davenport 1997). Brown and Woodland (1999) argue that individuals use knowledge for both control and defence. Sharing knowledge can be stimulated by numerous gains such a good reputation (Bordia et al., 2003; Kankanhalli et al., 2005), recognition and promotion (Kalman, 1999), incentives like monetary rewards (Bock and Kim, 2002; Bock et al., 2005), enjoyment in helping others (Kankanhalli et al., 2005). That is, people exchange their knowledge to the extent that they benefit from other individuals. On the other hand, research conducted by Lank (1997), Erhardt (2003) and Kamdar et al. (2002) found that some employees believe that by not sharing their knowledge, this will help them keep a job performance advantage over other employees, especially in an unstable job market. Such misconceptions are not uncommon among many employees.

Furthermore, the regression model for attitude suggests that attitude towards KS is shaped by other antecedents than the proposed factors in this study. Other studies

investigated constructs such as enjoyment in helping others (Salim et al., 2011), self-efficacy and group cohesion (Hasan, 2010).

The implication for the current findings is that in order to eradicate these beliefs, organisation management should foster a healthier organisational climate where trust prevails.

7.2.2.2. Normative Beliefs

The study proposed that SN towards knowledge sharing is determined by two normative beliefs: perceived management influence and perceived organisational norms. The study found the two beliefs to exert influence on SN towards knowledge sharing; albeit, the two factors did not explain a large amount of the variance in SN. The importance of the two factors found support in prior research (Lyles and Schwenk, 1992; Klein, 1998; Ruggles, 1998; Connelly and Kelloway, 2003; Ipe, 2003; Lee and Kim, 2006; Lin, 2007d). In Korea, Lee et al. (2006) found that management influence impacted the level and quality of knowledge sharing through impacting employees' commitment to knowledge management. However, King and Marks (2008) found that organisational support did not contribute to knowledge transfer in US organisations. Ruggles (1998) argues that top managers' failure to address the importance of knowledge was one of the biggest obstacles to knowledge sharing. His study of 431 American and European organisations revealed that organisational norms is one of the main impediments to knowledge sharing.

Employees are more willing to share knowledge when they feel knowledge sharing is encouraged and supported in organisation. Nonaka and Toyama (2002) emphasised

that managers play a critical role as knowledge activists since they both create knowledge vision and take up a facilitating role in establishing a supportive environment for knowledge sharing. The implication for this finding is that management should encourage knowledge creation and sharing. They should be active players in the creation and transfer of knowledge, i.e. they should act as team members to set off the knowledge sharing cycle.

In addition, perceived organisational norms regarding knowledge was found to exert an influence on the employees' SN regarding knowledge sharing. This finding is consistent with Jacobs and Roodt's (2011) study in South Africa. Jo and Joo (2010) argue that the more the employee is identified with his/her organisation, the more he/she is likely to interact with other members in the organisation. Their study on Korean organisations revealed similar conclusions . Organisational norms outlines the environment where knowledge is created, shared, diffused, and used in the organisation (DeLong and Fahey, 2000). These findings signal the importance of organisational norms as a pre-requisite to share knowledge in the Saudi organisations. On the other hand, Ford (2004) investigated the link between perceived organisational norms as a factor representing SN and knowledge sharing intention between knowledge workers in Canada. She did not find significant paths between organisational culture and intention to share knowledge. Nonetheless, the finding implies that a positive knowledge sharing culture in an organisation could exert an influence on the employees' knowledge sharing. Thus, a major cultural change may be necessary to alter the employees' perceptions and behaviours so that they become more willing to share their knowledge. Senior executives and supervisors can generally

bring out, through their speech and actions, a knowledge sharing norms in their organisations. In particular, top management establishes norms that infiltrate into the organisation, shaping the employees perspectives about how to exchange their knowledge. They should nurture the underlying culture necessary to support knowledge-sharing activities. Therefore, the role of top management for establishing the right organisational norms for knowledge management should be acknowledged and stressed while drawing any knowledge management strategies. Kim and Mauborgne (1997) note: "Unlike the traditional factors of production -land, labor, and capital – knowledge is a resource locked in the human mind. Creating and sharing knowledge are intangible activities that can neither be supervised nor forced out of people" (p.67). Nevertheless, factors such as rewards and fair treatment will help creating a co-operative climate essential for knowledge sharing.

7.2.2.3. Control Beliefs

The study proposed that facilitating means and time to be correlated with PBC. The results showed significant correlation coefficients implying that facilitating conditions and time are related to perceptions of control. The importance of time for knowledge sharing activities is acknowledged in the literature (Hinds and Pfeffer, 2003). When investigated for their contribution to the explanation of PBC, the findings of this study, however, showed that only the facilitating conditions factor was could predict PBC. Nevertheless, this agrees with the argument of Ajzen (1991), that PBC reflects beliefs regarding access to the resources and opportunities needed to influence behaviour. The findings suggest that perceived behavioural control would increase, as more facilitating means and opportunities are available. Previous studies suggest that

organisational facilitating means, such as providing adequate technology for the employees can stimulate knowledge transfer and sharing through amplifying beliefs about the control over sharing knowledge. In Singapore, Sharma and Bock (2005) found similar influence for facilitating conditions on PBC. Similarly, Suki and Ramayah (2010) found that facilitating conditions as an antecedent of PBC in a Malaysian context.

However, the study revealed that time was not a significant factor shaping PBC. The finding is in contrast with the majority of the studies on knowledge sharing. For instance, Taylor and Todd (1995) found that resource-facilitating conditions (e.g. time) have greater impact than technology facilitating conditions on PBC in a USA study. Hew and Hara (2007) in their research of three online professional communities investigated the perceived costs that might impede knowledge sharing. Their qualitative study reported lack of time to be one of the most repeatedly cited causes for not sharing knowledge. In the same way, Kankanhalli et al. (2005) study revealed that the more time employees perceived as needed to codify knowledge so that they could share knowledge the less likely they would use electronic repositories for sharing.

Lack of empirical support for the role of time in our study can be explained by several points suggested by the employees in the semi-structured interviews. As revealed by the semi-structured interviews with seven employees, all the interviewed governmental employees did not report any lack of time. One employee sees that time is not an issue at all in the Saudi governmental organisations. He explained,

"the employees have plenty of time because the tasks assigned to them are usually accomplished in a short time....they (i.e., the employees) have plenty of free time.".

This is further clarified by another employee who attribute this to the nature of the governmental organisations,

"In a governmental organisation, numerous employees are always recruited...more than essentially needed, in say a department or division,... therefore, the tasks are divided among the numerous employees and thus they have a great deal of time to finish before midday...".

Furthermore, in the literature of TRA, it is often the case that a variable can be significantly correlated with behavioural intentions, yet it may show an insignificant weight in the regression model (Miniard, 1981). Another possible reason for the insignificant role of time is probably due to the measurement of the time construct which was limited to only one item.

In today's global economy, organisations are increasingly counting on technology to leverage knowledge creation and sharing among their employees. Organisations should provide adequate facilitating conditions including KS systems and tools to the employees to stimulate more knowledge contributions.

7.2.3. *Relationship Between Research Selected Demographics and BI and KSB*

7.2.3.1. Nationality

The current study sought to investigate if there exists any correlation between the employees' nationality and their knowledge sharing behaviour or behavioural intention. The statistical analysis failed to detect any statistically significant relationship between the variables in our sample. However, prior research showed that language differences could create knowledge barriers and hamper the transfer as well as the reception of knowledge (Bhagat et al., 2002; Ford and Chan, 2003). Linguistic and logical diversity were found to impact how knowledge is transferred as well as to which degree it can be shared beyond cultural borders. Ojha (2005) found that the mother tongue of the employee to have an impact on his knowledge sharing. Employees from various parts of the country, or from different cultural backgrounds, showed different tendencies to participate in team tasks and knowledge sharing. Similarly, a comparative study of the United States and China showed that the employees in China were less tended to share knowledge with out-group members (Chow et al., 2000).

The semi-structured interviews revealed that this insignificant result may be due to the Islamic teaching that encourages and rewards greatly for helping others and sharing good knowledge with others as one interviewee explained,

"our beliefs affirm that there is no difference between the white or black, Arabs or Non-Arabs.....we thus should share what we know with anyone asks for help because Allah rewards us for it".

Another employee added,

"An Arab or a Saudi has no superiority over a non-Arab nor a non-Arab has any superiority over a Saudi, also a white has no superiority over a one who is black except by piety and good action....we should share regardless of these differences as long as there is a gain for the two parties".

7.2.3.2. Gender

Although the literature on the correlation between gender and knowledge sharing suggests that women tend to share knowledge more than men, the findings of the study revealed that gender was not associated with knowledge sharing intention or KSB. In Sweden, Mäkelä, Andersson, and Seppälä (2011) reported similar results in the context of multinational organisations. Similarly, in a study from Botswana, Mogotsi, Boon and Fletcher (2011) found that there was no statistically significant relationship between gender and knowledge sharing behaviour. However, in China, Lu, Leung, and Tremain Koch (2006), found that women were more inclined to offer assistance to others than men. This impact of gender was also reported in a study by Connelly and Kelloway (2003) in Canada. In the context of the current study, gender does not seem to play a role in shaping the employees' intentions to share knowledge nor the actual behaviour, KSB.

7.2.3.3. Age

The study findings showed that there is no correlation between the employees' age and their knowledge sharing behaviour or intentions. This is consistent with Mogotsi et al. (2011) study. However, Keyes (2008) in a study to explore barriers within organisations found age as a factor impacting knowledge sharing. Her study uncovered

a divide between older and younger employees, with the younger employees were reported to be less willing to share with older colleagues.

The semi-structured interviews added some insight to how age may impact knowledge sharing. One employee said that older employees usually pass their knowledge to the younger ones in order to get rid of the workload or the responsibility,

"...some senior employees feel relieved when they charge other younger employees with the work, they transfer all their knowledge and experience to the younger".

Another employee added, "anyway they know they (i.e., the older or senior employees) will retire soon and hence there is no harm of teaching the new and younger ones what they know....".

7.2.3.4. Level of Education

The level of education was found to correlate with knowledge sharing behaviour and intention. This is compatible with the results of a study by Riege (2005) who identified a relationship between employees' educational level and likelihood to share knowledge. Ojha (2005) found also that differences in levels of education were likely to hinder the sharing of common experiences. That is, a worker with an educational background different from the other workers was less likely to share knowledge. In a qualitative study, Keyes (2008) revealed that the higher the educational level, the more likely it was that the employee would share knowledge. On the other hand, the lower the educational level, the less likely the employee would share his/her knowledge, because of fear that they may lose their unique value. Therefore, when forming team-works or task groups, management can take this finding into account and assign

employees of similar educational levels to work together to maximise transfer of knowledge.

7.2.3.5. Sector

The study findings showed a relationship between sector and knowledge sharing behaviour. This accords with previous research. Lou, Yang and Shih (2007) revealed in their study that employees at public colleges and universities tended to be more willing to share knowledge than their counterparts at private colleges and universities. However, Babalhavaeji and Kermani,(2011) did not find any significant relationship between knowledge sharing behaviour of faculties in governmental universities and those in private universities.

7.2.3.6. Years in Organisation

The study proposed that the employees' years in the organisation to be correlated with their knowledge sharing behaviour and intention. However, the finding failed to identify any statistically significant correlation between the variables. This finding is not compatible with the findings of previous studies (Ojha, 2005; Lou, Yang and Shih, 2007; Babalhavaeji and Kermani, 2011). For instance, in India, Ojha (2005) found a correlation between organisational tenure and knowledge sharing. His study revealed that a long organisational tenure had a negative influence on knowledge sharing. In Taiwan, Lou et al. (2007) revealed that employees with a seniority of 5 to 10 years tended to be more willing to share knowledge than employees with less than 5 years teaching experience. Similarly, Babalhavaeji and Kermani, (2011) results showed a significant relationship between employees' teaching experience and their knowledge sharing behaviour.

Instructors with less than five years' experience and more than 20 years' experience displayed higher levels of knowledge sharing behaviour.

The semi-structured interviews showed that within the context of this study new employees as well as those who spent long years in their job, feel the need for each other. One employee explained, "...despite being in my job for more than fifteen years, I will definitely share my knowledge with any colleague, new or old since we all need one another. I sometimes ask the junior employees for their opinions in complex matters to get fresh and new perspectives...".

7.2.3.7. Size of Organisation

The study hypothesised that the employees' knowledge sharing is correlated with the size of the organisation where they work. The statistical analysis showed that there is a statistically significant relationship between the two factors. This finding agrees with what Sveiby and Simons (2002) reported. They noted that the size of an organisation impacted the effectiveness of knowledge sharing activities. Their study revealed that knowledge-sharing activities in an organisation improve with the increase in the size of the organisation. This finding has ramification for huge corporations want to encourage a pro-sharing norms.

7.2.3.8. Status in the Organisation

The study findings revealed that there is no relationship between the employees' knowledge sharing behaviour or intention and their status in the organisation. This finding does not agree with the studies of Jolly (2002), Ford and Chan (2003) and Peltokorpi (2006). Status hierarchies can create barriers to knowledge sharing within

Japanese subsidiaries in North America (Ford and Chan, 2003). In China, status hierarchies were found to exert a significant influence on knowledge sharing because the employees tended to be hesitant to skip hierarchies and share knowledge outside one's in-group. Peltokorpi's study (2006) on Nordic expatriates in Japan indicated that knowledge sharing between local middle managers and subordinates were found to diminish between out-group members.

Within the context of this thesis, the semi-structured interviews revealed that knowledge is generally transferred between the different levels in the organisation due to the nature of the governmental organisations in Saudi Arabia.

7.2.3.9. Job Status (Contract vs. Permanent)

The study did not find any significant correlation between the employees' job status and their knowledge sharing behaviour and intention. However, in a study from the United Arab Emirates, Skok and Tahir (2010) revealed that short-term contracts are strong barriers to knowledge sharing because the employees lack job security; hence they tend to be less willing to share their personal knowledge. Job insecurities lead to a reduction in knowledge sharing (Riege, 2005). Maslow (1943) argues that the individuals are difficult to become motivated, if their needs such as those associated with job security, are not satisfied.

The semi-structured interviews showed that the permanent employees share knowledge with other employees because there is no threat of losing their job in the case of sharing,

"competition between the employees is not present because this is a governmental job, you will not be fired for not sharing...." (permanent employee).

In the case of the contract employees, sharing knowledge is a way to show off your efforts and knowledge, hence you are of value to the organisation, " I share because I want reward from Allah as well as I want my management and colleagues to appreciate my knowledge and efforts...so they will renew my contract.." (contract employee).

7.3. Thesis Contribution

This research makes a number of contributions to the literature in the field of Knowledge Management and Organisational Behaviour. Most importantly, Zack (1999) argues that knowledge sharing is 95% managing people and 5% technology.

Firstly, in the current study, knowledge sharing was examined from the employees' perspective by adopting social psychology theories, i.e. TRA and TPB. The study adopted the TPB model as its theoretical framework and tested its validity for examining knowledge sharing. Earlier research has used TRA and TPB to study various behaviours including strategy choices in Prisoner's Dilemma games (Ajzen, 1971); blood donating (Pomazal and Jaccard, 1976); church attendance (King, 1975); voting (Ajzen and Fishbein, 1980); dieting (Sejwacs, Ajzen, and Fishbein, 1980), family planning (Crawford and Boyer, 1985); using condoms (Greene, Hale, and Rubin, 1997), and reporting alien abductions (Patry and Pelletier, 2001). Our study contributed to theory by confirming the validity of the TPB theory for understanding knowledge sharing behaviour.

Secondly, this research extended the TPB theory by adding new constructs, i.e. tendency and trust that found to be significant factors in the explanation of the employees' intention to share knowledge. This extension filled a lacuna in the existing literature of knowledge sharing in general and in Saudi organisational literature in particular.

Thirdly, based upon extensive review of the literature on knowledge sharing and transfer in organisations, the present study synthesised and tested a conceptual model for best explain knowledge sharing among the employees within Saudi governmental organisations. The research studied a number of relationships between variables, that while extensively were considered in the literature, have generally not been examined in the context of the present research: Saudi Arabian governmental organisations. The majority of the examined relationships have been found to be in agreement with the results of studies carried out elsewhere, implying that such associations are empirically valid enough to be applicable in other cultures. Nevertheless, contrary to the conclusions found elsewhere in the literature, SN was not found to influence intentions to share knowledge, suggesting that social norms may not have a bearing on intention to share knowledge within the context of Saudi governmental organisations.

