CHAPTER 1

INTRODUCTION

1.1 Introduction

When man was stepping into the doors of 21st century, the basis of survival and growth of his micro as well as macro economy changed. Now he has started relying on knowledge more than any other resource, which is why economists have denoted this economy as *Knowledge Economy*. In this new era, knowledge has become the basis of competitive advantage for firms (Nonaka, 1991; Davis and Botkin, 1994). The *knowledge Gurus* denote knowledge as *"perhaps the only source of competitive advantage"* (Drucker, 1995) or strategically *"the most important resource"* (Grant, 1996). Hence to remain competitive in this knowledge economy, businesses need to develop strategies to manage and retain this knowledge as effectively and as efficiently as possible. This need of businesses has led to the emergence of the field of *Knowledge Management (KM)*.

According to the ontological dimension of knowledge creation, primarily, knowledge is created by individuals not organizations (Nonaka, 1994). This knowledge created by individuals is the primary concern of organizations, as organizations need to know what their employees know (Rainer, 2003). According to Richter (2000), this individual knowledge is first combined at group level, then it is *"routinized at organization level"* and from these organization routines, organizational knowledge emerges. This organization knowledge, by all means, can be considered as strategic asset, which will ultimately enable organizations to become learned and *"preserve and expand their core competencies"* (Audrey and Robert, 2001). Hence, to achieve the title of a learning organization, knowledge must be

transformed from individual level to the organization level. This accumulation of knowledge at organization level is achieved through *knowledge sharing* (Audrey and Robert, 2001).

Based on the preceding discussion, it is evident that KM efforts cannot be successful unless employees open their minds to share their valuable knowledge (Chow *et al.,* 2000). That is why *knowledge sharing* has emerged as the most important and widely discussed activity of KM (Ford, 2001).

In very simple terms, knowledge sharing is a process in which individuals share their knowledge with other members of the organization. Regardless of the importance of knowledge sharing, knowledge hoarding is intrinsic in human nature at large (Bock and Kim, 2002). This is why Davenport (1998) has denoted knowledge sharing as *"unnatural"*. Hence, the challenge to flourish knowledge sharing is that it cannot be enforced, rather it can only be encouraged or facilitated (Gibbert and Krause, 2002). If we accept this notion then it becomes imperative to answer one important question, that *"what encourages individuals to share their valuable knowledge?"*

Many researchers have tried to answer this vital question. Past and current research works have analyzed the effect of several factors on knowledge sharing behavior, for example extrinsic rewards (Bock and Kim, 2002), organizational climate and socio-psychological factors (Bock *et al.,* 2005), Information and Communication Technologies (ICT) (Ahmed *et al.,* 2006) and long term, short term benefits and costs (Huang *et al.,* 2008).

Using the Theory of Reasoned Action (TRA), proposed by Fishbein and Ajzen (1975), the aim of this study is to understand individual's knowledge sharing behavior from the dual perspective of intrinsic and extrinsic kinds of motivation. For this purpose the study incorporates extrinsic rewards, Organization Citizenship Behavior (OCB) and demographic variables in TRA. These variables have been used in other frameworks (i.e. Bock and Kim, 2002; Bock *et al.,* 2005; Chieh, 2007; Yang and Farn, 2007) but with certain limitations. Hence, the study will propose a framework of intrinsic and extrinsic motivators of knowledge sharing to understand individual's

knowledge sharing motivation from both motivational perspectives and at the same time will fill the research gaps for the underlined variables.

1.2 Background

As described earlier individuals are motivated either intrinsically, by doing the task itself (Ryan and Deci, 2000a) or they get extrinsic motivation, which comes from outside the work or individual (Bateman and Crant, 2002). Without understanding the effect of these two factors, it is inconceivable to understand an individual's motivation to share his knowledge (Lin, 2007a). Due to this reason researchers have underlined the importance of extrinsic rewards (Argote *et al.,* 2003; Zárraga and Bonache, 2003; Burgess, 2005; Cabrera *et al.,* 2006; Lin, 2007a; Bi-Fen *et al*., 2007) and Organization Citizenship Behavior (OCB) (Chieh, 2007; Yang and Farn, 2007) to affect individual's decision to share his knowledge. Extrinsic rewards dwell in extrinsic motivation whereas OCB is an intrinsically motivated voluntary behavior. Both of these factors have been a topic of great interest among researchers and practitioners.

At the same time, individual differences should be regarded as one of the most challenging issues facing modern day managers (University of Phoenix, 2003). Hence apart from extrinsic and intrinsic motivations, it is important to understand differences in knowledge sharing based on individual's demographic variables (Lin, 2006). Very limited research work is available on the effect of demographic variables on knowledge sharing behavior (Ismail and Yusof, 2009). The background of the study is also linked with the overwhelming interest of researchers and practitioners to understand how to motivate individuals to share their valuable knowledge.

In the last few years, Petroliam Nasional Berhad (PETRONAS), one of the largest oil and gas organizations in Malaysia, has embarked upon KM initiatives and is keen to undertake timely and right measures to flourish knowledge sharing (KMTalk, 2010). For this purpose, it was essential for PETRONAS to understand what motivates individuals to share their valuable knowledge. In this study, one sub-sector within PETRONAS education division, which is training institutes, has been chosen

as a case study. This will help to provide a more customized solution to PETRONAS training institutes. One of the important reasons to choose these institutes was the high involvement of IT in these institutes, especially as an enabler for knowledge sharing. The details on the training institutes of PETRONAS and their relevance with IT are presented in section 1.12. In the future, the study can be expanded to other areas of the company.

Keeping the above background in mind, the forthcoming section 1.3 will present the problem area and the motivation of this study.

1.3 Motivation of the Study and Problem Statement

As described earlier, knowledge sharing is still not intrinsically motivated behavior at large (Davenport, 1998) and it is a voluntary act which cannot be enforced rather it can only be encouraged or facilitated (Gibbert and Krause, 2002). Researchers have attempted to understand the motivation behind individual's knowledge sharing behavior, however there is lack of research work which attempts to understand individual's motivation to share his knowledge from both intrinsic and extrinsic motivational perspectives (Lin, 2007a). By using the case of PETRONAS training institutes, the major motivation behind this study is to provide a framework which will enable us to understand individual's motivation to share his knowledge from the perspective of intrinsic and extrinsic forms of motivation. In this regard extrinsic rewards and OCB can be regarded as the representative variables of extrinsic and intrinsic motivation respectively. As discussed in section 1.1, extrinsic rewards and OCB have been a topic of great interest for researchers and some have attempted to understand their relation with knowledge sharing. However, there is a need to fill up certain gaps in the literature in the case of the relationship between these variables and knowledge sharing. In the forthcoming paragraphs, these research gaps are described.

Researchers have analyzed the impact of extrinsic rewards on either knowledge sharing attitude (Bock and Kim, 2002; Bock *et al.,* 2005) or knowledge sharing behavior (Argote *et al.,* 2003; Zárraga and Bonache, 2003; Burgess, 2005; Cabrera *et al.*, 2006; Bi-Fen *et al.,* 2007). However as Andriessen (2006) stated that the

discussion of rewards is related with the theories of motivation, and motivation and intention are interchangeable terms and have same meanings. Hence, apart from individual's attitude and actual behavior of knowledge sharing, it is imperative to analyze the effect of extrinsic rewards on his intention to share knowledge. Although the *Multifactor Interaction Knowledge sharing model (MIKS)*, proposed by Andriessen (2006), has proposed a relationship between incentives, including extrinsic rewards, with knowledge sharing intention but the model has not been tested empirically.

In the case of OCB, some studies have attempted to analyze the effect of OCB on knowledge sharing intention (Chieh, 2007; Yang and Farn, 2007). However, to the best of author's knowledge, there is no existing research work which has attempted to study the relationship between OCB and knowledge sharing behavior.

It is important to understand the impact of demographic variables on knowledge sharing (Lin, 2006a). In fact, researchers have not reached a consensus on this relationship (Ehigie and Otukoya, 2005). At the same time, there is a lack of research work concerning the effect of demographic variables on knowledge sharing behavior (Ismail and Yusof, 2009).

From the preceding paragraphs, it is evident that there is a need to fill these gaps in the literature and revisit the relationship of extrinsic rewards, OCB and demographic variables with knowledge sharing. The forthcoming section 1.4 will lay down the important questions which the study will attempt to answer for overcoming the limitations.

1.4 Research Questions

This study will answer two major and in total five questions. These questions are as follows:

1. What is the impact of intrinsic and extrinsic forms of motivation on individual's knowledge sharing?

Following are the sub-questions which will help to answer the above major questions.

a. What is the effect of *knowledge sharing attitude* on *knowledge sharing intention* and the effect of knowledge sharing intention on knowledge sharing behavior?

b. What is the effect of *OCB* and extrinsic rewards on *knowledge sharing?*

2. Apart from motivational perspective, how individuals differ in performing their knowledge sharing behavior.

Following question will help to answer the above research question

a. Based on *demographic variables,* is there any difference between individuals in manifesting their *knowledge sharing intention* into *knowledge sharing behavior*?

1.5 Research Objectives

To understand individual's motivation to share his knowledge from intrinsic and extrinsic motivational perspectives, the proposed framework will incorporate OCB and extrinsic rewards in Theory of Reasoned Action (TRA), which is a well known theory to understand human behavior. At the same time, the framework will also include demographic variables to understand differences in knowledge sharing behavior among individuals. Hence the objectives of the study are to:

Objective 1: Provide a framework, which will enable us to understand individual's motivation to share his knowledge from the perspective of both intrinsic and extrinsic forms of motivation.

To achieve the above objective, following two sub-objectives will be achieved.

Objective 1 (a): Identify whether *knowledge sharing attitude* leads to *knowledge sharing intention* and consequently to knowledge sharing behavior.

Although objective 1 (a), which is related to TRA, has been tested empirically in past research work (Andriessen, 2006; Yang and Farn, 2007; Samieh and Wahba, 2007; Irene *et al.,* 2009) however it is inevitable to measure these relationships as other variables in the framework will be effecting knowledge sharing intention, knowledge sharing behavior or relationship between them as well. Secondly, it will be necessary to analyze this relationship within the context of training institutes of an oil and gas company.

Objective 1 (b): Determine the effect of *extrinsic rewards and OCB,* as representative variables of extrinsic and intrinsic motivation, on individual's motivation to share his valuable knowledge.

Objective 2: Identify how individuals differ, based on their personality attributes, in their knowledge sharing behavior.

Objective 2 (a): Identify the effect of individual's *demographic variables* on his *knowledge sharing behavior* as a moderating variable.

1.6 Research Approach

Based on the literature survey, a framework of individual's knowledge sharing is proposed. Based on that framework, six major and total of nineteen hypotheses were formed. To test these hypotheses, personally administered questionnaire were used as a survey instrument.

The data was collected from three training institutes of PETRONAS and the respondents were the knowledge workers working as trainers and facilitators at these institutes. These institutes include *PETRONAS Management Training (PERMATA), Institute Technology PETRONAS (INSTEP),* and *Akademi Laut Malaysia (ALAM)*. The reasons behind choosing these training institutes are given in section 1.12.1. The whole population of trainers and facilitators working at these institutes was approached. After the data was gathered it was analyzed using regression analysis on SPSS 16.0 statistical tool. The proposed framework and the method to validate the framework are described in detail in chapter 3.

1.7 Contribution of the Research Work

By using TRA, the study proposes a framework of intrinsic and extrinsic motivators of individual's knowledge sharing by revisiting the effect of extrinsic rewards, OCB and demographic variables on knowledge sharing. Firstly, as mentioned earlier, there is lack of research work which attempts to understand individual's motivation to share his knowledge from both intrinsic and extrinsic motivational perspectives (Lin, 2007a). Hence this study expands the empirical understanding of the subject.

At the same time, the study also analyzes and revisits the relationship between variables for which there is either a research gap or lack of research work. These relationships include the relationship between extrinsic rewards and *knowledge sharing intention*, OCB and *knowledge sharing behavior* and the effect of demographic variables on knowledge sharing as a moderating variable.

Last but not the least, this is the first study, to the best of author's knowledge, which attempts to study individual's knowledge sharing motivators in the training institutes of an oil and gas company.

1.8 Scope of the Study

The scope of the study is limited to understand the motivators of knowledge sharing from intrinsic and extrinsic motivational perspectives. There are other factors which may hinder or flourish knowledge sharing, but they are out of the scope of this study.

Secondly, other components of TRA are also out of the scope of this study. The main concern of the study is to develop a framework and overcome the limitations of past studies regarding the impact of extrinsic rewards, OCB and demographic variables on knowledge sharing behavior.

Thirdly, the study has analyzed the difference between individuals, in manifesting their knowledge sharing intention into behavior, based on the demographic variables. The reason behind those differences is also not included in the scope of the study.

1.9 Limitation of the Study

The study has some limitations which will be discussed in this section. Firstly, the responses taken from the peers on OCB and knowledge sharing behavior may be biased but the approach adopted by the researcher was the best among available options.

Low response rate because of the time limitations, both from the respondent and researcher's side, can be considered as a limitation of this study.

The target respondents were trainers and facilitators of only PETRONAS training institutes. The results which have been sought from this study cannot be generalized and can differ in a different setting.

1.10 Target Respondents

As described earlier, the target respondents of the study are knowledge workers involved in training and facilitation in the training institutes of PETRONAS. PETRONAS is a government owned fully-integrated Oil and Gas Corporation in Malaysia. PETRONAS is operating in more than 32 countries worldwide and is ranked among global Fortune 500 companies.

PETRONAS has three training institutes namely, *PERMATA, INSTEP and ALAM*. A brief overview of these three training institutes is given in 1.12.

1.11 Training and Training Institutes

According to Salvi (2009):

> *"Training is an educational process. People can learn new information, re-learn and reinforce existing knowledge and skills, and most importantly have time to think and consider what new options can help them improve their effectiveness at work".*

Hence the objective of training is to improve the performance of trainees at their workplace (Cross, 1996). Training institutes provide the necessary skills and expertise to the people. The trainees can be employee of a company or also can be students learning a specific skill. The trainers are the people who train the trainees in a specific skill by conducting and supervising training programs (Susan, 2010).

1.12 PETRONAS Training Institutes

PETRONAS education division consists of six wholly owned subsidiaries including Educational Sponsorship Unit, Universiti Teknologi PETRONAS (UTP), PETRONAS Management Training (PERMATA), Institute Technology PETRONAS (INSTEP), Akademi Laut Malaysia (ALAM), PETROSAINS and PETRONAS Petroleum Resource Center (PRC). Among these education divisions, PERMATA, INSTEP and ALAM are training institutes. The reasons behind choosing these institutes are given in the forthcoming section, 1.12.1, of this chapter.

1.12.1 Why PETRONAS Training Institutes?

It is important to describe a number of reasons which lead to the choice of PETRONAS training institutes, which are as follows.

Firstly, PETRONAS is embarking upon KM initiatives. To make these initiatives successful, it is important to flourish knowledge sharing within the organization. PETRONAS acknowledges this fact and is keen to take up important steps.

Secondly, in KM literature, currently, there is lack of research work which attempts to study motivation factors of knowledge sharing in an oil and gas company as well as training institutes.

Thirdly, the reason behind choosing only training institutes within PETRONAS is to provide customized solution. Other institutes under the education division of PETRONAS, such as UTP, Educational Sponsorship Unit, PETROSAINS and PRC,

are not training institutes and hence do not come under the scope of this study. The work can be extended to other parts of the company in future work.

Another important reason to choose these institutes was the involvement of IT in these institutes especially as an enabler for knowledge sharing. This important aspect of PETRONAS training institutes, and its relevance with this research work, has been highlighted separately in section 1.13.

The forthcoming sub-sections, 1.12.2, 1.12.3 and 1.12.4, will provide the details of each training institute.

1.12.2 PERMATA

PETRONAS Management Training Sdn Bhd (PMTSB) is a wholly owned subsidiary of PETRONAS. PERMATA is one of the two training units under PMTSB. Over the years PERMATA has become the center of management training and development programs for PETRONAS employees. PERMATA management programs include Corporate Competencies Development Programs, Corporate Leadership Development Programs and Organizational Learning Program. PERMATA consists of more than 130 employees with 50 knowledge workers working as facilitators and trainers.

1.12.3 INSTEP

Institute Technology PETRONAS (INSTEP) is also a wholly owned subsidiary of PETRONAS. It is one of the two training units under PMTSB including PERMATA. Whereas PERMATA gives management training, INSTEP is a technical training unit. It has been an important source of providing technically skilled employees not only to PETRONAS Corporation but also to other large organizations working in the oil and gas sector in Malaysia. INSTEP has more than 200 employees, with about 100 training workers and facilitators.

1.12.4 ALAM

The Maritime Academy Malaysia, ALAM (Akademi Laut Malaysia) is Malaysia's premier maritime training and education institute, in which almost all the courses related to maritime are taught. The training and education provided in ALAM includes areas such as Pre-Sea, Nautical Studies, Marine Engineering and Technology, Marine Safety and Operations, Marine Electronics and Communications, Shipping Business, management, technical and support services. The institute also has strong ties with many overseas institutes in countries like Canada, US and Europe. There are 36 trainers and facilitators in ALAM.

All the above information regarding PETRONAS and its training institutes including PERMATA, INSTEP and ALAM has been retrieved from PETRONAS official web site (PETRONAS, 2010).

1.13 PETRONAS Training Institutes and IT

One of the major reasons to choose PETRONAS training institutes as a case was the usage of IT in these institutes especially as an enabler of knowledge sharing. It is important to highlight this aspect to link the research work with IT. The involvement of IT in these institutes can be seen from three perspectives, which are:

- The usage of IT tools as knowledge sharing enabler
- IT training provided by the trainers
- The IT knowledge sharing by the trainers

Because of the greater emphasis of PETRONAS on KM in recent years, there is IT infrastructure in these training institutes, which acts as enabler of knowledge sharing within the organization. Example of such IT infrastructure can be PETRONAS e-Learning, which *"leverages on the latest information and communication technology (ICT) to provide online training and development programs for its employees"* (PETRONAS, 2010). These institutes are also using a PETRONAS wide centralized IT system named AXIS to aid knowledge sharing within the organizations. In one of the training institutes, there is a dedicated person,

who promotes the usage of AXIS. Apart from AXIS and e-learning, there are other IT systems, such as Edushare, Learning Aids Database (LAD), Learning Management System (LMS) and PRESERVED, which enable knowledge sharing within these training institutes. One of the institutes is also developing a knowledge portal for teaching and learning knowledge using an open source concept-mapping program called CmapTools.

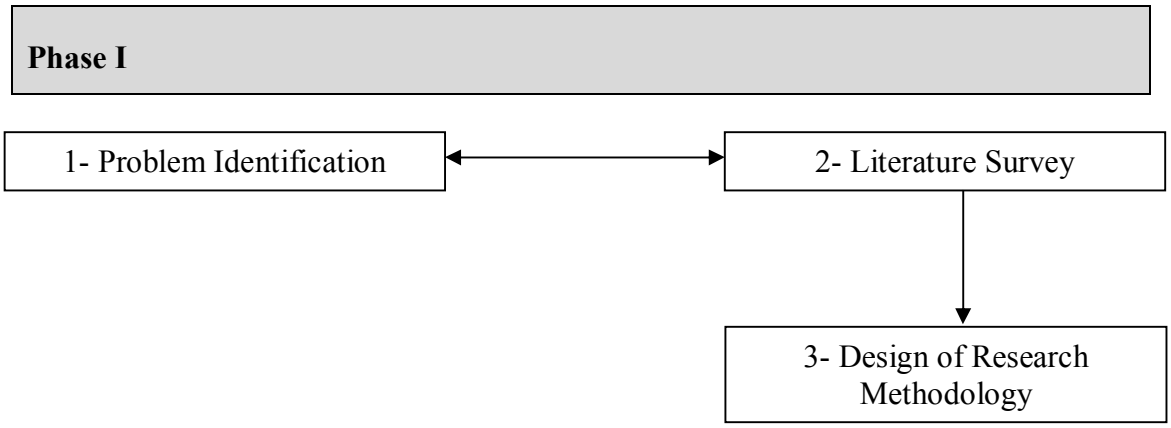
Secondly, apart from management and technical training, the trainers at these institutes also provide some IT training. The example of such training is Microsoft software training.

Thirdly, the trainers also share IT knowledge with their colleagues. This knowledge primarily includes their knowledge on the usage of the IT tools, such as AXIS, LAD and Edushare.

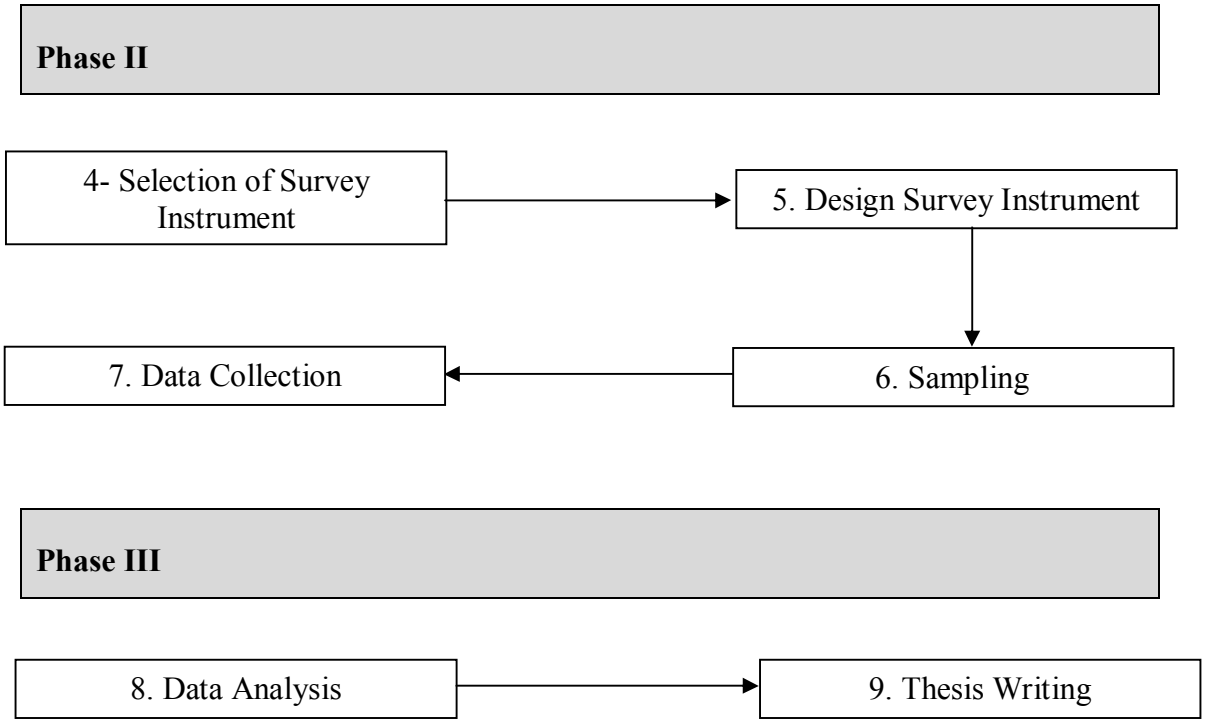
The preceding paragraphs show that the trainers and facilitators at the training institutes of PETRONAS, use IT infrastructure in the form of knowledge sharing tools, provide IT training and share their IT related knowledge with each other. In this study, the first (using IT tools to share knowledge) and the third factors (sharing IT related knowledge) have been measured to understand knowledge sharing behavior of the trainers. This makes the study relevant to IT and the practitioners in IT industry, especially organizations providing IT training can benefit from the study and flourish knowledge sharing among IT trainers.

1.14 Overall Research Plan

The research has been completed in four semesters. Following is the overall flow of how the research was conducted. In the first phase the problem was identified and a thorough literature survey was done to understand the available research work on the problem. At the same time, the whole research methodology was designed to achieve the desired objectives and solve the problem.



In the second phase, the steps were taken to validate the proposed solution to the problem by selecting and designing the survey instrument, sampling and finally data gathering. In the third phase, the collected data was analyzed and the results and the whole research process were reported in the form of a thesis.



1.15 Thesis Formation

Chapter 1: The first chapter of the thesis provides an overview of the whole research. It includes the background, problem area, objectives and research question. At the same time a brief introduction of the methodology has also been provided.

Chapter 2: This part of the thesis, which is literature review, consists of describing different components and their relationships with each other in the light of past work. It includes a comprehensive analysis of the literature on knowledge sharing, Theory of Reasoned Action (TRA), Organization Citizenship Behavior (OCB), extrinsic rewards and demographic variables.

Chapter 3: The third chapter of the thesis presents the research methodology that has been adopted in the study. It provides the conceptual model, the derivation of the model as well as the hypotheses that has been derived from the framework. The chapter also provides the steps involved in the validation of the framework such as time horizon, population and respondents, sampling, instrumentation, structure of the questionnaire, reliability and scaling and the description of questions.

Chapter 4: Chapter four presents the finding of the study as well as the consequent analysis on the results. The results of all the twenty hypotheses have been presented separately with the consequent analysis of the findings.

Chapter 5: This part of the thesis discusses the results which were presented in chapter four. At the same time it provides the compliance and contrast of results with previous studies as well as rationale behind the results.

Chapter 6: The last chapter of the thesis provides the reader with the conclusion of the study. It includes the objectives which have been achieved from the study, contribution, limitations, recommendations and future work.

1.16 Summary

This chapter presented the overview of the whole research. The chapter started with the introduction and the background of the study. The chapter then presented the problem area and statement following by the objectives which will be achieved to overcome the limitations of previous works. The chapter also briefly highlighted the research methodology, contribution, scope and limitation of the study. A brief introduction of PETRONAS and the training institutes has been given in the chapter. At the end, overall formation of the thesis and the whole research plan was presented.

The forthcoming chapter will present the literature survey describing different components and their relationships with each other in the light of past works. It includes a comprehensive analysis of the literature on knowledge sharing, Theory of Reasoned Action (TRA), Organization Citizenship Behavior (OCB), extrinsic rewards and demographic variables.

CHAPTER 2

LITERATURE REVIEW

2.1 Overview

The previous chapter presented an overview of the whole research. This chapter will analyze the major components of this research in the light of literature. Several important components will be discussed including knowledge sharing, importance of knowledge sharing for organizations, TRA and its significance to understand human behavior including knowledge sharing behavior, rewards and their effect on knowledge sharing, OCB and its effect on knowledge sharing, and demographic variables and their relation with knowledge sharing behavior.

2.2 Knowledge Management (KM)

In 21st century's *Knowledge Economy,* knowledge has become the basis of competitive advantage for firms (Nonaka, 1991; Davis and Botkin, 1994). Hence to remain competitive in this economy, businesses need to develop strategies to manage and retain this knowledge as effectively and as efficiently as possible. This need of businesses has led to the emergence of KM. From the competitive advantage perspective, KM can be defined by Chong and Choi (2007) as:

> *"systematic management of organization knowledge which involves the process of creating, gathering, organizing, storing, defusing, use and exploitation of knowledge for creating business value and generating competitive advantage"*

The cornerstone of KM is the knowledge, which resides and is generated primarily within individual's brain (Nonaka and Takeuchi, 1995; Bock *et al.,* 2005). However, organizations are under constant threat to lose this valuable knowledge as employees tend to switch jobs quite frequently, resulting in *knowledge drain* (Ling *et al.,* 2008). To retain this valuable knowledge, organizations dip into it and expand their collective knowledge base, known as organizational knowledge (Hatch, 2009). This organizational knowledge, by all means, can be considered as strategic asset, which will, ultimately, enable organizations to become learned and *"preserve and expand their core competencies"* (Audrey and Robert, 2001). Hence, to achieve the title of a learning organization, organizations need to know what their employees know (Rainer, 2003) and knowledge must be transformed from the individual to the organization level (Kucza, 2001). This is important because the individual knowledge has lesser value for organizations until the individuals open their minds to share it with others (Chow *et al.,* 2000).