Fourthly, the thesis adopted, developed and validated instruments to measure key constructs, i.e. intention to share knowledge, knowledge sharing behaviour, SN, PBC, trust and tendency to share knowledge.

Fifthly, the research also examined the relationships between a number of demographic variables and the study two main constructs: intention and actual

behaviour of sharing knowledge. Some of the highlighted demographics were rarely studied within the literature of knowledge sharing and the Saudi context of organisations. This study thus contributes to theory and bridges a gap in the literature of knowledge sharing and organisation behaviours as there have been limited literature on the effects of demographics on knowledge sharing behaviour in the Saudi organisational context.

7.4. Recommendations

Knowledge is an important intangible asset for creating and sustaining advantages for organisations. To the extent that the findings of this research are valid, they can guide governmental organisations to set up strategies and plans to promote knowledge sharing among their employees and minimise knowledge hoarding.

The current study revealed that the employees' perceptions of benefit resulting from sharing knowledge can nurture more positive attitudes toward knowledge sharing. As such, the organisational top management should foster positive attitudes towards knowledge sharing by raising the employees' awareness of the importance and potential benefits of sharing knowledge and experience to their individual development and to the overall benefit of the organisation. In contrast, the study showed that fears of losing something as a result of knowledge sharing have negative impact on the employees' attitudes towards knowledge sharing which in turn influences intention to share knowledge. Hislop (2003) argues that fair and unprejudiced decision-making practices can impact knowledge-sharing attitudes and behaviours. That is, there will be less negative attitudes and misconceptions when employees feel that organisational

decisions are fair. Flood et al. (2001) found that equity perceptions were positively linked to feelings of obligation to contribute to the organisation (ibid). Therefore, organisations management should strive to eradicate any misconceptions about sharing knowledge by ensuring the fairness of their reward and recognition practices. Organisations should look into different ways of linking rewards and sanction to nourish favourable attitudes as well as diminish the negative perceptions towards sharing knowledge among employees. For example, organisations can offer orientation and training programmes geared towards developing employees' professional skills and the ability to articulate and communicate knowledge. Similarly, organisations management should set general standards and increase awareness regarding knowledge sharing rules and objectives to clarify any doubts and fears that the employees might have in regard to sharing their knowledge.

The findings of this study that perceived behavioural control was a factor related to intentions to share knowledge and knowledge sharing behaviour have an implication for organisations. The employees tend to engage in knowledge sharing to the extent they feel able to do so. PBC can thus foster the employees' intention since the employees are not motivated to start off tasks at which they perceive they might fail. Therefore, management should facilitate and smooth the transfer of knowledge sharing across the organisations. One way to do so is by implementing knowledge management systems and tools to assist the sharing process and increase access to knowledge. These tools allow recording and capturing the employees' knowledge and experience to be used later by other employees. The tools and systems should have ease of use (e.g. intuitive application and searchable catalogues) to enable

communication and interaction as well as boost the human networks that already available. Moreover, this will help reduce duplication of efforts.

Moreover, this study suggested organisational norms and management perceived influence as critical antecedents of SN towards knowledge sharing. The study found organisational norms to be a key factor linked to SN. Therefore, successful management should make efforts to establish within the organisation a desirable environment based on a set of shared values, norms, and expectations while complying with organisation goal, vision and mission. Similarly, to promote a knowledge sharing culture among the employees, organisation should adopt short and long term strategies to improve knowledge sharing practice.

Moreover, perceived management influence was a significant factor linked to SN. Cabrera and Cabrera (2005) argue that perceptions of leadership support lead to establishing a trustworthy organisational norms where the employees' contributions are recognised which in turn foster greater transfer of knowledge. Therefore, managers should support an encouraging atmosphere within organisations. For example, management should build a supportive environment in which knowledge can be shared easily via effective communication and knowledge sharing tools such as specialised forums and blogs. In addition, management should promote the exchange and sharing culture by arranging (indoor and outdoor) periodic assemblies, workshops, social gatherings and sport activities that allow great opportunities to ideas exchange among peers and managers. Moreover, asking the expert employees, talented staff and supportive manager to present their knowledge and experience to other audience of

employees would help to educate and inspire other employees to exchange idea. Likewise, top management should be an ideal example through sharing their knowledge so as to encourage other employees to share too. Furthermore, organisation management should acknowledge and make the most of the active and influential employees who a have dominant roles and charisma because they can motivate and encourage other employees to participate and contribute their knowledge and experience.

The study revealed that tendency to share knowledge is an important factor related to intentions to share knowledge. This finding has a practical implication for selecting and recruiting employees. Proactive employees who always have the initiative should be given the priority and opportunity to work in the tasks and work groups to capitalise on their contribution to the organisation.

In addition, the study found that trust is an important factor related to knowledge sharing. Therefore, organisation management should adopt supportive practices such as involving employees' participation in decision-making. This strategy indicates that the organisation trusts them to make these decisions. The literature suggests that perceptions of fairness affect levels of trust by signalling that the organisation thinks about the well being of its employees and is ready to invest in them (Cabrera and Cabrera, 2005; Allen et al., 2003). As such, any rewarding policy for knowledge sharing should avoid creating competition among employees. In this way, whilst knowledge sharing behaviours should be appraised and compensated, appraisal and reward systems should look into team-level performance and outcomes rather than into

individual-level achievements. This will reinforce communal goals and collaboration among employees and contribute to higher levels of trust essential for knowledge exchanges (Kang et al., 2003; Cabrera and Cabrera, 2005). Thus, offering group-based training will assist in establishing relationships that are critical for the exchange of knowledge. Similarly, management can make use of cross training between the employees to boost up knowledge sharing through encouraging interactions and establishing a shared language. Moreover, management should arrange socialisation programmes or events and establish informal communities of practice to form social ties that nourish trust.

The following diagram (Figure 20) summarises the main research factors that were proposed to explain knowledge sharing. It shows main recommendations and the conditions under which knowledge sharing is likely to occur.

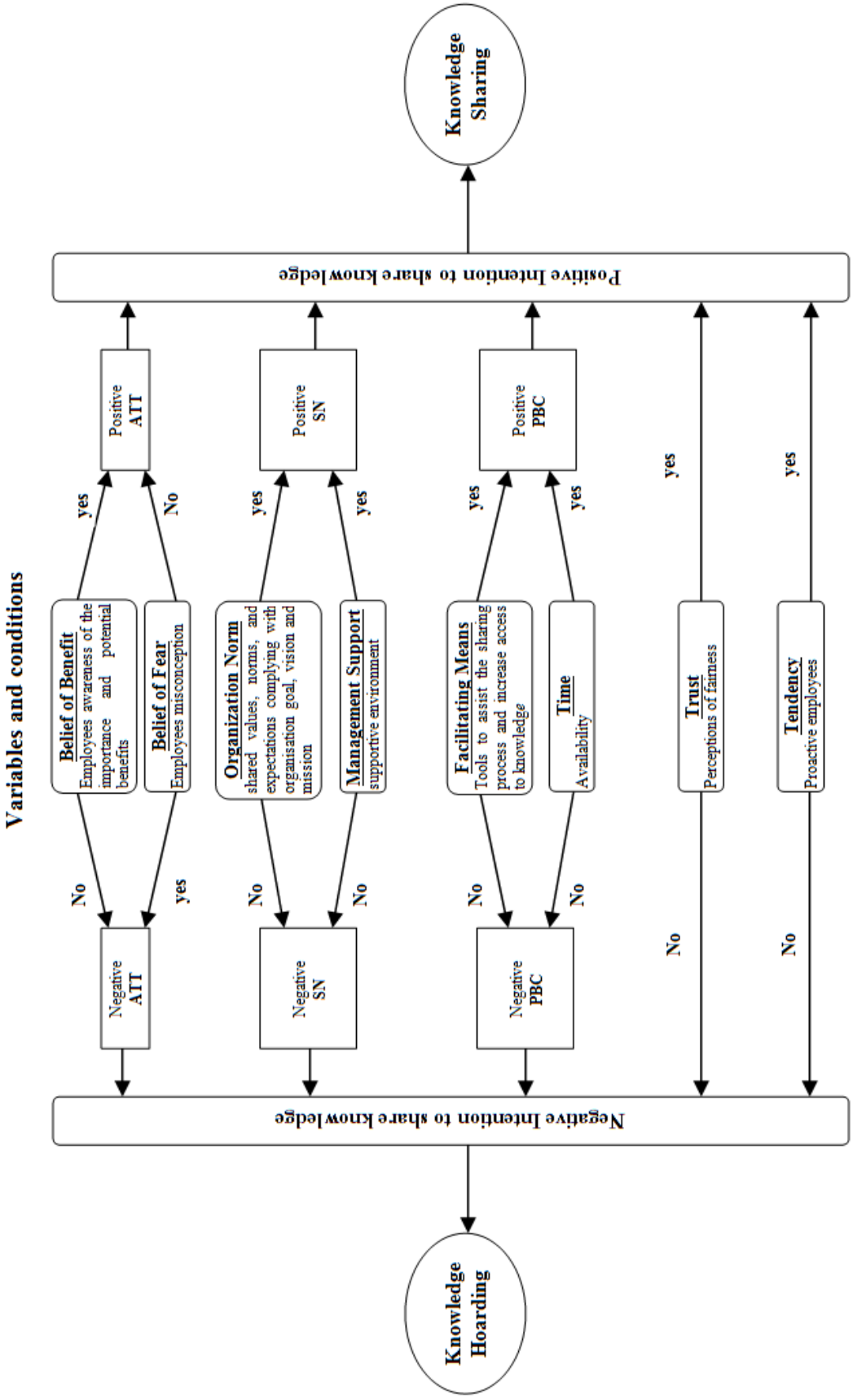


Figure 21: Recommendations diagram

7.5. Limitations and Suggestions for Future Research

When interpreting the findings of this research, there are some issues that should be taken into account. This research investigated knowledge sharing behaviour from the employees' perspective in one specific context. This research focused on knowledge sharing among the employees within Saudi organisations, specifically governmental. The conceptual model of knowledge sharing behaviour presented and investigated in this research can be extended in several directions. Future research can be conducted in different contexts such as private corporations, medical and intensive care services, airports, banks...etc.

Moreover, the current research adopted a cross-sectional study design. Thus, it is not viable to infer definitive causal relationships between the study constructs from the findings of this research (Kenny, 1979). Future research should attempt to address this limitation and adopt other research methods such as the longitudinal design. Longitudinal research allows more accurate description of the direction and magnitude of causal links between constructs (Menard, 1991).

Although this research synthesised a model for explaining knowledge sharing using constructs derived mainly from the theory of planned behaviour, future studies may adopt other theoretical frameworks and constructs. In this thesis, the explained variance in the criterion variables were low or moderate, hence, future research should examine the utility of other variables and potential motivation factors and also investigate direct or indirect effects (e.g., job satisfaction, organisational commitment, etc.) to understand better knowledge sharing.

In addition, this study approached and operationalised knowledge sharing behaviour in a broad sense. Nevertheless, knowledge sharing behaviour can be divided into subcategories and tested based on the type of knowledge shared. One suggestion for future research is to include different types of knowledge (e.g. tacit and explicit) to determine if there is a significant difference between employees' behaviours for sharing different types of knowledge and to investigate if there are different types of motivation for each type of knowledge sharing behaviour.

Similarly, it would be interesting to study what types of facilitating means (e.g. Web 2.0 applications and tools) are being used to encourage knowledge sharing activities and participation.

Furthermore, this research relied on self-report measures, which could possibly impact the study results. One direction for future research may obtain more objective data such as the actual occasions when the employees consulted the database or knowledge sharing systems. Other research techniques to obtain data can be also utilised such as the vignette which has been used in numerous studies.

Finally, this study adopted regression analysis to test the study model, yet, there exists more developed statistical tools that are able to assess complex models while accounting for the errors in measurement simultaneously such as Structural Equation Models (SEM) method (Nurmi, 2012). Future research could benefit from the more advanced statistical tools and use them to give more reliable results.

7.6. Concluding Remarks

Knowledge is seen as competitive asset for organisations in today's knowledge-based economy. Losing employees expertise and experience that may result from retirement, downsis ing or leaving could significantly reduce the organisation competitiveness, efficiency and performance. Knowledge sharing has its importance in that employees' knowledge would not turn into organisational knowledge before it is shared all through the corporation. Although this topic is important, little research has investigated the factors related to the employees' knowledge sharing behaviour within organisations in Saudi Arabia. This gap in the literature underlies the rationale of our research. Hence, this study sought to answer the following question: *What are the underlying factors and their relationships that determine the employees' knowledge sharing behaviour within Saudi governmental organisations?* To this end, the study set three aims.

To propose a conceptual model that best explain knowledge sharing among the employees within Saudi governmental organisations.

2. To identify the most significant factors that promote or hinder knowledge sharing among the employees within Saudi governmental organisations.

3. To identify similarities and differences between knowledge sharing factors in KSA and other cultures through comparison of the results of this empirical study with previous findings.

To answer the research question, this study proposed a conceptual model for explaining knowledge sharing among employees of Saudi governmental organisations. Built on a theory from the field of social psychology (TPB) and constructs derived from the literature of knowledge management and organisational behaviour, the study synthesised its model of knowledge sharing. The model postulated that the employees' behavioural intention (BI) as well as their perceived behavioural control (PBC) explains knowledge-sharing behaviour. Moreover, intention is determined by the employees' attitude, SN, PBC, trust and tendency to share knowledge. In addition, the model proposed a number of factors as antecedents of attitude, SN and PBC. By deconstructing the three main constructs of TPB, this research looked deeper into the factors influencing knowledge sharing. The development of this conceptual model fulfilled the first research aim. This was covered in chapters one, two and three of our thesis.

Furthermore, testing the research hypotheses using the correlational analyses helped in identifying the relationships between the different proposed factors and the criterion variables of our study. The findings showed that actual behaviour of knowledge sharing is positively correlated with BI to share knowledge and PBC. This indicates that both BI to share knowledge and PBC can be regarded as key factors to promote the actual behaviour of knowledge sharing. Moreover, BI was found to be positively associated with all the proposed factors: attitude, SN, PBC, tendency and trust. These positive findings imply the importance of these factors in promoting (or hindering in the case of their absence) knowledge sharing. The study also looked at the relationships between some of the employees' demographics and their BI and actual

behaviour of sharing knowledge. However, the study findings revealed no relationships between most of these demographics apart from level of education, sector and size of organisation that were found to be related to the research criterion variables.

Moreover, the multiple regression analyses revealed that four of the research five factors that were proposed to explain knowledge sharing BI were significant determinants of the employees' intention to share knowledge. Only SN was not found to explain BI when tested in conjunction with the other factors. In addition, the findings of the study found evidence for the impact of the decomposed beliefs on attitude, SN and PBC. Yet, time was not found to influence the employees' PBC.

In particular, the results show that the employees in Saudi organisations contribute their knowledge because of their natural tendency to share their knowledge, their perceptions of control over contributing their knowledge to other employees, their positive attitude towards sharing knowledge and trust; but surprisingly they are not motivated by the social norms regarding sharing knowledge in this specific context. As such, it is crucial to foster the employees' propensity to share their knowledge as well as eliminate any obstacles on the way to knowledge sharing. Moreover, it is important to enhance the employees' favourable attitudes and perceptions towards knowledge sharing. Furthermore, this study also demonstrated that trust is a key factor in shaping the employees' intentions to share knowledge, hence, organisation management should foster a trusting norms to reap the benefits of knowledge sharing. These findings and their implications fulfilled the second aim of the research. This was covered in chapters five, six and seven of the thesis.

In addition, the study discussed its findings through comparing them to studies conducted in different places of the world. The studies included research done in the western countries (e.g. Ford in Canada; Chatzoglou and Vraimaki in Greece), Asia nations (e.g. Sharma and Bock in Singapore; Suki and Ramayah in Malaysia; So and Bolloju in Hong Kong; Chau and Hu in China); the Middle East (e.g. Tohidinia and Mosakhani in Iran; Alajmi in Kuwait; Ellahi and Mushtaq in Pakistan). In general, the findings of our study are in line with the previous studies, yet, there are some differences that may stem from the particularity of the Saudi context. This was clear in the diminished role of SN in impacting BI. The semi-structured interviews showed that the employees are not influenced by the other employees or important others. Chapter seven was devoted to this discussion that fulfilled the third research aim.