Many important aspects of KM process have been proposed by researchers to manage the knowledge effectively (Nonaka, 1994; Gold *et al.,* 2001; Alavi and Leidner, 2001; Bloodgood and Salisbury, 2001). However, before any knowledge is managed, it is important for organizations to continuously create and accumulate knowledge for a sustainable competitive advantage (Lee and Choi, 2003; Lee *et al.,* 2006). Therefore knowledge creation is one of the most important processes for the success of organizations (Lee and Choi, 2003). The knowledge creation model of Nonaka (1994) is one of the important models to understand knowledge creation in the organization. There are four modes of knowledge creation described by Nonaka (1994). They are *socialization*, *externalization*, *combination* and *internalization*. Socialization is when individuals share tacit knowledge with each other (Alavi and Leidner, 2001). This tacit knowledge is then transformed into explicit knowledge by codification through the process of *externalization* (Nonaka, 1994; Alavi and Leidner, 2001), which is then justified by combining it with existing knowledge through the process of *combination*. At the end, the newly created explicit knowledge is converted into tacit knowledge through the process of internalization. It is evident that without individuals sharing their knowledge, this whole process of knowledge creation is

impossible. Hence we can say that knowledge creation is done through explicit and implicit knowledge sharing (Becerra and Sabherwal, 2001).

The preceding paragraph leads us to one of the most important and widely discussed activities of KM (Ford, 2001) and the main concern of this study which is knowledge sharing. The forthcoming section 2.3 will discuss knowledge sharing, its impact on organizational performance and the prevailing dilemma with it.

2.3 Knowledge Sharing

As described in section 2.2, transferring knowledge from the individual to the organization level is the key to the success of KM efforts. It increases the individual and organizational learning which will result in innovation and effectiveness of the firm (Ling *et al.*, 2008). This accumulation of knowledge at organization level is achieved through *knowledge sharing* (Audrey and Robert, 2001).

Knowledge sharing can be defined as sharing of important knowledge and experience between organization members (Chieh, 2007). It is one of the most important processes of KM (Gupta, 2001). According to Gupta (2008), successful implementation of KM efforts can be measured in the organization by assessing the freedom of knowledge flow within organization and this freedom of knowledge can be denoted as knowledge sharing.

There are basically two kinds of knowledge described by many researchers as tacit and explicit knowledge. Explicit knowledge can be defined as "*knowledge that can be formally and systematically stored, articulated, and disseminated in certain codified forms, such as manual or computer files"* (Becerra and Sabherwal, 2001). On the other hand, tacit knowledge is *"deeply rooted in action, experience, thought, and involvement in a particular context"* (Alavi and Leidner, 2001). Tacit knowledge is not easy to be codified or stored and is also difficult to transmit or shared with others (Berman *et al.,* 2002; Ling *et al.,* 2008), hence individual is a sole source of this kind of knowledge. Tacit knowledge can be regarded as skill (Berman *et al.,* 2002) or practical know-how (Koskinen *et al.,* 2003).

Knowledge sharing, especially tacit knowledge sharing is one of the greatest issues and challenge for the success of KM in any organization (Yang and Farn, 2007). In this study the term *knowledge sharing* will be used for both tacit and explicit knowledge sharing whereas the distinction will be made where necessary. The forthcoming section, 2.3.1, will describe the impact of knowledge sharing on a firm's performance.

2.3.1 Knowledge Sharing and Firm's Performance

Knowledge sharing, in the form of exchange of ideas, skills, opinions and information, enhances the performance of the organization (Liebowitz, 2001; Liao *et al.,* 2004). Majority of the researchers and practitioners consider knowledge sharing as positively related with the performance of the firm as it increases organization's resources and reduces the time wasted in trial and error (Chieh, 2007). A knowledge sharing culture helps to save time in looking for relevant knowledge in the organization. For example if a designated employee, in a law firm, is working to read the newsletters and pass the information to relevant lawyers, it will save them the time to look the information into the newsletter themselves (Forstenlechner *et al.,* 2007).

Knowledge sharing accelerates individual and organization learning and innovation (Riege, 2005), resulting in increased performance. At the same time it also increases the effectiveness of the firm (Ling *et al.,* 2008). Apart from effectiveness, knowledge sharing also increases the efficiency of the firm. According to Davenport and Probst (2001), efficiency is the major advantage of knowledge sharing because the initial value of knowledge increases by sharing and applying it within the same organization. According to Harold (2008), a ubiquitously shared knowledge which is also timely available improves organization's strategic decision making. A study by Lin (2007b) shows that a firm's innovation capability increases with employees' willingness to both donate and collect knowledge. Several models have also been proposed to link KM with organization's performance (Edvinsson, 1997; Marr *et al.,* 2004; Lin, 2007*b*; Harold, 2008). The true value of knowledge can only be realized through its utilization (Fahey and Prusak, 1998). However, achieving the goal of knowledge utilization through knowledge sharing is a challenging task (Alavi, 2000).

The problem with the firms competing on the basis of knowledge is that they can only compete on this knowledge once it is out of individual's mind (Ling *et al.,* 2008). Over the period of time, this has been a challenge for many organizations. Although much work has been done on knowledge sharing theories, enablers, individual and organizational factors, but still this area of KM calls for more literary work (Ling *et al.,* 2008).

2.3.2 Knowledge Sharing Dilemma

"Knowledge - a source of power and competitive advantage for individuals"

In order to foster knowledge sharing, the first and foremost challenge to organizations is to change employee's mindset towards knowledge sharing as hoarding of knowledge has been a rewarded practice in the past (Patricia, 2007). Generally, knowledge is considered as power and competitive advantage by individuals. Therefore employees hesitate to share their knowledge as they will lose power and competitive advantage over others. But now organizations are encouraging and rewarding employees to share this power with their *"competitors"* (French and Raven, 1969; Patricia, 2007; Jianping Zhuge, 2008). According to Knights' *et al*. (1993), knowledge sharing, which is a voluntary behavior, can bring up issues like loosing of power and politics detrimental to one's position in the organization. This dilemma shows that managers have not been able to make knowledge sharing a norm and an intrinsically motivated behavior. In intrinsically motivated behavior, there is no reward except the task itself (Deci, 1971).

Even when the organizations are putting their best efforts to inculcate knowledge sharing in the organization (Szulanski, 1996), employees often tend to hesitate to share knowledge (Davenport, 1994). Studies have shown that many factors affect knowledge sharing including individual, organizational and technology factors (Connelly and Keloway, 2003; Lee and Choi, 2003; Taylor and Wright, 2004). Individual factors such as individual's belief, motivation, experience and values (Lin, 2007 b), organizational factors such as organizational culture, organization climate, KM system, open leadership climate, reward system and top management support (Saleh and Wang, 1993; Davenport and Prusak, 1998; De Long and Fahey, 2000;

MacNeil, 2003; Taylor and Wright, 2004; MacNeil, 2004; Ling *et al.,* 2008) and technology factors such as ICT usage (Song, 2002; Koh and Kim, 2004). However, why individuals decide to share their valuable knowledge is still a question mark (Ling *et al.,* 2008).

Researchers and practitioners are keen to understand the motivation behind knowledge sharing (Bartol and Srivastava, 2002) because among other benefits knowledge sharing influences the culture positively as people start having better relationships when they share their knowledge, ask for advices or informally talk to their colleagues (Forstenlechner *et al.,* 2007). Consequently, this makes them share knowledge with their friends rather than hoard the knowledge from their *"competitors"*.

As discussed in preceding paragraphs, there are many factors which affect knowledge sharing, which suggests that, it is not always a voluntary behavior. To understand knowledge sharing behavior, this study has adopted the Theory of Reasoned Action (TRA), which is a well known and established social science theory to understand human behavior (Ajzen and Fishbein, 1980). The forthcoming section 2.4 will analyze TRA and its significance to understand knowledge sharing behavior.

2.4 Theory of Reasoned Action (TRA)

Humans take decisions by using the information they have in a systematic way (Ajzen and Fishbein, 1980). This is the dominant notion of one of the premier theories to understand human behavior, known as the Theory of Reasoned Action (Fishbein and Ajzen 1975; Ajzen and Fishbein 1980). TRA is the basis of our study which was proposed by Ajzen and Fishbein in early 70's. By the year 1980 the theory was already in use to understand human behavior. In late 80s, the authors revised the theory and came up with an upgraded version of TRA named Theory of Planned Behavior (TPB) (Ajzen, 1991). Before Ajzen and Fishbein proposed TRA, several researchers tried to understand human behavior and its predictors, but none were able to address the issue adequately. TRA proposes that a person's behavior is a manifestation of his intention towards performing that behavior and this behavioral

intention is determined by his attitude and subjective norms. TRA is illustrated in figure 2.1.

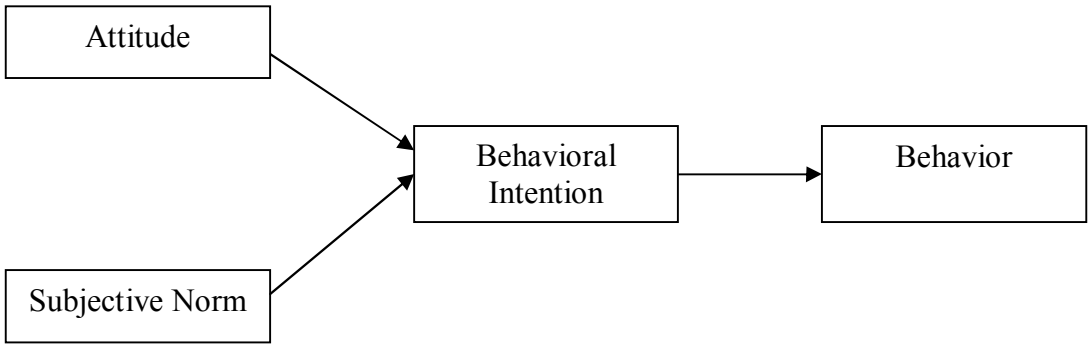


Figure 2.1: Theory of Reasoned Action Model

2.4.1 Application of Theory of Reasoned Action (TRA)

TRA is a well established and accepted model to study human behavior (Ajzen and Fishbein, 1980) and has been tested extensively in several different areas of research. Table 2.1 shows some of the examples where this theory has been used and tested.

Table 2.1: Application of TRA in various disciplines

Research Area	**References**
Medical Science	"Body image and pregnancy – application of TRA" (Robertson and Tanya, 2005)
Hospitality	"Hotel marketing strategy and the theory of reasoned action" (Buttle and Bok, 1996)
Psychology	"Applying the theory of reasoned action to the analysis of an individual's polychronicity" (Slocombe, 1999)
Marketing	"Reasoned action theory: an application to alcohol-free beer" (Nicholas and Keith, 1996)
Islamic Finance	"Predicting intention to choose halal products using theory of reasoned action" (Lada *et al.,* 2009)
Commerce and Banking	"The use of a decomposed theory of planned behavior to study Internet banking in Taiwan", (Shih and Fang, 2004)

TRA has also been used extensively in KM literature to analyze individual's knowledge sharing behavior. Hence, it can be a powerful base to study knowledge sharing behavior (Bock *et al.,* 2005). Table 2.2 depicts the use of TRA by several researchers to analyze knowledge sharing behavior.

Table 2.2: Application of TRA in KM Literature

Author	**Summary of research work**
Bock *et al*. (2005)	Using TRA, the study analyze the impact of socio-psychological factors, organizational climate factors and extrinsic motivators on knowledge sharing intention
Andriessen (2006)	Using several social science theories including TRA, the study proposes a theoretical motivational model *"that identifies the interaction of several psychological and organizational processes"*
Yang and Farn (2007)	Using TRA, *"the perspectives of social capital and behavioral control are employed in this study to investigate an individual's tacit knowledge sharing and behavior within a workgroup."*
Samieh and Wahba (2007)	Using social science theories, including TRA and the game theory, the study analyzes the socio-psychological drivers of individual's knowledge sharing behavior.
Irene *et al.* (2009)	Using the upgrade version of TRA, which is Theory of Planned Behavior (TPB), this study analyzes the effect of *"social network ties, learners' attitude toward knowledge sharing, learners' beliefs of their capabilities in performing online knowledge sharing and subjective norms on knowledge sharing intention, which leads to actual behavior in a virtual learning environment".*

Knowledge sharing literature has vastly used TRA (Bock *et al.*, 2005; Andriessen, 2006; Yang and Farn, 2007; Samieh and Wahba, 2007; Irene *et al.,* 2009) and the economic exchange theory (Williamson, 1985; Bock and Kim, 2002) as determinants of knowledge sharing (Chung, 2008). The preceding discussion on the use of TRA to

understand human behavior, including knowledge sharing behavior, explains the significance of TRA to understand knowledge sharing behavior.

2.4.2 Key components of TRA

The components of TRA which are the focus of this research are defined in Table 2.3. TRA has been illustrated in Figure 2.1. These definitions are taken from the literature and Ajzen's website as well.

Table 2.3: Definition of TRA Components

TRA Component	Definition
(1) Knowledge Sharing Attitude	How much positively or negatively a person values sharing his/her knowledge. How much a person thinks he SHOULD share his knowledge? (Robinson and Shaver, 1973; Fishbein and Ajzen, 1975; 1980; Price and Mueller, 1986)
(2) Knowledge Sharing Intention	The readiness of a person to share his/her knowledge in near future. How much a person INTENDS to share his knowledge in near future? (Fishbein and Ajzen,1980; Feldman and March, 1981; Constant *et al.,*1994; Dennis, 1996)
(3) Knowledge Sharing Behavior	Actual knowledge sharing of a person. (Manis and Meltzer, 1978; Davis *et al.,* 1989; Heide & Miner, 1992; Fisher *et al.,* 1997)

Apart from TRA, Economic Exchange Theory also helps to understand human behavior. The forthcoming section 2.5 will briefly describe Economic Exchange Theory and its significance to understand knowledge sharing behavior and its predictors.

2.5 Economic Exchange Theory

Economic Exchange Theory argues that individuals follow a certain behavior if the benefits of performing that behavior are more than the cost (Samieh and Wahba, 2007). Economic exchange theory is a part of Social Exchange Theory. Homans (1958), who was the initiator of the theory, describes it as follows:

> *"Social behavior is an exchange of goods, material goods but also non-material ones, such as the symbols of approval or prestige. Persons that give much to others try to get much from them, and persons that get much from others are under pressure to give much to them. This process of influence tends to work out at equilibrium to a balance in the exchanges. For a person in an exchange, what he gives may be a cost to him, just as what he gets may be a reward, and his behavior changes less as the difference of the two, profit, tends to a maximum"*

According to Cabrera and Cabrera (2002), managers need to either increase the benefits of sharing knowledge or reduce the costs associated with it to flourish knowledge sharing within the organization. Wiig (2000) also posits the need of restructuring the reward structures, organizational forms and management attitudes to change the mindset of individuals as volunteers. In the context of Economic Exchange Theory, extrinsic rewards can be considered as economic benefits individuals receive from performing the knowledge sharing behavior. Hence, at this level, it seems very important for the companies to study the effect of extrinsic rewards on knowledge sharing behavior. Successful implementation of a proper reward system can ultimately make knowledge sharing part of company norms and values. The upcoming section 2.6 will examine, through the literature, the role of extrinsic motivation, especially extrinsic rewards, to encourage individuals for knowledge sharing.

2.6 Extrinsic Motivation

When an individual is moved and determined to do something, we say that he is motivated to perform that certain task (Ryan and Deci, 2000b). Motivation is generally divided into extrinsic and intrinsic forms of motivation (Ryan and Deci, 2000b; Sansone and Harackiewicz, 2000; Saade *et al.,* 2009). The forthcoming paragraphs will discuss extrinsic motivation and within extrinsic motivation the effect of extrinsic rewards on individual's general as well as knowledge sharing behavior will be analyzed.

Extrinsic motivation is a powerful driver of human behavior (Bateman and Crant, 2002). According to Ryan and Deci (2000b):

> *"Extrinsic motivation is a construct that pertains whenever an activity is done in order to attain some separable outcome. Extrinsic motivation thus contrasts with intrinsic motivation, which refers to doing an activity simply for the enjoyment of the activity itself, rather than its instrumental value"*

As described earlier, any motivation which comes from outside the work itself, or the person, can be considered as extrinsic motivation (Bateman and Crant, 2002). Hence we can regard extrinsic rewards as a form of extrinsic motivation. The forthcoming section 2.7 will discuss extrinsic rewards in detail.

2.7 Extrinsic Rewards

Organizational rewards dwell under extrinsic motivation (Wilson, 2006). Generally, rewards can be defined as anything that increases the frequency of a behavior (Skinner, 1969). They have been classified in different ways, individual versus system, monetary versus non-monetary, individual versus Group, extrinsic versus intrinsic and fixed versus variable rewards (Gerhart and Milkovich, 1993). There exist two types of rewards, namely extrinsic rewards (i.e. monetary, praise, recognition) and intrinsic rewards (i.e. satisfaction). Intrinsic rewards are the rewards which come from doing the task itself (Ryan and Deci, 2000a). APQC (1999) has

denoted tangible incentives as rewards whereas intangible or less tangible incentives as recognition. Hall (2001a, b) denoted tangible and intangible rewards as *soft* and *hard* incentives respectively. The focus of this research is on the effect of extrinsic and intrinsic motivators on knowledge sharing. This section will discuss extrinsic rewards which come under extrinsic motivation whereas the term extrinsic rewards will be used for both tangible and intangible rewards.

Extrinsic rewards can be divided into *tangible extrinsic rewards*, such as cash rewards and gain sharing / profit sharing, and *intangible extrinsic rewards* which are the public acknowledgement of successes and non-monetary rewards such as praising and awards (Stephen, 1995). These intangible extrinsic rewards can also be called recognition. The reward taxonomy proposed by (Chao *et al.,* 1999) suggests monetary and non monetary (recognition) rewards as extrinsic rewards. At the same time *American Compensation Association* has also divided rewards into extrinsic and intrinsic rewards and has put recognition as part of extrinsic rewards (Monica *et al.,* 2004). These extrinsic rewards can be given to individuals as well as to groups for individual and group performance respectively. The dimensions of extrinsic rewards which will be tested are tangible extrinsic rewards, intangible extrinsic rewards, individual rewards and group rewards. The effect of extrinsic rewards on individual's behavior will be analyzed in more detail in forthcoming section 2.7.1.

2.7.1 Extrinsic Rewards and Individuals General Behavior

There has been a majority consensus over the notion that rewards and recognition motivate and satisfy employees (Chao *et al.,* 2009). Individuals enjoy activities and tasks when they can see rewards on successful completion of a task or activity (Cameron and Pierce, 2000). One of the important goal of motivating and satisfying people through rewards is giving direction and purpose to what they do (Chao *et al.,* 1999; Lachance, 2000).

Different kinds of rewards have different level of impact on individual's behavior, at the same time rewards come with some inbuilt *"side effects"* as well (Chao *et al.,* 1999). Many researchers believe that extrinsic rewards can have a negative impact on

individual's intrinsic motivation (Deci, 1972; Deci and Ryan, 1985). In contrast, intrinsic rewards may not harm but they offer fewer benefits, which suggests that different rewards can have a positive as well as negative impact on individual's behavior (Chao *et al.,* 1999).

In response to Deci's laboratory results, that extrinsic rewards harm intrinsic motivation, Eisenberger and Cameron (1996), in an applied study, has shown that there is a positive relationship between extrinsic rewards and intrinsic motivation. Many researchers believe that the real concern lies in issues such as how the rewards have been given, whether they are given fairly and whether they are given spontaneously (Porter and Lawler, 1968; Lawler, 1971; Guzzo, 1979). So we can assume that the studies which have shown a negative impact of extrinsic rewards on knowledge sharing might have overlooked the above mentioned reason.

At the same time, extrinsic rewards may not directly impact individual's behavior, but may have an indirect impact. Deci *et al.* (1999) showed a positive relationship between extrinsic rewards and employee's self determination, which in turn has a positive influence on intrinsic motivation. Still researchers like Eisenberger *et al.* (1999) do not agree with the notion and strongly proposes further in-depth study of the matter. The study conducted by Bateman and Crant (2002) also rejects this claim and concludes that, till now, this controversy has not been solved and researchers have not been able to agree on common grounds.

Cameron and Pierce (2000) showed that intangible extrinsic rewards, such as praising people for their good work, increase their interest in the work and ultimately increase the performance. On the other hand, tangible rewards are effective if they are given for completing a task or meeting or exceeding performance standards. The difference between these two types of extrinsic rewards is in the kind of effect they put on the behavior. Tangible rewards (i.e. monetary rewards) are valued because of the monetary or material value attached with them whereas the non-monetary rewards (i.e. recognition) is valued because of its *"symbolic and socioemotional"* impact (Foa and Foa, 1980; Chen, 1995)

According to Cameron and Pierce (2000), rewards in general are helpful when they are dependent on quality or performance or meeting performance standards and

on successfully doing challenging activities, when they are given for mastering each component of a complex skill and for high effort and activity.

Similar to the effect of extrinsic rewards on individual's general behavior, extrinsic rewards also have an effect on his knowledge sharing behavior. Forthcoming section 2.7.2 will discuss this important relationship.

2.7.2 Extrinsic Rewards and Knowledge Sharing Behavior

As mentioned earlier, knowledge sharing has not become an intrinsically motivated behavior at large. In an intrinsically motivated behavior, the individual is motivated without any extrinsic reward and he expects no reward except in doing the task itself (Deci, 1971). Davenport (1998) has denoted knowledge sharing as *"unnatural"*, hence knowledge hoarding can be considered as intrinsic in human nature at large (Bock and Kim, 2002). Gibbert and Krause (2002) have concluded that, as with all voluntary behaviors, organizations can only encourage or facilitate knowledge sharing and it cannot be forced. Hence we can assume that knowledge sharing is yet an extrinsically motivated behavior where the activity of knowledge sharing is rewarded from outside, meaning that the individual does not feel rewarded only by sharing his knowledge. In succeeding paragraphs, we will analyze various research works on the effect of extrinsic rewards on knowledge sharing.

Researchers generally believe that rewards encourage knowledge sharing (Bock and Kim, 2002; Argote *et al.,* 2003; Zárraga and Bonache, 2003; Burgess, 2005; Cabrera *et al.,* 2006). Some even went to the extent in suggesting that rewards are *inevitable* to encourage individuals to share their knowledge (Kelloway and Barling, 1999). In the existing literature of knowledge sharing, there are extremely few and isolated studies which have contrasting results than the above mentioned consensus of scholars on the positive effect of extrinsic rewards on knowledge sharing. For example, the study conducted by Bock *et al.* (2005) concluded that there is negative relationship between anticipated extrinsic rewards and knowledge sharing. Similarly, the study of Bi-Fen *et al.* (2007) proved that there is no relationship of rewards with knowledge sharing. However, as mentioned earlier, these studies are very few,

isolated and insignificant as compared to the majority consensus of scholars on the positive effect of rewards on knowledge sharing. In the forthcoming paragraphs, it will be shown that how majority of scholars have concluded the positive effect of rewards on knowledge sharing.

Reward and recognition are one of the strongest predictors of knowledge sharing behavior (Wah *et al.,* 2005). One of the distinctive observations, in a study by Gupta (2008), was rewarding knowledge sharing. This same finding has also been supported by researches in communication, concluding the positive relationship of rewards with knowledge sharing (O'Rally and Pondy, 1980). Out of the three knowledge sharing strategies proposed by Puccinelli (1998), one is to *"use incentives/rewards to increase the willingness of employees to share their knowledge"*. Garvin (1993) also proposes the use of a proper reward system to foster knowledge sharing in the organization. It has also been argued that rewards are helpful for most of the mechanism of knowledge sharing such as knowledge sharing in a database (Bartol and Srivastava, 2002). Thus, many researchers have been proposing reward and recognition schemes to encourage employees to share their valuable knowledge.

Researchers believe that knowledge sharing is likely to flourish when the benefits associated with it will outweigh the cost (Kelly and Thibaut, 1978). Several costs are associated with knowledge sharing, such as time to share knowledge, loss of power, loss of unique value and the threat of bad reputation in case of wrong knowledge shared. These costs make people hoard rather than share their valuable knowledge. Hence Cabrera and Cabrera (2002) suggest that incentives to share knowledge can foster knowledge sharing as giving rewards will increase individuals' benefits and they will feel beneficial to give away their knowledge. Bartol and Srivastava (2002) supported the above argument by arguing that the person who is sharing his knowledge will be motivated if he thinks that he will be beneficial, intrinsically or extrinsically, after sharing his valuable knowledge. They further added that individuals need to know the benefits they can get for their knowledge sharing behavior and organizations need to know how they can use rewards to increase the benefits for individuals. According to Patricia (2007), rewards and recognition schemes are implemented as a last hope to bring about the change in individual's

mindset who perceives knowledge as a power or competitive advantage over his colleagues.

At the same time studies like Szulanski (1996) and KPMG (2000) argued that the reason behind knowledge hoarding by the knowledge source is his perception that he will not get reward or personal benefits in this process and hence he shows reluctance to share his valuable knowledge. *"Lack of transparent reward and recognition system"* is considered as one of the organizational barrier by a study conducted by Riege (2005) on knowledge sharing barriers. Similarly, there are others who believe that lack of proper extrinsic or intrinsic rewards can be a barrier to embed knowledge sharing in organization culture (Constant *et al.,* 1994; Huber, 2001). A more recent empirical study conducted in Malaysia in academic institutions showed that lack of rewards and recognition was highly regarded as one of the barriers to knowledge sharing by academic employees (Kamal *et al.,* 2007). At the same time the results of the study showed that linking rewards and performance appraisals with knowledge sharing can be a better strategy to promote knowledge sharing in organizations. Osterloh and Frey (2000) have also regarded lack of reward mechanism as one of the source of reluctance of knowledge source to share his valuable knowledge.

Apart from the direct impact of extrinsic rewards on knowledge sharing, an indirect benefit of extrinsic rewards is that if the incentives or rewards associated with a task are increased, the cooperation among employees will also increase (Cabrera and Cabrera, 2002)**,** which is the essence of knowledge sharing. Bartol and Srivastava (2002) argue that by fostering trust between the employer and the employee, extrinsic reward can indirectly foster knowledge sharing. Wright (2004) proposed that rewards should not only be given to encourage knowledge sharing but also for sharing of vision, goals and tasks. By giving rewards or recognition to its employees, organizations send a message to its employees that knowledge sharing is important and valued, hence managers need to use rewards and recognition programs until they are able to embed knowledge sharing as a behavior that should be part of norms and values of organization (Patricia, 2007). In the forthcoming paragraph it will be shown how the extrinsic rewards have been used successfully in several large organizations to foster knowledge sharing.

In practice, companies like *Siemens* and *Samsung* have successfully used extrinsic rewards to flourish knowledge sharing in their organizations (Ewing and Keenan, 2001; Hyoung and Moon, 2002). Davenport (2002) pointed out companies, such as *Buckman Laboratories* and *Lotus Development*, which are using rewards to foster knowledge sharing in their organization cultures. Bock *et al.* (2005) conducted interviews from several Korean companies in which extrinsic rewards are mentioned as one of the motivational techniques to foster knowledge sharing. Apart from the above mentioned examples there are many other examples where extrinsic rewards have been used to motivate employees to share their valuable knowledge. These examples include *Siemens ICN ShareNet initiative* which was later replaced by '*expert or master status'* recognition, *Hewlett-Packard* Consulting's '*Knowledge Master Awards'*, *Scott Paper's* financial incentives and *IBM's 'splitting bonus'* (Andriessen, 2006).

Other issues pertaining to the effect of rewards on knowledge sharing behavior is that what kind of rewards (individual versus group or tangible versus intangible) is suitable to encourage individuals to share their knowledge. As far as the debate between individual and group rewards is concerned, many researchers propose group rewards for knowledge sharing as group rewards foster coordination and cooperation among employees (DeMattio *et al.,* 1998; Dulebohn and Martocchio, 1998), which consequently help to foster knowledge sharing (Patricia, 2007). This cooperation can be because of the interdependence of tasks, which is one of the reasons group rewards have got acceptance at a larger level (Johnson, 1993). Group rewards also motivate larger units of the organization members for collective efforts (Shamir, 1990). At the same time, as group rewards are usually contingent upon group performance, individuals will consider their knowledge sharing as the driver of their group performance and will contribute more knowledge to make their group successful and hence will secure their *"chunk"* of the group reward. Therefore group based rewards for knowledge sharing (or any antecedent of knowledge sharing such as cooperation) have been considered helpful in fostering knowledge sharing, and employees will hoard knowledge if they will be evaluated on individual performance, as their *"weapon"* of the competition will be on knowledge (Connelly, 2000; Bartol and Srivastava, 2002). But as Chao *et al.* (1999) rightly argued that rewards come with

some inbuilt *"side effects"*, one of the major shortcoming of group rewards is that individual efforts cannot be seen separately (Patricia, 2007). At the same time competition resulting in knowledge hoarding can flourish between groups (Lawler and Cohen, 1992). Individual rewards can also encourage individuals to share their knowledge, provided the manager could measure the contribution made by the individual (Bartol and Srivastava, 2002).