Finally, by fulfilling its aims and answering its question, this study has helped understanding the factors influencing knowledge sharing within Saudi governmental organisations. Moreover, it is hoped that this study will stimulate not only more research on the effects of knowledge sharing, but also more studies in the Saudi context.

References

ABRAMS, L. et al. (2003) Nurturing interpersonal trust in knowledge-sharing networks. *Academy of Management Executive,* 17 (4), pp. 64-77.

AHMED, P., LIM, K. and LOH, A. (2002) *Learning Through Knowledge Management*. Oxford, Butterworth-Heinemann.

AJZEN, I. (1971) Attitudinal vs. normative messages: An investigation of the differential: Effects of persuasive communications on behaviour. *Sociometry,* 34, pp. 263-280

AJZEN, I. (1985) From intentions to actions: A theory of planned behaviour. In J. KUHL, and J. Beckmann Eds. *Springer series in social psychology*. Berlin, Springer, pp. 11-39.

AJZEN, I. (1991) The theory of planned behaviour. *Organisational Behaviour and Human Decision Processes,* 50 (2), pp. 179-211.

AJZEN, I. (2005) *Attitudes, personality and behaviour*. Milton-Keynes, Open University Press / McGraw-Hill.

AJZEN, I. (2005). *Attitudes, personality, and behavior*. 2nd ed. Milton-Keynes, Open University Press / McGraw- Hill.

AJZEN, I. (2006) Constructing a TpB questionnaire: conceptual and methodological consideration. Available from: http://people.umass.edu/aizen/pdf/tpb.measurement.pdf [Accessed 20/2/09].

AJZEN, I. and FISHBEIN, M. (1980) *Understanding attitudes and predicting social behaviour*. Englewood-Cliffs, Prentice-Hall,

ALAVI, M. and LEIDNER, D. (2001) Review: Knowledge Management and Knowledge Management Systems. *MIS Quarterly,* 25 (1), pp. 107-136.

ALBARRACÍN, D. et al. (2001) Theories of Reasoned Action and Planned Behaviour as Models of Condom Use: A Meta-Analysis. *Psychological bulletin,* 127 (1), pp. 142-161.

AL-RAFEE, s. and CRONAN T. P. (2006) Digital Piracy: Factors That Influence Attitude Toward Behaviour. *Journal of Business Ethics* 63 (3), pp. 237-259.

ARDICHVILI, A. et al. (2006) Cultural influences on knowledge sharing through online communities of practice. *Journal of Knowledge Management*, 10 (1), pp. 94-107.

ARGOTE, L. et al. "Knowledge transfer in organisations: learning from the experience of others," *Organisational Behaviour and Human Decision Processes*, 82 (1), 2000, pp. 1-8.

ARGYROUS, G. (2006) Statistics for research : with a guide to SPSS . London, Sage Publications.

ARMITAGE, C., and CONNER, M. (2001) Efficacy of the Theory of Planned Behaviour: A meta-analytic review. *British Journal of Social Psychology,* 40, pp. 471-499.

AULAKH, P., KOTABE, M. and SAHAY, A. (1996) Trust and performance in cross-border marketing partnerships: A behavioural approach. *Journal of International Business Studies,* 27 (5), pp. 1005-1032.

BABBIE, E. (2004) *The basics of social research* . London, Thomson Learning.

BAGOZZI, R. P. (1980) *Causal Methods in Marketing*. New York, John Wiley and Sons.

BAGOZZI, R. P. and YI, Y. (1988) On the evaluation of structural equation models. *Academy of Marketing Science,* (16 (1), pp. 74-94.

BAIRD, L. and HENDERSON, J. (2001) *The Knowledge Engine*. Barrett-Koehler, San Francisco.

BAKER, B. O., HARDYCK, C. D. and PETRINOVICH, L. F. (1966) Weak measurement vs. Strong statistics: An empirical critique of S. S. Stevens' proscriptions on statistics. *Educational and Psychological Measurement*, pp. 291-309.

BANDURA, A. (1977) Self-efficacy: Toward a unifying theory of behavioural change. *Psychological Review*, 84 (2), pp. 191-215.

BARLING, J. and KELLOWAY, E.K. (1999) *Young Workers: Varieties of Experience*. Washington, PA Books

BARNEY, J. B. (1991) Firm resources and sustained competitive advantage. .*Journal of Management,* 17, pp. 99-120.

BARTOL, K. M. and SRIVASTAVA, A. (2002) Encouraging Knowledge Sharing: The Role of Organisational Reward Systems. *Journal of Leadership and Organisation Studies,* 9 (1), pp. 64-76.

BECKMAN, T. (1999) The current state of knowledge management. In J. LIEBOWITZ, ed. Knowledge Management Handbook. CRS Press, pp. 1-22.

BENTLER, P. M. and SPECKART, G. (1979) Models of Attitude-Behaviour Relations. *Psychological Review* , 86 (5), pp. 425-464.

BHAGAT, RS. et al. (2002) Cultural variations in the cross-border transfer of organisational knowledge: an integrative framework. *Academy of Management Review,* 27(2), pp. 204–221.

BIDDLE, B.J (1986) Recent development in role theory. *Annual Review of Sociology*, 12, pp. 67-92.

BLACKLER, F. (1995) Knowledge, Knowledge Work and Organisations: An Overview and Interpretation. *Organisation Studies,* 16 (6), pp. 1021-1046.

BLAIKIE, N. (1993) *Approaches to social enquiry.* Cambridge, Polity Press.

BOCK, G. W. and KIM, Y. G. (2002) Breaking the myths of rewards: An exploratory study of attitudes about knowledge sharing. *Information Resources Management Journal*, Apr/June, pp. 14-21.

BOCK, G., ZMUD, R. and KIM, Y. (2005) Behavioural intention formation in knowledge sharing: examining the roles of extrinsic motivators, social-psychological forces, and organisational climate. *MIS Quarterly,* 29 (1), pp. 87-111.

BOCK, G.W. and KIM, Y.G. (2002). Breaking the Myths of Rewards: An Exploratory Study of Attitudes about Knowledge Sharing. *Information Resources Management Journal*, 15 (2), pp.14-21.

BOISOT, M. H. (1995) *Information Space: A Framework for Learning in Organisations, Institutions and Culture*. London, Routledge.

BORGATTA, E. F. and BOHRNSTEDT, G. W. (1980) Level of measurement: Once over again. *Sociological Methods and Research,* 9, pp. 147-160.

BRELADE, S. and HARMAN, C. (2001) How human resources can influence knowledge management. *Strategic Human Resource Review,* 1 (1), pp. 30-33.

BROWN, R. B., and WOODLAND, M. J. (1999) Managing knowledge wisely: A case study in organisational behaviour. *Journal of Applied Management Studies,* 6 (2), pp. 175-198.

BRYMAN, A. (2001) *Social Research Methods*. Oxford, Oxford University Press.

BRYMAN, A. (2008) *Social research methods.* Oxford, Oxford University Press.

BRYMAN, A. and CRAMER, D. (2001) *Quantitative Data Analysis with SPSS Release 10 for Windows: A Guide for Social Scientists.* London, Routledge.

BRYMAN, A., and BELL, E. (2011) *Business research methods*. 3rd edition. Oxford: Oxford University Press.

BUCKMAN, R. (1998) Knowledge sharing at Buckman Labs. *Journal of Business Strategy*, Jan/Feb, PP. 11-15.

BUKOWITZ, W.R. and WILLIAMS, R.L. (1999) *The Knowledge Management Fieldbook*. London, Prentice Hall.

BURT, R. (1992) *Structural Holes: the social structure of Competition*. Cambridge, Harvard University Press.

CABRERA, A. and CABRERA, E. F. (2002) Knowledge-sharing Dilemmas. *Organisation Studies,* 23 (5), pp. 687–710.

CARLEY, K. (1992) Organisational Learning and Personnel Turnover. *Organisation Science*. 3 (1), pp. 20-46.

CARMINES, E. and ZELLER, R. (1979) *Reliability and Validity Assessment*. Newbury Park, Sage Publications.

CASSELMAN, R. and SAMSON, D. (2005) Moving Beyond Tacit and Explicit: Four Dimensions of Knowledge. In: *Proceedings of the 38th Hawaii International Conference on System Sciences*.

CHEN, I. Y. L., CHEN, N. S. and KINSHUK (2009) Examining the Factors Influencing Participants' Knowledge Sharing Behaviour in Virtual Learning Communities. *Educational Technology and Society*, 12 (1), pp. 134–148.

CHENG, M.Y., HO, J. S. Y. and LAU P. M. (2009) Knowledge Sharing in Academic Institutions: a Study of Multimedia University Malaysia. *Electronic Journal of Knowledge Management,* 7 (3), pp. 313 – 324.

CHENNAMANENI, A. (2006) *Determinants Of Knowledge Sharing Behaviours: Developing and testing An integrated theoretical model.* PhD thesis, University of Texas.

CHOI, Y. S. (2000) *An empirical study of factors affecting successful implementation of knowledge management.* PhD thesis, University of Nebraska, Lincoln.

CHOO, C. W. (1998) *The Knowing Organisation*. New York, Oxford University Press.

CHOW, C., DENG, F. and HO, J. (2000) The openness of knowledge sharing within organisations: a comparative study of the United States and the People's Republic of China. *Journal of Management Accounting Research,* 12 (1), pp. 65-95.

CHURCHILL, G. (1979) A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research,* 5 (February), pp. 64-73.

CLARK, T. and MA, W.K. (2003) Online Course Acceptance: A Paired Sample Experiment. In. *Proceedings of the TechEd Ontario International Conference and Exposition*.

COHEN, L., MANION, L. and MORRISON, K. (2007) *Research Methods in Education*. 6th ed. London, Routledge.

CONNELLY, C. (2000) *Predicators of knowledge sharing in organisations*. Unpublished MSc dissertation, Queen's University.

CONNELLY, C.E., and KELLOWAY, E.K. (2003) Predictors of employees' perceptions of knowledge sharing cultures. *Leadership and Organisation Development Journal*, 24, pp. 294-301.

CONNER, M. and ARMITAGE, C.J. (1998) Extending the theory of planned behaviour: A review for further research. *Journal of Applied Social Psychology*, 28, pp. 1429–1464.

CONSTANT, D., KEISLER, S. and SPROULL, L. (1994) What's mine is ours, or is it? A study of attitudes about information sharing. *Information Systems Research,* 5 (4), pp. 400-421.

COOLICAN, H. (2006) Introduction to research methods in psychology. London, Hodder Arnold.

CRAWFORD, T. J. and BOYER, R. (1985) Salient consequences, cultural values and childbearing intentions. *Journal of Applied Social Psychology,* 15, pp. 16–30.

CRESWELL, J. W. (2003) *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches.* London, Sage Publications.

CRESWELL, J. W. (2007) *Qualitative inquiry and research design: Choosing among five traditions*. 2nd ed. Thousand Oaks, Sage Publications.

CRESWELL, J. W. and PLANO CLARK, V. L. (2007) *Designing and conducting mixed methods research.* Thousand Oaks, Sage Publications.

DAVENPORT T. and PRUSAK L. (2000) *Working Knowledge*. Boston, Harvard Business School Press.

DAVENPORT, T. (1994) Saving IT's soul: Human-cantered Information Management. *Harvard Business Review*, Mar/Apr, pp. 119-131.

DAVENPORT, T. (1997) *Information ecology*. Oxford, Oxford University Press.

DAVENPORT, T. and PRUSAK, L. (1998b) Working Knowledge: How Organisations Manage What They Know. *Executive Excellence,* 15, pp. 10-14.

DAVENPORT, T., DE LONG, D. and BEERS, M. (1998) Successful knowledge management projects. *Sloan Management Review,* 39 (2), pp. 43-57.

DAVIS, F. D., BAGOZZI, R. P., and WARSHAW, P. R. (1989) "User Acceptance of Computer Technology: A Comparison of Two Theoretical Models," *Management Science*, 35, pp. 982-1003.

DE LONG, D. and FAHEY, L. (2000) Diagnosing cultural barriers to knowledge management. *Academy of Management Executive*, 14 (4), pp. 113-127.

DE VRIES, R.E., VAN DEN HOOFF B. and DE RIDDER J.A. (2006) Explaining knowledge sharing - The role of team communication styles, job satisfaction and performance beliefs. *Communication Research*, 33, pp. 115-135

DISTERER, G (2001) Individual and Social Barriers to Knowledge Transfer. *In Proceedings of the 34th Hawaii International Conference on Systems Sciences*, 8, pp. 8025.

DONATE, M.J. and CANALES, J.I. (2012) A new approach to the concept of knowledge strategy. *Journal of Knowledge Management*, 16 (1), pp. 22-44.

DRUCKER, P. (1993) *Post-capitalist society*. London, Butterworth-Heinemann.

DYER, J. and NOBEOKA K. (2000) Creating and managing a high performance knowledge-sharing network: the Toyota case. *Strategic Management Journal,* 21 (3), pp. 345–368.

DYERSON, R. and MUELLER, F. (1999) Learning, teamwork and appropriability: Managing technological change in the department of social security. *Journal of Management Studies,* 36 (5), pp. 629-52.

EAGLY, A. and CHAIKEN, S. (1993) *The psychology of Attitudes*. Orlando, Harcourt Brace Jovanovich Inc.

ERHARDT, N. L. (2003) *Enablers and Barriers for Individuals' Willingness and Ability to Share Knowledge: An Exploratory Study*, New Jersey, USA: Available from: http://business.queensu.ca/centres/monieson/docs/2003%20Doctoral%20Consortium%20Participants.doc

FINK, A. (2003) *How to sample in surveys*. Thousand Oaks, London, Sage Publications.

FISHBEIN, M. and AJZEN, I. (1975) *Belief, attitude, intention and behaviour: An introduction to theory and research*. Reading, MA: Addison-Wesley.

FITZPATRICK R. et al. (1998) Evaluating patient-based outcome measures for use in clinical trials. *Health Technology Assessment*. 2 (14). Available from: http://www.hta.ac.uk/fullmono/mon214.pdf

FOONG, L. Y. et al. (2002) Exploring knowledge management perceptions of human resource and business managers in Singapore. *Journal of Information & Knowledge Management*. 1 (1), pp. 79-90.

FORD, D. (2004) *Knowledge sharing: Seeking to understand intentions and actual sharing*. Doctoral thesis, Queen's University, Canada.

FORD, D. and CHAN, Y. (2003) Knowledge sharing in a multi-cultural setting: a case study. *Knowledge Management Research and Practice*. 1 (1), pp. 11–27.

FOSTER, P. (1998) Observational research. In: R. J. SAPSFORD and V. JUPP, eds. *Data collection and analysis*. London, Sage Publications, pp. 57-39.

FRANCIS, J. J. et al. (2004) *Constructing questionnaires based on the theory of planned behaviour: A manual for health services researchers.* Centre for Health Services Research, University of Newcastle upon Tyne, pp. 1-42

FRASER. V., MARCELLA. R. and MIDDLETON, I. (2000) Employee perceptions of knowledge sharing: Employment threat or synergy for the greater good. *Competitive Intelligence Review*, 11 (2), pp. 39-52.

FU, JEN-RUEI (2004) *Toward an Understanding of Knowledge Sharing within MIS departments- A Multilevel Analysis.* Doctoral thesis. School of Management, National Central University.

GAY, L. R., MILLS, G. E. and AIRASIAN, P. (2006) *Educational research: Competencies for analysis and applications.* Upper Saddle River, NJ: Merrill/Prentice Hall.

GHOSH, T. (2004) *Creating incentives for Knowledge Sharing*. MIT Sloan.

GILBERT, J. and LI-PING TANG, T. (1998) An examination of organisational trust antecedents. *Public Personnel Management*, 27 (3), pp. 321-338.

GLASS, G. V., PECKHAM, P. D. and SANDERS, J. R. (1972) Consequences of failure to meet the assumptions underlying the fixed effects analysis of variance and covariance. *Review of Educational Research,* 42, pp. 237-288.

GOH, S. (2002) Managing effective knowledge transfer. *Journal of knowledge management,* 6 (1), pp. 23-30.

GOMAN, C. (2002) What Leaders can do to Foster Knowledge Sharing. *Knowledge Management Review,* 5 (4), pp. 10-11.