As described earlier, different kinds of rewards have different level of impact on individual's behavior, hence it is important to understand the impact of tangible and intangible extrinsic rewards on knowledge sharing. Many researchers and research firms like McLure *et al.* (2000), Kugel and Schostek (2004) and APQC (1999), believe that tangible or hard rewards are detrimental for knowledge sharing. The reasons given by these researchers are that firstly, the impact of these rewards is temporary and as soon as these rewards are taken away, individuals go back to their old behavior. Secondly, many individuals do not prefer these rewards and thirdly, they can foster and *"stimulate"* undesired behavior such as sharing low quality knowledge or only sharing just one part of knowledge so that to earn more incentives next time.

On the other hand, there are examples of the companies, some of which are given above, which have already used hard rewards successfully, hence we can say that, in practice, every company has its own culture and strategy and no one set of rewards can fit every company and situation (Andriessen, 2006). According to Andriessen (2006) *"each culture asks for another way of stimulating and motivating"*. Hard or tangible rewards are also effective for boosting a new project start (Hall, 2001b). At the same time, there are problems with intangible rewards as well, such as they are not easy to implement (Andriessen, 2006).

The discussion of rewards is related with the theories of motivation. Motivation defines the factors affecting human intention and consequently the forces that compel individuals to perform a certain behavior. These forces can be intrinsic as well as extrinsic (Pinder, 1998; Andriessen, 2006). The *Multifactor Interaction Knowledge Sharing model (MIKS model)* proposed by Andriessen (2006) correlates incentives

including extrinsic rewards, with knowledge sharing intention, as according to him motivation and intention are interchangeable terms and have same meanings.

Although majority of the literature shows a positive relationship between rewards and knowledge sharing, but researchers like Pangil and Nasurdin (2007) believe that because knowledge sharing can be a norm among knowledge workers, so they can be intrinsically motivated. As the target audience of the study is knowledge workers, working as trainers and facilitators in the training institutes of PETRONAS, hence it is imperative to study the effect of extrinsic rewards on knowledge sharing of these workers. At the same time, very few studies have correlated extrinsic rewards with knowledge sharing intention. This study will attempt to fill this gap as well.

This section has discussed extrinsic motivation and the significance of extrinsic rewards for knowledge sharing. The forthcoming section 2.8 will discuss intrinsic motivation, which is one of the major motivation forms.

2.8 Intrinsic Motivation

Apart from extrinsic motivation, intrinsic motivation is one of the two major kinds of motivation. It has been a topic of great interest in recent years especially in the areas like development robotics and reinforcement learning communities (Barto *et al.,* 2004, Oudeyer *et al.,* 2007). According to (Ryan and Deci, 2000b)

> *"Intrinsic motivation is defined as the doing of an activity for its inherent satisfaction rather than for some separable consequence. When intrinsically motivated, a person is moved to act for the fun or challenge entailed rather than because of external products, pressures or reward."*

This intrinsic motivation can be seen in infants when they constantly try to explore and experience new things and in adults when they do their hobbies, watch movies or read novels (Oudeyer and Kaplan, 2008). Intrinsic motivation is one of the pervasive and important forms of motivation and an individual, who is intrinsically motivated, performs a certain task regardless of any reward, punishment or external

pressure (Ryan and Deci, 2000b). OCB dwells under intrinsic motivation. The forthcoming section 2.9 will discuss the significance of OCB for knowledge sharing.

2.9 Organization Citizenship Behavior (OCB)

Employees are assessed upon, and suppose to perform, duties which are part of their job description (termed as in-role behavior by Katz, 1964) (Amin *et. al,* 2009). But at the same time some employees go beyond their job description and show a willingness to contribute more towards their organization and co-workers (termed as extra-role behavior by Katz, 1964). This voluntary behavior of an employee to work more then what has been asked is called Organization Citizenship Behavior (OCB) (Bateman and Organ, 1983). OCB is a discretionary behavior, in which the individual goes beyond his job description for the well being of his colleague, group or organization, without the expectation of any extrinsic reward (Dyne *et al.,* 1995; Chien, 2009). Such individuals are in demand by every organization, (Chien, 2009) as they go an extra mile for the organizations. OCB and intrinsic motivation has many similar characteristics and former can be considered as an example of the later (Tang and Ibrahim, 1998).

Since the introduction of the term OCB by Smith, Organ and Near (1983), it has been a topic of great interest among researchers (George and Battenhausen, 1990; Organ and Ryan, 1995; Organ, 1997; Podsakoff *et al.,* 2000). OCB is similar to Katz and Kahn's (1978) extra role behavior (Barbuto *et al.,* 2001). According to Katz and Kohn (1978) it is important in organizations, as it can contribute to organization's effectiveness, efficiency and competitive advantage (Organ, 1988; Staw and Cummings, 1993; Chien, 2009) and at the same time positively affects organization performance (Podsakoff and MacKenzie, 1994; Podsakoff *et al.,* 1997; Walz and Niehoff, 2000). The forthcoming section 2.9.1 will elaborate the relationship between OCB and knowledge sharing.

2.9.1 OCB and Knowledge Sharing

Knowledge sharing and OCB are linked with social exchange theories. Knowledge sharing is affected by the antecedents of OCB, at the same time, in management literature OCB has been analyzed as an antecedent of knowledge sharing (Chieh, 2008). This link will be further explored through literature in the coming paragraphs.

Employee's general behavior in an organization also determines his knowledge sharing intention (Yang and Farn, 2007). Knowledge sharing and OCB are voluntary behaviors which are resulted from social interactions (Brief and Motowidlo, 1986; Nonaka and Takeuchi, 1995; Bolino, 1999; Connelly, 2000; Levin and Cross, 2004; Quigley *et al.,* 2007). But these two terms are neither interchangeable nor synonymous because OCB is voluntary spontaneous behavior which cannot be rewarded whereas knowledge sharing, though voluntary, but it is not necessary to share knowledge spontaneously and at the same time knowledge sharing can be rewarded as well (Connelly, 2000).

In general, OCB determines an employee's commitment towards his organization (Feather and Rauter, 2004) which means that an employee with positive citizenship behavior will be more willing to contribute towards the betterment of his organization and co-workers, by offering his knowledge and expertise (Yang and Farn, 2007). OCB also positively affect online knowledge sharing. A corporate culture which encourages OCB will consequently encourage knowledge sharing willingness (Chieh, 2008) and lack of OCB will lead to lack of knowledge sharing in the organization (Wasko and Teigland, 2004).

Organ (1988) has divided OCB into five dimensions. In the forthcoming section 2.9.2 the impact of these dimensions on knowledge sharing will be analyzed.

2.9.2 OCB Dimensions and Knowledge Sharing

Despite the great interest of researchers in OCB, they have not been able to find a common ground on its dimensions (Podsakoff *et al.,* 2000). Earlier studies divided OCB in just two dimensions, including general compliance and altruism but later it

was divided into five dimensions including altruism, courtesy, conscientiousness, sportsmanship and civic virtue by Organ (1988). Organ's five dimensions are the most well known as well as one of the premier dimensions of OCB (Yang and Farn, 2007).

Altruism is helping a co-worker in a work related task (Yang and Farn, 2007; Chien, 2009). Similar to altruism, knowledge sharing also emerges from a drive to help other co-workers (Organ 1988; Chieh, 2008). Altruism can also be explained as *"helping others with heavy workload"* and *"helping people outside the department when they need that"*. These behaviors are similar to knowledge sharing. Hence knowledge sharing can be compared to altruism (Organ 1988; Connelly, 2000; Farh *et al.* 2004).

Courtesy can be described as being considerate towards others' convenience at workplace. A courteous person in this context will be careful not to disturb anyone by his actions. Courtesy can also be viewed as cautioning and helping others before the occurrence of a problem or change that can affect their work (Yang and Farn, 2007; Chien, 2009). Sometimes this courtesy act is directed for a reciprocal exchange of knowledge (Organ, 1988; Wasko and Teigland, 2004). As knowledge sharing contributes to the performance of others, hence courtesy can also be seen as an antecedent of knowledge sharing, and knowledge sharing can also be viewed as a courtesy act (Chieh, 2008).

Similar to conscientiousness, which is going beyond the minimal call of duty (Organ 1988; Yang and Farn, 2007; Chien, 2009), knowledge sharing is also a discretionary behavior, which is beyond the job description and cannot be enforced by organization through any formal means (Connelly and Kelloway, 2003). Researchers like Farh *et al.* (2004) believe that due to this similarity, a conscientious person, in this context, will be sharing his knowledge. According to social exchange perspective, OCB is a behavior which is not a specified *"obligation"* of an individual; hence individuals showing such a behavior will voluntarily help others and thus will have better relationships with others (Bolino *et al.,* 2002), which may lead to better knowledge sharing (Yang and Farn, 2007).

Sportsmanship is being ethical in organization, focusing on *"what is right rather than wrong"* (Chieh, 2008). It is also tolerating small inevitable inconveniences and trivial issues at workplace without complaining and with positive attitude (Farh *et al.,* 2004; Chien, 2009; Yang and Farn, 2007). Individual with sportsmanship behavior can be motivated towards knowledge sharing to reduce small inconveniences at workplace (Chieh, 2008). Both the above dimensions of sportsmanship are similar to knowledge sharing as one can share his knowledge to improve the undesired trivial issues and may work towards team success by contributing his knowledge (Chieh, 2008).

Civic virtue is being involved in organization processes and governance in an effort to improve them (Organ, 1988; Chien, 2009). This behavior can also be seen as sharing different and innovative ideas to improve organization resources (Chien, 2009). Hence we can say that individual with strong civic virtue behavior will be strongly motivated to share his knowledge (Chieh, 2008). The studies conducted by Yang and Farn (2007) and Chieh (2008) show a positive relationship between all OCB dimensions and knowledge sharing. Hence, it is evident from the preceding paragraphs, that all the dimensions of OCB can be perceived as antecedents of knowledge sharing.

This section has analyzed in detail the effect of OCB and its dimensions on knowledge sharing. The past research work has analyzed the effect of OCB on knowledge sharing intention. To the best of the author's knowledge, no study has attempted to analyze the effect of OCB on knowledge sharing behavior. This study will attempt to fill this gap.

Apart from the extrinsic and intrinsic motivation, individuals can differ in their behavior based on their personality attributes. These personality attributes are referred to as demographic variables. In forthcoming section 2.10 the effect of demographic variables on knowledge sharing behavior will be analyzed from the existing literature.

2.10 Demographic Variables

Individual differences should be regarded as one of the most challenging issues facing modern day managers (University of Phoenix, 2003). Individuals are different based on their demographic variables. It has been argued that individuals' knowledge sharing behavior differs in public organizations based on their demographics (Rashman and Hartley, 2008). Very limited research work is available on the effect of demographic variables on knowledge sharing behavior (Ismail and Yusof, 2009) and at the same time, researchers have not achieved consensus on this relationship (Ehigie and Otukoya, 2005). Hence it is important to understand the role these variables play either to strengthen or weaken the relationship between *knowledge sharing intention* and *knowledge sharing behavior* as a moderating variable (Lin, 2006; Samieh and Wahba, 2007).

Differences in several demographic variables such as gender, age, experience level, education level and ethnic background has been mentioned by several researchers as individual knowledge sharing barriers (Sveiby, 1997; Sveiby and Simons, 2002; Riege 2005). The result of the study conducted by Gupta (2008) also showed that knowledge sharing is different among different genders, experience level and designations.

As far as gender is concerned, some studies have shown that gender is insignificantly related with knowledge sharing (Ojha, 2003; Chowdhury, 2005; Watson and Hewett, 2006). However, researchers like Pangil and Nasurdin (2007) argue that there exist differences among both genders in terms of their knowledge sharing behavior. Lin (2006) argues that women are more inclined towards sharing knowledge than men, because they perceive to have more benefits out of it. Similar finding was supported by an early research conducted by Irmer *et al.* (2002). Lin (2006) further argues that, because women are more social and relationship oriented, hence, they are more inclined towards knowledge sharing to have strong relationship ties with others and to *"overcome traditional occupational hurdles"*. Women are also more inclined to seek knowledge than men (Miller and Karakowsky, 2005). The man's individualistic thinking (Chung, 2008) can make them share less with others in the organization. In contrast women's socialistic and relationship-oriented behavior

(Chung, 2008) can make them share more with others in order to nurture better relationships with others.

Work experience can have a significant impact on a person's attitude towards knowledge sharing (Pangil and Nasurdin, 2007). According to Pangil and Nasurdin (2007), the relationship between work experience and knowledge sharing is insignificant but at the same time the authors claim that the relationship has not been studied extensively.

A research conducted on software development teams suggested that there is an insignificant relationship between an employee's education level and his knowledge sharing behavior (Ojha, 2003). At the same time scholars like Riege (2005) argued that level of education is positively related with knowledge sharing behavior. Another study by Keyes (2008) shows the possible relationship between the two variables. Hence an individual with low education may share less knowledge because of lack of knowledge (Ismail and Yusof, 2009). Connelly (2000) argues that junior employees may share with senior employees because of several reasons including respect and gaining favor etc, whereas senior employees may share their knowledge with juniors as they do not have any "*competition fear"* from their juniors.

In this study, the impact of three important demographic variables on knowledge sharing behavior will be analyzed as a moderating variable. These demographic variables include gender, education and experience level.

2.11 Summary

The chapter has provided a detailed literature survey on the topic. In order to understand individual's behavior, including knowledge sharing behavior, Theory of Reasoned Action (TRA) is regarded as a powerful base. TRA has been described in detail within the context of knowledge sharing in this chapter. Individuals are motivated either extrinsically or they are intrinsically motivated to share their knowledge. Extrinsic rewards represent extrinsic motivation whereas OCB is an example of intrinsic motivation. The chapter has discussed both factors as well as their impact on knowledge sharing. At the same time, individuals can be different

based on their demographic attributes, hence individual differences based on demographic variables have been discussed in the context of knowledge sharing.

The forthcoming chapter discusses in detail the development of proposed framework. At the same time, the next chapter also presents the method that has been adopted to validate the framework.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Overview

The previous chapter discussed several components of this research in the light of literature. In simple terms, it laid down the ground and described the building blocks of this research. This chapter presents the proposed framework, which is built upon all the components which were described in the previous chapter. The chapter also describes the method that will be adopted to validate the proposed framework.

First, the chapter will illustrate the whole research cycle. Prior to presenting the proposed framework, a number of existing and relevant frameworks, from which the proposed framework is derived, will be presented. The relationships, of the involved elements, derived from literature survey and established by these frameworks will be presented in the form of hypotheses. Based on these hypotheses, the proposed framework will then be presented. At the end, the chapter will describe research design which includes several key steps taken to validate the proposed framework which include, time horizon, sampling, description of survey instrument and the respondents, type and description of questions.

3.2 Research Cycle

A research cycle encompasses several important steps involved in a study to identify and solve a problem. The complete research cycle, which was adopted to conduct this study, is illustrated in Figure 3.1. Following are the details of each step involved in the research methodology for this particular research work.

1. Problem Identification: Through a preliminary literature survey and interaction with the target organization, a problem in the organization is identified.

2. Literature Review: A comprehensive literature survey was carried out to understand the past and current ongoing works on the problem. As a result, extrinsic rewards and OCB have been identified as key extrinsic and intrinsic motivators of knowledge sharing behavior. Theory of Reasoned Action (TRA) has been adopted for the purpose of understanding individual's knowledge sharing behavior. Chapter 2 of the thesis covers literature survey on this.

3. Hypothesis Development: Based on the comprehensive literature survey, including detailed study on existing and relevant frameworks on the subject matter, six major and in total nineteen hypotheses have been developed. These hypotheses are presented in section 3.3.2.

4. Framework Development: Based on the relationships proposed through the developed hypotheses, a framework of extrinsic and intrinsic motivators of knowledge sharing has been proposed. Section 3.3 of this chapter describes the whole process of framework development whereas the proposed framework is presented in Figure 3.5.

5. Selection of Survey Instrument: Questionnaire has been chosen as a survey instrument. The detail on questionnaire selection is given in section 3.4.4.

6. Designing Survey Instrument: The questionnaire is designed by using pre-validated items from previous research works. Some of the items have been customized to fit this study. The scaling, structure and description of the survey instrument are given in section 3.4.7, 3.4.8 and 3.4.9 respectively.

7. Sampling: The whole population of 186 trainers and facilitators was approached. The details on the sampling are given in section 3.4.3.

8. Data Collection: After the sampling, the data was gathered from the trainers and facilitators working at the training institutes of PETRONAS. 43% of the whole population has responded which is considered as an adequate and acceptable number of respondents. The characteristics of the sample are given in Table 3.1.

9. Data Analysis: The data was analyzed on SPSS which is a vastly used statistical tool. Regression and correlation analysis has been adopted to analyze the relationships between different variables. The analysis and further discussion on the results is presented in chapter 5.

10. Recommendation: Based on data analysis, some important recommendations, especially for the training institutes of PETRONAS have been provided in section 6.4 of chapter 6.

11. Reporting: At the end, the whole research is reported in the form of a thesis, which has been divided into 6 chapters.

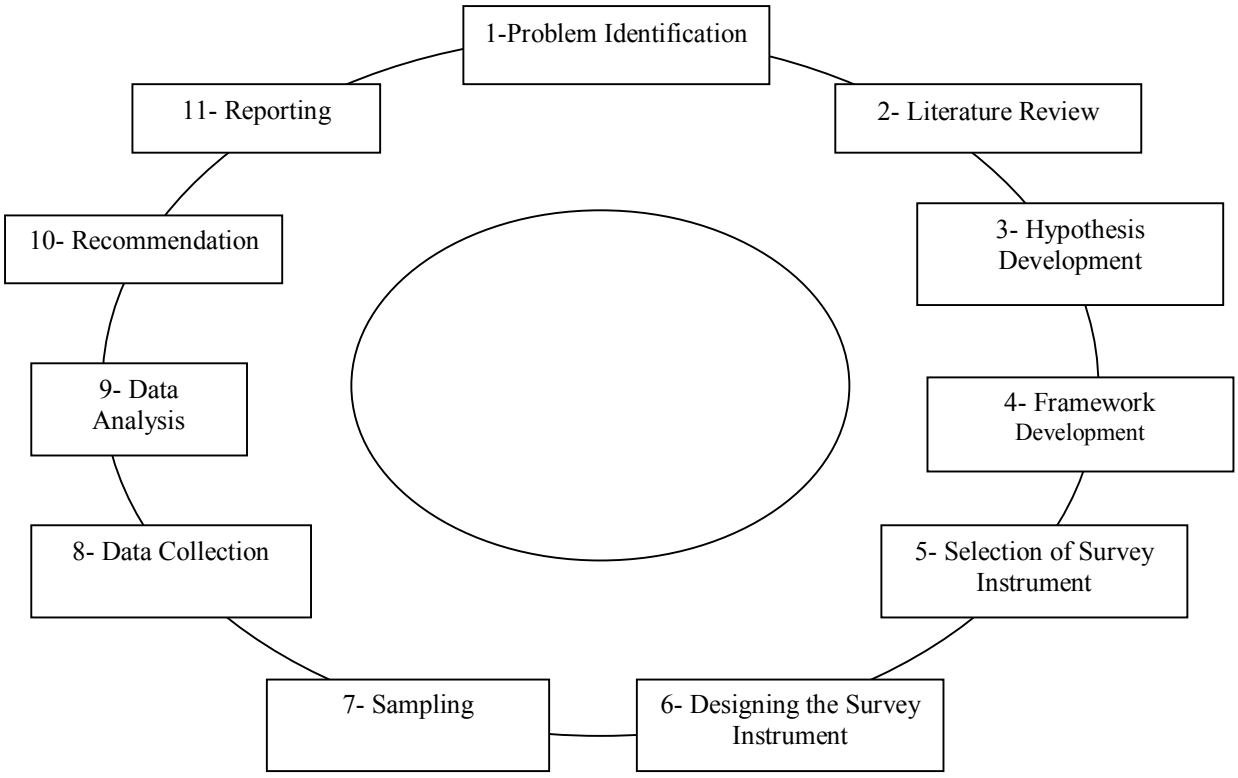


Figure 3.1: Research Cycle

The first two steps of the research methodology have been presented in chapter 1. The forthcoming sections of this chapter will present the details on steps 3 to 8. Step 9 will be discussed in detail in chapter 4 and 5, whereas step 10 will be discussed in chapter 6.

3.3 Framework Development

This section of the chapter will present the proposed framework. The literature survey, laid out in chapter 2, has highlighted in detail regarding the past and ongoing research work on several important components of this study. Literature survey helped to identify the relationships of extrinsic rewards, OCB and demographic variables with knowledge sharing. A number of existing frameworks, on the subject matter, have been instrumental towards the derivation of the proposed framework. Hence prior to presenting the proposed framework it is necessary to present those frameworks as well. The forthcoming part of this section, section 3.3.1, will present these important frameworks which helped to derive the proposed framework.

3.3.1 Derivation of Framework

Before presenting the proposed framework, it is imperative to have a look at different frameworks which have been proposed by previous research works and which are instrumental in deriving the proposed framework of this study.

The relationship between OCB and knowledge sharing has been highlighted, in the context of past research works, in section 2.7. The framework of Yang and Farn (2007) has established the correlation between OCB and knowledge sharing intention and empirically proves this relationship. The framework by Yang and Farn (2007) specifically caters for tacit knowledge sharing among individuals. Although the study does not claim to cover knowledge sharing as a whole (including both forms of knowledge sharing i.e. tacit and explicit), however it is necessary to test the relationship for both forms of knowledge sharing. The framework by Yang and Farn (2007) is shown in Figure 3.2.

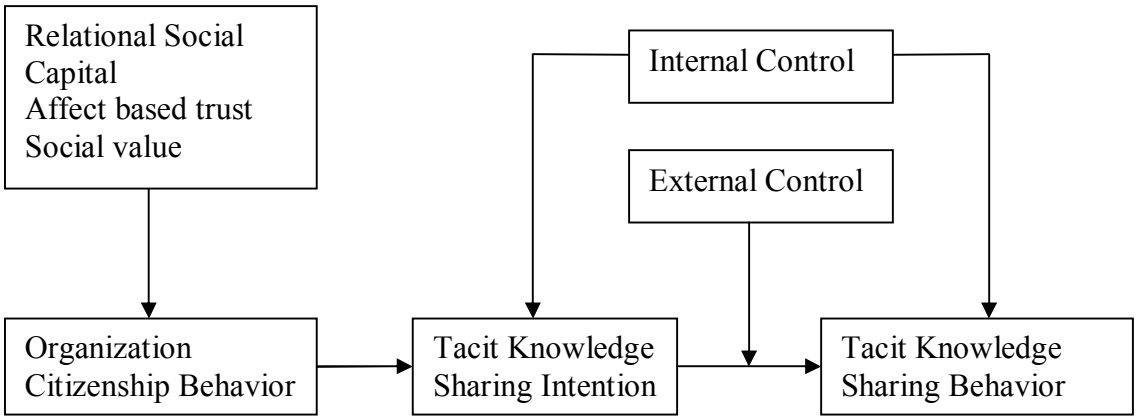


Figure 3.2: Research Model proposed by Yang and Farn (2007)

For the relationship between OCB dimensions and knowledge sharing, the framework proposed by Chieh (2008) is considered. The framework analyzes the relationship between the different dimensions of OCB and knowledge sharing, with the moderating effect of gender. The framework is shown in Figure 3.3.

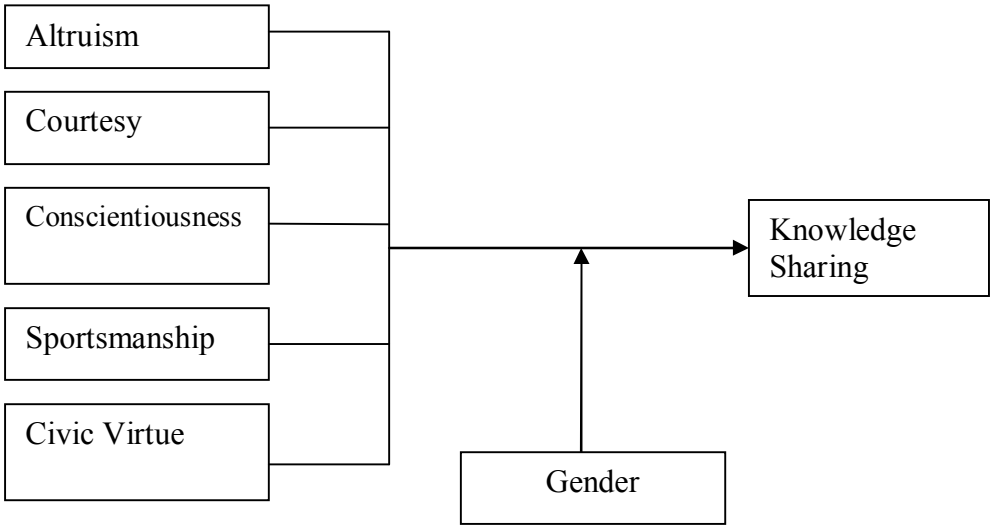


Figure 3.3: Research Model proposed by Chieh (2008)

The framework proposed by Chieh (2008) empirically proves the relationship between the five dimensions of OCB and knowledge sharing. One of the major limitations of the framework, also mentioned by the author, is that it measures the intention of individuals not the actual behavior. Hence, this limitation requires further analysis of the relationship between OCB and actual knowledge sharing behavior, which has been included in this study and will be empirically tested.

The relationship between extrinsic rewards and knowledge sharing has been highlighted, in the light of the literature, in section 2.6.2. The framework proposed by Andriessen (2006) can be considered a comprehensive framework, based on several social science and organization behavior theories. According to Andriessen (2006), rewards are related with the theories of motivation. Motivation defines the factors effecting human intention and consequently the forces that compel individuals to perform a certain behavior, and these forces can be intrinsic as well as extrinsic (Pinder, 1998; Andriessen, 2006). The Multifactor Interaction Knowledge sharing model (MIKS) proposed by Andriessen (2006), illustrated in Figure 3.4, correlates incentives, including extrinsic rewards, with knowledge sharing intention. According to the author motivation to perform a task and intention are interchangeable terms and have the same meanings.

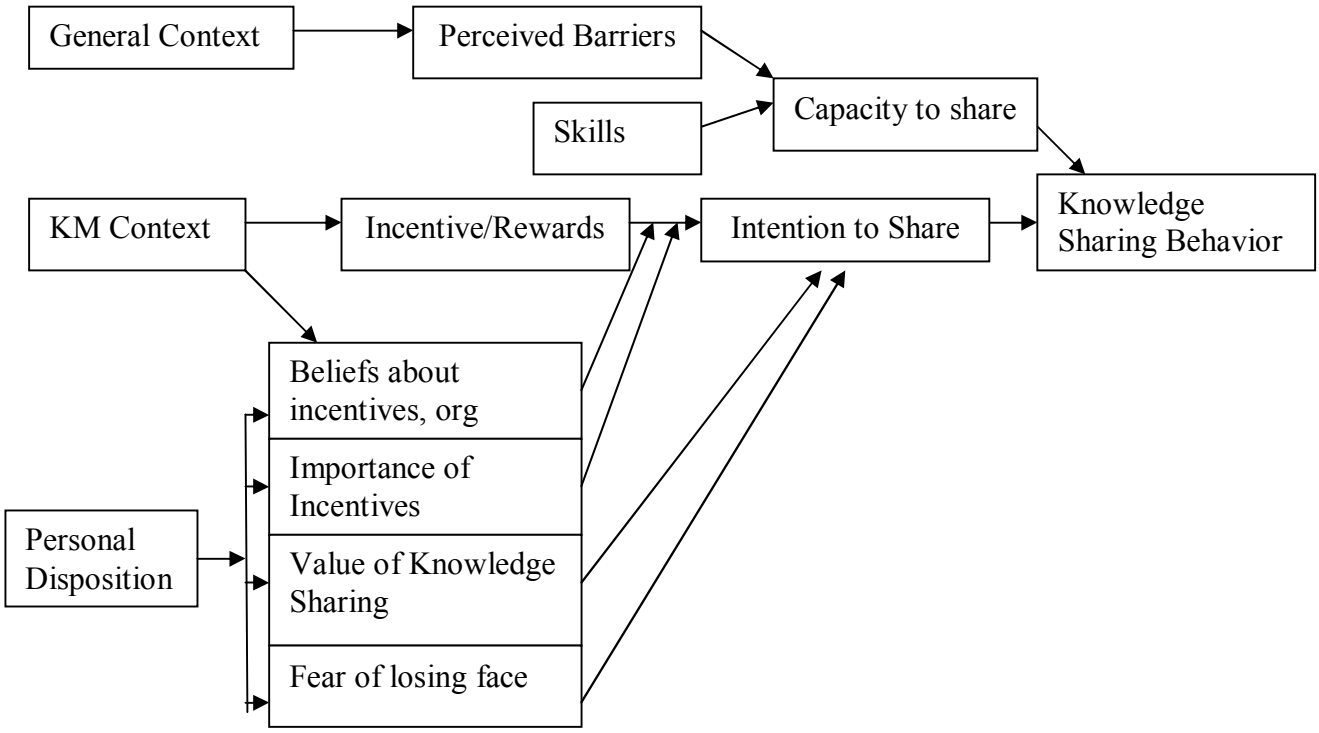


Figure 3.4: The Multifactor Interaction Knowledge Sharing Model (MIKS) of Andriessen (2006)

The framework has not been tested empirically. Hence, there is a need to test the relationship between extrinsic rewards and knowledge sharing intention to give it an empirical support.

3.3.2 Hypothesis Development

The following six major and, in total, nineteen hypotheses are developed based on detailed literature survey and the relationships established by existing frameworks described in section 3.3.1. The first two hypotheses are related with the TRA. TRA has been briefly explained in section 2.4.

- H1: an individual's *knowledge sharing attitude* positively affects his *knowledge sharing intention*

- H2: an individual's *knowledge sharing intention* positively affects his *knowledge sharing behavior*

The effect of extrinsic rewards on knowledge sharing has been discussed in the light of literature in section 2.7.2. The forthcoming hypothesis describes the relationship between extrinsic rewards and knowledge sharing intention which was theoretically proposed by Andriessen (2006).

- H3: extrinsic rewards positively affect *knowledge sharing intention*.

The relationship between OCB and *knowledge sharing intention* has been proved by few studies. However, to the best of author's knowledge, there is no research work which attempts to study the impact of OCB on *knowledge sharing behavior*. The detailed literature survey on this relationship is provided in section 2.9.1. Hypothesis 4 and 5 are related with this relationship.

- H4: Organization Citizenship behavior (OCB) has a positive effect on individual's *knowledge sharing intention*

    - H4 (a): *Altruism* has a positive effect on individual's *knowledge sharing intention*

    - H4 (b): *Courtesy* has a positive effect on individual's *knowledge sharing intention*

    - H4 (c): *Civic Virtue* has a positive effect on individual's *knowledge sharing intention*

- H4 (d): *Sportsmanship* has a positive effect on individual's *knowledge sharing intention*
- H4 (e): *Conscientiousness* has a positive effect on individual's *knowledge sharing intention*

- H5: Organization Citizenship Behavior (OCB) has a positive effect on individual's *knowledge sharing behavior*
  - H5 (a): *Altruism* has a positive effect on individual's *knowledge sharing behavior*
  - H5 (b): *Courtesy* has a positive effect on individual's *knowledge sharing behavior*
  - H5 (c): *Conscientiousness* has a positive effect on individual's *knowledge sharing behavior*
  - H5 (d): *Civic Virtue* has a positive effect on individual's *knowledge sharing behavior*
  - H5 (e): *Sportsmanship* has a positive effect on individual's *knowledge sharing behavior*

The detailed literature survey on the impact of demographic variables on knowledge sharing behavior is provided in section 2.10.

- H6: an employee's demographic variables affect the relationship between an individual's *knowledge sharing intention* and *knowledge sharing behavior* as a moderating variable.
  - H6 (a): The relationship between *knowledge sharing intention* and *knowledge sharing behavior* is different among different *genders*
  - H6 (b): The relationship between *knowledge sharing intention* and *knowledge sharing behavior* is different among individuals with different *experience levels*

- H6 (c): The relationship between *knowledge sharing intention* and *knowledge sharing behavior* is different among individuals with different *education levels*

Based on the preceding hypotheses, the forthcoming section 3.3.3 will present the proposed framework.

3.3.3 Proposed Framework

Given the hypotheses, presented in section 3.3.2, the following framework of extrinsic and intrinsic motivators of knowledge sharing has been proposed. The proposed framework is presented in Figure 3.5 in which all the defined hypotheses, involving the essential layouts, are labeled as H1, H2, H3, H4, H5 and H6.

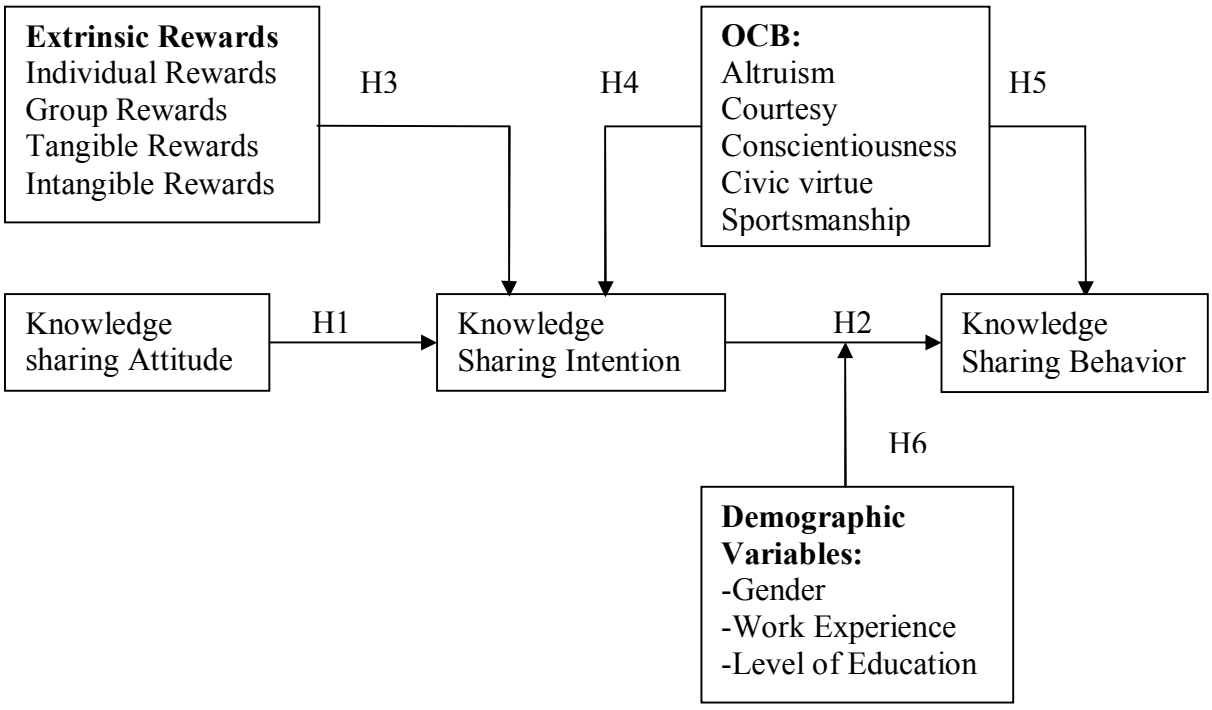


Figure 3.5: Proposed Framework

3.4 Research Design

Research design includes several key steps undertaken to validate the proposed framework. These steps involve time horizon of the study, target population, sampling

and design, and reliability of the survey instrument. Each one of these important steps to validate the proposed framework will be explained briefly in forthcoming sections of the chapter.

3.4.1 Time horizon

The study is a cross-sectional study. A cross-sectional study is inevitable and effective if there is time and cost constraint (Sekaran, 2003). Hence due to time and cost constraints the data has been collected in one shot.

3.4.2 Population and Respondents

The target population of the study is knowledge workers working at the training institutes of PETRONAS as trainers and facilitators. This includes trainers and facilitators from PERMATA, INSTEP and ALAM. A brief introduction of these institutes is given in section 1.11.

3.4.3 Sampling

All the members of the population were approached. This includes 186 trainers and facilitators working at PERMATA, ALAM and INSTEP. 89 responses were yield from all the three institutes. With 10 attritions and incomplete responses, 79 responses were analyzable, comprising approximately 43% of the population. The resulting sample size has 90% confidence level.

According to Harris (1985), to yield the minimum sample size in correlation or regression studies, *"number of participants should exceed the number of predictors by 50 i.e. total number of participants equals the number of predictor variables plus 50"*. According to this formula 79 can be considered as adequate minimum sample size. The characteristics of sample are given below in Table 3.1.

Table 3.1: Sample Characteristics

Characteristic	**Frequency**	**Percentage of sample**
Gender		
Male	55	69.6
Female	24	30.4
Level Of Education		
Diploma	16	20.3
Bachelors	32	40.5
Masters	25	31.6
PhD	6	7.6
Working Experience		
Fresh	5	6.3
1-3 years	12	15.2
4-6 years	9	11.4
7-9 years	17	21.5
10 years and above	36	45.6

3.4.4 Instrumentation

The survey instrument used in the study is personally administered questionnaire. Various researchers in social science domain have used questionnaires technique to illicit data from the respondents. In the context of this study, due to time and cost constraints, it was necessary to find a survey instrument which will be less time consuming and at the same time less costly. This was a primary reason to adopt personally administered questionnaire as they help to minimize time and cost (Sekaran, 2003). At the same time, trainers need to be motivated to give away some of their precious time to respond to the questionnaire. Through personally administered questionnaires, respondents can be motivated to answer the questionnaire (Sekaran, 2003).

Other questionnaire methods such as mail and electronic questionnaires are not adopted because of their disadvantages such as low response rate, inability to clarify questions and less time for the respondent. Similarly, other data gathering techniques such as interviews and observations are also not used because of similar detrimental factors such as time, cost, non-availability and disinterest of respondents and confidentiality (Sekaran, 2003).

3.4.5 Distribution and Collection of Questionnaire

The questionnaire was personally distributed and collected back from the respondents. In INSTEP and PERMATA, some of the questionnaires were given to the reference persons, who conducted the survey on behalf of the researcher. The reference person was provided with all the necessary instructions and information to carry out the survey. At the same time, some of the questionnaires were administered in front of them to illustrate how to conduct the survey and provide clarification to the respondents on various questions. Upon completion, the reference persons were asked to mail the questionnaires back to the given address. This approach is also considered as personally administered questionnaire method (Sekaran, 2003).

3.4.6 Reliability

Cronbach Alpha test has been used to analyze the reliability of the questionnaire. According to Nunnaly (1978) and Jöreskog and Sörbom (1989) 0.70 is an acceptable Alpha reliability value. Hence Alpha reliability was set to .70 as an acceptable reliability.

3.4.7 Scaling

All the questions were asked on a five-point likert scale. The perfect number of points in a likert scale has not achieved consensus among researchers. Following are few reasons, researchers have given, in the favor a of five-point likert scale. These reasons are presented in an article by Canny (2006). Firstly, the stated disadvantage of neutral

point against 5-point likert scale is a myth and most of the modern researchers believe that it is desirable. Secondly, having a neutral feeling about a statement or a topic is natural and legitimate among respondents. Not providing a neutral point to respondents can force them to answer positively or negatively, drawing biased answers. Thirdly, the mid-point in five point likert scale, which is 3, is *"right in the middle"* and perfectly denotes a mixed feeling.

Apart from above reasons, according to Glenn (2007), five-point likert scale is widely used and studies have shown that respondents feel inconvenient to respond to a likert scale of more than seven points, so any number lesser then seven is suitable. At the same time, the originator of the scale, Rensis Likert, proposed a five-point likert scale (Likert, 1932). As mentioned earlier likert scale has been used in all the questions, however the anchors were customized to suit the variables being analyzed.

Questions regarding *knowledge sharing attitude* were asked using the following anchors on a five-point likert scale:

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

Questions regarding *knowledge sharing intention* and *extrinsic rewards* were asked using following anchors on a five-point likert scale:

Very Unlikely	Unlikely	Neutral	Likely	Very likely
1	2	3	4	5

Questions regarding *Organization Citizenship Behavior (OCB)* and *knowledge sharing behavior*, in which the peer was asked to report the behavior of focal respondent, were asked using following anchors on a five-point likert scale.

Never	Rarely	Neutral	Often	Always
1	2	3	4	5

3.4.8 Structure of the Questionnaire

The questionnaire is divided into three sections. Section one asks the respondents about the demographic variables including gender, level of education and work experience. Section 2 asks the focal respondents to report their knowledge sharing attitude, knowledge sharing intention and the effect of extrinsic rewards.

Section 3 asks the two peers of the focal respondent to report the *Organization Citizenship Behavior (OCB)* and *knowledge sharing behavior* of the focal respondent. According to Yang and Farn (2007), because OCB and knowledge sharing behavior are an individual's behaviors expected to surface while interacting with others, this is why it is unreasonable to ask questions solely from the focal respondent. This helps to avoid self-reporting bias. To avoid further bias by one peer, as mentioned earlier, the data was gathered from two peers of a focal respondent. Since there were many employees who may not have regular contact with some other employees, the peers were asked to select the focal respondents form the list so that they could report about the person they know well and with whom they are in regular contact.

3.4.9 Description of the Questions

As described earlier, the questionnaire was divided in three sections. The description of each section and the examples of the items used in the respective sections will be highlighted in forthcoming paragraphs. The scale used for different variables under section 2 and 3 is described in detail in section 3.4.7. The questionnaire is attached in Appendix B.

3.4.9.1 Questionnaire Section 1

Section one of the questionnaire asked the respondent about the demographic variables, including gender, education level and work experience. These demographic variables have been chosen by earlier researches. The literature which suggests possible differences among these demographic variables has been discussed in section 2.8. The demographic variables which are not proved to be related with knowledge sharing behavior, from earlier researches, have not been chosen in this research.

The options for education level were from specialized diploma to PhD, including bachelors and masters. These dimensions were set after obtaining the sample frame from the training institutes. Post doctoral was eliminated as there were no post doctoral trainers in any of these institutes. Work experience options ranged from fresh to 10 years and more. The options were with the interval of three i.e. fresh (less than a year), 1-3, 4-6, 7-9 and 10 and above.

3.4.9.2 Questionnaire Section 2

The second section of the questionnaire asked the focal respondent to report his *knowledge sharing attitude*, *knowledge sharing intention* and the effect of *extrinsic reward* and recognition on his *knowledge sharing intention*. Majority of the items were taken from pre-validated measures in KM literature, at the same time some of them were added, modified and altered, from past researches.

The first five items in section two asked the respondents to report their knowledge sharing attitude. The items regarding *knowledge sharing attitude* were drawn mainly from the work of Irene *et al*., (2009), but they were customized to fit in with the needs of this research work. However, readers can find similarities with the items used by Majid and Ann (2007), under *'opinions regarding information sharing with others'*. An example of the items used for knowledge sharing attitude is *"I should contribute my skills and experience in a Meeting/Discussion"*.

The next six items in section two were related with *knowledge sharing intention*. These items have been taken from early researches such as Bock and Kim (2002), Bock *et al.*, (2005), Kankanhalli *et al.*, (2005) and Irene *et al.*, (2009). An example of the items for this variable is *"I intend to share my experience and skills with my colleagues"*.

The last six items in this section were related with the effect of extrinsic rewards on knowledge sharing intention. In these six items, question 12 is related with individual rewards, question 17 is related with group rewards, 15 is serving both group and individual rewards (directly for group and indirectly for individual rewards), 14 is an audit question, 13 is related with tangible rewards and 16 is related with intangible rewards, hence all the important dimensions of extrinsic rewards were

covered. These items were taken from previous researches such as Connelly (2000), Bock and Kim (2002), Harder (2008) (items were taken from *'controlled motivation'* of this research and were modified) and Irene *et al.*, (2009). The examples of the items are *"I will share my skills and expertise even if I am not given rewards or recognition"* and *"I will share more if I will be declared 'Knowledge Champion".*

3.4.9.3 Questionnaire Section 3:

Section three asked the peers to report *Organization Citizenship Behavior (OCB)* and *knowledge sharing behavior* of the focal respondent. The first 20 questions asked the peer to report OCB of focal respondent. Items from 18 to 21 are related with *Civic Virtue*, items from 22 to 25 are related with *Altruism*, items from 26 to 29 are related with *Conscientiousness,* items from 30 to 33 are related with *Courtesy* and items from 34 to 37 are related with *Sportsmanship*. All the items used for OCB are drawn from the works of Chieh (2008) which was modified from the work of Podsakoff *et al.,* (1990). All the dimensions of OCB were measured using four items for each dimension, which has also been done by Chieh (2008). The examples for each dimension are *"Mr./Ms._____ voluntarily contributes his efforts for the success of any event organized by organization (Civic Virtue"), "Mr./Ms._____ helps new employees settle in the organization (Altruism)", "Mr./Ms._____ works after working hours/holidays (Conscientiousness), "Mr./Ms._____ helps you in preventing a work-related problem before time (Courtesy)", "Mr./Ms._____ complains about small issues and problems at workplace (Sportsmanship)".*

The last five questions were regarding the *knowledge sharing behavior* of the focal respondent. Most of these questions were drawn from earlier researches such as Harder (2008), Ling *et al.,* 2008 (modified), Irene *et al.,* 2009 (modified) etc. But because majority of the researchers used *knowledge sharing behavior* items for self reporting, that is why they are modified for peer reporting. The example for this item is *"Mr./Ms._____ shares his experiences/skills whenever you need them"*

3.5 Summary

The chapter has presented the proposed framework and the procedure that has been adopted to validate the framework. The chapter presented some important frameworks which aided in deriving important relationships in the proposed framework. Based on framework of extrinsic and intrinsic motivators of knowledge sharing, six major and in total nineteen hypotheses have been proposed. To validate the framework various important steps were discussed including time horizon, sampling, instrumentation, reliability, scaling, and characteristics of respondents, structure and description of the questionnaire. The next chapter will present the findings of the study and the consequent analysis.

CHAPTER 4

RESULTS AND ANALYSIS

4.1 Overview

In the previous chapter, based on existing literature and a number of related frameworks, six major and in total nineteen hypotheses were proposed. These hypotheses depicted several important relationships between involved variables. Based on these hypotheses, a framework of an individual's knowledge sharing was presented. At the same time, the previous chapter also presented the steps taken to validate the proposed framework.

This chapter will analyze the collected data to validate the framework. The data has been analyzed on SPSS. Each hypothesis and its corresponding results will be presented and hence analyzed.

4.2 Reliability of the Survey Instrument

As mentioned in the last chapter, to analyze the reliability of the survey instrument, Cronbach Alpha test has been used. According to Nunnaly (1978) and Jöreskog and Sörbom (1989), .70 is an acceptable Alpha reliability value. The results show an above-acceptable value of Cronbach Alpha reliability. The results of the Alpha Reliability are shown in Figure 4.1

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Reliability Coefficients

N of Cases = 79.0 N of Items = 12

Alpha = .8239

Figure 4.1: Alpha Reliability Analysis of the data

'N of Cases' shows total number of respondents whereas *'N of Items'* shows the total number of items which have been tested for reliability. The alpha value, which is 0.8239, shows that 82.39% of data is reliable. As mentioned earlier, this is above-acceptable percentage of reliable data.

4.3 Hypotheses Testing

The following section of this chapter will present the results obtained, and will also present the analysis of the results. *Regression analysis* has been used to analyze the relationship between several variables. Before presenting the results, it is important to present the interpretation for various correlation and regression coefficients, based on which the strength, direction and impact of a relationship can be determined. Values of R, R-square and P (significance) value have been used to analyze the results.

Value of R shows the strength of the relationship. It ranges from +1 to -1. A value of R which is closer to '+1' shows the strength of the correlation relationship, whereas a value of R closer to '0' shows a weaker or no correlation relationship, at the same time a value of R below '0' shows a negative correlation relationship. The positive or negative signs with the value show the direction of the relationship. For example a positive sign shows that if one increases the other also increases. The value of R-square indicates the percentage of variance in dependent variable caused by independent variable. At the same time value of P shows the significance of the relationship (Stephen and Karen, 2003).

4.4 Theory of Reasoned Action (TRA)

The first two hypotheses deal with the Theory of Reasoned Action (TRA). This study has analyzed the attitude-intention-behavior relationship. TRA is discussed in detail in section 2.4 and the results for the hypotheses related to TRA have been presented in forthcoming sections 4.4.1 and 4.4.2.

4.4.1 Hypothesis 1 (H1)

H1: An individual's knowledge sharing attitude positively affects his knowledge sharing intention

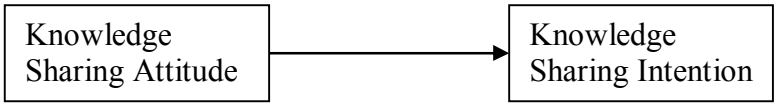


Table 4.1 (a): Model Summary H1

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.760(a)	.578	.573	.30122

Predictors: (Constant), K_ATT (Knowledge Sharing Attitude)

Table 4.1 (b): Coefficients H1

Model		Un-standardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.926	.284		3.259	.002
	K_ATT	.788	.077	.760	10.270	.000

A Dependent Variable: K_INT (knowledge sharing intention)

The two tables above show various important results regarding the first hypothesis. In the Table 4.1, K_ATT denotes *knowledge sharing attitude* whereas K_INT denotes *knowledge sharing intention*. Table 4.1 (a) shows value of R, which is correlation

value, as .760. This shows that *knowledge sharing attitude* has a strong correlation with *knowledge sharing intention*. The positive sign with the value of R shows that both variables have a positive relationship between them which implies that positive knowledge sharing attitude leads to positive knowledge sharing intention. Hence, from the value of R we can say that individual's *knowledge sharing attitude* and *knowledge sharing intention* have a *strong positive relationship*. Another important value in Table 4.1 (a) is the value of R Square, which is .578. Value of R Square shows the variance in dependent variable which can be predicted by independent variable. As shown in Table 4.1 (a), 57.8% variance in *knowledge sharing intention* can be predicted by *knowledge sharing attitude*. Table 4.1 (b) shows another important value, which is the P value (sig.). This shows the significance of the relationship between the variables. If P-Value is less than 0.05, then we can say that the relationship is significant. For the relationship between *knowledge sharing attitude* and *knowledge sharing intention*, Table 4.2 shows .000 of P-value, which is less than 0.05. From the above results and consequent analysis, it is evident that *knowledge sharing attitude* and *knowledge sharing intention* have a *strong, significant and positive relationship*.

Hence hypothesis 1 (H1) is supported, proving that individual's *knowledge sharing attitude* strongly predicts *knowledge sharing intention* and a person with a positive attitude towards knowledge sharing is more likely to have a positive intentions to share his knowledge.

4.4.2 Hypothesis 2 (H2)

H2: An individual's knowledge sharing intention positively affects his knowledge sharing behavior

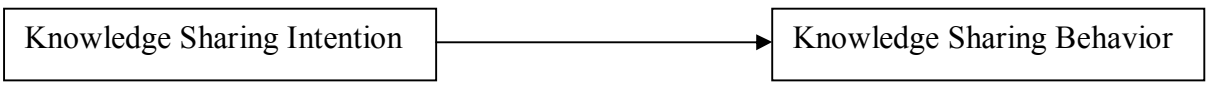


Table 4.2 (a) Model Summary H2

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.736(a)	.541	.535	.36373

A Predictor: (Constant), K_INT (Knowledge sharing intention)

Table 4.2 (b) Coefficients H2

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.727	.344		2.112	.038
	K_INT	.852	.089	.736	9.529	.000

A Dependent Variable: K_SHB (knowledge sharing behavior)

The two tables above show results regarding H2. In Table 4.2, K_INT denotes knowledge sharing intention whereas K_SHB denotes knowledge sharing behavior. Table 4.2 (a) shows correlation value R as .736. This shows that *knowledge sharing intention* has a strong correlation with *knowledge sharing behavior*. The positive sign with the value shows that both variables have a positive relationship, illustrating that if knowledge sharing intention is high then *knowledge sharing behavior* will also be high. Hence, from the value of R we can say that individual's *knowledge sharing intention* and *knowledge sharing behavior* have a *strong positive relationship*. Another important value in Table 4.2 (a) is the value of R Square, which is .541. Value of R Square shows the variance in dependent variable which can be predicted by independent variable. As shown in Table 4.2 (a), *knowledge sharing intention* accounts for 54.1% variance in *knowledge sharing behavior*. Table 4.2 (b) shows another important value, which is the P value (sig.). This shows the significance of the relationship between the variables. For the relationship between *knowledge sharing intention* and *knowledge sharing behavior*, Table 4.2 shows .000 of P-value, which is less than 0.05. From the above results and consequent analysis, we can say that

knowledge sharing intention and *knowledge sharing behavior* have a *strong significant positive relationship*.

Hypothesis 2 (H2) is supported, that *knowledge sharing intention* has a positive effect on *knowledge sharing behavior*, which implies that *knowledge sharing intention* is a strong predictor of *knowledge sharing behavior*. Hence a person who has an intention to share his knowledge is more likely to actually share his knowledge.

4.5 Extrinsic Rewards and Knowledge Sharing Intention

The relationship between extrinsic rewards and knowledge sharing has been discussed in detail in section 2.7.2. Following is the hypothesis which is being tested to prove the relationship between extrinsic rewards, its dimensions and knowledge sharing intention.

4.5.1 Hypothesis 3 (H3)

H3: Extrinsic rewards positively affect knowledge sharing intention

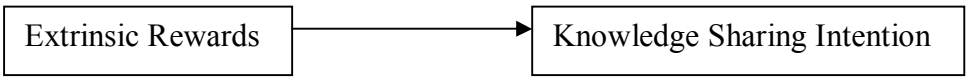


Table 4.3 (a): Model Summary H3

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Sig
1	.575(a)	.330	.294	.38709	.000

A Predictors: (Constant), E_GRP (group rewards), E_IND (Individual rewards), E_INT (Intangible rewards), E_TAN (tangible rewards)

Table 4.3 (b): Coefficients H3

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(constant)	1.815	.340		5.330	.000
	E_INT	.061	.051	.131	1.208	.231
	E_TAN	.200	.078	.284	2.575	.012
	E_IND	-.018	.046	-.044	-.397	.693
	E_GRP	.317	.096	.352	3.297	.002

A Dependent Variable: K_INT (knowledge sharing intention)

The two tables above show results regarding third hypothesis (H3). In the tables, K_INT denotes knowledge sharing intention, E_INT denotes extrinsic intangible rewards, E_TAN denotes extrinsic tangible rewards, E_IND denotes extrinsic individual rewards and E_GRP denotes extrinsic group rewards.

The correlation value R for H3 is .575, given in Table 4.3 (a). This shows that extrinsic rewards have a moderate correlation with *knowledge sharing intention.* The positive sign with the value shows that both variables have a positive relationship between them that means that as extrinsic rewards are increased the individual's knowledge sharing intention will also increase, but moderately in this case. Hence, from the value of R we can say that *extrinsic rewards* and *knowledge sharing intention* have a *moderate positive relationship*. Another important value in Table 4.3 (a) is the value of R Square, which is .330. Value of R Square shows the variance in dependent variable which can be predicted by independent variable. As shown in Table 4.3 (a), 33% variance in *knowledge sharing intention* is due to *extrinsic rewards*. Table 4.3 (a) also shows another important value, which is the P value (sig.). This shows the significance of the relationship between the variables. For the

relationship between *extrinsic rewards* and *knowledge sharing intention*, Table 4.3 (a) shows .000 of P-value, which is less than 0.05.

From the above results, we can say that *extrinsic rewards* and *knowledge sharing intention* have a *moderate, significant and positive relationship*. Hence hypothesis 3 is supported, that extrinsic rewards positively affect knowledge sharing intention. This shows that extrinsic rewards have an impact on individual's intention to share his knowledge however this impact is moderate, which implies that extrinsic rewards alone are not good enough to motivate individuals to share their knowledge.

Table 4.3 (b) shows the relationship between different dimensions of *extrinsic rewards* with *knowledge sharing intention* and their significance. The first dimension, shown in Table 4.3 (b) is E_INT, which is *intangible extrinsic reward*. The Beta value for *intangible extrinsic rewards* is 0.131, which means that 13.1% of the variance in *knowledge sharing intention* was due to this factor. The P value for this variable is 0.231, showing an insignificance of *Intangible extrinsic rewards* for *knowledge sharing intention*. Hence, from the results we can say that *intangible extrinsic rewards* have a *positive but insignificant relationship* with *knowledge sharing intention*, which means that although the willingness of an individual to share his knowledge is likely to increase if intangible extrinsic rewards are given but it is not a reliable predictor of individual's knowledge sharing intention.