GORARD, G. (2004) *Combining methods in educational and social research*. Berkshire, Open University Press.

GORDON, J. (2000) Creating Knowledge Maps by Exploiting Dependent Relationships. *Knowledge Based Systems,* 13, pp. 71-79.

GRANT, R. (1996) Toward a Knowledge-Based Theory of the Firm. *Strategic Management Journal*, 17, pp. 109-122.

GRAVETTER, F. J. and FORZANO, L. B. (2008) *Research Methods for the Behavioural Sciences*. Belmont, CA: Wadsworth Publishing.

GRAY, P. (2001) The Impact of Knowledge Repositories on Power and Control in the Workplace. *Information Technology and People,* 14 (4), pp. 368-384.

GRAZIANO, A. and RAULIN, M. (2007) *Research methods: A process of inquiry*. Boston, Pearson Education.

GREENE, K., HALE, J. and RUBIN, D. L. (1997) A test of the theory of reasoned action in the context of condom use and AIDS. *Communication Reports,* 10, pp. 21-33.

GUNDLING, E. (2003) Working Globe-Smart: 12 people skills for doing business across borders. Mountain View, CA: Davies Black Publishing.

GURTEEN, D. (1999) Creating a knowledge sharing culture. *Knowledge Management,* 2 (5), pp. 24-27.

HAIR, J. et al. (2006) *Multivariate Data Analysis*. Upper Saddle River, N.J: Pearson Education.

HALE, J., HOUSEHOLDER, B. and GREENE, K. (2002) The theory of Reasoned Action. In: J. P. Dillard, and M. PFAU, eds. *The persuasion handbook: Developments in theory and practice*. London, Sage Publications, pp. 259-286.

HALL, H. (2001) Input-friendliness: Motivating knowledge sharing across intranets. *Journal of Information Science,* 27 (3), pp.139-146.

HAMMOND, S. (2006) Using Psychometric tests. In G. BREAKWELL, et al, eds. *Research methods in psychology*, 3rd ed., London, Sage Publications, pp. 182-209.

HANSEN, M. (1999) The search-transfer problem: The role of weak ties in sharing knowledge across organisation subunits. *Administrative Science Quarterly*, 44, pp. 82-111.

HARVARD (1997) *A note on knowledge management*. Harvard Business School.

HASAN, BASSAM (2010) Knowledge sharing attitude: An empirical test of a multifactor model. *The Western Decision Sciences Institute (WDSI) conference*.

HENDRIKS, P. (1999) Why share knowledge? the influence of ICT on the motivation for knowledge sharing. *Knowledge and Process Management*, 6, pp. 91-100.

HERZBERG, F. (1968) *Work and the nature of man*. Cleveland, World Publishing.

HINDS, J. P. and PFEFFER, J. (2003) Why Organisations Don't 'Know What They Know: Cognitive and Motivational Factors Affecting the Transfer of Expertise. *Sharing Expertise: Beyond Knowledge Management*. M. Ackerman, V. Pipek, and V. Wulf (Eds.), MIT Press, Cambridge, MA, pp. 3-26.

HISLOP, D. (2003) Linking human resource management and knowledge management via commitment: A review and research agenda. *Employee* Relations, 25 (2), pp. 182-202.

HODGETTS, R. and LUTHANS, F. (1997) *International Management*. Singapore, McGraw Hill.

HOWELL, D. (2007) *Statistical methods for psychology*. Belmont, Thomson.

IPE, M. (2003) Knowledge Sharing in Organisations: A Conceptual Framework. *Human Resource Development Review*, 2 (4), pp. 337-359.

IVES, W., TORREY, B. and GORDON, C. (2000) Knowledge sharing is a human behaviour. In D. MOREY, M. MAYBURY and B. THURAISINGHAM, eds. *Knowledge Management*. Cambridge, MA: MIT Press, pp. 99-129.

JACOBS, E. J. and ROODT, G. (2011) The mediating effect of knowledge sharing between organisational culture and turnover intentions of professional nurses. *South African Journal of Information Management*, 13 (1), pp. 425-431.

JANG-HWAN, L., YOUNG-GUL, K. and MIN-YONG, K. (2006) Effects of Managerial Drivers and Climate Maturity on Knowledge-Management Performance: Empirical Validation. *Information Resources Management Journal*, 19 (3), pp. 48-60.

JENSEN, M. C. and MECKLING, W. H. (1996) Specific and general knowledge and organisational structure. In P. S. MYERS, ed. *Knowledge Management and Organisational Design*. Butterworth-Heinemann, pp. 17-38.

Jo, S. J., and Joo, B. (2011) Knowledge sharing: The influences of learning organisation culture, organisational commitment, and organisational citizenship behaviors. *Journal of Leadership and Organisational Studies*, 18 (3), pp. 353-364.

JOHNSON, R.B. and ONWUEGBUZIE, A.J. (2004) Mixed methods research: A research paradigm whose time has come. *Educational Researcher*, 33 (7), pp. 14-26.

KAMDAR, D. et al. (2004) Giving up the 'secret of fire': The impact of incentives and self-monitoring on knowledge sharing. *Working Paper Series*, July. Singapore.

KANKANHALLI, A., TAN, B. C. Y., and WEI, K. K. (2005) Understanding Seeking From Electronic Knowledge Repositories: An Empirical Study, *Journal of the American Society for Information Science and Technology,* 11 (56), pp. 1156-1166.

KÄSER, P. A. W., and MILES, R. E. (2002) Understanding knowledge activists' successes and failures. *Long Range Planning*, 35, pp. 9-28.

KAYWORTH, T. and LEIDNER, D. (2003) Organisational culture as a knowledge resource, In: C.W. HOLSAPPLE, ed. *Handbook on Knowledge Management: Knowledge Matters*. Springer-Verlag, New York, pp. 235-252.

KELLOWAY, E. and BARLING, J. (1999) Afterword. In: J. BARLING and E.K. KELLOWAY, eds. *Young Workers: Varieties of Experience*. Washington, DC: APA Books.

KELLOWAY, E. and BARLING, J. (2000) Knowledge works as organisational behaviour. *International Journal of Management Reviews*, 2 (3), pp. 287-304.

KENNY, D. A. (1979) *Correlation and causality*. New York, Wiley.

KERLINGER, F. (1973) *Foundations of Behavioural Research.* New York, Rinehart and Winston.

KIM, D. (1993) The link between individual and group learning. *Sloan Management Review,* 35 (1), pp. 13-22.

KIM, W. and MAUBORGNE, R. (1997) Fair Process: Managing in the Knowledge Economy. *Harvard Business Review,* 75 (4), pp. 65-75.

KING, C. (2008) Knowledge - Why Employees Either Hide or Share. *Ezine Articles*. Available from: http://EzineArticles.com/?expert=Cubie_King.

KING, G. W. (1975) An analysis of attitudinal and normative variables as predictors of intentions and behaviour. *Speech Monographs,* 42, pp. 237-244.

KING, N. (2004) Using templates in the thematic analysis of text. In: C. CASSELL and G. SYMON, eds. *Essential guide to qualitative methods in organisational research*. Thousand Oaks, CA: Sage Publications, pp. 256-270.

KLEIN, D. A. (1998). The strategic management of intellectual capital: An introduction. In: D. A. KLEIN, ed. *The strategic management of intellectual capital*. Boston, Butterworth-Heinenmann, pp. 1-19.

KOLLOCK, P. (1999) The Economies of Online Cooperation: Gifts and Public Goods in Cyberspace. In: M. SMITH and P. KOLLOCK, eds. *Communities in Cyberspace*. Routledge, London, pp. 220-239.

KUMAR, R. (1999) *Research methodology: a step-by-step guide for beginners*. London, Sage Publications.

KVALE, S. and FLICK, U. (2007) *Doing interviews*. Thousand Oaks, CA: Sage Publications.

KWOK, S. and GAO, S. (2006) Attitude towards knowledge sharing behaviour .*The Journal of Computer Information Systems*. 46 (2), pp. 45-51.

LANK, E. (1997) Leveraging invisible assets: the human factor. *Long-Range Planning*, 30, pp. 406-412.

LARSON, A. (1992) Network Dyads in entrepreneurial settings: A study of the Governance of Exchange Relationships. *Administrative science quarterly,* 37, pp. 76-104.

LASKY, B. and TARE, M. (2002) Knowledge management: A 21st century role for the human resource professional. *In the IFSAM 2002 Conference*. Gold Coast, Queensland, Australia.

LEE, J. (2001) The impact of knowledge sharing, organisational capability and partnership quality on IS outsourcing success. *Information and Management,* 38 (5), pp. 323-35.

LEE, H. and CHOI, B. (2003) Knowledge Management Enablers, Processes, and Organisational Performance: An Integrative View and Empirical Examination. *J. of Management Information Systems*, 20 (1), pp. 179-228.

LEVINE, L. (2001) Integrating and processes in a learning organisation. *Information Systems Management*, 18 (1), pp.21-32.

LIN, H. and LEE, G. (2004) Perceptions of senior managers toward knowledge-sharing behaviour. *Management Decision, 42* (1), pp. 108-125.

LIN, H.. (2007) Knowledge sharing and firm innovation capability: An empirical study. *International Journal of Manpower*, 28 (3/4), pp. 315−332

LISKA, A. E. (1984) A Critical Examination of the Causal Structure of the Fishbein/Ajzen Attitude-Behaviour model. *Social Psychology Quarterly , 47* (1), pp. 61-74.

LITWIN, M. (2003) *How to assess and interpret survey psychometrics*. London, Sage Publications.

LOU, S.J., YANG, Y. S., and SHIH, R.C. (2007) A study on the knowledge sharing behaviour of information management instructors at technological universities in Taiwan, *World Transactions on Engineering and Technology Education*, 6 (1), pp. 143-149.

LYLES, M. and SCHWENK, C. R. (1992) Top management, strategy and organisational knowledge structure. *Journal of Management Studies*, 29, pp. 155-174.

LYNN, M. (1986) Determination and quantification of content validity. *Nursing Research,* 35 (6), pp. 382-385.

MACNEIL C. (2003) Line managers: Facilitators of knowledge sharing in teams. *Employee Relations*, 25 (3), pp. 294–307.

MACNEIL, C. (2001) The supervisor as a facilitator of informal learning in work teams. *Journal of Workplace Learning,* 13 (6), pp. 246-53.

MACNEIL, C. (2004) Exploring the Supervisors role as a Facilitator of Knowledge sharing in Teams. *Journal of European Industrial Training*, 28 (10). pp. 93-102.

MÄKELÄ, K., ANDERSSON, U., and SEPPÄLÄ, T. (2011) Interpersonal similarity and knowledge sharing within multinational organisations. International Business Review Management Projects. *Sloan Management Review,* 39, pp. 43-57.

MARKUS, M.L. (2001) Toward a theory of knowledge reuse: Types of knowledge reuse situations and factors in reuse success. *Journal of Management Information Systems, 181*, pp. 57–94.

MARTINY, M. (1998) Knowledge Management at HP consulting. *Organisational Dynamics,* Aug, pp. 71-77.

MASON, J. (2002) *Qualitative Researching*. 2nd ed. London, Sage Publications.

MAYER, R., DAVIS, J. and SCHOORMAN, F. (1995) An integrative model of organisational trust. *Academy of Management Review*, 20, pp. 709-34.

MCDERMOTT, R. and O'DELL, C. (2001) Overcoming cultural barriers to sharing knowledge. *Journal of Knowledge Management*, 5 (1), pp. 76–85.

MCMILLAN, J. H. and SCHUMACHER, S. (2000) *Research in Education: A conceptual introduction*. 2nd ed. New York, Longman.

MENARD, S. (1991) *Longitudinal research*. Newbury Park, CA: SAGE Publications.

MEYERS, L. S., GAMST, G. and GUARINO, A. (2006) *Applied multivariate research: Design and interpretation*. London, Sage Publications.

MINIARD, PAUL W. (1981) Examining the Diagnostic Utility of the Fishbein Behavioural Intentions Model. *Advances in Consumer Research*. Kent B. Monroe (ed.), Ann Arbour: Association for Consumer Research, Volume 08, pp. 42-47.

MISHRA, J. and MORRISEY, M. (1990) Trust in employee/employer relationships: a survey of West Michigan managers. *Public Personnel Management*, 19, pp. 443-63.

MOGOTSI, I.C., BOON, J.A. and FLETCHER, L., (2011) Knowledge sharing behaviour and demographic variables amongst secondary school teachers in and around Gaborone, Botswana . South African Journal of Information Management, 13 (1). pp 1-6.

MORGAN, S. J., and SYMON, G. (2004) Electronic interviews in organisational research. In: C. CASSELL and G. SYMON, eds. *Essential guide to qualitative methods in organisational research*, Thousand Oaks, CA: Sage Publications, pp. 23-33.

NDUBISI, N. (2004) Factors influencing e-learning adoption intention: Examining the determinant structure of the decomposed theory of planned behaviour constructs. *Proceedings of the HERDSA International Conference*. Miri, Sarawak, Malaysia, pp. 252-261.

NGOC, P. T. B. (2005) An empirical study of knowledge transfer within Vietnam's information technology companies. Available from: http://diuf.unifr.ch/is/staff/ngoct/files/internal%20working%20paper-10-6.pdf

NONAKA, I. and TAKEUCHI, H. (1995) *The Knowledge Creating Company*. New York, Oxford University Press.

NURMI, J. (2012) Foundational Issues in Investigating Development as Interindividual Variation. In LAURSEN, B., little, T., CARD, N. eds. *Handbook of Developmental Research Methods*. New York, Guilford Press. pp. 231–246

O'DELL, C. and GRAYSON Jr., C.J. (1998) If only we knew what we know: Identification and transfer of internal best practices. *California Management Review. 40* (3), pp,154-174.

OATES, B. (2006) *Researching information systems and computing*. London, Sage Publications.

OPPENHEIM, A. (2000) *Questionnaire design, interviewing and attitude measurement*. London, Continuum.

ORGAN, D.W. and RYAN, K. (1995) A meta-analytic review of attitudinal and dispositional predictors of organisational citizenship behaviour. *Personnel Psychology, 48*, pp. 775-802.

OSBORNE, W. and Waters, E. (2002) Four Assumptions of Multiple Regression That Researchers Should Always Test. *Practical Assessment, Research and Evaluation*, 8 (2). PP. 1-7.

OSTERHUS, T.L. (1997) Pro-social consumer influence strategies: when and how do they work? *Journal of Marketing,* 61, pp.16-29.

PALLANT, J. (2005) *SPSS survival manual*. 2nd ed. Maidenhead, Open University Press.

PASCOE, C., ALI, I. and WARNE, L. (2002) Yet another role for job satisfaction and work motivation-Enabler of knowledge creation and knowledge sharing. *Proceedings of the Informing Science + IT Education Conference*, pp. 1239-1248.

PATRY, A. L. and PELLETIER, L. G. (2001) Extraterrestrial beliefs and experiences: An application of the theory of reasoned action. *Journal of Social Psychology,* 14 (2), pp. 199-217.

PEDHAZUR, E. J. (1997) *Multiple regression in behavioural research: Explanation and prediction*. London, Wadsworth/Thomson Learning.

POLANYI, M. (1966) *The Tacit Dimension.* London, Routledge and Kegan Paul.

POLE, C. and LAMBARD, R. (2002) *Practical social investigation: Qualitative and quantitative methods in social research.* Harlow, Pearson Education.

POMAZAL, R. and JACCARD, J. (1976) An informational approach to altruistic behaviour. *Journal of Personality and Social Psychology, 33*, pp. 317-326.

POPA, C. (2005) Initial trust formation in temporary small task groups: testing a model of swift trust. *Kent State University Psychological Review*, 84, pp. 191-215.

PUNCH, K. (2005) *Introduction to social research: Qualitative and quantitative approaches*. Thousand Oaks, CA: Sage Publications.

RENZL, BIRGIT. (2008) Trust in management and knowledge sharing: The mediating effects of fear and knowledge documentation. *Omega*, 3 6 (2), pp. 206-220.

ROTH, J. (2003) Enabling knowledge creation: Learning from an R&D organisation. *Journal of Knowledge Management*, 7 (1), pp. 32-48.

ROGERS, M. (1995) *Diffusion of Innovations*. 4th ed. New York: Free Press.