The second dimension in Table 4.3 (b) is E_TAN, which is *tangible extrinsic reward*. The Beta value of *tangible extrinsic rewards* is 0.284, which means that 28.4% of the variance in *knowledge sharing intention* was due to this factor. The P value for this variable is 0.012, showing a significance of *tangible extrinsic rewards* for *knowledge sharing intention*. Hence, tangible extrinsic rewards have a significant and positive relationship with *knowledge sharing intention*, which implies that an individual's can be motivated to share their knowledge if they are offered *tangible extrinsic rewards*.

The third dimension is E_IND, which is *individual extrinsic reward*. The Beta value of *individual extrinsic rewards* is -0.044, which means that 4.4% of the negative variance in *knowledge sharing intention* was due to this factor. The P value for this variable is 0.693, showing an insignificance of *Individual extrinsic rewards* for

knowledge sharing intention. From the above results, it is evident that *individual extrinsic rewards* do not predict *knowledge sharing intention* and individual extrinsic rewards can have a detrimental impact on individual's motivation individuals to share his knowledge.

The fourth dimension of extrinsic rewards is E_GRP, which is *group extrinsic reward*. The Beta value of *group extrinsic rewards* is 0.352, which means that 35.2% of the variance in *knowledge sharing intention* was due to this dimension of extrinsic rewards. The P value for this variable is 0.002, which is below 0.05 showing significance of *group extrinsic rewards* for *knowledge sharing intention*. Hence, it implies that *group extrinsic rewards* have a *significant and positive relationship* with *knowledge sharing intention*, which means that *extrinsic group rewards* significantly predict individual's willingness to share his knowledge. Hence we can say that group rewards can be useful to motivate individuals to share their valuable knowledge.

4.6 Organization Citizenship Behavior and Knowledge Sharing Intention

The detail on the relationship between OCB and knowledge sharing intention is presented in section 2.7. The forthcoming hypothesis and the sub hypotheses will be tested to prove the relationship between OCB, its dimensions and knowledge sharing intention.

4.6.1 Hypothesis 4 (H4)

H4: Organization Citizenship Behavior has a positive effect on individual's knowledge sharing intention

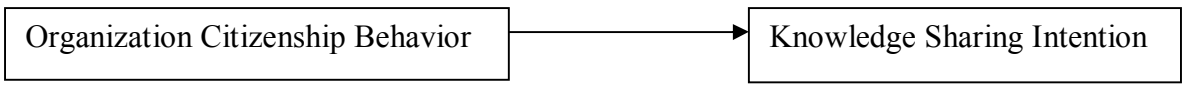


Table 4.4 (a): Model Summary H4

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	P-Value
1	.783(a)	.614	.587	.29597	0.000

A Predictors: (Constant), O_CON (conscientiousness), O_SPM (sportsmanship), O_CSY (courtesy), O_ALT (altruism), and O_CV (civic virtue)

Table 4.4 (b): Coefficients H4 (a, b, c, d, e)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.344	.434		-.794	.430
	O_ALT	.273	.108	.260	2.534	.013
	O_CSY	.330	.108	.276	3.049	.003
	O_CV	.240	.118	.229	2.025	.046
	O_SPM	.065	.115	.046	.563	.575
	O_CON	.168	.084	.184	1.995	.050

A Dependent Variable: K_INT (knowledge sharing intention)

The above two tables show various important results regarding the fourth hypothesis. In the tables, K_INT represents knowledge sharing intention, O_ALT represents altruism, O_CSY represents courtesy, O_CV represents civic virtue, O_SPM represents sportsmanship behavior and O_CON represents conscientiousness.

Table 4.4 (a) shows correlation value R as .783. This shows that *Organization Citizenship Behavior (OCB)* has a strong correlation with *knowledge sharing intention*. The positive sign with the value shows that both variables have a positive relationship between them that means that if one increases, the other also increases. Hence, from the value of R we can say that *OCB* and *knowledge sharing intention* have a *strong positive relationship*. Another important value in Table 4.4 (a) is the

value of R Square, which is .614. Value of R Square shows the variance in dependent variable which can be predicted by independent variable. As shown in table 4.4 (a), 61.4% variance in *knowledge sharing intention* can be predicted by *OCB*. Table 4.4 (a) also shows another important value, which is the P value (sig.). This shows the significance of the relationship between the variables. If P-Value is less then 0.05, then we can say that the relationship is significant. For the relationship between *OCB* and *knowledge sharing intention*, Table 4.4 (a) shows .000 of P-value, which is less than 0.05. From the above results and consequent analysis, we can safely say that *OCB* and *knowledge sharing intention* have a *strong, significant and positive relationship*.

Hence, hypothesis 4 is supported, that OCB has a positive effect on knowledge sharing intention. This implies that the individuals with strong desire to go beyond job description, for their organizations and coworkers, will be more willing to share their knowledge. The results regarding the impact of OCB dimensions on knowledge sharing intention, which are presented in Table 4.4 (b), will be discussed in forthcoming sections 4.6.1.1, 4.6.1.2, 4.6.1.3, 4.6.1.4 and 4.6.1.5.

4.6.1.1 Hypothesis 4 (a)

H4 (a): Altruism has a positive effect on individual's knowledge sharing intention

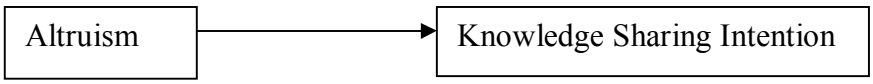
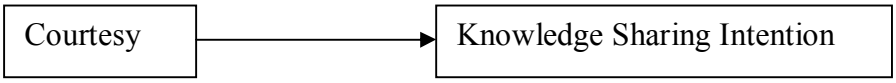


Table 4.4 (b) shows the relationship between different dimensions of OCB with *knowledge sharing intention* and their significance as well. The first in this regard is O_ALT, which is *Altruism*. The beta value of *Altruism* is 0.260, which means that 26% of the variance in *knowledge sharing intention* was due to this factor. The P value for this variable is 0.013, which is below 0.05 showing a significance of *Altruism* for *knowledge sharing intention*. From the above analysis, we can safely say that *altruism* has a *significant and positive relationship* with *knowledge sharing intention*. Hence, hypothesis 4 (a), that *Altruism* has a positive relationship with

knowledge sharing intention, is supported. This implies that individual with altruism behavior, in which he is willing to help others, will be more likely to intend to share his knowledge.

4.6.1.2 Hypothesis 4 (b)

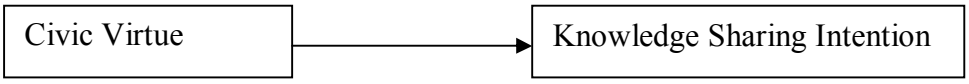
H4 (b): Courtesy has a positive effect on individual's knowledge sharing intention



The second dimension is O_CSY, which is *Courtesy*. The Beta value of *Courtesy* is 0.276, which means that 27.6% of the variance in *knowledge sharing intention* was due to this factor. The P value for this variable is 0.003, which is below 0.05 showing significance of *Courtesy* for *knowledge sharing intention*. Hence, from the results it is evident that *Courtesy* has a *positive and significant relationship* with *knowledge sharing intention*. Hypothesis 4(b) is supported which implies that individual with strong courteousness, which is being considerate towards others' convenience at workplace, will be more willing to share his knowledge.

4.6.1.3 Hypothesis 4 (c)

H4 (c): Civic Virtue has a positive effect on individual's knowledge sharing intention

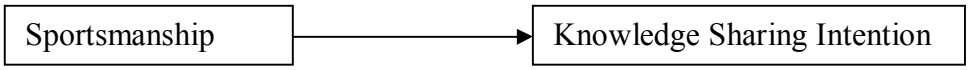


The third dimension is O_CV, which is *Civic Virtue*. The Beta value of *Civic Virtue* is 0.229, which means that 22.9% of the variance in *knowledge sharing intention* was due to this factor. The P value for this variable is 0.046, which is below 0.05 showing significance of *Civic Virtue* with *knowledge sharing intention*. From the above analysis we can safely say that *Civic Virtue* has a significant positive relationship with *knowledge sharing intention*. Hence, hypothesis 4 (c) is supported, which implies that

individuals with strong value of Civic Virtue, that is being involved in organization processes and governance in an effort to improve them, will be more willing to share his knowledge.

4.6.1.4 Hypothesis 4 (d)

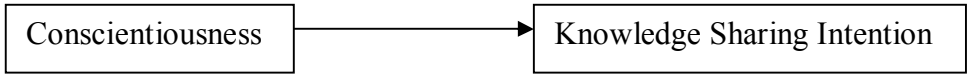
H4 (d): Sportsmanship has a positive effect on individual's knowledge sharing intention



The fourth dimension in this regard is O_SPM, which is *Sportsmanship*. The Beta value of *Sportsmanship* is 0.046, which means that 4.6% variance in *knowledge sharing intention* was due to this factor. The P value for this variable is 0.563, which is above 0.05 showing an insignificance of *Sportsmanship* for *knowledge sharing intention*. From the above analysis, it is evident that *Sportsmanship* has a *positive but insignificant relationship* with *knowledge sharing intention*. Hence, hypothesis 4 (d) is not reliably supported, which implies that individuals with the sportsmanship behavior, which is tolerating small inevitable inconveniences and trivial issues at workplace without complaining and with positive attitude, do not necessarily have more willingness to share their knowledge.

4.6.1.5 Hypothesis 4 (e)

H4 (e): Conscientiousness has a positive effect on individual's knowledge sharing intention



The fifth dimension in this regard is O_CON, which is *Conscientiousness*. The Beta value of *Conscientiousness* is 0.184, which implies that 18.4% of the variance in

knowledge sharing intention was due to this factor. The P value for this variable is 0.050, which is equal to 0.05 showing significance of *Conscientiousness* for *knowledge sharing intention*. From the above analysis, we can safely say that *Conscientiousness* has a *significant and positive relationship* with *knowledge sharing intention*. Hence, hypothesis 4 (e) is supported, which makes it evident that individual with *Conscientiousness value,* which is going beyond the minimal call of duty, will be more likely intend to share their knowledge.

4.7 Organization Citizenship Behavior and Knowledge Sharing Behavior

The relationship between OCB and knowledge sharing intention has been tested in past research work, however there is no research work which attempts to study the impact of OCB on knowledge sharing behavior. The detail of the relationship between OCB and knowledge sharing has been provided in section 2.7 of chapter 2. Based on the results obtained, the forthcoming hypotheses will test the relationship between OCB and knowledge sharing behavior.

4.7.1 Hypothesis 5 (H5)

H5: Organization Citizenship Behavior has a positive effect on individual's knowledge sharing behavior

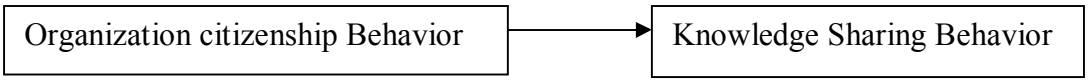


Table 4.5 (a): Model Summary H5

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Sig.
1	.893(a)	.797	.783	24838	.000

A Predictors: (Constant), O_CON (conscientiousness), O_SPM (sportsmanship), O_CSY (courtesy), O_ALT (altruism), and O_CV (civic virtue)

Table 4.5 (b): Coefficients H5 (a, b, c, d, e)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.635	.364		-4.493	.000
	O_ALT	.361	.090	.297	4.002	.000
	O_CSY	.530	.091	.382	5.829	.000
	O_CV	.254	.099	.210	2.561	.012
	O_SPM	.128	.096	.079	1.329	.188
	O_CON	.188	.071	.178	2.661	.010

A Dependent Variable: K_SHB (knowledge sharing behavior)

The above two tables show various important results regarding the fifth hypothesis. In the tables, K_SHB represents knowledge sharing behavior, O_ALT represents altruism, O_CSY represents courtesy, O_CV represents civic virtue, O_SPM represents sportsmanship behavior and O_CON represents conscientiousness.

Table 4.5 (a) shows the correlation value R as .893. This shows that *Organization Citizenship Behavior (OCB)* has a *very strong* correlation with *knowledge sharing behavior*. The positive sign with the value shows that both variables have a positive relationship between them that means that if one increases, the other also increases. Hence, from the value of R we can say that *OCB* and *knowledge sharing behavior* have a *very strong and positive relationship*. Another important value in Table 4.5 (a) is the value of R Square, which is .797. Value of R Square shows the variance in dependent variable which can be predicted by independent variable. As shown in Table 4.5 (a), 79.7% variance in *knowledge sharing behavior* can be predicted by *OCB*. Table 4.5 (a) also shows another important value, which is the P value (sig.). This shows the significance of the relationship between the variables. If P-Value is less than 0.05, then we can say that the relationship is significant. For the relationship between *OCB* and *knowledge sharing behavior*, Table 4.5 (a) shows .000 of P-value, which is less than 0.05.

From the above results and consequent analysis, it is evident that *OCB* and *knowledge sharing behavior* have a *very strong, significant and positive relationship*. Hence, hypothesis 5, that OCB has a positive effect on knowledge sharing behavior, is supported. The above mentioned results imply that individuals with organization citizenship behavior, which is going beyond the minimal call of duty, are more likely to share their knowledge.

4.7.1.1 Hypothesis 5 (a)

H5 (a): Altruism has a positive effect on individual's knowledge sharing behavior

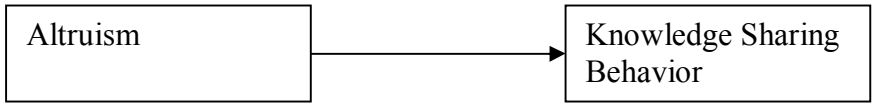
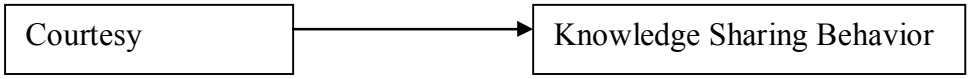


Table 4.5 (b) shows the relationship between different dimensions of *OCB* with *knowledge sharing behavior* and their significance as well. The first in this regard is O_ALT, which is *Altruism*. The Beta value of *Altruism* is 0.297, which means that 29.7% of the variance in *knowledge sharing behavior* can be predicted by this factor. The P value for this variable is 0.000, which is below 0.05 showing a significance of *Altruism* for *knowledge sharing behavior*. From the above analysis, we can safely say that *Altruism* has a *significant and positive relationship* with *knowledge sharing behavior*. Hence, hypothesis 5 (a) is supported, which implies that individuals with *Altruism behavior*, which is helping others, are more likely to share their knowledge.

4.7.1.2 Hypothesis 5 (b)

H5 (b): Courtesy has a positive effect on individual's knowledge sharing behavior



The second is O_CSY, which is *Courtesy*. The Beta value for *Courtesy* is 0.382, which means that 38.2% of the variance in *knowledge sharing behavior* can be predicted due to this factor. The P value for this variable is 0.000, which is below 0.05 showing the significance of *Courtesy* for *knowledge sharing behavior*. Hence we can say that *Courtesy* has a *positive and significant relationship* with *knowledge sharing behavior*. Hypothesis 5(b) is supported, which implies that individuals with strong courtesy behavior, which is being considerate towards others' convenience at workplace, are more likely to share their knowledge.

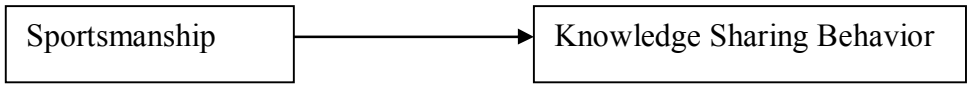
4.7.1.3 Hypothesis 5 (c)

H5 (c): Civic Virtue has a positive effect on individual's knowledge sharing Behavior

The third dimension is O_CV, which is *Civic Virtue*. The Beta value for *Civic Virtue* is 0.210, which means that 21% of the variance in *knowledge sharing behavior* can be predicted due to this factor. The P value for this variable is 0.012, which is below 0.05 showing significance of *Civic Virtue* with *knowledge sharing behavior*. From the above analysis we can say that *Civic Virtue* has a *significant and positive relationship* with *knowledge sharing behavior*. Hence, hypothesis 5 (c) is supported. This implies that individuals with civic virtue, which is being involved in organization processes and governance in an effort to improve them, are more likely to share their knowledge.

4.7.1.4 Hypothesis 5 (d)

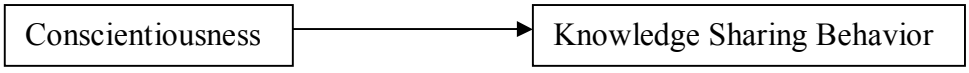
H5 (d): Sportsmanship has a positive effect on individual's knowledge sharing Behavior



The fourth dimension analyzed is O_SPM, which is *Sportsmanship*. The Beta value of *Sportsmanship* is 0.079, which means that only 7.9% of variance in *knowledge sharing behavior* was due to this factor. The P value for this variable is 0.188, which is above 0.05 showing an insignificance of *Sportsmanship* for *knowledge sharing behavior*. From the above analysis, it is evident that *Sportsmanship* has a *positive but insignificant* relationship with *knowledge sharing behavior*. Hence hypothesis 5 (d) is not supported reliably. The result for this hypothesis implies that individuals with *sportsmanship* behavior, which is tolerating small inevitable inconveniences and trivial issues at workplace without complaining and with positive attitude, will not, necessarily, share their knowledge.

4.7.1.5 Hypothesis 5 (e)

H5 (e): Conscientiousness has a positive effect on individual's knowledge sharing Behavior



The fifth dimension in this regard is O_CON, which is *Conscientiousness*. The beta value of *Conscientiousness* is 0.178, which means that 17.8% of the variance in *knowledge sharing behavior* can be predicted due to this factor. The P value for this variable is 0.010, which is below 0.05 showing the significance of *Conscientiousness* for *knowledge sharing behavior*. From the above analysis, it is evident that *Conscientiousness* has a *positive and significant relationship* with *knowledge sharing behavior*. Hence hypothesis 5 (e) is supported, which implies that individuals with *Conscientiousness behavior,* which is going beyond the minimal call of duty, are more likely to share their knowledge.

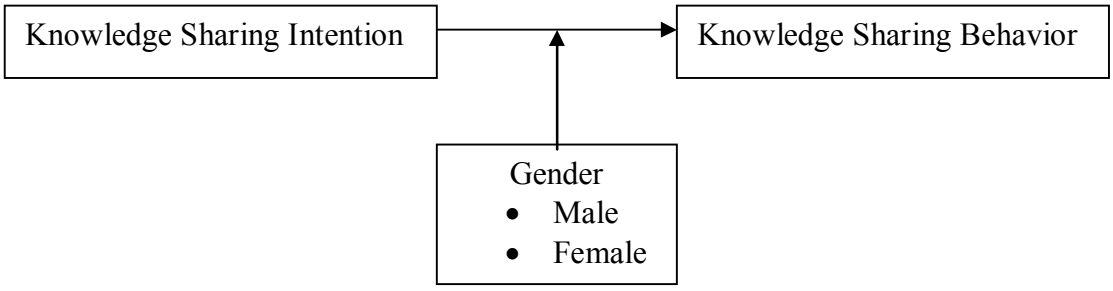
From the results of hypotheses 4 and 5, we can conclude that *OCB* is a very strong predictor of *knowledge sharing intention and behavior*. From the results, it can also be concluded that all the dimensions of OCB, except *Sportsmanship* dimension, are a strong predictor of knowledge sharing intention and behavior. Hence it is an individual's behavior of doing more than the job description, which strongly determines his knowledge sharing behavior.

4.8 Demographic variables and knowledge sharing behavior

In analyzing whether there is a difference among different demographic variables in knowledge sharing behavior, the data was first segregated for each dimension of demographic variables and then the relationship between *knowledge sharing intention* and *knowledge sharing behavior* was analyzed using regression analysis. The literature for this relationship has been presented in section 2.8.

4.8.1 Hypothesis 6 (a)

H6 (a): The relationship between knowledge sharing intention and knowledge sharing behavior is different among different Genders



4.8.1.1 Male Gender

Table 4.6 (a): Model Summary H (6) a – Male Gender

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.701(a)	.492	.482	.38661

A Predictor: (Constant), K_INT (knowledge sharing intention)

Table 4.6 (b) Coefficients for H (6) a – Male Gender

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.001	.421		2.376	.021
	K_INT	.779	.109	.701	7.165	.000

A Dependent Variable: K_SHB (knowledge sharing behavior)

The above two tables show various important results regarding the relationship between *knowledge sharing intention* and *knowledge sharing behavior* for the *Male* gender. In the table, K_INT represents knowledge sharing intention whereas K_SHB represents knowledge sharing behavior.

Table 4.6 (a) shows the correlation value of R as .701. This shows that, for *Male* gender, *knowledge sharing intention* has a strong correlation with *knowledge sharing behavior*. The positive sign with the value shows that both variables have a positive relationship between them that means that if one increase, the other also increases. Hence, from the value of R we can say that for the *male* gender, *knowledge sharing intention* and *knowledge sharing behavior* have a *strong positive relationship*. Another important value in Table 4.6 (a) is the value of R Square, which is .492. The value of R Square shows the variance in dependent variable which can be predicted by independent variable. As shown in Table 4.6 (a), for the *Male* gender, 49.2% variance in *knowledge sharing behavior* can be predicted by *knowledge sharing intention*. Table 4.6 (b) shows another important value, which is the P value (sig.).

This shows the significance of the relationship between the variables. If P-Value is less than 0.05, then we can say that the relationship is significant. For the relationship between *knowledge sharing intention* and *knowledge sharing behavior* for the *Male* gender, Table 4.6 (b) shows .000 of P-value, which is less than 0.05.

From the above results, we can conclude that for the *Male gender knowledge sharing intention* and *knowledge sharing behavior* have a *strong, significant and positive relationship*. That implies that males are strongly likely to manifest their knowledge sharing intention into behavior.

4.8.1.2 Female Gender

Table 4.7 (a): Model Summary for H (6) a - Female gender

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.837(a)	.701	.687	.29918

A Predictor: (Constant), K_INT (Knowledge sharing intention)

Table 4.7 (b): Coefficient for H (6) a - Female Gender

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.176	.579		-.304	.764
	K_INT	1.094	.152	.837	7.178	.000

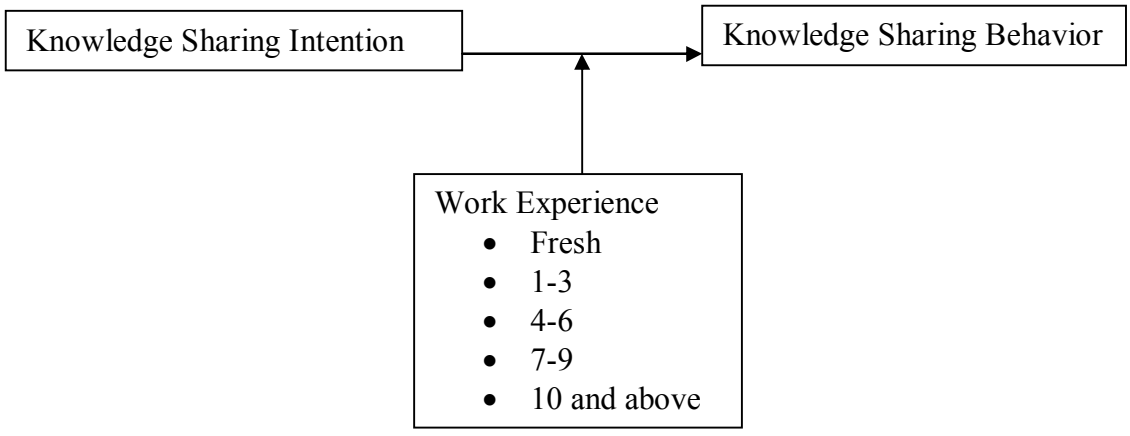
A Dependent Variable: K_SHB (knowledge sharing behavior)

The above two tables show various important results regarding the relationship between *knowledge sharing intention* and *knowledge sharing behavior* for the *Female* gender. In the table, K_INT represents knowledge sharing intention whereas K_SHB represents knowledge sharing behavior.

Table 4.7 (a) shows the correlation value of R as .837. This shows that, for the *Female* gender, *knowledge sharing intention* has a *very strong* correlation with *knowledge sharing behavior*. The positive sign with the value shows that both variables have a positive relationship between them that means that if one increases, the other also increases. Hence from the value of R we can say that the *female's knowledge sharing intention* and *knowledge sharing behavior* have a *very strong and positive relationship*. Another important value in Table 4.7 (a) is the value of R Square, which is .701. Value of R Square shows the variance in dependent variable which can be predicted by independent variable. As shown in Table 4.7 (a), for the *Female* gender, 70.1% variance in *knowledge sharing behavior* can be predicted by *knowledge sharing intention*. Table 4.7 (b) shows another important value, which is the P value (sig.). This shows the significance of the relationship between the variables. If P-Value is less than 0.05, then we can say that the relationship is significant. For the relationship between *knowledge sharing intention* and *knowledge sharing behavior* for the *Female* gender, Table 4.7 (b) shows .000 of P-value, which is less than 0.05. From the above results it is evident that for the *females, knowledge sharing intention* and *knowledge sharing behavior* have a *very strong, significant and positive relationship*. This implies that the females are very strongly likely to manifest their knowledge sharing intention into behavior.

4.8.2 Hypothesis 6 (b)

H6 (b): The relationship between knowledge sharing intention and knowledge sharing behavior is different among different experience levels



4.8.2.1 Fresh

Table 4.8 (a): Model summary hypothesis 6(b) – Fresh working experience

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.935(a)	.873	.831	.22526

A Predictor: (Constant), K_INT (knowledge sharing intention)

Table 4.8 (b): Coefficients hypothesis 6(b) – fresh working experience

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.273	.596		2.136	.122
	K_INT	.710	.156	.935	4.549	.020

A Dependent Variable: K_SHB (knowledge sharing behavior)

The two tables above show various important results regarding the relationship between *knowledge sharing intention* and *knowledge sharing behavior* for individuals with *fresh* working experience. In the table, K_INT represents knowledge sharing intention whereas K_SHB represents knowledge sharing behavior.

Table 4.8 (a) shows correlation value R as .935. This shows that, for individuals with *fresh* working experience, *knowledge sharing intention* has a very strong correlation with *knowledge sharing behavior*. The positive sign with the value shows that both variables have a positive relationship between them that means that if one increases, the other also increases. Hence from the value of R we can say that for individuals with *fresh* working experience *knowledge sharing intention* and *knowledge sharing behavior* has a *very strong positive relationship*. Another important value in Table 4.8 (a) is the value of R Square, which is .873. The value of R Square shows the variance in dependent variable which can be predicted by independent variable. As shown in Table 4.8 (a), for individuals with *fresh* working experience, 87.3% variance in *knowledge sharing behavior* can be predicted by

knowledge sharing intention. Table 4.8 (b) shows another important value, which is the P value (sig.). This shows the significance of the relationship between the variables. If P-Value is less than 0.05, then we can say that the relationship is significant. For the relationship between *knowledge sharing intention* and *knowledge sharing behavior* for individuals with *fresh* experience level, Table 4.8 (b) shows .020 of P-value, which is less than 0.05, which shows the significance of relationship. From the above results and subsequent analysis, we can say that for individuals with *fresh* working experience *knowledge sharing intention* and *knowledge sharing behavior* has a *very strong significant positive relationship.*

4.8.2.2 '1-3 Year'

Table 4.9 (a): Model Summary hypothesis 6(b) – 1-3 year working experience

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.898(a)	.806	.786	.27628

A Predictor: (Constant), K_INT (knowledge sharing intention)

Table 4.9 (b): Coefficients hypothesis 6(b) – 1-3 years working experience

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.091	.804		-1.358	.204
	K_INT	1.368	.212	.898	6.440	.000

A Dependent Variable: K_SHB (knowledge sharing behavior)

The above two tables show various important results regarding the relationship between *knowledge sharing intention* and *knowledge sharing behavior* for individual's with *1-3 years* of working experience. In the table, K_INT represents knowledge sharing intention whereas K_SHB represents knowledge sharing behavior.