RUGGLES, R. (1998) The State of the Notion: Knowledge Management in Practice. *California Management Review, 40*, pp. 80-89.

RYU, S., HO, S. and HAN, I. (2003) Knowledge sharing behaviour of physicians in hospitals. *Expert Systems with Applications,* 25 (1), pp. 113-22.

SAETANG, S, THEODOULIDIS, B. and EKWEOZOR, U (2010) The Influence of Knowledge Ownership on Knowledge Sharing: An Empirical Study in UK and Thailand. *The International Journal of Technology, Knowledge and Society*, 6 (2). pp. 17-30

SAMIEH, H. and WAHBA, K. (2007) Knowledge Sharing Behaviour from Game Theory and Socio-Psychology Perspectives. *40th Annual Hawaii International Conference on System Sciences.* IEEE, USA, p. 187c.

SAPSFORD, R. (2007) *Survey Research*. 2nd ed. London, Sage Publications.

SCHIFTER, D. B., and AJZEN, I. (1985) Intention, perceived control, and weight loss: An application of the theory of planned behaviour. .*Journal of Personality and Social Psychology, 49*, pp. 843-851.

SCHULZE, S. (2003) Views on the combination of quantitative and qualitative research approaches. University of South Africa. *Progressio*, 25(2), pp. 8-20.

SEJWACS, D., AJZEN, I. and FISHBEIN, M. (1980) Predicting and understanding weight loss: intentions, behaviours and outcomes. In AJZEN and FISHBEIN, eds. *Understanding attitudes and predicting social behaviour*. Englewood-Cliffs, NJ: Prentice-Hall, pp. 101-112.

SHARMA S. And BOCK G (2005) Factors' Influencing Individual's Knowledge Seeking Behaviour in Electronic Knowledge Repository. In BARTMANN D, et al. (eds.), *Proceedings of the Thirteenth European Conference on Information Systems, pp.* 390-403, Regensburg, Germany.

SHEPPARD, B., HARTWICK, J. and WARSHAW, P. (1988) The Theory of Reasoned Action: A Meta-Analysis of Past Research with Recommendations for Modifications and Future Research. *The Journal of Consumer Research*, 15 (3), pp. 325-343.

SHERMERHORN, J. R. (1977) Information sharing as an interoganisational activity. Academy *of Management Journal*, 21, pp. 148-53.

SHRM, (2009) Leveraging HR and knowledge management in a challenging economy. *HR Magazine,* June (1), pp. 1-10.

SKINNER, B.F. (1938) *The Behaviour of Organisms: An Experimental Analysis*. New York, Appleton-Century.

SMITH, E. A. (2001) The role of tacit and explicit knowledge in the workplace. *Journal of Knowledge Management*, 5 (4), pp. 311-321.

SMITH, P., PETERSON, M. and MISUMI, J. (1994) Event management and work team effectiveness in Japan, Britain and USA. *Journal of Occupational and Organisational Psychology,* 67 (1), pp. 33-43.

SOO, K. (2006) Why workers share or do not share knowledge: A case study. Indiana University.

SPENDER, J. (1996) Making knowledge the basis of a dynamic theory of the firm. *Strategic Management Journal,* 17, pp. 45-62.

STANGOR, C. (2007) *Research methods for the behavioural sciences*. Boston, Houghton Mifflin Company.

STENMARK, D. (2001) Leveraging tacit organisational knowledge. *Journal of Management Information Systems,* 17 (3), pp. 9-24.

STEVENS, J. (2001) *Applied Multivariate Statistics for the Social Science*. Hillsdale, NJ: Lawrence Erlbaum Associates.

STODDART, L. (2001) Managing intranets to encourage knowledge sharing: opportunities and constraints. *Online Information Review,* 25 (1), pp. 19-28.

STOREY, J and QUINTAS, P. (2001) Knowledge management and HRM. In: J. STOREY, ed. *Human resource management: A critical review*. London, Thomson Learning.

STOREY, J. (2001). *Human resource management: A critical review*. London, Thomson Learning.

STRAUB, D. (1989) Validating Instruments in MIS Research. *MIS Quarterly*, 13 (2), pp. 147-169.

STRAUB, D., BOUDREAU, M. and GEFEN, D. (2004) Validation Guidelines for IS Positivist research. *Communications of AIS*, 13 (24), pp. 380-427.

SYED-IKHSAN, S. and ROWLAND, F. (2004) Benchmarking knowledge management in a public organisation in Malaysia. *Benchmarking: An International Journal*, 11 (3), pp. 238-266.

SZULANSKI, G. (1996) Exploring internal stickiness: Impediments to the transfer of best practice within the firm. *Strategic Management Journal,* 17, pp. 27-43.

TABACHNICK, B. G. and FIDELL, L. S. (2007) *Using multivariate statistics*. Boston, Pearson/Allyn and Bacon.

TASHAKKORI, A. and TEDDLIE, C. (2003) *Handbook of mixed methods in social and behavioural research*. Thousand Oaks, CA: Sage Publications.

TAYLOR, S. and TODD, P. (1995) Assessing IT usage: The role of prior experience. *MIS Quarterly,* 19 (4), pp. 561-570.

THORN, B. and CONNOLLY, T. (1987) Discretionary databases: A theory and some experimental findings. *Communication Research,* 14, pp. 512-528.

TRIANDIS, H. C. (1977) Interpersonal behaviour. *Psychology and Health,* 15, pp. 383-393.

VAN DEN HOOFF, B. and DE RIDDER, J. (2004) Knowledge sharing in context: The influence of organisational commitment, communication climate and CMC use on knowledge sharing. *Journal of Knowledge Management,* 8 (6), pp. 117-130.

VAN DEN PUTTE, B. (1991) *20 years of the theory of reasoned action of Fishbein and Ajzen: A meta-analysis*. Manuscript, University of Amsterdam, The Netherlands.

VELLEMAN, P. F. and WILKINSON, L. (1993) Nominal, ordinal, interval, and ratio typologies are misleading. *The American Statistician*, 47 (1), pp. 65-72.

WALLIMAN, N. (2005) *Your Research Project*. 2nd ed. London, Sage Publications.

WANG, S. (2005) *To share or not to share: An examination of the determinants of sharing knowledge via knowledge management systems.* PhD thesis. The Ohio State University.

WASKO, M. and FARAJ, S. (2005) Why Should I Share? Examining Knowledge Contribution in Electronic Networks of Practice. *MIS Quarterly,* 29 (1), pp. 1-23.

WATSON, S. and HEWETT, K. (2006) A multi-theoretical model of knowledge transfer in organisations: determinants of knowledge contribution and knowledge reuse. *Journal of Management Studies*, 43 (2), pp. 141-173.

WEST, S., FINCH, J. and CURRAN, J. (1995) Structural Equation Models with Nonnormal Variables: Problems and Remedies. In: R. Hoyle, ed. *Structural Equation Modelling: Concepts, Issues and Applications,* pp. 56-75.

WHITE, J. (2007) *Knowledge sharing in a Human Resource Community of Practice*. Walden University.

WIIG, M. (1997) Knowledge Management: Where did it come from and where will it go?. *Expert Systems with Applications,* 13 (1), pp. 1-14.

WILSON, M. (1998) Asking Questions. In: R. J. SAPSFORD, and V. JUPP, eds. *Data collection and analysis*. London, SAGE PUBLICATIONS, pp. 94-120.

WING S. CHOW and LAI SHEUNG CHAN (2008) Social network, social trust and shared goals in organisational knowledge sharing. *Information & Management*, 45 (7), pp 458–465.

WISKER, G. (2001) *The postgraduate research handbook: Succeed with your MA, MPhil, EdD and PhD*. Basingstoke, Palgrave.

WOODWARD, J. (1958) *Management and Technology*. London: Her Majesty's Stationary Office.

YANG, JEN-TE. (2008) Individual attitudes and organisational knowledge sharing. *Tourism Management*, 29 (2), pp. 345-353.

YANG, S. and FARN, C. (2009) Social capital, behavioural control, and tacit knowledge sharing—A multi-informant design. *International Journal of Information Management*, 29 (3), pp. 210-218.

YU, C. H. (2002) An overview of remedial tools for violations of parametric test assumptions in the SAS system. *Proceedings of 2002 Western Users of SAS Software Conference*, pp. 172-178.

YU, M., WILKINS, L. and MA, W. (2004) Developing an instrument for measuring knowledge sharing attitudes. *Innovations through information technology,* 1 (2), pp. 272-275.

ZACK, M. (1999) Managing codified knowledge. *Sloan Management Review*, 40 (4), p. 4558.

ZUHUR, SHERIFA (2012) *Saudi Arabia.* Santa Barbara, California, ABC-CLIO.

Appendix 1

Total Variance Explained

component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	13.820	26.076	26.076	13.820	26.076	26.076	4.343	8.194	8.194
2	4.016	7.578	33.654	4.016	7.578	33.654	4.085	7.707	15.901
3	3.322	6.268	39.922	3.322	6.268	39.922	3.934	7.423	23.324
4	2.516	4.748	44.670	2.516	4.748	44.670	3.384	6.385	29.709
5	2.252	4.250	48.920	2.252	4.250	48.920	3.022	5.701	35.410
6	2.070	3.906	52.826	2.070	3.906	52.826	2.836	5.352	40.762
7	1.772	3.344	56.169	1.772	3.344	56.169	2.636	4.973	45.735
8	1.660	3.132	59.301	1.660	3.132	59.301	2.564	4.837	50.573
9	1.566	2.954	62.255	1.566	2.954	62.255	2.452	4.626	55.198
10	1.479	2.790	65.045	1.479	2.790	65.045	2.305	4.350	59.548
11	1.286	2.427	67.472	1.286	2.427	67.472	2.226	4.200	63.747
12	1.103	2.082	69.554	1.103	2.082	69.554	2.164	4.082	67.830
13	1.035	1.952	71.506	1.035	1.952	71.506	1.948	3.676	71.506

Factors loadings

	Component												
	1	2	3	4	5	6	7	8	9	10	11	12	13
ATT1	.130	.061	.853	.017	.077	-.106	.050	.066	.044	.019	.022	.053	.110
ATT2	.071	.119	.835	.108	.053	-.147	.024	.094	.055	.175	.121	.002	.030
ATT3	.108	.093	.815	.081	.032	-.105	.106	.104	.003	.135	.069	.138	.065
ATT4	.103	.203	.817	.151	.154	-.016	.032	.024	-.049	.087	.053	.067	.051
SN1	.173	.125	.058	.043	.756	.062	.086	-.076	.056	.120	.186	.206	.150
SN2	.225	.092	.130	.037	.801	-.039	.172	.053	-.008	.122	.108	.051	.070
PBC1	-.032	-.068	.147	.089	.205	.053	-.013	.087	.740	.015	.123	.025	.021
SN3	-.046	.104	.103	.115	.692	.064	-.031	.059	.372	.050	.100	.127	-.026
XXXX	.320	-.146	.170	.022	.451	-.046	.091	.135	.360	.161	.268	.034	.248
PBC2	.001	.145	-.148	-.048	-.048	.004	.300	.065	.732	-.060	.079	.021	-.146
PBC3	.100	.022	-.071	-.040	.076	.011	.138	-.126	.675	.238	-.004	.112	.188
PBC4	.209	.087	.401	.063	.210	-.055	.387	-.024	.522	.088	-.042	.079	.051
BI1	.075	.189	.245	.090	.349	-.098	.184	.250	.192	.605	-.035	-.060	.050
BI2	-.051	.214	.264	.197	.104	-.239	.154	.245	.067	.684	.015	-.013	.149
BI3	.121	.095	.251	.117	.171	-.126	.066	.265	.110	.720	.064	.166	-.147
KSB1	.031	.039	.192	.065	.145	-.045	.698	.143	.244	.165	.105	.044	.084
KSB2	.110	.129	.151	.233	-.023	-.019	.710	.132	.085	.246	.146	.147	-.007
KSB3	.044	.007	-.072	.028	.115	-.116	.771	.280	.186	-.075	-.006	.094	.152
Tend1	.079	.084	.234	.106	.094	.048	.176	.556	.029	.085	-.155	.183	.008

Tend2	.212	.113	.090	.170	.022	-.155	.266	.710	.055	.221	.059	.043	.115
Tend3	.049	.099	.028	.045	-.016	-.132	.160	.722	-.016	.238	.205	.003	.093
FR1	.250	.004	-.148	-.009	-.061	.648	-.107	-.428	.054	.105	.066	.150	-.121
TR1	.765	.146	.117	.096	.096	.112	.071	-.019	-.030	.111	.029	.052	.131
TR2	.812	.154	.139	.208	.139	-.042	.012	.078	.041	-.057	-.066	.040	.036
TR3	.801	.148	.129	.191	.084	-.130	.077	.138	.065	-.021	.060	.186	.013
FR2	-.037	-.023	-.070	.044	.032	.768	.057	-.153	.009	-.176	.012	.035	-.170
TR4	.558	.094	.001	.309	.057	-.123	.070	-.022	.141	.166	.184	.051	.361
FR3	-.128	-.017	-.058	-.036	-.037	.849	-.113	.106	.042	-.003	.048	-.025	.112
BN1	.122	.247	-.036	.422	-.141	-.037	-.013	-.086	-.027	.393	.127	.230	.364
FR4	-.029	.052	-.164	-.037	.082	.766	-.049	-.049	-.034	-.168	-.161	-.207	.123
BN2	.004	.154	.117	.747	.183	-.163	.027	.239	-.001	.052	-.024	.073	-.042
BN3	.147	.029	-.008	.611	.076	.229	.178	-.328	-.044	.016	-.100	-.235	.076
BN4	.458	.113	.118	.582	.117	.035	.089	.024	.048	.072	.077	.180	.160
BN5	.242	.082	.086	.616	-.081	.085	.100	.049	-.013	.141	.309	-.072	.144
BN6	.171	.276	.089	.506	-.062	-.021	.048	.227	.145	.170	.176	.096	.365
BN7	.354	.187	.292	.527	.144	-.108	.103	.190	.066	.000	.078	.334	-.092
XXXX	.398	.212	.233	.528	.057	-.121	.022	.214	.025	.023	.111	.273	-.066
Mg1	.155	.171	.125	.233	.339	-.141	.118	.140	.115	.191	.613	.087	-.115
Mg2	.081	.085	.118	.104	.321	.073	.146	.034	.219	-.009	.723	.226	.092
XXXX	.190	.036	.121	.150	.195	.089	.300	.177	-.085	-.009	.239	.157	.531
Mg3	-.219	.064	.238	.080	.352	-.315	-.137	-.030	-.025	-.229	.413	.065	.322
XXXX	.317	.521	.163	.209	.059	-.001	.108	-.140	.042	.042	.437	-.015	.241
Org. N1	.399	.564	.124	.092	.117	.090	.090	-.263	.081	.158	.243	.024	.028

Org. N2	.160	.807	.140	.219	.173	.007	.050	.050	.029	.078	-.020	.068	.116
Org. N3	.084	.852	.121	.143	.022	-.033	.018	.076	-.049	.093	-.028	.099	.051
Org. N4	.019	.832	.082	.076	.034	-.017	.147	.188	.061	.022	.011	.108	-.015
Org. N5	.388	.618	.141	-.003	.084	.001	-.193	.086	.075	.154	.216	.151	-.053
XXXX	.524	.474	.011	-.004	.016	.023	.064	.134	-.037	.032	.281	-.079	.197
XXXX	.308	.247	.019	.008	.337	-.049	.334	.114	.064	-.095	.397	-.001	.346
T	.259	.120	.240	.098	.175	-.013	.103	.111	.120	.011	-.075	.092	.639
F. M1	.055	.055	.122	.205	.167	-.070	.027	.055	.026	.012	.044	.741	-.018
F. M2	.269	.199	.144	.059	.128	.040	.273	-.042	.103	-.056	.072	.672	.144
F. M3	.047	.153	-.001	-.208	.084	-.052	.068	.203	.139	.263	.131	.591	.234

Appendix 2

Regression analysis for KSB model

```
REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA
/CRITERIA=PIN(.05) POUT(.10(
/NOORIGIN
/DEPENDENT T_KSB
/METHOD=ENTER T_BI T_PBC
/PARTIALPLOT ALL
/SCATTERPLOT=(*ZRESID ,*ZPRED(
/RESIDUALS HIST(ZRESID) NORM(ZRESID(
/SAVE RESID ZRESID.
```