Table 4.9 (a) shows the correlation value of R as .898. This shows that, for individuals with *1-3 years* of working experience, *knowledge sharing intention* has a *very strong* correlation with *knowledge sharing behavior*. The positive sign with the value shows that both variables have a positive relationship between them that means that if one increases, the other also increases. Hence, from the value of R we can say that for individuals with *1-3 years* of working experience *knowledge sharing intention* and *knowledge sharing behavior* has a *very strong positive relationship*. Another important value in Table 4.9 (a) is the value of R Square, which is .806. The value of R Square shows the variance in dependent variable which can be predicted by independent variable. As shown in Table 4.9 (a), for individuals with *1-3 years* of working experience, 80.6% variance in *knowledge sharing behavior* can be predicted by *knowledge sharing intention*. Table 4.9 (b) shows another important value, which is the P value (sig.). This shows the significance of the relationship between the variables. If P-Value is less than 0.05, then we can say that the relationship is significant. For the relationship between *knowledge sharing intention* and *knowledge sharing behavior* for individuals with *1-3 years* of working experience, Table 4.9 (b) shows .000 of P-value, which is less than 0.05, which shows the significance of relationship. From the above results and consequent analysis, it is evident that for individuals with *1-3 years* of working experience *knowledge sharing intention* and *knowledge sharing behavior* has a *very strong significant positive relationship.*

4.8.2.3 '4-6 Years'

Table 4.10 (a): Model Summary hypothesis 6(b) – 4-6 years of working experience

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.900(a)	.811	.784	.21567

A Predictor: (Constant), K_INT (knowledge sharing intention)

Table 4.10 (b): Coefficients hypothesis 6(b) – 4-6 years of working experience

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.466	.474		3.090	.018
	K_INT	.676	.124	.900	5.475	.001

A Dependent Variable: K_SHB (knowledge sharing behavior)

The above two tables show various important results regarding the relationship between *knowledge sharing intention* and *knowledge sharing behavior* for individuals with *4-6 years* of working experience. In the table, K_INT represents knowledge sharing intention whereas K_SHB represents knowledge sharing behavior.

Table 4.10 (a) shows the correlation value of R as .900. This shows that, for individuals with *4-6 years* of working experience, *knowledge sharing intention* has a *very strong* correlation with *knowledge sharing behavior*. The positive sign with the value shows that both variables have a positive relationship between them that means that if one increases, the other also increases. Hence, from the value of R we can say that for individuals with *4-6 years* of working experience, *knowledge sharing intention* and *knowledge sharing behavior* has a *very strong and positive relationship*. Another important value in Table 4.10 (a) is the value of R Square, which is .811. The value of R Square shows the variance in dependent variable which can be predicted by independent variable. As shown in Table 4.10 (a), for Individuals with *4-6 years* of working experience, 81.1% variance in *knowledge sharing behavior* can be predicted by *knowledge sharing intention*. Table 4.10 (b) shows another important value, which is the P value (sig.). This shows the significance of the relationship between the variables. If P-Value is less than 0.05, then we can say that the relationship is significant. For the relationship between *knowledge sharing intention* and *knowledge sharing behavior* for individuals with *4-6 years* of working experience, Table 4.10 (b) shows .001 of P-value, which is less than 0.05, which shows the significance of relationship. From the above results and subsequent analysis, we can conclude that for

individuals with *4-6 years* of working experience, *knowledge sharing intention* and *knowledge sharing behavior* has a *very strong significant positive relationship.*

4.8.2.4 '7-9 Years'

Table 4.11 (a): Model Summary hypothesis 6(b) – 7-9 years of working experience

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.858(a)	.736	.719	.26132

A Predictor: (Constant), K_INT (knowledge sharing intention)

Table 4.11 (b): Coefficients hypothesis 6(b) – 7-9 years of working experience

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.033	.636		-.051	.960
	K_INT	1.066	.165	.858	6.473	.000

A Dependent Variable: K_SHB (knowledge sharing behavior)

The above two tables show various important results regarding the relationship between *knowledge sharing intention* and *knowledge sharing behavior* for individuals with *7-9 years* of working experience. In the table, K_INT represents knowledge sharing intention whereas K_SHB represents knowledge sharing behavior.

Table 4.11 (a) shows the correlation value of R as .858. This shows that, for individuals with *7-9 years* of working experience, *knowledge sharing intention* has a very strong correlation with *knowledge sharing behavior*. The positive sign with the value shows that both variables have a positive relationship between them that means that if one increases, the other also increases. Hence, from the value of R we can say that for individuals with *7-9 years* of working experience, *knowledge sharing*

intention and *knowledge sharing behavior* has a *very strong positive relationship*. Another important value in Table 4.11 (a) is the value of R Square, which is .736. The value of R Square shows the variance in dependent variable which can be predicted by independent variable. As shown in Table 4.11 (a), for individuals with *7-9 years* of working experience, 73.6% variance in *knowledge sharing behavior* can be predicted by *knowledge sharing intention*. Table 4.11 (b) shows another important value, which is the P value (sig.). This shows the significance of the relationship between the variables. If P-Value is less than 0.05, then we can say that the relationship is significant. For the relationship between *knowledge sharing intention* and *knowledge sharing behavior* for individuals with *7-9 years* of working experience, Table 4.11 (b) shows .000 of P-value, which is less than 0.05, which shows the significance of relationship. From the above results and analysis, it is evident that for individuals with *7-9 years* of working experience *knowledge sharing intention* and *knowledge sharing behavior* has a *very strong, significant and positive relationship.*

4.8.2.5 '10 and above'

Table 4.12 (a): Model Summary hypothesis 6(b) – 10 and above years of working experience

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.636(a)	.405	.387	.44043

A Predictor: (Constant), K_INT (knowledge sharing intention)

Table 4.12 (b): Coefficients hypothesis 6(b) -10 and above years of working experience

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.858	.639		1.342	.188
	K_INT	.794	.165	.636	4.810	.000

A Dependent Variable: K_SHB (knowledge sharing behavior)

The above two tables show various important results regarding the relationship between *knowledge sharing intention* and *knowledge sharing behavior* for individuals with *10 and above years* of working experience. In the table, K_INT represents knowledge sharing intention whereas K_SHB represents knowledge sharing behavior.

Table 4.12 (a) shows a correlation value of R as .636. This shows that, for individuals with *10 and more years* of working experience, *knowledge sharing intention* has a strong correlation with *knowledge sharing behavior*. The positive sign with the value shows that both variables have a positive relationship between them that means that if one increases, the other also increases. Hence, from the value of R we can say that for individuals with *10 and above years* of working experience, *knowledge sharing intention* and *knowledge sharing behavior* has a *strong positive relationship*. Another important value in Table 4.12 (a) is the value of R Square, which is .405. The value of R Square shows the variance in dependent variable which can be predicted by independent variable. As shown in Table 4.12 (a), for individuals with *10 and more years* of working experience, 40.5% variance in *knowledge sharing behavior* can be predicted by *knowledge sharing intention.* Table 4.12 (b) shows another important value, which is the P value (sig.). This shows the significance of the relationship between the variables. If P-Value is less than 0.05, then we can say that the relationship is significant. For the relationship between *knowledge sharing intention* and *knowledge sharing behavior* for individuals with *10 and above years* of working experience, Table 4.12 (b) shows .000 of P-value, which is less than 0.05, which shows the significance of relationship. From the above results and consequent

analysis, we can safely conclude that for individuals with *10 and above years* of working experience, *knowledge sharing intention* and *knowledge sharing behavior* has a *strong significant positive relationship*

4.8.3 Hypothesis 6 (c)

H6 (c): The relationship between knowledge sharing intention and knowledge sharing behavior is different among different education levels

4.8.3.1 Diploma

Table 4.13 (a): Model Summary hypothesis 6(c) - Diploma

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.598(a)	.358	.312	.35066

A Predictor: (Constant), K_INT (knowledge sharing intention)

Table 4.13 (b): Coefficients hypothesis 6(c) - Diploma

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.076	.998		1.078	.299
	K_INT	.757	.271	.598	2.792	.014

A Dependent Variable: K_SHB (knowledge sharing behavior)

The above two tables show various important results regarding the relationship between *knowledge sharing intention* and *knowledge sharing behavior* for individuals with education level of *Diploma*. In the table, K_INT represents knowledge sharing intention whereas K_SHB represents knowledge sharing behavior.

Table 4.13 (a) shows a correlation value of R as .598. This shows that, for individuals with an education level of *diploma*, *knowledge sharing intention* has a moderate correlation with *knowledge sharing behavior.* The positive sign with the value shows that both variables have a positive relationship between them that means that if one increase, the other also increases. Hence, from the value of R we can say that for individuals with the education level of *diploma, knowledge sharing intention* and *knowledge sharing behavior* has a *moderate positive relationship*. Another important value in Table 4.13 (a) is the value of R Square, which is .358. The value of R Square shows the variance in dependent variable which can be predicted by independent variable. As shown in Table 4.13 (a), for individuals with an education level of *diploma*, 35.8% variance in *knowledge sharing behavior* can be predicted by *knowledge sharing intention*. Table 4.13 (b) shows another important value, which is the P value (sig.). This shows the significance of the relationship between the variables. If P-Value is less than 0.05, then we can say that the relationship is significant. For the relationship between *knowledge sharing intention* and *knowledge sharing behavior* for individuals with an education level of *diploma*, Table 4.13 (b) shows .014 of P-value, which is less than 0.05, which shows the significance of relationship. From the above results and consequent analysis, we can conclude that for individuals with education level of *diploma, knowledge sharing intention* and *knowledge sharing behavior* has a *moderate significant positive relationship*

4.8.3.2 Bachelors

Table 4.14 (a): Model Summary hypothesis 6(c) – Bachelors Degree holders

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.816(a)	.667	.655	.32113

A Predictor: (Constant), K_INT (knowledge sharing intention)

Table 4.14 (b): Coefficients hypothesis 6(c) – Bachelors Degree holders

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.837	.417		2.006	.054
	K_INT	.828	.107	.816	7.745	.000

A Dependent Variable: K_SHB (knowledge sharing behavior)

The above two tables show various important results regarding the relationship between *knowledge sharing intention* and *knowledge sharing behavior* for individuals with education level of *bachelors*. In the table, K_INT represents knowledge sharing intention whereas K_SHB represents knowledge sharing behavior.

Table 4.14 (a) shows a correlation value of R as .816. This shows that, for individuals with an education level of *bachelors*, *knowledge sharing intention* has a *very strong* correlation with *knowledge sharing behavior*. The positive sign with the value shows that both variables have a positive relationship between them that means that if one increases, the other also increases. Hence, from the value of R we can say that for individuals with the education level of *bachelors, knowledge sharing intention* and *knowledge sharing behavior* has a *very strong positive relationship*. Another important value in Table 4.14 (a) is the value of R Square, which is .667. The value of R Square shows the variance in dependent variable which can be predicted by independent variable. As shown in Table 4.14 (a), for Individuals with an education level of *bachelors*, 66.7% variance in *knowledge sharing behavior* can be predicted by *knowledge sharing intention*. Table 4.14 (b) shows another important value, which is the P value (sig.). This shows the significance of the relationship between the variables. If P-Value is less than 0.05, then we can say that the relationship is significant. For the relationship between *knowledge sharing intention* and *knowledge sharing behavior*, for individuals with an education level of *bachelors*, Table 4.14 (b) shows .000 of P-value, which is less than 0.05, which shows the significance of relationship. From the above results and consequent analysis, we can safely say that

for individuals with education level of *bachelors*, *knowledge sharing intention* and *knowledge sharing behavior* has a *very strong significant positive relationship*

4.8.3.3 Masters

Table 4.15 (a): Model Summary hypothesis 6(c) – Masters Degree holders

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.655(a)	.429	.404	.41642

A Predictors: (Constant), K_INT (knowledge sharing intention)

Table 4.15 (b): Coefficients hypothesis 6(c) – Masters Degree holders

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.275	.889		.310	.760
	K_INT	.960	.231	.655	4.156	.000

A Dependent Variable: K_SHB (knowledge sharing behavior)

The above two tables show various important results regarding the relationship between *knowledge sharing intention* and *knowledge sharing behavior* for individuals with education level of *masters*. In the table, K_INT represents knowledge sharing intention whereas K_SHB represents knowledge sharing behavior.

Table 4.15 (a) shows a correlation value of R as .655. This shows that, for individuals with an education level of *masters*, *knowledge sharing intention* has a strong correlation with *knowledge sharing behavior*. The positive sign with the value shows that both variables have a positive relationship between them that means that if one increases, the other also increases. Hence, from the value of R we can say that for individuals with the education level of *masters*, *knowledge sharing intention* and *knowledge sharing behavior* has a *strong positive relationship*. Another important

value in Table 4.15 (a) is the value of R Square, which is .429. The value of R Square shows the variance in dependent variable which can be predicted by independent variable. As shown in Table 4.15 (a), for individuals with an education level of *masters*, 42.9% variance in *knowledge sharing behavior* can be predicted by *knowledge sharing intention*. Table 4.15 (b) shows another important value, which is the P value (sig.). This shows the significance of the relationship between the variables. If P-Value is less than 0.05, then we can say that the relationship is significant. For the relationship between *knowledge sharing intention* and *knowledge sharing behavior* for individuals with an education level of *masters*, Table 4.15 (b) shows .000 of P-value, which is less than 0.05, which shows the significance of relationship. From the above results and consequent analysis, we can safely say that for individuals with education level of *masters*, *knowledge sharing intention* and *knowledge sharing behavior* has a s*trong significant positive relationship.*

4.8.3.4 PhD

Table 4.16 (a): Model Summary hypothesis 6(c) – PHD Degree holders

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.726(a)	.526	.408	.56052

A Predictor: (Constant), K_INT (knowledge sharing intention)

Table 4.16 (b): Coefficients hypothesis 6(c) – PHD Degree holders

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.868	1.581		.549	.612
	K_INT	.831	.394	.726	2.108	.103

A Dependent Variable: K_SHB (knowledge sharing behavior)

The above two tables show various important results regarding the relationship between *knowledge sharing intention* and *knowledge sharing behavior* for individuals with education level of *PhD*. In the table, K_INT represents knowledge sharing intention whereas K_SHB represents knowledge sharing behavior.

Table 4.16 (a) shows correlation value R as .726. This shows that, for individuals with an education level of *PhD*, *knowledge sharing intention* has a strong correlation with *knowledge sharing behavior*. The positive sign with the value shows that both variables have a positive relationship between them that means that if one increases, the other also increases. Hence, from the value of R we can say that for individuals with the education level of *PhD*, *knowledge sharing intention* and *knowledge sharing behavior* has a *strong positive relationship*. Another important value in Table 4.16 (a) is the value of R Square, which is .526. The value of R Square shows the variance in dependent variable which can be predicted by independent variable. As shown in table 4.16 (a), for individuals with an education level of *PhD*, 52.6% variance in *knowledge sharing behavior* can be predicted by *knowledge sharing intention*. Table 4.16 (b) shows another important value, which is the P value (sig.). This shows the significance of the relationship between the variables. If P-Value is less than 0.05, then we can say that the relationship is significant. For the relationship between *knowledge sharing intention* and *knowledge sharing behavior*, for individuals with an education level of *PhD*, Table 4.16 (b) shows .103 of P-value, this is above 0.05, showing the insignificance of relationship. From the above results and consequent analysis, we can conclude that for individuals with education level of *PhD*, *knowledge sharing intention* and *knowledge sharing behavior* has a *strong but insignificant positive relationship.*

4.9 Summary

Chapter 4 presented the findings and analysis of the study. The chapter started with reliability analysis and then it presented the findings and analysis on six major and in total nineteen hypotheses. The results have shown various important findings. Table 4.17 presents the summary of the results for all the hypotheses.

Table 4.17: Result status of hypotheses

Hypothesis 1	Supported
Hypothesis 2	Supported
Hypothesis 3	Supported
Hypothesis 4	Supported
• H4(a)	Supported
• H4(b)	Supported
• H4(c)	Supported
• H4(d)	Not Supported
• H4(e)	Supported
Hypothesis 5	Supported
• H5(a)	Supported
• H5(b)	Supported
• H5(c)	Supported
• H5(d)	Not Supported
• H5(e)	Supported
Hypothesis 6	Supported
• H6(a)	Supported
• H6(b)	Not Supported
• H6(c)	Supported

Table 4.17 shows that all the six major hypotheses are supported by this research. Out of nineteen hypotheses, sixteen have been supported, whereas three hypotheses have not been supported reliably.

The next chapter will present the discussion on the results presented in this chapter.

CHAPTER 5

DISCUSSION

5.1 Overview

The previous chapter presented the results and the subsequent analysis. This chapter will present the discussion on the results obtained. The results will be compared with previous studies to see whether the results obtained comply with earlier research works or not. At the end, a summary will also be presented to have an overview of the results.

5.2 Reliability Analysis

Before moving further and discuss the results, it is important to mention the reliability of the questionnaire, based on which the analysis was conducted. Alpha Cronbach Reliability test was applied to analyze the reliability of the data gathered.

The test showed *.8239* Alpha Reliability value, which means that *82.39%* of the data is reliable and hence the analysis and the results obtained from this data is also reliable.

5.3 Hypothesis Testing

Six major hypotheses and in total nineteen hypotheses were proposed in this research. To test these hypotheses, linear regression method was applied by using SPSS statistical tool. To analyze the results, values of R, R Square and P-value (sig.) were

analyzed. The value of R shows the strength and direction of a relationship, whereas value of R-square shows how much percentage of dependent variable can be predicted by independent variable. The value of P shows the significance of the relationship. Based on these parameters, the previous chapter has presented some findings which will be discussed here.

5.4 Hypothesis 1 (H1)

An individual's knowledge sharing attitude positively affects his knowledge sharing intention

The first two hypotheses are related with the Theory of Reasoned Action (TRA). The results obtained for the relationship between *knowledge sharing attitude* and *knowledge sharing intention* show a *strong positive and significant* relationship between both variables. The results for this hypothesis are presented in detail in section 4.4.1 of chapter 4. The value of R obtained is *.760* which shows that the relationship is *strong* and *positive*. The value of R-square obtained is *.578*, which shows that *57.8%* of variance in *knowledge sharing intention* can be predicted by *knowledge sharing attitude*. The value of P obtained is *0.000* which shows that the relationship is significant and hence reliable. Hence H1 is supported.

From the preceding paragraphs the results show that the relationship is strong, positive and significant. The term *strong* refers to the strength of the relationship. In the context of H1, it implies that an individual's attitude towards knowledge sharing strongly predicts his intention to share knowledge. The term *positive* refers to the direction of the relationship, which implies that the better a person's attitude towards sharing his knowledge, the more he will be willing to share. At the end, the term *significant* refers to the significance of the relationship. From the above discussion, it is evident that individual who believe that knowledge sharing is *good*, and he *should* share his knowledge with others, will also intend to share his knowledge.

5.5 Hypothesis 2 (H2)

An individual's knowledge sharing intention positively affects his knowledge sharing behavior

The results obtained for *H2* show a *strong, positive and significant* relationship between *knowledge sharing intention* and *knowledge sharing behavior*. The results for this hypothesis are presented in detail in section 4.4.2 of chapter 4. The value of R for this relationship is .736, which shows that the relationship is *strong and positive*. The value or R-square is .541, which shows that 54.1% of variance in *knowledge sharing behavior* can be predicted by *knowledge sharing intention*. Hence hypothesis 2 is supported.

Similar to the discussion presented for *H1*, the results for *H2* have suggested that *knowledge sharing intention* and *knowledge sharing behavior* have a *strong, positive and significant* relationship. In the context of *H2*, the term *strong* implies that an individual's intention towards knowledge sharing strongly predicts his actual sharing of knowledge. The term *positive* implies that the stronger a person's intention to share his knowledge, the more likely he is to share knowledge. At the end, the term *significant* refers to the significance of the relationship. From the above discussion, it is evident that individual who intend to share his knowledge and is willing to share, is more likely to actually share his knowledge.

The above finding, for H1 and H2, are in compliance with earlier studies. The hypotheses are based on Theory of Reasoned Action (TRA). The theory states that an individual's attitude determines his behavioral intentions, and behavioral intention determines his actual behavior. The theory has been used in various fields, and the same results have been obtained by various research works. In the field of KM, the same hypotheses have been proved by various studies such as Bock *et al.* (2005), Andriessen (2006), Yang & Farn (2007), Samieh and Wahba (2007), Irene *et al.* (2009) but in different domains.

5.6 Hypothesis 3 (H3)

Extrinsic rewards positively affect knowledge sharing intention

The relationship between extrinsic rewards and knowledge sharing intention was adopted from the *Multifactor Interaction Knowledge Sharing Model (MIKS)*. As it was a theoretical framework, the relationship was not tested empirically by Andriessen (2006).

The results obtained from the last chapter show a *moderate, significant and positive* relationship of *extrinsic rewards* with *knowledge sharing intention*. The results for this hypothesis have been presented in detail in section 4.5.1. The value of R for this relationship is .575, which shows that the relationship is moderate and positive. The value of R-square is .330, which shows that 33% variance in *knowledge sharing intention* can be predicted by *extrinsic rewards*. Lastly, the value of P, which is .000 for this relationship, shows the significance of the relationship. Hence H3 is supported by empirical data.

From the results we can conclude that extrinsic rewards have a moderate, positive and significant relationship with *knowledge sharing intention*. In the context of H3, the term moderate implies the degree of influence extrinsic rewards have on an individual's intention to share knowledge. Hence, extrinsic rewards moderately drive individual's willingness to share knowledge. The term positive refers to the direction of the impact of extrinsic rewards on *knowledge sharing intention*, which implies that by giving extrinsic rewards, individual's intention to share knowledge will increase. At the end, the term significant shows that the relationship is proven substantially.

The results are in congruence not only with earlier studies but also with practical examples from the industry. According to Puccinelli (1998), incentives/rewards should be used to increase the willingness of employees to share their knowledge. According to Andriessen (2006), this willingness or motivation is actually the intention of employees. Hence, as mentioned in Chapter 2, researchers generally believe that rewards encourage knowledge sharing, lack of rewards can be a barrier to flourish knowledge sharing in organizational culture and unavailability of rewards can be a de-motivating factor for the knowledge source (Constant *et al,* 1994; Osterloh

and Frey 2000; Huber, 2001; Bock & Kim, 2002; Bartol & Srivastava , 2002; Argote *et al.,* 2003; Zárraga & Bonache, 2003; Bock *et al.,* 2005; Burgess, 2005; Riege 2005; Cabrera *et al.,* 2006).

The respondents of the survey also highlighted the importance of extrinsic rewards through their comments. One of the respondents, at a high position in one of the training institutes of PETRONAS, says:"

"I may not want rewards for myself, but I would definitely want to give rewards to the people who will share knowledge"

Another respondent posted the following comment on the question that how an organization can flourish knowledge sharing.

"By giving acknowledgement / reward to the person who has contributed his knowledge, so that he feels appreciated"

Another comment by one of the respondents highlighted the importance of extrinsic rewards.

"To increase knowledge sharing in the organization, top management should give token or rewards to get their participation"

Above are just a few examples from the responses. There are many respondents who suggested rewards to motivate individuals to share their knowledge.

The results are also in congruence with the practice in industry. As mentioned in the literature review, many companies such as Siemens, Samsung, Buckman Laboratories, Lotus Development, several Korean companies, IBM, Scott Paper and Hewlett-Packard Consulting have been using extrinsic rewards successfully to flourish knowledge sharing in their organizations (Ewing and Keenan, 2001; Hyoung and Moon, 2002; Davenport, 2002; Bock *et al.,* 2005; Andriessen, 2006).

Although, it was not in the objective of the study to measure the effect of several dimensions of extrinsic rewards (i.e. individual, group, tangible and intangible rewards) on knowledge sharing intention, but the results obtained by the study provides important insight on these types of rewards as well. The results for the

different dimensions of extrinsic rewards are presented in Table 4.3 (b) in section 4.5.1. The results obtained are in congruence with existing literature. In the coming paragraphs we will discuss the results obtained regarding the effect of individual, group, tangible and intangible extrinsic rewards on knowledge sharing intention.

The results obtained for the different dimensions of extrinsic rewards show that, according to individuals, they will share more if they will be given tangible and group rewards, whereas intangible and individual rewards have not been considered instrumental to motivate them for knowledge sharing. The results obtained for each dimension of extrinsic rewards have been shown in Table 5.1.

Table 5.1: Results for the dimensions of extrinsic rewards

Dimension	**Beta Value**	**P-Value (Sig.)**
Intangible Extrinsic Rewards	.131	.231
Tangible Extrinsic Rewards	.284	.012
Individual Extrinsic Rewards	-.044	.693
Group Extrinsic Rewards	.352	.002

From the above mentioned results it is evident that, tangible and group rewards have a positive and significant relationship with knowledge sharing intention, intangible rewards have positive but insignificant relationship, whereas individual rewards have negative and insignificant relationship with knowledge sharing intention. These results as mentioned above are in compliance with earlier studies.

For example, a study conducted in Malaysia by Islam and Ismail (2004) on *"ranking of Malaysian employees of rewards and recognition approaches"*, shows that, out of 17 given rewards, individuals ranked cash on the first, paid vacation on fourth, company share on fifth and merchandise on eleventh position. This shows that individuals, especially in Malaysia, prefer getting tangible rewards to get motivated. At the same time, as compared to tangible rewards intangible rewards are difficult to implement (Andriessen, 2006).

Apart from theory, as mentioned in literature survey, Siemens gave tangible rewards in their IC Networks (ICN) division ShareNet, Scott Paper's gives financial incentives and IBM provides *'splitting bonus'* to its employees to flourish knowledge sharing in their organizations (Andriessen, 2006). Hence, apart from theory, practice also supports the use of tangible rewards to promote knowledge sharing.

There are researchers who believe that tangible reward can be harmful for knowledge sharing in the long run (APQC, 1999; McLure *et al.,* 2000; Kugel and Schostek, 2004) however, the above examples of organizations show some contradictory implications. At the same time Andriessen (2006) concluded, that the choice of tangible or intangible rewards depends on the culture of the organization.

As far as individual and group rewards are concerned, group rewards has also been preferred over individual rewards for knowledge sharing. As mentioned in the literature survey, many researchers propose group rewards for knowledge sharing as group rewards foster coordination and cooperation among employees (Johnson, 1993; DeMattio *et al.,* 1998; Dulebohn and Martocchio, 1998; Patricia, 2007). At the same time, researchers believe that individual rewards can be harmful to knowledge sharing and employees will hoard knowledge if they will be evaluated on individual performance, as their *"weapon"* of the competition will be knowledge (Connelly, 2000; Bartol and Srivastava, 2002). Another very important reason, behind the preference of group rewards by the Malaysian employees, can be their collective nature, because of which they prefer group interests over individual interests (Abdullah, 1996; Tamam *et al.,* 1996; Lailawati, 2005). Although the effect of the manifestations of extrinsic rewards was not in the objectives of this study, but the results can be beneficial for PETRONAS training institutes.

To summarize, from the results it is evident that the effect of extrinsic rewards is only *moderate*, neither *strong* nor *very strong*, hence, emphasize on *extrinsic rewards*, should also be moderate. For PETRONAS training institutes, although it will be fruitful to give tangible rewards to employees, still the organization should put more emphasize on factors, other than extrinsic rewards such as OCB and organization culture, to encourage knowledge sharing.

5.7 Hypothesis 4 (H4)

Organization Citizenship Behavior has a positive effect on individual's knowledge sharing intention

The relationship between *Organization Citizenship Behavior* and *knowledge sharing intention* has been adopted by the study of Yang and Farn (2007). Yang and Farn (2007) analyzed the relationship between OCB and tacit knowledge sharing intention, whereas this study will attempt to analyze the relationship between OCB and knowledge sharing intention as a whole.

The results for this hypothesis have been presented in detail in section 4.6.1. The results obtained show an R value of .783, an R-square value of .614 and a P-Value of .000. The results show that the relationship between *OCB* and *knowledge sharing intention* is strong, positive and significance, hence supporting H4. These results are in compliance with the earlier researches such as Yang and Farn (2007) and Chieh (2008).

The results have shown that the impact of OCB on an individual's willingness to share his knowledge is *strong* and *positive*. This implies that OCB strongly predicts an individual's willingness to share his knowledge and an individual who works more and goes beyond his job description, which is OCB, is more likely be willing to share more as well. In contrast a person who does not go beyond his job description is less likely intends to share his knowledge. The results also show that this impact of OCB on individual's willingness to share his knowledge is significant and hence reliable.

For the five dimensions of OCB, the results show that *Altruism, Courtesy, Civic Virtue and Conscientiousness* has a *positive* and *significant* relationship with *knowledge sharing intention*, whereas *Sportsmanship* has a *positive* but *insignificant* relationship with knowledge sharing intention. The results obtained for the former four dimensions are in compliance with the studies of Yang and Farn (2007) and Chieh (2008), but the result for later is not in compliance with the earlier studies. The possible reason behind the result obtained for Sportsmanship will be presented at the end of section 5.7.

The results imply that *Courtesy* is a major predictor of *knowledge sharing intention* closely followed by *Altruism*, *Civic Virtue* and *Conscientiousness*, whereas as mentioned earlier, *Sportsmanship* has the least positive impact on *knowledge sharing intention* and that too is insignificant. Hence individuals with *Courtesy, Altruism, Civic Virtue and Conscientiousness* behaviors are more likely be willing to share their knowledge whereas individual with *Sportsmanship* behavior may not necessarily be willing to share. The results obtained for the dimensions of OCB have been shown in Table 5.2. These results are presented and analyzed in detail in section 4.6.1.1, 4.6.1.2, 4.6.1.3, 4.6.1.4 and 4.6.1.5.

Table 5.2: results obtained for the Dimensions of OCB

Dimension	**Beta Value**	**P-Value (Sig.)**
Altruism	.260	.013
Courtesy	.276	.003
Civic Virtue	.229	.046
Sportsmanship	.046	.575
Conscientiousness	.184	.050

5.8 Hypothesis 5 (H5)

Organization Citizenship Behavior has a positive effect on individual's knowledge sharing behavior

To the best of the author's knowledge, the relationship between *OCB* and *knowledge sharing behavior* has not been tested empirically in any of the past research works. Chieh (2008) attempts to discover a relationship between the different dimensions of *OCB* with knowledge sharing, but mentions at the end that the knowledge sharing in his research is actually knowledge sharing intention and not knowledge sharing behavior. Hence, this study has attempted to empirically prove this relationship.

The results for this hypothesis have been presented in detail in section 4.7.1. The results obtained for this relationship show a *very strong, positive and significant* relationship between *OCB* and *knowledge sharing behavior*. The value of R for this relationship is .897 which shows a very strong and positive correlation between the two variables. The value of R-square is .797, which shows that a greater part of change in knowledge sharing behavior, 79.7%, can be predicted by OCB. At the same time the P-value of 0.000 shows that the relationship is significant. The findings support H5.

The results have shown that *OCB* is one of the *very strong* predictor of *knowledge sharing behavior*. If we compare the impact of *OCB* on *knowledge sharing intention* with its impact on *knowledge sharing behavior*, we will conclude that *OCB* has more impact on the later. This implies that an individual with a behavior of going beyond the job description, which is OCB, is most likely to share his knowledge as well. The strong impact of OCB on *knowledge sharing intention* and its stronger impact on actual *knowledge sharing behavior* makes it one of the major predictors of knowledge sharing.

Past studies have tested the relationship between OCB and *knowledge sharing intention*, which is an antecedent of *knowledge sharing behavior*. In this way we can also conclude that the results for the relationship between OCB and knowledge sharing behavior, in this study, comply with earlier studies (Yang and Farn, 2007; Chieh, 2008).

Different dimensions were also hypothesized to be positively related with knowledge sharing behavior, in the sub-hypotheses of H5. The results show that *Altruism, Courtesy, Civic Virtue and Conscientiousness* have a positive and significant relationship with knowledge sharing behavior, whereas *Sportsmanship* has a positive but insignificant relationship with knowledge sharing intention. Hence H5 (a), 5(b), 5(c) and 5(e) are supported but H5 (d), though supported, but not significantly. The results obtained for the former four dimensions are in compliance with the studies of Yang and Farn (2007) and Chieh (2008), but the result for later is not in compliance with the earlier studies. According to the results, similar to the relationship between OCB dimensions and knowledge sharing intention, *Courtesy* is a

major predictor of knowledge sharing behavior followed by *Altruism, Civic Virtue and Conscientiousness,* whereas *Sportsmanship* has the least positive impact on knowledge sharing behavior and that too is insignificant. Hence individuals with *Courtesy, Altruism, Civic virtue and Conscientiousness* behaviors are most likely to share their knowledge whereas individual with *Sportsmanship* behavior may not necessarily share their knowledge.

The results are presented and analyzed in detail in section 4.7.1.1, 4.7.1.2, 4.7.1.3, 4.7.1.4 and 4.7.1.5. The important results obtained for sub hypotheses of H5 are given in Table 5.3.

Table 5.3: Results obtained for the Dimensions of OCB

Dimension	**Beta Value**	**P-Value (Sig.)**
Altruism	.297	.000
Courtesy	.382	.000
Civic Virtue	.210	.012
Sportsmanship	.079	.188
Conscientiousness	.178	.010

The past studies have proved a significant and positive relationship between *Sportsmanship* and *knowledge sharing intention*. However, if we ponder upon the definition of *Sportsmanship* behavior deliberately, we will come to know that, unlike other dimensions of OCB, it cannot be linked with knowledge sharing directly. The definition of this behavior found in literature is "*tolerating small inevitable inconveniences and trivial issues at workplace without complaining and with positive attitude"* (Farh *et al.,* 2004; Yang and Farn, 2007; Chien, 2009). Most of the items, found in literature and used in survey instruments, corresponding to *Sportsmanship* behavior, are based on the above definition, which was also adopted in this study. This definition of *Sportsmanship* behavior looks different from knowledge sharing behavior. As compared to other dimensions of OCB, sportsmanship does not have the element of helping the other person, sharing the ideas to improve processes or going

beyond the minimum call of duty, which have commonalities with knowledge sharing. That is why the result shows a positive but an insignificant relationship between sportsmanship and knowledge sharing intention as well as knowledge sharing behavior.

The effect of the five dimensions of OCB on *knowledge sharing intention* and *behavior* is similar. This also shows the overall fit of the framework and the data obtained. *OCB* affects both *knowledge sharing intention* and *behavior*, but it affects *knowledge sharing behavior* more strongly as compared to *knowledge sharing intention*. Hence, according to this study, at individual's level, *OCB* is one of the major predictors of *knowledge sharing behavior.*

5.9 Hypothesis 6 (H6)

An individual's demographic variables affect the relationship between his knowledge sharing intention and knowledge sharing behavior as a moderating variable.

The objective of this study was to analyze the difference of the strength of relationship between *knowledge sharing intention* and *knowledge sharing behavior* for different demographic variables. The demographic variables which were analyzed for this objective were *Gender, Work Experience and Level of Education*. The results are presented and analyzed in section 4.8. The following section will present, one by one, the discussion on the results obtained for different demographic variables.

5.9.1 Hypothesis 6 (a)

The relationship between knowledge sharing intention and knowledge sharing behavior is different among different genders

The results, which were presented and analyzed in detail in section 4.8.1, show that there is a difference of the strength of relationship between *knowledge sharing intention* and *knowledge sharing behavior* for male and female genders. The important values are briefly presented below in Table 5.4.

Table 5.4: Summary of the results for H6 (a)

Dimension	**R**	**R-Square**	**P-Value**
Male	.701	.492	.000
Female	.837	.701	.000

From the above results it is evident that the relationship between *knowledge sharing intention* and *knowledge sharing behavior* is stronger for the *Female* gender as compared to the *Male* gender. Results show that for the *males* the relationship is *strong, positive and significant*, whereas for the *females* the relationship is *very strong, positive and significant.* In simple terms, the *females* manifest their intention to share more than the *males*. Hence H6 (a), that the relationship between *knowledge sharing intention* and *knowledge sharing behavior* is different among different *Genders*, is supported.

The result is in congruence with the available literature. Men have individualistic and goal oriented thinking, whereas women have socialistic and relationship-oriented behavior (Lin, 2006; Chung, 2008). Hence it is more probable for female to share more, as knowledge sharing results from social interactions (Brief and Motowidlo, 1986; Nonaka and Takeuchi, 1995; Bolino, 1999; Connelly, 2000; Levin and Cross, 2004; Quigley *et al.,* 2007). Irmer *et al.* (2002) and Lin (2006) also believe that women are more inclined towards knowledge sharing than men. According to Lin (2006), because women are more social and relationship oriented, hence they are more inclined towards knowledge sharing to have strong relationship ties with other and to *"overcome traditional occupational hurdles"*.

5.9.2 Hypothesis 6 (b)

The relationship between knowledge sharing intention and knowledge sharing behavior is different among different experience levels

The results for this hypothesis are presented in detail in section 4.8.2. The results and consequent analysis shows that the relationship between knowledge sharing intention

and knowledge sharing behavior, for individuals with different levels of working experience, is almost the same. The summary of important values of result is given below in Table 5.5.

Table 5.5: Summary of the results for H6 (b)

Dimension	**R**	**R-Square**	**P-Value**
Fresh	.935	.873	.020
1-3 Years	.898	.806	.000
4-6 Years	.900	.811	.001
7-9 Years	.858	.736	.000
10 and above	.636	.405	.000

For individuals with no working experience i.e. fresh graduates, and the ones with below 10 years of work experience, the relationship is *very strong*. Although, for individuals with 10 and above years of work experience, the relationship is not *very strong* but still it is in the range of *strong* relationship. Hence, it is evident from the result and analysis that *working experience* does not affect the relationship between *knowledge sharing intention* and *knowledge sharing behavior*. Individuals with all levels of working experience manifest their knowledge sharing intention into behavior. Therefore H6 (b) is not supported.

This result is in congruence with an early research conducted by Pangil and Nasurdin (2007). The reason behind these results can be a strong KM culture in the training institutes of PETRONAS, because of which knowledge sharing might be a norm in these institutes.

5.9.3 Hypothesis 6 (c)

The relationship between knowledge sharing intention and knowledge sharing behavior is different among individuals with different education levels

The results for this hypothesis were shown in detail in section 4.8.3. The result and analysis shows that education level affects the relationship between *knowledge*

sharing intention and *knowledge sharing behavior*. The summary of the important result values is given below in Table 5.6.

Table 5.6: Summary of the results for H6 (c)

Dimension	**R**	**R-Square**	**P-Value**
Diploma	.598	.358	.014
Bachelors	.816	.667	.000
Masters	.655	.429	.000
PhD	.726	.526	.103

For diploma holders, the results showed that the relationship between *knowledge sharing intention* and *knowledge sharing behavior* is *moderate, positive and significant*, for *bachelor degree holders* it is *very strong, positive and significant*, for m*asters degree* holders it is *strong, positive and significant* whereas for PhD degree holders it is *strong, positive but insignificant*. From the above data and analysis, it is evident that the intensity of the relationship between *knowledge sharing intention* and *knowledge sharing behavior* varies with various levels of education. Hence, we can say that the hypothesis 6(c), that the relationship between knowledge sharing intention and knowledge sharing behavior is different among individuals with different education level is supported. The reason behind this difference is also out of the scope of this study.

5.10 Summary

This chapter presented the discussion on the results obtained from the survey. All the six major hypotheses are supported by this research. For the sub hypotheses, out of nineteen hypotheses, sixteen have been supported, whereas three hypotheses have not been supported. The essence of the chapter can be presented in following points:

1. Knowledge sharing attitude is a strong predictor of knowledge sharing intention which in turn strongly predict knowledge sharing behavior.

2. The effect of *Extrinsic rewards* on the intention of individual to share knowledge is moderate, neither strong nor very strong.

    a. According to the trainers and facilitators working at the training institutes of PETRONAS, *tangible* and *group rewards* can motivate them to share their valuable knowledge.

3. The intensity of the effect of OCB on knowledge sharing behavior is stronger if compared to its effect on knowledge sharing intention. This makes OCB a major predictor of knowledge sharing behavior.

    a. All the dimensions of OCB, including *Altruism, Courtesy, Conscientiousness, and Civic virtue*, can be considered as strong predictors of knowledge sharing intention and behavior, except *Sportsmanship*.

4. Out of the three demographic variables being assessed in this study, two variables including *Gender and Education level* affects the relationship between knowledge sharing intention and knowledge sharing behavior, as a moderating variable. However, work experience does not moderate the relationship. Important insight from the results are as follows:

    a. Females manifest their intention and actually share their knowledge more than males

    b. Employees with bachelors and masters level education manifest their intentions and actually share more than PhD and Diploma holders.

    c. There is no significant difference between people with different work experience to manifest their intentions and actually share knowledge.

The forthcoming chapter 6 will conclude the thesis by describing the contribution and limitations of this study, recommending the future work, giving important recommendations, especially to training institutes of PETRONAS, to improve knowledge sharing.

CHAPTER 6

CONCLUSION

6.1 Overview

In the previous chapter, we discussed the findings of this study. This chapter will present how the study achieved its objectives, what is the contribution of the study, recommendations for training institutes especially the training institutes of PETRONAS, limitations of the study and future work.

6.2 Objectives of the Study

There were primarily two major objectives of the study. However, in order to achieve the two major objectives, it was important to identify sub-objectives. These objectives, as stated in section 1.4, are as following:

> *Objective 1:* Provide a framework, which will enable us to understand individual's motivation to share his knowledge from the perspective of both intrinsic and extrinsic forms of motivation.

To achieve the above objective, following two sub-objectives were tested.

> *Objective 1 (a):* Identify whether *knowledge sharing attitude* leads to *knowledge sharing intention* and consequently to knowledge sharing behavior.

Objective 1 (b): Determine the effect of *extrinsic rewards and OCB,* as representative variables of extrinsic and intrinsic motivation, on individual's motivation to share his valuable knowledge.

Objective 2: Identify how individuals differ, based on their personality attributes, in their knowledge sharing behavior.

Objective 2 (a): Identify the effect of individual's *demographic variables* on his *knowledge sharing behavior* as a moderating variable.

Table 6.1 illustrates how the objectives were achieved.

Table 6.1: Achieved Objectives

Objective	**Statement**	**Result**
Objective 1	Provide a framework, which will enable us to understand individual's motivation to share his knowledge from the perspective of both intrinsic and extrinsic forms of motivation.	The study has proposed a framework of extrinsic and intrinsic motivators of knowledge sharing by incorporating extrinsic rewards and OCB in TRA.
Objective 1 (a)	Identify whether *knowledge sharing attitude* leads to *knowledge sharing intention* and consequently to knowledge sharing behavior.	The results have shown that an individual with a positive attitude towards knowledge sharing will have a positive intention and consequently will share his knowledge.
Objective 1 (b)	Determine the effect of *extrinsic rewards and OCB,* as representative variables of extrinsic and intrinsic motivation, on individual's motivation to share his valuable knowledge.	The results have shown that the effect of extrinsic rewards and hence extrinsic motivation on knowledge sharing is moderate Whereas the effect of OCB and hence intrinsic motivation of knowledge sharing is very strong.

Table 6.1: Achieved Objectives (cont.)

Objective 2	Identify how individuals differ, based on their personality attributes, in their knowledge sharing behavior.	The study has incorporated demographic variables including Gender, education level and experience level, as a moderating variable, in the framework to understand individual differences in knowledge sharing behavior.
Objective 2 (a)	Identify the effect of individual's *demographic variables* on his *knowledge sharing behavior* as a moderating variable	The results have shown that individuals differ based on their demographic variables including gender and education level. Whereas there is no difference in individuals with different experience levels in manifesting their knowledge sharing intention into behavior.

6.3 Contribution of the Work

By using Theory of Reasoned Action (TRA), the study proposes a framework of intrinsic and extrinsic motivators of individual's knowledge sharing by revisiting the effect of extrinsic rewards, OCB and demographic variables on knowledge sharing. The study contributes to the body of knowledge in the following ways. Firstly, as mentioned earlier, there is lack of research work which attempts to understand individual's motivation to share his knowledge from both intrinsic and extrinsic motivational perspectives (Lin, 2007a). Hence this study expands the empirical understanding of the subject by providing a framework of intrinsic and extrinsic motivators of knowledge sharing.

At the same time, the study also analyzes and revisits the relationship between variables for which there is either a research gap or lack of research work. Firstly, to the best of the author's knowledge, for the first time, the effect of *Organization Citizenship Behavior (OCB)* on *knowledge sharing behavior* has been tested. Earlier studies (Yang and Farn, 2007; Chieh, 2008) which attempted to analyze this relationship actually analyzed the relationship between OCB and knowledge sharing intention and not the actual behavior. This study will fill this gap.

Secondly, the effect of extrinsic rewards on *knowledge sharing intention* has been tested empirically within the context of training institutes. Majority of the previous research works focus on the effect of extrinsic rewards on either knowledge sharing attitude (Bock and Kim, 2002; Bock *et al.,* 2005) or knowledge sharing behavior (Argote *et al.*, 2003; Zárraga and Bonache, 2003; Burgess, 2005; Cabrera *et al.,* 2006; Bi-Fen *et al.,* 2007).

At the same time, the effect of demographic variables on knowledge sharing behavior, as moderating variable, has been tested empirically. The research work for this relationship is considered scarce (Ismail and Yusof, 2009).

Because of the involvement and usage of IT in PETRONAS training institutes, this study can aid managers at IT training institutes as well to design strategies to flourish knowledge sharing in their organizations, especially among the trainers and facilitators.

Last but not the least, this is the first study, to the best of author's knowledge, which attempts to study individual's knowledge sharing motivators in the training institutes of an oil and gas company.

6.4 Recommendations

On the basis of the results obtained and the consequent analysis, the following important recommendations can be made to training institutes, especially to the training institutes of PETRONAS.

1. Firstly, as the results showed that extrinsic rewards moderately affect knowledge sharing intention, so these institutes can flourish knowledge sharing willingness of employees by giving extrinsic rewards to its employees. However three important points should be considered in this context.

    - According to the results, the effect of extrinsic rewards on knowledge sharing intention is *moderate*. Hence, to motivate individuals to share

their knowledge, the organization cannot rely solely on extrinsic rewards.

- Secondly, these rewards should be designed by keeping in mind the notion which was introduced by (Covey, 1994) that *"Begin with the end in mind"*. In this case knowledge sharing is the end, so managers should carefully design the reward system that it truly rewards knowledge sharing not hoarding (Connelly, 2000).

- Thirdly, employee involvement in the design of reward system should also be ensured (Islam and Ismail, 2004). This can be done by carefully analyzing their preference of rewards (Amin *et al.,* 2009). According to this study, employees at the training institutes of PETRONAS prefer tangible and group rewards. This same finding can be implied in other companies in Malaysia, as these kinds of rewards have been regarded as instrumental to encourage Malaysian workforce and have been preferred by them (Abdullah, 1996; Tamam *et al.,* 1996; Islam and Ismail, 2004; Lailawati, 2005)

2. In order to effectively flourish knowledge sharing, strategies should be made to inculcate other stronger predictors of knowledge sharing such as Organization Citizenship Behavior (OCB). The Human Resource (HR) department of the respective institutes can hire such employees who score high in a test designed to measure an applicant's OCB. At the same time, the findings related to the dimensions of OCB can also guide the managers to design strategies to inculcate those dimensions which result in high knowledge sharing within organization.

3. According to the results of this study, the *males* have scored less in manifesting their knowledge sharing intention into knowledge sharing behavior. Hence, we can conclude that the organization needs to encourage male employees to share their valuable knowledge. Individuals with PhDs and

diploma holders also need extra encouragement to share their valuable knowledge.

- The managers at the training institutes might need to carefully observe the environment and culture in their organization to better understand these differences in the behavior of different demographic elements.

6.5 Limitations of the Study

The study has some limitations which will be discussed in this section. Firstly, the responses taken from the peers on OCB and knowledge sharing behavior may be biased but the approach adopted by the researcher was the best among available options. Totally eliminating the bias is somehow impossible and hence a limitation.

Low response rate because of the time constraint, both from the respondent and researcher's side, was inevitable and can be considered as a limitation of this study.

The target respondents were trainers and facilitators of only PETRONAS training institutes. The results which have been sought from this study cannot be generalized and can differ in a different setting.

6.6 Future Work

1. In future, the framework proposed by the study can be tested in different domains and with a bigger sample size. At the same time, the framework can be tested in the other departments of PETRONAS. This will help not only to generalize the framework but at the same time will help PETRONAS to adopt one framework to understand the employees' motivation to share their knowledge.

2. To avoid further bias, a longitudinal study can deliver even more realistic results, by using qualitative techniques such as interviews and observations.

3. The reasons behind the difference of behavior among different demographic variables can be examined in a future research.

4. A study should be conducted on what kinds of rewards actually motivate individuals to share their valuable knowledge, rather than merely their preferences of rewards.

5. Future study can analyze the factors which help to inculcate organization citizenship in employees.

APPENDIX A

PUBLICATIONS

1. Aamir Amin, Mohd Fadzil B Hassan, "Knowledge Sharing and Extrinsic Reward System – A Preliminary study in Education Sector", National Postgraduate Conference (NPC), Universiti Teknologi PETRONAS, Malaysia, 2009

2. Aamir Amin, Mohd Fadzil B Hassan, Mazeyanti Bt. Mohd Ariffin, Mobashar Rehman, "Theoretical Framework of the Effect of Extrinsic Rewards and Individual's Intrinsic Attributes on Knowledge Sharing Behavior", Proceedings of 2009 International Conference on Economics, Business Management and Marketing (EBMM), Singapore, pp. 365-369, ISBN # : 978-9-8108-3816-4

3. Aamir Amin, Mohd Fadzil Hassan, Mazeyanti Bt. Mohd Ariffin, Mobashar Rehman, "Theoretical Framework of the Effect of Extrinsic Rewards on Individual's Attitude Towards Knowledge Sharing and the Role of Intrinsic Attributes," ICCTD, vol. 2, pp.240-243, 2009 International Conference on Computer Technology and Development, 2009, Available at http://www.computer.org/portal/web/csdl/doi/10.1109/ICCTD.2009.184, ISBN # : 978-0-7695-3892-1

4. Aamir Amin, Mohd Fadzil Hassan, Mazeyanti Bt. Mohd Ariffin, "Framework of Intrinsic and Extrinsic Motivators of Knowledge Sharing," proceedings of 4th International Symposium on Information Technology, Knowledge Society and System Development and Application, Vol. 3, pp. 1428-1432, 2010, ISBN#: 978-1-4244-6716-7

APPENDIX B

QUESTIONNAIRE

Research Title: Framework of Extrinsic and Intrinsic Motivators of Knowledge Sharing and the Role of Personality Attributes

A Case of Training institutes of PETRONAS

Part of MSc. Thesis at Universiti Teknologi PETRONAS

Disclaimer: Information gathered from this questionnaire will strictly be confidential. Entire information will be used only for research purposes and will not be shared with third party in any circumstances.

Section (1)

1. Gender

- o Male
- o Female

2. Level Of Education

- o Diploma
- o Bachelors
- o Masters
- o PhD

3. Work Experience

- o Fresh (less than a year)
- o 1-3 years
- o 4-6
- o 7-9
- o 10 and above

Section (2)

Answer the following questions by using the scale below

Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1	2	3	4	5

1. I should contribute my skills and experience in a Meeting/Discussion ___
2. I should share my skills/experience without any expectation of rewards ___
3. I should only share my skills/experience when it does not harm my position in organization ___
4. I should share the experience/knowledge I gain from a seminar/conference with my colleagues ___
5. I should share a piece of work with others, only if they have contributed in that work ___

Very Unlikely	**Unlikely**	**Neutral**	**Likely**	**Very likely**
1	2	3	4	5

6. I intend to share my experience and skills with my colleagues ___

7. I intend to share my skills and experience even if my colleagues don't share ___

8. I intend to contribute my skills and experience in company's knowledge database / knowledge portal ___

9. I intend to forward any additional materials (i.e. training Manual, Slides) to my colleagues even if they are doing the same assignment. ___

10. I intend to share only if it will not harm my position in the organization ___

11. I intend to share my experience and skills only if requested ___

12. I will share my experience and skills with colleagues if I will get *individual rewards* for sharing ___

13. I prefer to get some tangible rewards (money, bonus etc.) for sharing my experience and skills ___

14. I will share my skills and expertise even if I am not given rewards or recognition ___

15. I will share less in a group because in group rewards my sharing efforts are not acknowledged individually ___

16. I will share more if I will be declared 'Knowledge Champion' rather then any monetary reward ___

17. I will share my skills and experience more with my group members , if the rewards are given to the group ___

Comments: (please write any comments/improvements you suggest, through which any organization can flourish knowledge sharing)

_____

_____

_____

_____

Section (3)
Peer Assessment

Answer the following questions based on the scale given

Never	**Rarely**	**Neutral**	**Often**	**Always**
1	2	3	4	5

18. Mr./Ms._____ voluntarily contributes his efforts for the success of any event organized by organization ___

19. Mr./Ms._____ gives suggestions and ideas to the management to improve organization's processes ___

20. Mr./Ms._____ attends meetings (group/dept.) and organization's parties ___

21. Mr./Ms._____ is concerned about organizational issues ___

22. Mr./Ms._____ helps his colleagues (i.e. offering his/her PC when needed etc.) Whenever they have work related problem ___

23. Mr./Ms._____ takes others' workload when they are busy ___

24. Mr./Ms._____ helps his colleagues in their projects ___

25. Mr./Ms._____ helps new employees settle in the organization ___

26. Mr./Ms._____ wastes time in personal calls at work ___

27. Mr./Ms._____ works after working hours/holidays ___

28. Mr./Ms._____ works more than desired for every assignment ___

29. Mr./Ms._____ comes on time even when the boss is not around ___

30. Mr./Ms._____ helps you in preventing a work-related problem before time ___

31. Mr./Ms._____ passes important information to his colleagues (i.e. info. about job openings in the organization, about the important updates in org.) ___

32. Mr./Ms._____ gives reminders to his colleagues on upcoming important events (i.e. meetings, seminars etc.) ___

33. Mr./Ms._____ is concerned about his colleagues' comfort at workplace (i.e. not listening loud music or avoiding loud chit chat on phone) ___

34. Mr./Ms._____ makes huge issues out of minor conflicts ___

35. Mr./Ms._____ complains about small issues and problems at workplace ___

36. Mr./Ms._____ waits patiently for the responses of his requests ___

37. Mr./Ms._____ ignores small inconveniences at the workplace ___

38. Mr./Ms._____ shares his experiences/skills whenever you need them ___

39. Mr./Ms._____ shares his experience/know-how on any topic if it is helpful for his/her colleagues ___

40. Mr./Ms._____ shares additional material (i.e. training manual, slides) with his colleagues, even if they are also on same assignment ___

41. Mr./Ms._____ contributes his skills/experience in knowledge database of organization (i.e. Knowledge portal, database etc.) ___

42. Whenever Mr./Ms. _____ participates in a seminar or a workshop, he/she shares his experience with other colleagues ___

Thank You for your time and cooperation

REFERENCES

Aamir Amin, Fadzil, M. Hassan., Mazeyanti Bt. M Ariffin., Mubashir Rehman (2009), "Theoretical Framework of the Effect of Extrinsic Rewards on Individual's Attitude Towards Knowledge Sharing and the Role of Intrinsic Attributes", International Conference on Information Theory and Engineering (ICITE) Proceedings, IEEE Explore.

Abdullah A. (1996), "Going Global, Cultural dimensions in Malaysian management", Kuala Lumpur, Malaysia: Malaysian Institute of management.

Abdullah, A. and Low .A. H. M (2001), "Understanding the Malaysian workforce: guidelines for managers (revised edition)", Kuala Lumpur: Malaysian Institute of management Publications.

Ahmad, H., Sharom, N. & Abdullah, S. C (2006), "Knowledge Sharing Behavior in Public Sector: the Business Process Management Perspectives [online]: Accessed on 17th May, 2010.

Ajzen, I. (1991), "The theory of planned behavior. Organizational Behavior and Human Decision Processes", pp. 179-211.

Ajzen, I., & Fishbein, M. (1980), "Understanding attitudes and predicting social behavior" Englewood Cliffs, NJ: Prentice-Hall.

Ajzen, I. 2009, (Online) available at http://people.umass.edu/aizen/tpb.diag.html#null-link.

Alavi, M. (2000), "Managing Organizational Knowledge, In Framing the domains of IT management: Projecting the future through the past", R. W. Zmud (Ed.), innaflex Educational Resources, Cincinnati, Ohio, pp. 15-28.

Alavi, M., and Leidner, D. E (2001), "Knowledge Management and Knowledge Management Systems: Conceptual Foundations and Research Issues," MIS Quarterly (25:1), pp. 107-136.

Andriessen, J.H. Erik (2006), “to share or not to share that is the question”, IS - 2006-02 Delft Innovation System Papers.