Regression

```
[DataSet1] C:\Users\Unknown User\Desktop\final\Final Data.sav
```

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	T_PBC, T_BI[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: T_KSB

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.568[a]	.323	.319	.76377

a. Predictors: (Constant), T_PBC, T_BI

b. Dependent Variable: T_KSB

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	100.343	2	50.171	86.006	.000[a]
	Residual	210.589	361	.583		
	Total	310.931	363			

a. Predictors: (Constant), T_PBC, T_BI

b. Dependent Variable: T_KSB

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.623	.237		2.634	.009
	T_BI	.357	.050	.346	7.168	.000
	T_PBC	.392	.059	.322	6.671	.000

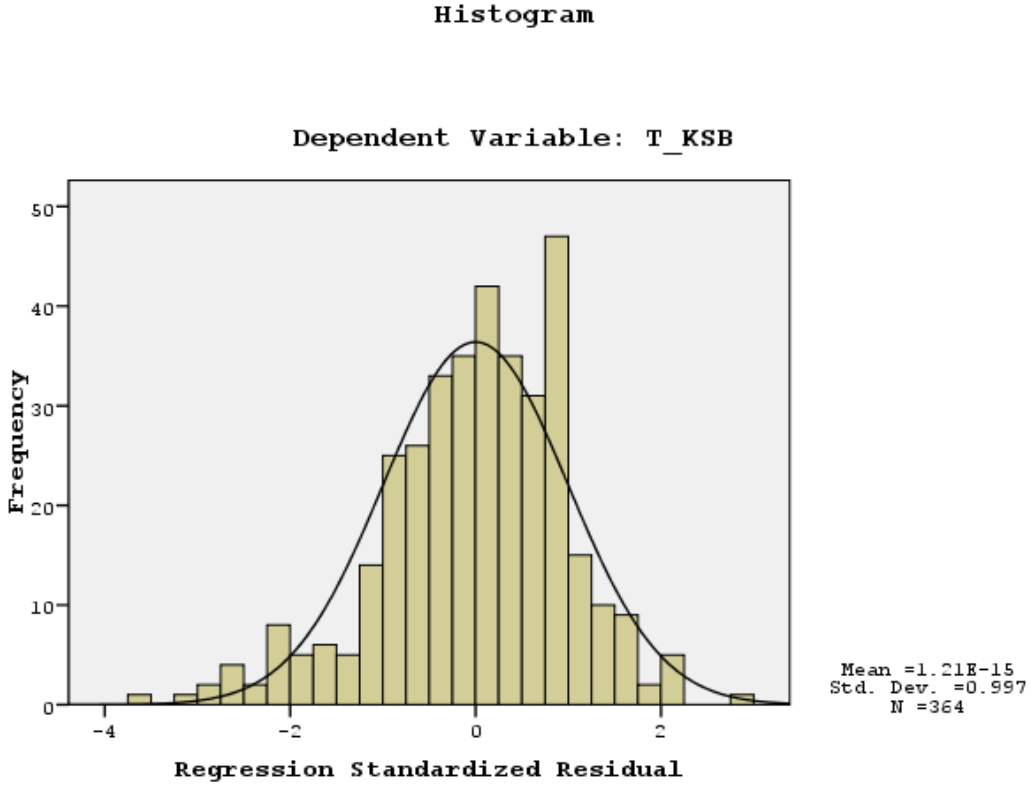
a. Dependent Variable: T_KSB

Residuals Statistics[a]

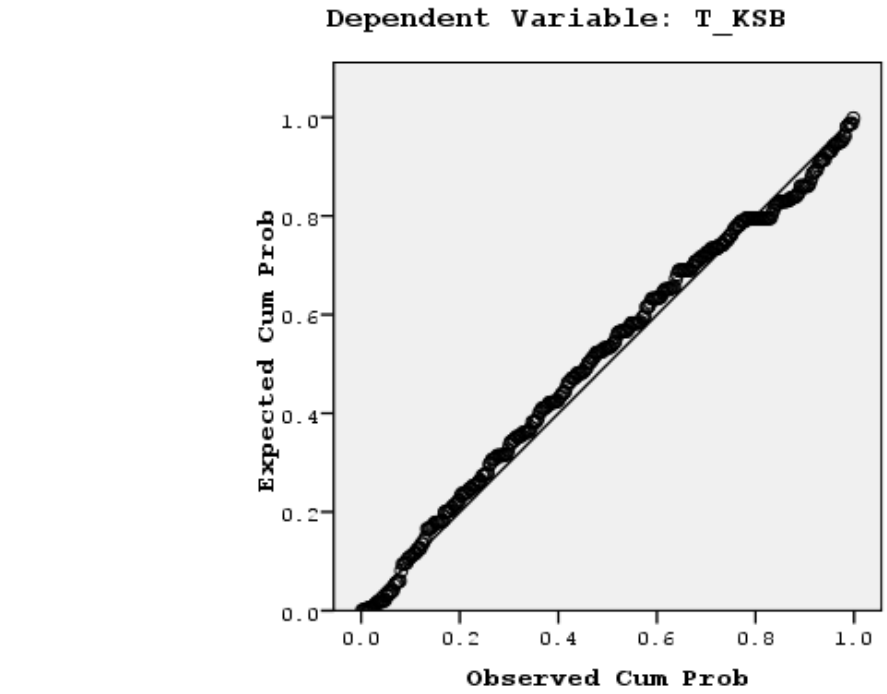
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.7650	4.3698	3.6529	.52576	364
Residual	-2.68304	2.19412	.00000	.76167	364
Std. Predicted Value	-3.591	1.363	.000	1.000	364
Std. Residual	-3.513	2.873	.000	.997	364

a. Dependent Variable: T_KSB

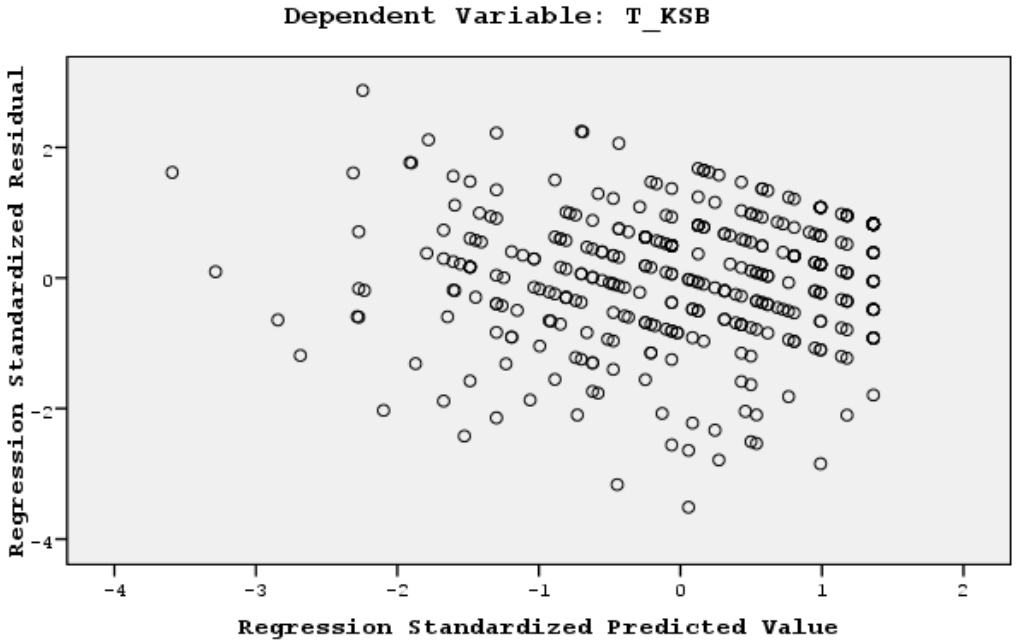
Charts


Histogram
Dependent Variable: T_KSB
Frequency
50
40
30
20
10
0
-4
-2
0
2
Regression Standardized Residual
Mean =1.21E-15
Std. Dev. =0.997
N =364

Normal P-P Plot of Regression Standardized Residual

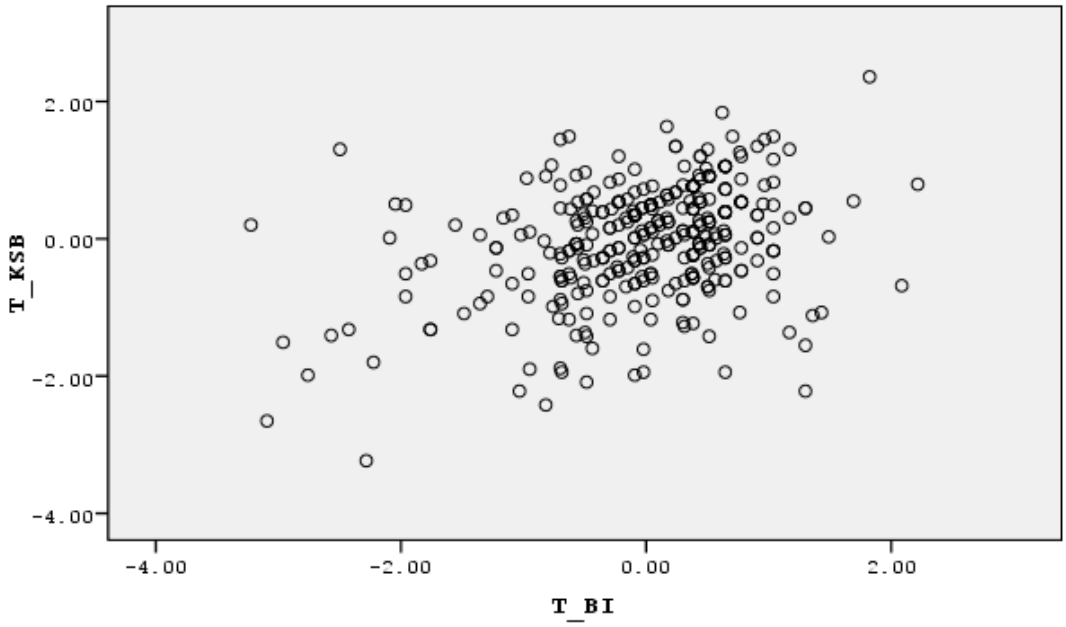


Scatterplot



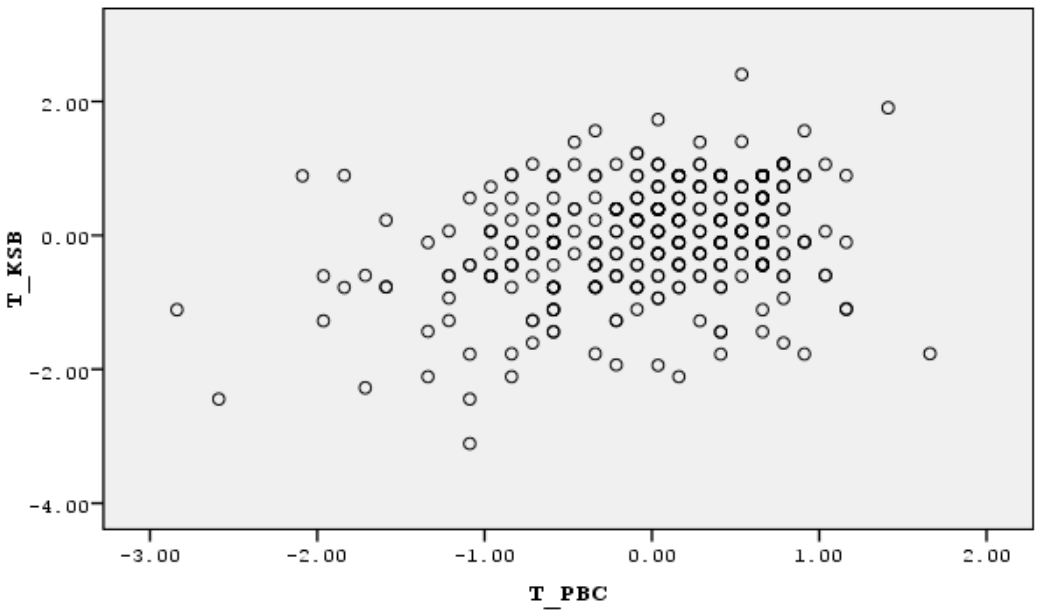
Partial Regression Plot

Dependent Variable: T_KSB



Partial Regression Plot

Dependent Variable: T_KSB



Regression analysis for BI model

Regression

[DataSet1] C:\Users\Unknown User\Desktop\final\Final Data.sav

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	T_TR, T_PBC, T_ATT, T_Tend, T_SN[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: T_BI

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.607[a]	.368	.359	.68949

a. Predictors: (Constant), T_TR, T_PBC, T_ATT, T_Tend, T_SN

b. Dependent Variable: T_BI

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	95.293	5	19.059	40.090	.000[a]
	Residual	163.537	344	.475		
	Total	258.830	349			

a. Predictors: (Constant), T_TR, T_PBC, T_ATT, T_Tend, T_SN

b. Dependent Variable: T_BI

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.439	.268		1.637	.103
	T_ATT	.166	.051	.159	3.241	.001
	T_SN	.080	.048	.083	1.676	.095
	T_PBC	.239	.055	.208	4.320	.000
	T_Tend	.318	.052	.302	6.108	.000
	T_TR	.104	.046	.111	2.277	.023

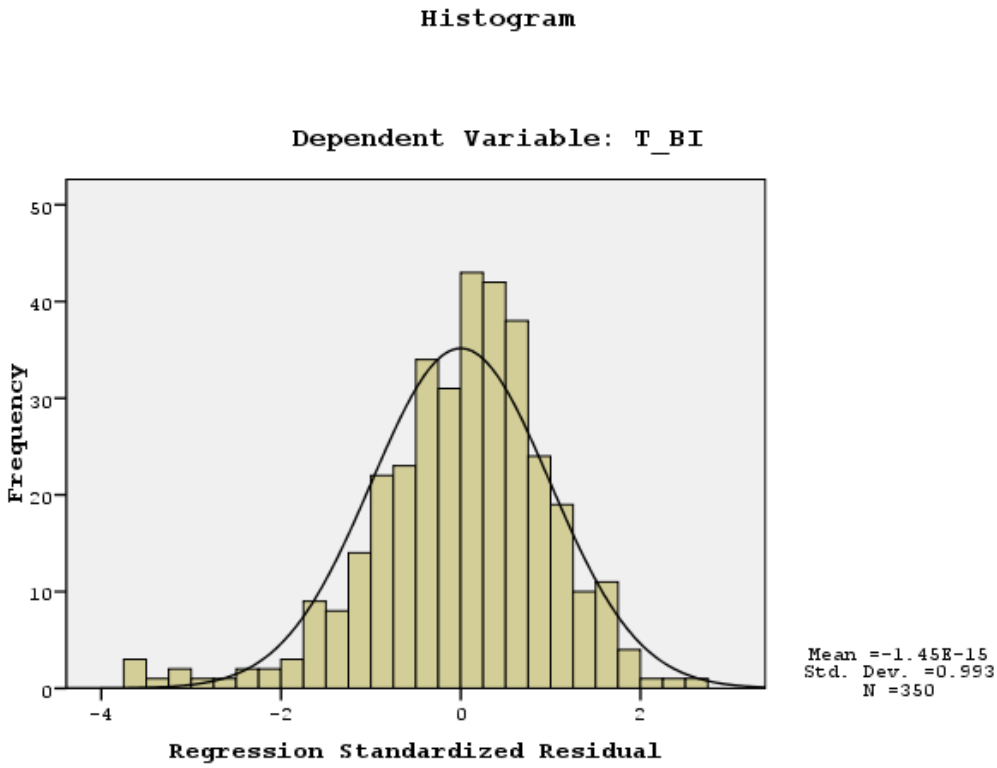
a. Dependent Variable: T_BI

Residuals Statistics[a]

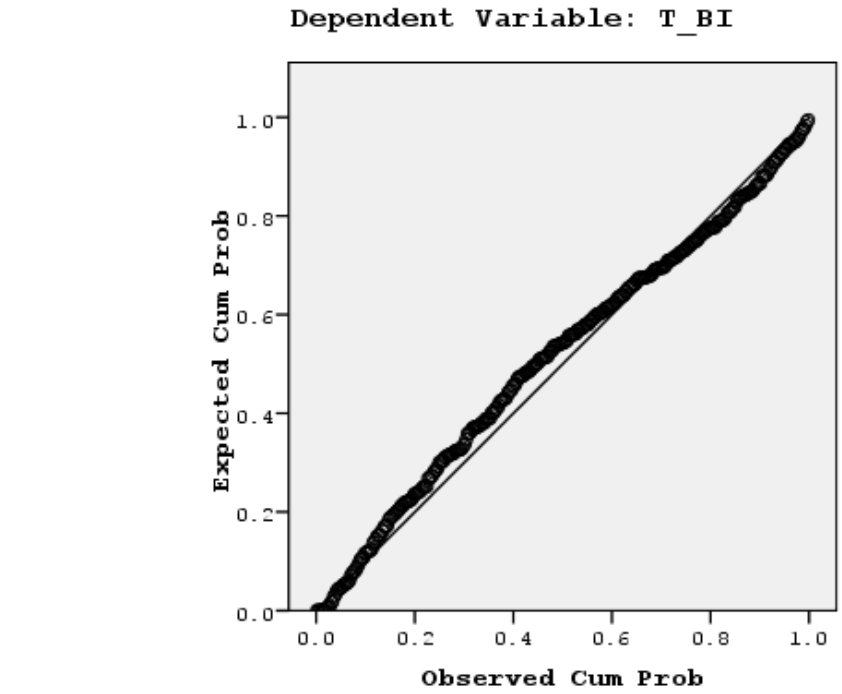
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.5727	4.9783	4.1162	.52254	350
Residual	-2.51811	1.74958	.00000	.68454	350
Std. Predicted Value	-4.868	1.650	.000	1.000	350
Std. Residual	-3.652	2.537	.000	.993	350

a. Dependent Variable: T_BI

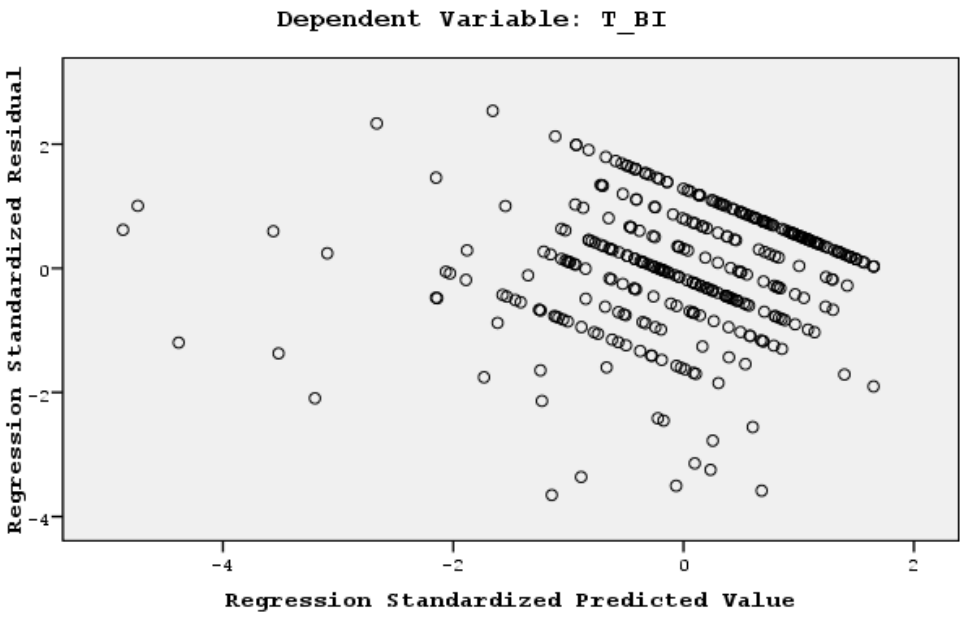
Charts


Histogram
Dependent Variable: T_BI
Frequency
50
40
30
20
10
0
-4
-2
0
2
Regression Standardized Residual
Mean =-1.45E-15
Std. Dev. =0.993
N =350

Normal P-P Plot of Regression Standardized Residual

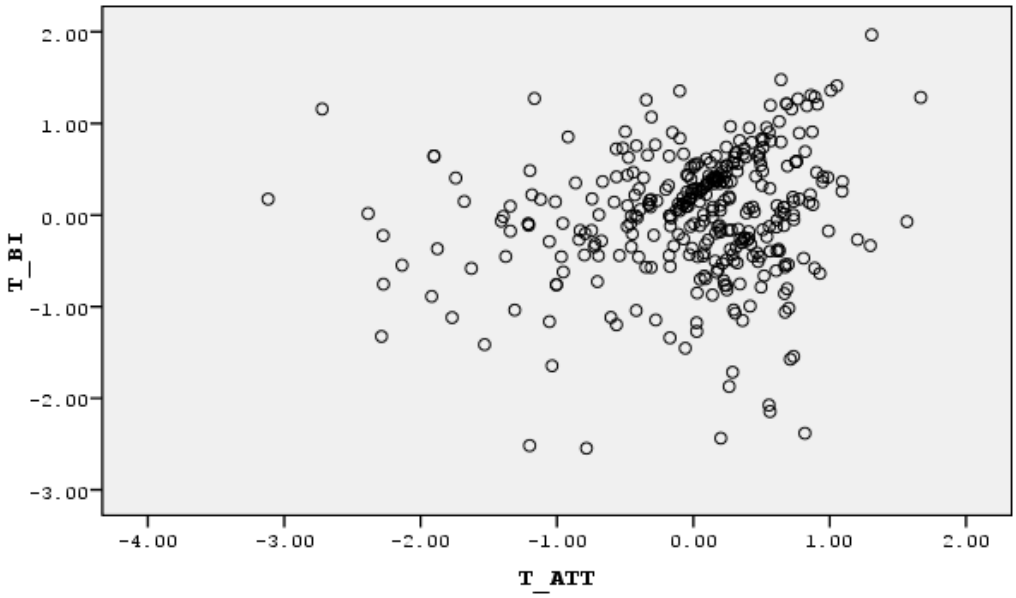


Scatterplot



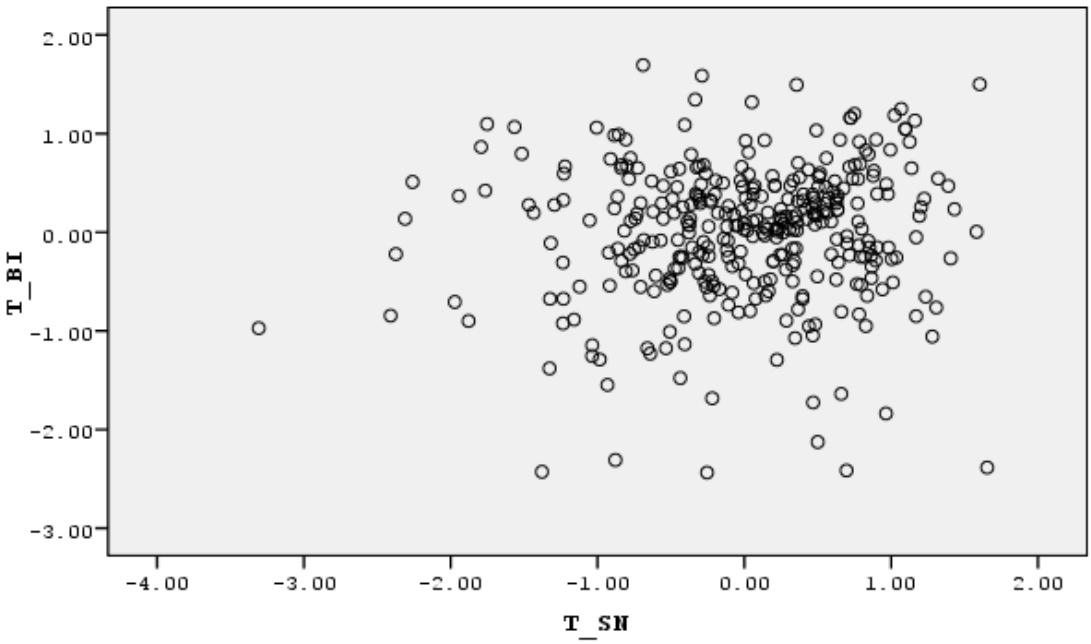
Partial Regression Plot

Dependent Variable: T_BI



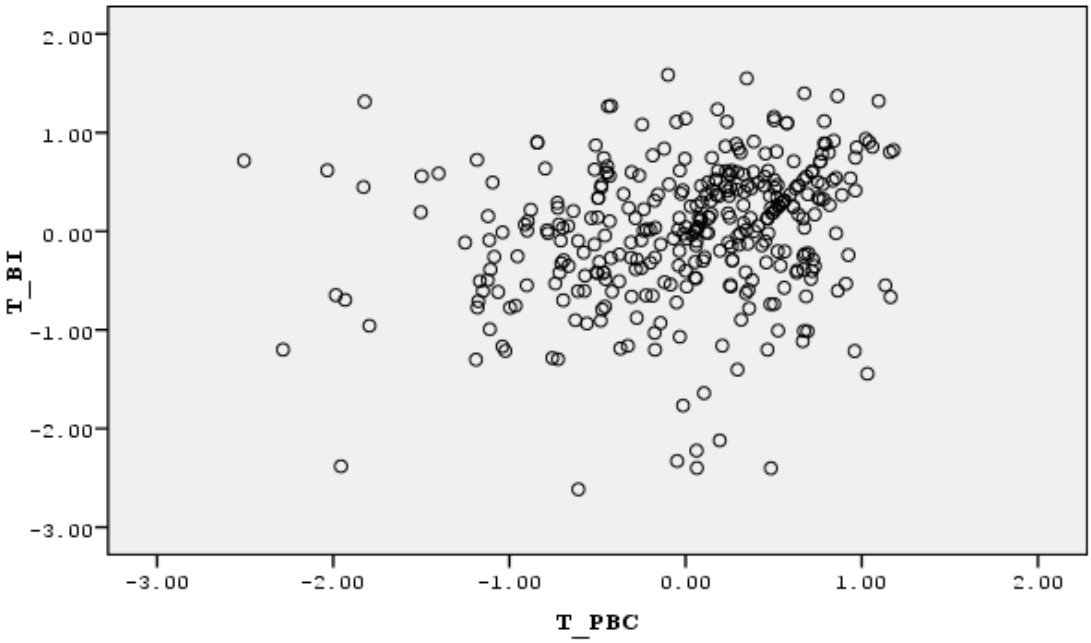
Partial Regression Plot

Dependent Variable: T_BI



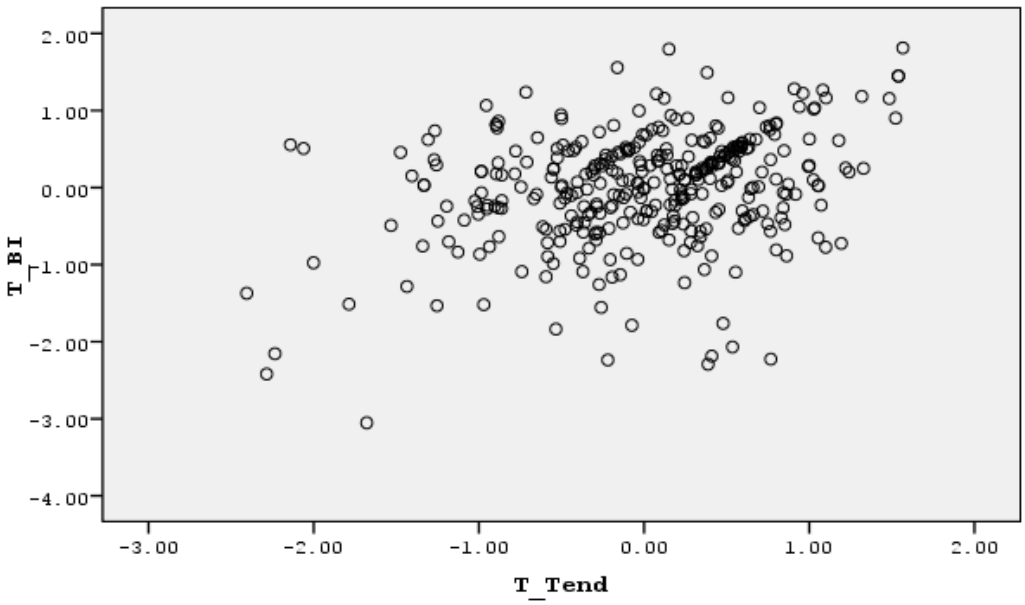
Partial Regression Plot

Dependent Variable: T_BI



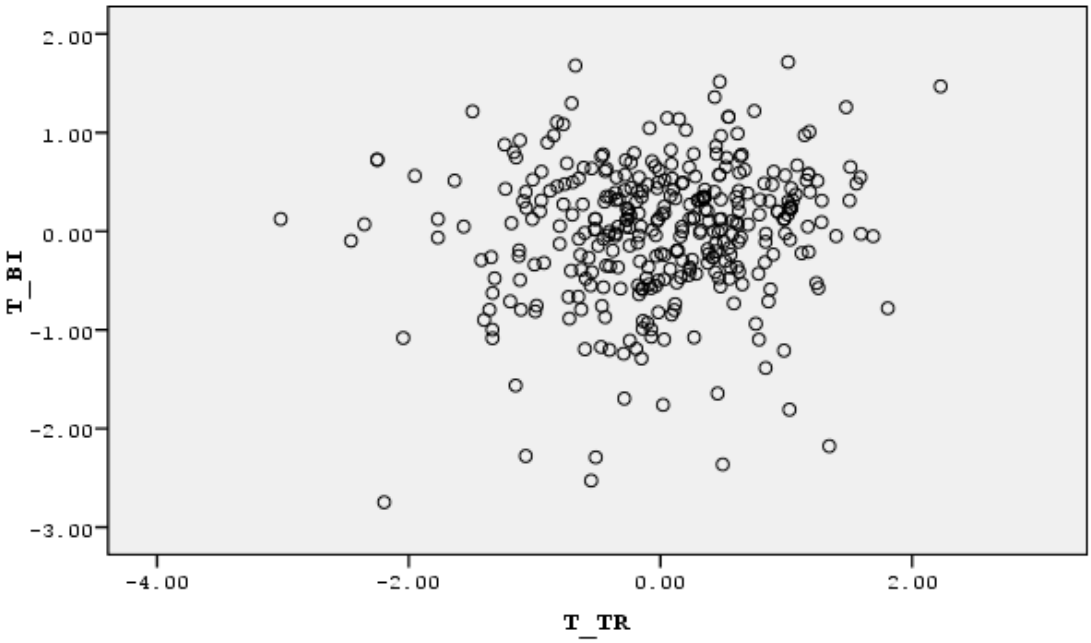
Partial Regression Plot

Dependent Variable: T_BI



Partial Regression Plot

Dependent Variable: T_BI



Appendix 3

Research questionnaire

IN THE NAME OF ALLAH THE MOST GRACIOUS THE MOST MERCIFUL

Knowledge Sharing among the employees within an organization

Dear participant,

I am conducting a research project for my PhD at the De Montfort university in the UK. The objective of the study is to understand, from the employees' perception, the most significant factors that facilitate or hinder knowledge sharing among the employees within an organization. This study attempts to understand how to best satisfy the needs of the organization as well as the individuals towards an effective sharing of knowledge and expertise. Since there is no right or wrong answers, what matters is your personal perception and truthful viewpoints. Your responses will be confidential. Nothing you say on the questionnaire will, in any way, influence your present or future employment with your organization.

I would like to assert that your participation is voluntary and you can withdraw at any time. However, your answers to all questions will be highly preferable.

Finally, you may contact the researcher via email: hamad@dmu.ac.uk if you have any questions about the questionnaire or you wish to obtain the results of the study.

I would like to thank you for your participation in this study.

Best regards,

Hamad Alharbi, (PhD. candidate)
Faculty of Technology, STRL
De Montfort University, UK

PS. *Please take some time to read the definitions for some key terms used in the questionnaire.*

Knowledge sharing: The behaviour in which an individual share his or her tacit or/and explicit knowledge; experience, insight and understanding with another individual(s) or knowledge repositories.

Tacit knowledge: It typically exists only in the mind of the individual. It is personal knowledge that is hard to formalize or communicate to others. It consists of subjective know-how and insights. Examples of such knowledge are the individual internal skills, mental models, beliefs and perspectives that often derived from experience.

Explicit knowledge: Tends to be more objective. It is easy to formalize or communicate to others. Explicit knowledge can be found in product's specifications, manuals, procedures, a scientific formula, computer programs ...etc.

Please answer the following questions by choosing the answer that is most appropriate to you and add any comment that you may wish to mention

	Items and Comments	Please circle the appropriate answer						
1	To me, Sharing my knowledge and expertise with other members in this organization is	Very bad Idea	1	2	3	4	5	Very good idea
		Very harmful	1	2	3	4	5	Very beneficial
		Very boring	1	2	3	4	5	Very interesting
		Very worthless	1	2	3	4	5	Very valuable
	Comments:							
2	People who influence my behaviour (e.g. manager, colleague etc.) think that I should share my knowledge and expertise in this organization	Strongly disagree	1	2	3	4	5	Strongly agree
	Comments:							
3	People who are important to me (e.g. manager, colleague etc.) think that I should share my knowledge and expertise in this organization	Strongly disagree	1	2	3	4	5	Strongly agree
	Comments:							
4	People whose opinions I value (e.g. manager, colleague etc.) would approve of my knowledge and expertise sharing in this organization	Strongly disagree	1	2	3	4	5	Strongly agree
	Comments:							
5	To share or not to share my knowledge and expertise with other members in this organization is currently within my control	Strongly disagree	1	2	3	4	5	Strongly agree
	Comments:							
6	It is under my capability to share my knowledge and expertise with other members in this organization	Strongly disagree	1	2	3	4	5	Strongly agree
	Comments:							
7	I am confident that I could share my knowledge and expertise with other members in this organization if I wanted to	Strongly disagree	1	2	3	4	5	Strongly agree
	Comments:							
8	For me, to share my knowledge and expertise with other members in this organization is	Very difficult	1	2	3	4	5	Very easy
	Comments:							
9	I will share my knowledge and expertise with other members in this organization in the future	Extremely unlikely	1	2	3	4	5	Extremely likely
	Comments:							
10	I intend to share my knowledge and expertise with other members in this organization more frequently in the future	Extremely unlikely	1	2	3	4	5	Extremely likely
	Comments:							
11	I will try to share my knowledge and expertise with other members in this organization in a more effective way	Extremely unlikely	1	2	3	4	5	Extremely likely
	Comments:							
12	I share my knowledge and expertise with other members in the this organization	Very rarely	1	2	3	4	5	Very frequently
	Comments:							
13	I share my explicit knowledge and expertise with other members in the this organization. **(please see the above definition of explicit knowledge)**	Very rarely	1	2	3	4	5	Very frequently
	Comments:							

14	I share my tacit knowledge and expertise with other members in the this organization. **(please see the above definition of tacit knowledge)**	Very rarely	1	2	3	4	5	Very frequently
	Comments:							
15	My first tendency is to share knowledge and expertise if someone requests it	Extremely unlikely	1	2	3	4	5	Extremely likely
	Comments:							
16	I tend to make my knowledge and expertise readily available	Extremely unlikely	1	2	3	4	5	Extremely likely
	Comments:							
17	I am willing to share my personal knowledge and expertise regardless of its worth	Extremely unlikely	1	2	3	4	5	Extremely likely
	Comments:							
18	Most members in this organization trust each other	Strongly disagree	1	2	3	4	5	Strongly agree
	Comments:							
19	When I get into difficulties, I know that other members in this organization would try to help me out	Strongly disagree	1	2	3	4	5	Strongly agree
	Comments:							
20	I can trust other members in this organization to lend me a hand when I need it	Strongly disagree	1	2	3	4	5	Strongly agree
	Comments:							
21	People in this organization share their ideas openly	Strongly disagree	1	2	3	4	5	Strongly agree
	Comments:							
22	In sharing my knowledge and expertise in this organization, my future within the organization would be at risk	Strongly disagree	1	2	3	4	5	Strongly agree
	Comments:							
23	I prefer to keep my personal knowledge and expertise to myself	Extremely unlikely	1	2	3	4	5	Extremely likely
	Comments:							
24	Sharing my knowledge and expertise with other members in this organization makes me lose my unique value	Extremely unlikely	1	2	3	4	5	Extremely likely
	Comments:							
25	I believe that by sharing my personal knowledge and expertise with other members in this organization, will lead others to steal my ideas and reap rewards that are rightly mine	Strongly disagree	1	2	3	4	5	Strongly agree
	Comments:							
26	I believe my status improves, when I share my knowledge and expertise with other members in this organization	Strongly disagree	1	2	3	4	5	Strongly agree
	Comments:							
27	Sharing my knowledge and expertise with other members in this organization will increase my chances of promotion	Extremely unlikely	1	2	3	4	5	Extremely likely
	Comments:							
28	When I share my knowledge and expertise with other members in this organization, I believe that my queries for knowledge will be answered in the future	Extremely unlikely	1	2	3	4	5	Extremely likely
	Comments:							
29	I expect to get more job security when I share my knowledge and expertise with other members in this organization	Extremely unlikely	1	2	3	4	5	Extremely likely
	Comments:							
30	Sharing my knowledge and expertise with other members in this organization improves others recognition of me	Extremely unlikely	1	2	3	4	5	Extremely likely
	Comments:							

31	I share my knowledge and expertise with other members in this organization to increase my reputation	Strongly disagree	1	2	3	4	5	Strongly agree
	Comments:							
32	Sharing my knowledge and expertise in this organization would strengthen the ties between me and other members	Extremely unlikely	1	2	3	4	5	Extremely likely
	Comments:							
33	The top management would expect me to share my knowledge and expertise with other members in this organization	Strongly disagree	1	2	3	4	5	Strongly agree
	Comments:							
34	My manager would expect me to share my knowledge and expertise with other members in this organization	Strongly disagree	1	2	3	4	5	Strongly agree
	Comments:							
35	My manager does not really care if I share or not share my knowledge and expertise with other members in this organization	Strongly disagree	1	2	3	4	5	Strongly agree
	Comments:							
36	This organization has a special knowledge sharing initiative (strategy)	Strongly disagree	1	2	3	4	5	Strongly agree
	Comments:							
37	My personal vision is in agreement with my organization vision. **(Please comment if you do not know the organization vision)**	Extremely unlikely	1	2	3	4	5	Extremely likely
	Comments:							
38	My personal values are in agreement with my organization values. **(Please comment if you do not know the organization values)**	Extremely unlikely	1	2	3	4	5	Extremely likely
	Comments:							
39	My personal goals are in agreement with my organization goals. **(Please comment if you do not know the organization goals)**	Extremely unlikely	1	2	3	4	5	Extremely likely
	Comments:							
40	I believe that, this organization tries to treat its members fairly	Strongly disagree	1	2	3	4	5	Strongly agree
	Comments:							
41	I have enough time available to share my knowledge and expertise with other members in this organization	Extremely unlikely	1	2	3	4	5	Extremely likely
	Comments:							
42	I have the necessary IT tools (e.g. computers and internet for storing, processing, exchanging, retrieving and accessing databases, forums, and e-mail ... etc) to share my knowledge and expertise with other members in this organization	Strongly disagree	1	2	3	4	5	Strongly agree
	Comments:							
43	I am able to share my knowledge and expertise with other members in this organization easily	Strongly disagree	1	2	3	4	5	Strongly agree
	Comments:							
44	I have a good level of language to understand and exchange knowledge and expertise with other members in this organization	Strongly disagree	1	2	3	4	5	Strongly agree
	Comments:							

Demographics

Please fill in the following questions and choose the category that is most appropriate to you

Nationality: _____. Gender: 1. Female _____. 2. Male_____.

Industry

1._____ Army
2._____ Industry
3._____ Education
4._____ Health
5._____ Finance
6._____Service
7._____Other – Please Specify_____

Organization size

1._____Under 100 employees
2._____101 – 500 employees
3._____501 – 1000 employees
4._____1001 – 5000 employees
5._____Other – Please Specify_____

Age Group (years)

1._____20 or younger
2._____21 to 30
3._____31 to 40
4._____41 to 50
5._____51 to 60
6._____61 or older

Level of education

1._____High School Degree
2._____ Post-secondary Diploma
3._____Bachelor Degree
4._____Master Degree
5._____Doctorate Degree
6._____Other – Please Specify_____

Years with Organization

1._____Less than 2 years
2._____2 to 5 years
3._____6 to 10 years
4._____11 to 20 years
5._____21 to 30 years
6._____Over 30 years
7._____Not Applicable – Never worked

Level in Organization

1._____Professional
2._____Advanced professional
3._____Management
4._____Executive
5._____Other – Please Specify_____

Job status

1._____Contract employee
2._____Permanent employee
3._____Other – Please Specify_____

Please add any comments/suggestions that may contribute to a successful sharing of knowledge and expertise among individuals within this organization (such as factors that facilitate or encourage, factors that hinder or prevent knowledge sharing among the employees and the efforts required from this organization):

Participant's email address for further clarification and future interview (optional):

Thank you for your time and cooperation.

Appendix 4

The model construct and their questionnaire items

construct		Items and Comments	Please circle the appropriate answer						
ATT	1	To me, Sharing my knowledge and expertise with other members in this organisation is	Very bad Idea	1	2	3	4	5	Very good idea
			Very harmful	1	2	3	4	5	Very beneficial
			Very boring	1	2	3	4	5	Very interesting
			Very worthless	1	2	3	4	5	Very valuable
		Comments:							
SN	2	People who influence my behaviour (e.g. manager, colleague etc.) think that I should share my knowledge and expertise in this organisation	Strongly disagree	1	2	3	4	5	Strongly agree
		Comments:							
	3	People who are important to me (e.g. manager, colleague etc.) think that I should share my knowledge and expertise in this organisation	Strongly disagree	1	2	3	4	5	Strongly agree
		Comments:							
	4	People whose opinions I value (e.g. manager, colleague etc.) would approve of my knowledge and expertise sharing in this organisation	Strongly disagree	1	2	3	4	5	Strongly agree
		Comments:							
PBC	5	To share or not to share my knowledge and expertise with other members in this organisation is currently within my control	Strongly disagree	1	2	3	4	5	Strongly agree
		Comments:							
	6	It is under my capability to share my knowledge and expertise with other members in this organisation	Strongly disagree	1	2	3	4	5	Strongly agree
		Comments:							
	7	I am confident that I could share my knowledge and expertise with other members in this organisation if I wanted to	Strongly disagree	1	2	3	4	5	Strongly agree
		Comments:							
	8	For me, to share my knowledge and expertise with other members in this	Very difficult	1	2	3	4	5	Very easy

		organisation is							
		Comments:							
BI	9	I will share my knowledge and expertise with other members in this organisation in the future	Extremely unlikely	1	2	3	4	5	Extremely likely
		Comments:							
	10	I intend to share my knowledge and expertise with other members in this organisation more frequently in the future	Extremely unlikely	1	2	3	4	5	Extremely likely
		Comments:							
	11	I will try to share my knowledge and expertise with other members in this organisation in a more effective way	Extremely unlikely	1	2	3	4	5	Extremely likely
		Comments:							
KSB	12	I share my knowledge and expertise with other members in the this organisation	Very rarely	1	2	3	4	5	Very frequently
		Comments:							
	13	I share my explicit knowledge and expertise with other members in the this organisation. **(please see the above definition of explicit knowledge)**	Very rarely	1	2	3	4	5	Very frequently
		Comments:							
	14	I share my tacit knowledge and expertise with other members in the this organisation. **(please see the above definition of tacit knowledge)**	Very rarely	1	2	3	4	5	Very frequently
		Comments:							
TEND	15	My first tendency is to share knowledge and expertise if someone requests it	Extremely unlikely	1	2	3	4	5	Extremely likely
		Comments:							
	16	I tend to make my knowledge and expertise readily available	Extremely unlikely	1	2	3	4	5	Extremely likely
		Comments:							
	17	I am willing to share my personal knowledge and expertise regardless of its worth	Extremely unlikely	1	2	3	4	5	Extremely likely
		Comments:							
TR	18	Most members in this organisation trust each other	Strongly disagree	1	2	3	4	5	Strongly agree
		Comments:							
	19	When I get into difficulties, I know that other members in this organisation would try to help me out	Strongly disagree	1	2	3	4	5	Strongly agree
		Comments:							

	20	I can trust other members in this organisation to lend me a hand when I need it	Strongly disagree	1	2	3	4	5	Strongly agree
		Comments:							
	21	People in this organisation share their ideas openly	Strongly disagree	1	2	3	4	5	Strongly agree
		Comments:							
FEAR	22	In sharing my knowledge and expertise in this organisation, my future within the organisation would be at risk	Strongly disagree	1	2	3	4	5	Strongly agree
		Comments:							
	23	I prefer to keep my personal knowledge and expertise to myself	Extremely unlikely	1	2	3	4	5	Extremely likely
		Comments:							
	24	Sharing my knowledge and expertise with other members in this organisation makes me lose my unique value	Extremely unlikely	1	2	3	4	5	Extremely likely
		Comments:							
	25	I believe that by sharing my personal knowledge and expertise with other members in this organisation, will lead others to steal my ideas and reap rewards that are rightly mine	Strongly disagree	1	2	3	4	5	Strongly agree
		Comments:							
BENEFIT	26	I believe my status improves, when I share my knowledge and expertise with other members in this organisation	Strongly disagree	1	2	3	4	5	Strongly agree
		Comments:							
	27	Sharing my knowledge and expertise with other members in this organisation will increase my chances of promotion	Extremely unlikely	1	2	3	4	5	Extremely likely
		Comments:							
	28	When I share my knowledge and expertise with other members in this organisation, I believe that my queries for knowledge will be answered in the future	Extremely unlikely	1	2	3	4	5	Extremely likely
		Comments:							
	29	I expect to get more job security when I share my knowledge and expertise with other members in this organisation	Extremely unlikely	1	2	3	4	5	Extremely likely
		Comments:							
	30	Sharing my knowledge and expertise with other members in this organisation improves others recognition of me	Extremely unlikely	1	2	3	4	5	Extremely likely
		Comments:							

	31	I share my knowledge and expertise with other members in this organisation to increase my reputation	Strongly disagree	1	2	3	4	5	Strongly agree
		Comments:							
	32	Sharing my knowledge and expertise in this organisation would strengthen the ties between me and other members	Extremely unlikely	1	2	3	4	5	Extremely likely
		Comments:							
Mg	33	The top management would expect me to share my knowledge and expertise with other members in this organisation	Strongly disagree	1	2	3	4	5	Strongly agree
		Comments:							
	34	My manager would expect me to share my knowledge and expertise with other members in this organisation	Strongly disagree	1	2	3	4	5	Strongly agree
		Comments:							
	35	My manager does not really care if I share or not share my knowledge and expertise with other members in this organisation	Strongly disagree	1	2	3	4	5	Strongly agree
		Comments:							
Org. N.	36	This organisation has a special knowledge sharing initiative (strategy)	Strongly disagree	1	2	3	4	5	Strongly agree
		Comments:							
	37	My personal vision is in agreement with my organisation vision. **(Please comment if you do not know the organisation vision)**	Extremely unlikely	1	2	3	4	5	Extremely likely
		Comments:							
	38	My personal values are in agreement with my organisation values. **(Please comment if you do not know the organisation values)**	Extremely unlikely	1	2	3	4	5	Extremely likely
		Comments:							
	39	My personal goals are in agreement with my organisation goals. **(Please comment if you do not know the organisation goals)**	Extremely unlikely	1	2	3	4	5	Extremely likely
		Comments:							
	40	I believe that, this organisation tries to treat its members fairly	Strongly disagree	1	2	3	4	5	Strongly agree
		Comments:							
Time	41	I have enough time available to share my knowledge and expertise with other members in this organisation	Extremely unlikely	1	2	3	4	5	Extremely likely
		Comments:							

Facilitating Means (PBC)	42	I have the necessary IT tools (e.g. computers and internet for storing, processing, exchanging, retrieving and accessing databases, forums, and e-mail ... etc) to share my knowledge and expertise with other members in this organisation	Strongly disagree	1	2	3	4	5	Strongly agree
		Comments:							
	43	I am able to share my knowledge and expertise with other members in this organisation easily	Strongly disagree	1	2	3	4	5	Strongly agree
		Comments:							
	44	I have a good level of language to understand and exchange knowledge and expertise with other members in this organisation	Strongly disagree	1	2	3	4	5	Strongly agree
		Comments:							