APQC (1999), “Creating a knowledge-sharing culture”, Houston, Texas: American Productivity and Quality Center.

Argote, L., McEvily, B. and Reagans, R. (2003), “Managing Knowledge in Organizations: An integrative framework and review of emerging themes”, Management Science 49, (4), pp. 571-582.

Audrey and Robert (2001), “Managing organizational knowledge as a strategic asset”, Journal of Knowledge Management, Volume 5, November 1 2001, pp. 8±18 # MCB University Press, ISSN 1367-3270.

Barbuto, J. E. Jr., Lance, L.B, Myra, S.W., Daniel, W.W., (2001), “Testing the underlying motives of Organization Citizenship Behavior: A filed study of agricultural Co-Op workers”, 28th Annual National Agricultural Education Research Conference, December 12, 2001 – Page 539, online available at http://aaae.okstate.edu/proceedings/2001/barbuto.pdf.

Barto, A., Singh, S., and Chentanez, N. (2004), “Intrinsically motivated learning of hierarchical collections of skills”, In Proceedings of the 3rd International Conference on Development and Learning (ICDL 2004), Salk Institute, San Diego.

Bartol Kathryn M, Srivastava Abishek (2002), “Encouraging knowledge sharing: the role of organizational reward systems”, Journal of Leadership & Organizational Studies.

Bateman S, T. and Crant J. M. (2002) “Revisiting extrinsic and intrinsic motivation”. Unpublished.

Bateman, T. S., and Organ, D. W. (1983), “Job Satisfaction and the Good Soldier: The Relationship between Affect and Employee citizenship,” Academy of Management Journal (26), pp. 587-595.

Becerra-Fernandez, I., and Sabherwal R. (2001) “Organizational Knowledge Management: A Contingency Perspective,” Journal of Management Information Systems (18:1), pp. 23-55.

Berman, S. L., Down, J., and Hill, C. W. L. (2002), “Tacit Knowledge as a Source of Competitive Advantage in the National Basketball Association,” Academy of Management Journal (45:1), pp. 13-31.

Bi-Fen Hsu, Wan-Yu Chen, Mei-Ling Wang, Hui-YunYu (2007), “How Human Resource Practices Impact Knowledge Sharing in R&D Teams”, PICMET Proceedings, Portland, Oregon – USA

Bloodgood, J.M., & Salisbury, W.D. (2001), "Understanding the influence of organizational change strategies on information technology and knowledge management strategies", *Decision Support Systems*, 31, 55-69.

Bock Gee-Woo, Robert W. Zmud, Young-Gul Kim, Jae-Nam Lee (2005) "Behavioral intention formation in knowledge sharing, examining the role of extrinsic motivators, socio-psychological forces and organization climate", MIS Quarterly, Vol. 29.

Bock, Gee-Woo 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.

Bolino, M. C. (1999), "Citizenship and impression management: Good soldiers or good actors?" Academy of Management Review, 24(1), pp. 82-98.

Bolino, M. C., William H. Turnley, and James M. Bloodgood (2002), "Citizenship Behavior And The Creation Of Social Capital In Organizations", Academy of Management Review, Vol. 27, No. 4, pp.505-522.

Brief, A. P., & Motowidlo, S. J. (1986), "Pro-social organizational behaviors", Academy of Management Review, 11, 710-725.

Burgess, D. (2005), "What motivates employees to transfer knowledge outside their work unit?" Journal of Business Communication, 42(4), pp. 342-348.

Buttle, F. Bok, B. (1996) "Hotel marketing strategy and the theory of reasoned action", International Journal of Contemporary Hospitality Management, Volume: 8, Issue: 3, Page: 5, MCB UP Ltd.

Cabrera, Á. and Cabrera, E. F. (2002), "Knowledge-Sharing Dilemmas" Organization Studies, 23 (5): 687-710.

Cabrera, A., Collins, W. C. and Salgado, J. F. (2006), "Determinants of individual engagement in knowledge sharing", International Journal of Human Resource Management, 17(2) February, pp. 245-264.

Cameron, J. and Pierce, D.W. (2000), ''Rewards, interest and performance: an evaluation of Experimental findings'', American Compensation Association Journal, Vol. 6 No. 4, available: http:// zigonperf.com/PMNews/reward_and_perf_research.html.

Canny, George (2006), "5 point Vs. 6 point likert scale", (Online) available http://searchwarp.com/swa69773.htm.
Chao C. Chen, Cameron M. Ford, and George F., Farris (1999), "The Effects of Reward Types and the Perceptions of Diverse R&D Professionals", IEEE

Chen, C. C. "New trends in rewards allocation preferences: A sino-U.S. comparison," Acad. Manage. J., vol. 38, pp. 408–428, April 1995.

Chieh P.L. (2007) "To share or not to share: modeling knowledge sharing using Exchange ideology as a moderator", Personnel Review Vol. 36 No. 3, pp. 457-475.

Chieh P.L. (2008), "Clarifying the Relationship between Organizational Citizenship Behaviors, Gender, and Knowledge Sharing in Workplace Organizations in Taiwan", Published online: 15 January 2008 _ Springer Science+Business Media, LLC.

Chien, Min-Huei (2009), "A Study to Improve Organizational Citizenship Behaviors", (Online) available at www.mssanz.org.au/MODSIM03/...03/.../03_Chien_Behaviours.pdf, retrieved august 2009

Chong and Choi (2007), "Implementation of KM strategy in Malaysian telecommunication industry – an empirical analysis", Vol. 37, issue 4, pp 452-470.

Chow, C. W., Deng, F. J., & Ho, J. L. (2000), "The openness of knowledge sharing within organizations: A comparative study of the United States and the People's Republic of China", Journal of Management Accounting Research, 12, 65–95.

Chowdhury, S. (2005), "The role of affect-and cognition based culture: An interview report," Business Communication Quarterly, (69), pp. 439-443.

Chung C. Liu, (2008), "The Relationship between Machiavellianism and Knowledge Sharing Willingness", Published online: 18 January 2008, Springer Science+Business Media, LLC.

Connelly, C. E., & Kelloway, E. K. (2003), "Predictors of employees' perceptions of knowledge sharing cultures", Leadership & Organization Development Journal, 24(5), 294–301.

Connelly, E. C., (2000), "Predictors of knowledge sharing in organizations", MSc thesis, Queen School of business, Queen's University, Canada

Constant, D., Kiesler, 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.

Constant, D., Kiesler, S., and Sproull, L. (1996), "The Kindness of Strangers," Organization Science (7:2), pp. 119-135.
Covey, S. (1994), "First Things First", Simon & Schuster, NY

Cross, J. (1996), "Training Vs Education – A distinction that makes a difference" Bank Securities Journal, (online) available at http://www.scribd.com/doc/2245532/Training-vs-Education.

Davenport, T. and Probst, G. (2001), "Knowledge Management Case Book", MCD Verlag and Wiley and Sons, Berlin.

Davenport, T. and Prusak, L. (1998), "Working Knowledge: How Organization Manage what They Know", Harvard Business School Press, Cambridge, MA.

Davenport, T. H. (2002), "Some principles of knowledge management" available http://www.bus.utexas.edu/kman/kmprin.htm.

Davenport, T.H. (1994), "Saving IT's soul: human-centered information management", Harvard Business Review, Vol. 72 No. 2, March-April, pp. 119-31.

Davenport, T.H. (1998), ''some principles of knowledge management'', available at: www.bus.utexas.edu/kman/kmprin.htm (accessed 18 February 2005).

Davis, F.D., Bagozzi, R.P., & Warshaw, P.R. (1989), "User Acceptance of Computer Technology: A Comparison of Two Theoretical Models", Management Science, 35, 982-1003.

Davis, S. and Botkin, J. (1994), "The coming of knowledge-based business", Harvard Business Review, September/October.

Deci, E. L. (1972), "The effects of contingent and non-contingent rewards and controls on intrinsic motivation," Organization Behavior, Human Performance, vol. 8, pp. 217–229.

Deci, E. L., & Ryan, R. M. (1985), "Intrinsic motivation and self-determination in human behavior", New York: Plenum Press.

Deci, E. L., Koestner, R., & Ryan, R. M. (1999), "A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation", Psychological Bulletin, 125, 627-668.

Deci, E.L. (1971) ‘‘Effects of externally mediated rewards on intrinsic motivation,’’ Journal of Personality and Social Psychology, Vol. 18, pp. 105-15.

DeLong, D. and Fehey, L. (2000), “Diagnosing cultural barriers to knowledge management”, Academy of Management Executive, Vol. 14 No. 4, pp. 113-27.

DeMattio, J., Eby, L.T. and Sundstrom, E. (1998), ‘‘Team-based rewards: current empirical evidence and directions for future research’’, in Straw, B.M. and Cummings, L.L. (Eds), Research in Organizational Behaviour, Vol. 20.

Dennis, A.R. (1996), “Information Exchange and Use in Group Decision Making: You Can Lead a Group to Information, but You Can’t Make It Think”, MIS Quarterly, December, 433- 457.

Drucker, P.E, (1995), “The Information Executives True need”, Harvard Business Review, January-February, 54-62.

Dulebohn, J. H., & Martocchio, J. J. (1998), “Employee Perceptions of the Fairness of work group incentive pay plans”, Journal of Management, 24, 469-488.

Dyne, Van L., Cummings, L.L., & McLean Parks, J. (1995), “Extra-Role behaviors: Inpursuit of construct and definitional clarity”, In L. L. Cummings & B. M. Staw (Eds.), Research in organizational behavior, 17: 215-285. Greenwich, CT: JAI Press.

Edvinsson, L. (1997), “Developing intellectual capital at Skandia”, Long Range Planning, Vol. 30, June.

Ehigie, B. O & Otukoya, O.W (2005), “Antecedents of Organization Citizenship Behavior in a Govt. owned enterprise in Nigeria”, European journal of work and Organizational Psychology, 14, pp 389-399.

Eisenberger, R., and J. Cameron, (1996), “Detrimental effects of reward: Reality or myth?” American Psychologist, 51, 1153-1166.

Eisenberger, R., Pierce, W.D., and Cameron, J. (1999), “Effects of reward on intrinsic motivation—Negative, neutral, and positive: Comment on Deci, Koestner, and Tyan (1999)”, Psychological Bulletin, 125, 677-691.

Ewing, J., and Keenan, F. (2001), “Sharing the Wealth,” Business Week, March 19, 2001, pp. 36-40.

Fahey, L., and Prusak, L. (1998), "The Eleven Deadliest Sins of Knowledge Management," California Management Review (40:3), pp. 265-276.

Farh, J. L., Zhong, C. B., & Organ, D. W. (2004), "Organizational citizenship behavior in the People's republic of China", Organization Science, 15(2), 241–253.

Feather, N. T. and Rauter, K. A. (2004), "Organizational Citizenship Behaviors in Relation to Job Status, Job Insecurity, Organizational Commitment and Identification, Job Satisfaction and Work Values," Journal of Occupational and Organizational Psychology (77), pp. 81-94.

Feldman, M.S. & March, J.G. (1981), "Information in Organizations as Signal and Symbol", Administrative Science Quarterly, 26, 171-186.

Fishbein, M. & Ajzen, I. (1975), "Beliefs, Attitude, Intention and Behavior: An Introduction to Theory and Research. Philippines" : Addison-Wesley Publishing Company.

Fisher, R.J., Maltz, E., & Jaworski, B.J. (1997), "Enhancing Communication between Marketing and Engineering: The Moderating Role of Relative Functional Identification". Journal of Marketing, 61, 54-70.

Foa, E. B. and Foa, U. G. (1980), "Resource theory of social exchange," inSocial Exchange: Advances in Theory and Research, K. J. Gergen, M. S. Greenberg, and R. H. Willis, Eds. New York: Plenum, pp. 99–131.

Ford, D. (2001), ''Trust and knowledge management: the seeds of success," Queen's KBE Center for Knowledge-Based Enterprises, Queen's University, Kingston, ON, Canada, available at: http://business. queensu.ca/knowledge/workingpapers/working/working_0108.

Forstenlechner, Ingo, Fiona Lettice, Mike Bourne and Carol Webb, (2007) "Turning knowledge into value into value in professional service firms" Performance Measurement and Metrics, Vol. 8 No. 3, , pp. 146-156, q Emerald Group Publishing Limited, 1467-8047.

French, J. R. P., Jr., & Raven, B (1959), "The bases of social power" In D. Cartwright (Ed.), Studies in social power (pp.150-167). Ann Arbor, MI: Institute for Socia.

Garvin, A. D. (1993), "Building a learning-based theory of the firm", Strategic Management Journal, Vol. 17, No.4, pp. 109-122.

George, J. M., & Battenhausen, K. (1990), "Understanding pro-social behavior, sales performance, and turnover: A group-level analysis in a service context". Journal of Applied Psychology, 75: 698-709.

Gerhart B. and G. T. Milkovich (1993), "Employee compensation: Research and practice," in Handbook of Industrial Psychology. Palo Alto, CA : Consulting Psychologists Press, pp. 482–569.

Gibbert, M., and Krause, H. (2002), "Practice Exchange in a Best Practice Marketplace," in Knowledge Management Case Book: Siemens Best Practices, T. H. Davenport and G. J. B. Probst (Eds.), Publicist Corporate Publishing, Erlangen, Germany, pp. 89-105.

Glenn (2007), "Likert scale & surveys – best practices" (online) available at http://intelligentmeasurement.wordpress.com/2007/11/20/likert-scale-surveys-best-practices.

Gold, A.H., Malhotra, A., & Segars, A.H. (2001), "Knowledge management: An organizational capabilities perspective", *Journal of Management Information Systems*, 18(1), 185-214.

Grant, R.M. (1996), "Toward a knowledge-based theory of the firm", Strategic Management Journal, Vol. 17, winter, pp. 109-22.

Gupta KS (2008), "A Comparative Analysis of Knowledge Sharing Climate" Organisation Behavior at Icfai Business School (IBS), Bangalore, India, Knowledge and Process Management, Volume 15 Number 3 pp 186–195, Published online in Wiley InterScience (www.interscience.wiley.com) DOI: 10.1002/kpm.309.

Gupta KS. (2001), "Knowledge management and empowerment; a conceptual relationship", Udyog Pragati 25(3): 28–35, July–September 2001 by NITIE, Bombay.

Guzzo, R. A. (1979), "Types of rewards, cognitions, and work motivation". Academy of Management Journal, 1979, 4, 75-86.

Hall, H. (2001) "Input-friendliness: Motivating knowledge sharing across intranets". Journal of Information Science, 2001, 27, 139-146.

Hall, H. (2001), "Social exchange for knowledge exchange", Paper presented at Conference Managing Knowledge, conversations and critiques, University of Leicester Management Centre, 10-11 April 2001.

Harold Harlow (2008), "The effect of tacit knowledge on firm Performance", Journal of Knowledge Management, Vol. 12 No. 1, pp. 148-163, Q Emerald Group Publishing Limited, ISSN 1367

Harris, R. J. (1985), "A primer of multivariate statistics" (2nd ed.). New York: Academic Press.

Hatch, Jamie (2009), "Defining Organizational Knowledge Turning individual knowledge into organizational intellectual capital", (online) available at http://knol.google.com/k/defining-organizational-knowledge#.

Heide, J.B. & Miner, A.S. (1992), "The Shadow of the Future: Effects of Anticipated Interaction and Frequency of Contact on Buyer-Seller Cooperation", Academy of Management Journal, 35, 265-291.

Homans G.C. (1958), "Social Behavior as exchange", American Journal of Sociology, 63 (6): 597-606.

Huang, Q. Davison, M. R. & Gu. J. (2008), "Impact of Personal and Cultural Factors on Knowledge Sharing in China. Asia Pacific J Manage, Vol. 25 pp. 451-471.

Huber, G. P. (2001), "Transfer of Knowledge in Knowledge Management Systems: Unexplored Issues and Suggested Studies," European Journal of Information Systems (10), pp. 72-79.

Hyoung, K. M., and Moon, S. P. (2002), "Effective Reward Systems for Knowledge Sharing," Knowledge Management Review (4:6), pp. 22-25.

Irene Y. L. Chen, Chen, N.-S., & Kinshuk (2009), "Examining the Factors Influencing Participants' Knowledge Sharing Behavior in Virtual Learning Communities", Educational Technology & Society, 12 (1), 134–148.

Irmer, B. E., Bordia, P. and Abusah, D (2002), "Evaluation apprehension and perceived benefits in interpersonal and database knowledge sharing", Academy of management Proceedings, OCIS: BIOCIS: B6.

Islam, Rakiful and Ismail Ahmad Zaki (2004), "Ranking of employees' reward and recognition approaces: A Malaysian Perspective", Munich Personal RePec Archive, (Online) availabe at http://mpra.ub.uni-muenchen.de/10809/, MPRA Paper No. 10809, posted 28. September 2008 / 10:46.

Ismail, Mohd Bakhari and Yusof, Zawiyah Mohammad (2009), "Demographic Factors and Knowledge Sharing Quality among Malaysian Government Officers" Communications of the IBIMA Volume 9, 2009 ISSN: 1943-7765, 2009, available at www.ibima.org/pub/journals/CIBIMA/volume9/v9n1.pdf.

Jianping Zhuge, (2008) "Reward systems for Implementing Knowledge sharing in Knowledge – Intensive Corporation", ISECS International Colloquium on Computing, Communication, Control, and Management 978-0-7695-3290-5/08 IEEE DOI 10.1109/CCCM.2008.225 514.

Johnson, S.T. (1993), ''Work teams: what's ahead in work design and rewards management?'', Compensation and Benefits Review, Vol. 29 No. 1, pp. 48-51.

Jöreskog, K. G., and Sörbom, D. Lisrel (1989), "7 User's Reference Guide", Scientific Software, Chicago, IL. Journal, Vol. 17 No. 2, pp. 22-37.

Kamal Kishore Jain, Manjit Singh Sandhu, Gurvinder Kaur sidhu (2007), "Knowledge sharing among academic staff – A case study of business schools at klang valley, Malaysia", Research Paper, JASA. Available at http://www.ucsi.edu.my/jasa/2/papers/08A.pdf.

Kankanhalli, A., Tan, B. C. Y. & Wei, K. K. (2005), "Contributing knowledge to electronic knowledge repositories: an empirical investigation". MIS Quarterly, 29(1), 113-143.

Katz, D. (1964), "The Motivational Basis of Organizational Behavior," Behavioral Science (9), pp. 131-146.

Katz, D., & Kahn, R. L. (1978), "The social psychology of organizations", 2nd Ed. New York, NY: John Wiley and Sons.

Kelley, H. H., and Thibaut, J. W. (1978), "A Theory of Interdependence", Interpersonal Relations Wiley, New York.

Kelloway, E.K. and Barling, J. (2000), "Knowledge work as organization behavior" International Journal of management review, 2, 287-304.

Keyes, J. (2008), "Identifying the barriers to knowledge sharing in knowledge intensive organizations", Retrieved September 2008, from://www.newarttech.com/KnowledgeSharing.pdf.

KMtalk (2010), "KM in PETRONAS: Interview with Murni sheriff (KM Manager attached to Group Technology Solution of PETRONAS)", available http://www.kmtalk.net/article.php?story=20090131090639919 retrieved on 30th May, 2010

Knights, D., Murray, F. & Willmott, H. (1993), "Networking as Knowledge Work: A Study of Strategic Inter-organizational Development in the Financial Services Industry" Journal of Management Studies 30(6):975-995.

Koh, J. and Kim, Y.G. (2004), "Knowledge sharing in virtual communities: an e-business perspective", Expert Systems with Applications, Vol. 26 No. 2, pp. 155-66.

Koskinen, K. U., Pihlanto, P., and Vanharanta, H. (2003), "Tacit Knowledge Acquisition and Sharing in a Project Work Context," International Journal of Project Management (21), pp 281-290.

KPMG (2000), "Knowledge management research report 2000", KPMG Consulting Reports, available at http://www.providersedge.com/docs/km_articles/KPMG_KM_Research_Report_2000.pdf, retrieved 2010

Kucza, Timo (2001), "Knowledge Management Process Model", Technical research center of Finland VTT publications.

Kugel, J., & Schostek, C. (2004), "Rewards for knowledge sharing?", Retrieved 2009, from:http://www.gurteen.com/gurteen/gurteen.nsf/id/rewards-k-sharing.

Lachance, J.R. (2000), ''International Symposium of the International Personnel Management Association'', Public Personnel Management, Vol. 29.

Lada, S. , Geoffrey Harvey Tanakinjal, Hanudin Amin (2009), "Predicting intention to choose halal products using theory of reasoned action", International Journal of Islamic and Middle Eastern Finance and Management, Volume:2 Issue: 1 Page: 66 – 76.

Lailawati Mohd Salleh (2005), "High/Low context communication – The Malaysian Malay style" Proceedings of the 2005 Association for Business Communication Annual Convention, Available at www.businesscommunication.org/conventions/.../09ABC05.pdf.

Lawler, E. E. (1971), "Pay and organizational effectiveness: A psychological view". New York: McGraw-Hill.

Lawler, E.E. and Cohen, S.G. (1992), ''Designing pay systems for teams'', ACA Journal, Vol. 1, pp. 6-19.

Lee, H. and Choi, B. (2003), "Knowledge management enablers, processes, and organizational performance: an integrative view and empirical examination", Journal of Management.

Lee, J.H., Kim, Y.G., & Kim, M.Y (2006), "Effects of managerial drivers and climate maturity on knowledge-management performance: empirical validation", Information Resources Management Journal, 19(3), 48-60.

Levin, D. Z. & Cross, R. (2004), "The Strength of Weak Ties You Can Trust: The Mediating Role of Trust in Effective Knowledge Transfer." Management Science, 50(11), 1477-1490.

Liao, S. H., Chang, J. C., Cheng, S. C., & Kuo, C. M. (2004), "Employee relationship and knowledge sharing: A case study of a Taiwanese finance and securities firm", Knowledge Management Research & Practice, 2(1), 24–34.

Liebowitz, J. (2001), "Knowledge management and its link to artificial intelligence", Expert Systems with Applications, 20(1), 1–6.

Likert, Rensis (1932). "A Technique for the Measurement of Attitudes", Archives of Psychology 140: 1–55.

Lin Hsiu-Fen (2007,b), "Knowledge sharing and firm innovation capability – an empirical study", International Journal of Manpower, Vol 28, No. ¾, pp 315-332, Emerald Group Publishing Limited.

Lin, C. P. (2006) "Gender differs: Modeling knowledge sharing from a perspective of social network ties", Asian Journal of School Psychology, 9, 236-241.

Lin, Hsiu-Fen (2007, a), "Effect of Extrinsic and Intrinsic Motivation on Employees Knowledge Sharing Intention", Journal of Information Science (JIS), published by SAGE publishers, online available at http://jis.sagepub.com/cgi/content/abstract/33/2/135.

Ling C. W., Manjit S. Sandhu, Kamal Kishore Jain (2008), "Knowledge sharing in an American multinational company based in Malaysia", Journal of Workplace Learning, Vol. 21 No. 2, 2009, pp. 125-142, q Emerald Group Publishing Limited.

MacNeil, C.M. (2003), "Line managers: facilitators of knowledge sharing in teams", Employee Relations, Vol. 25 No. 3, pp. 294-307.

MacNeil, C.M. (2004), "Exploring the supervisor role as a facilitator of knowledge sharing in teams", Journal of European Industrial Training, Vol. 28 No. 1, pp. 93-102.

Majid, Shaheen and Ann, Lim (2007), "Information and Knowledge Sharing among IT Professionals in Singapore " Available http://dspace.fsktm.um.edu.my/bitstream/1812/243/1/36SG_Shahneen_OK.pdf.

Manis, J.G. & Meltzer, B.N. (1978), "Symbolic Interaction: A Reader in Social Psychology", (3rd edition), Boston: Allyn and Bacon, Inc.

Marr, B., Schiuma, G. and Neely, A. (2004), “The dynamics of value creation: mapping your intellectual performance drivers”, Journal of Intellectual Capital, Vol. 5 No. 2, pp. 312-25.

McLure Wasko, M., & Faraj, S. (2000), “It is what one does: Why people participate and help others in electronic communities of practice”, Journal of Strategic Information Systems, 155-173.

Mie Harder (2008), “how do rewards and management styles influence the motivation to share knowledge?” SMG Working Paper No. 6/2008, Center for Strategic Management and Globalization Copenhagen Business School, Electronic copy available at http://ssrn.com/abstract=109888.

Miller, D. L. and Karakowsky, L. (2005), "Gender influences as an impediment to knowledge sharing: When men and women fail to seek peer feedback," Journal of Psychology, (139), pp. 101-118.

Monica Franco-Santos, Mike Bourne and Russell Huntington (2004), “Executive pay and performance Measurement practices in the UK”, Vol. 8, No. 3, 2004, pp 5-11, Emerald Group Publishing Limited nature and antecedents”, Journal of Applied Psychology, 68, 653-663.

Nicholas J. Thompson, Keith E. Thompson (1999) “Reasoned action theory: an application to alcohol-free beer”, Journal of Marketing Practicem Volume: 2 Issue: 2 Page: 35 – 48, MCB UP Ltd

Nonaka, I. (1991), “The knowledge-creating company”, Harvard Business Review, Vol. 69 No. 6, pp. 96-104.

Nonaka, I. (1994), “A Dynamic Theory of Organizational Knowledge Creation”. Organizational Science, Vol. 5, No. 1, February 1994. The Institute of Management Science.

Nonaka, I. and Takeuchi, H. (1995), “The Knowledge Creating Company, How Japanese Companies Create the Dynamics of Innovation”. New York: Oxford University Press

Nunnaly, J. (1978), “Psychometric theory”. New York: McGraw-Hill.

O’Rally C, Pondy L. (1980), “Organizational communication in Organizational Behavior”, Kerr S (ed.). Grid: Columbus OH.

Ojha, A. K. (2003), “Impact of team demography on knowledge sharing in software project teams”, South Asian Journal of Management, 12, 67-68.

Organ, D. W. (1988), "Organizational Citizenship Behavior: The Good Soldier Syndrome", Lexington Books, MA, Lexington,

Organ, D. W. (1997), "Organizational citizenship behavior: It's construct clean-up time". Human Performance, 10:85-97.

Organ, D. W., & Ryan K. (1995), "A meta-analytic review of attitudinal and dispositional predictors of organizational citizenship behavior", Personnel Psychology, 48:775-802, organizational climate", IEEE Transactions on Engineering Management, Vol. 40 No. 1,

Osterloh, M., and Frey, B. S. (2000), "Motivation, Knowledge Transfer, and Organizational Forms," Organization Science (11:5), pp. 538-550.

Oudeyer, P. Y., and Kaplan, F., (2008), "how can we define intrinsic motivation", Proceedings of the 8th International Conference on Epigenetic Robotics: Modeling Cognitive Development in Robotic Systems, Lund University Cognitive Studies, Lund:LUCS, Brighton. Available at http://www.pyoudeyer.com/epirob08OudeyerKaplan.pdf

Oudeyer, P.Y., Kaplan, F., and Hafner, V. (2007), "Intrinsic motivation systems for autonomous mental development", IEEE Transactions on Evolutionary Computation, 11(1):265–286.

Pangil, Faizuniah and Nasurdin, Aizzat Mohd. (2007) "demographic factors and knowledge sharing behavior among R&D employees".

Patricia, M. (2007), "Motivation, Incentive and Organization Culture", Q Emerald Group Publishing Limited, ISSN 1367-3270, Vol. 11, No. 6, pp. 28-38,

PETRONAS (2010), "PETRONAS educational and training institutions", retrieved on 5th June, 2010, available at http://www.petronas.com.my/education/educational_and_training_institutions.aspx

Pinder, C. (1998), "Work motivation in organizational behavior", Upper Saddle River, NJ: Prentice Hall.

Podsakoff, P. M., MacKenzie, S. B., Moorman, R. H., & Fetter, R. (1990), "Transformational leader behaviors and their effects on followers' trust in leader, satisfaction, and organizational citizenship behaviors", Leadership Quarterly, 1(2), 107–142.

Podsakoff, P. M., Mackenzie, S. B., Paine, J. B., and Bacharach, D. G. (2000), "Organizational Citizenship Behaviors: A Critical Review of the Theoretical and Empirical Literature and Suggestions for Future Research," Journal of Management (26:3), pp. 513-563.

Podsakoff, P.M. and MacKenzie, S.B. (1994), "Organizational citizenship behavior and sales unit effectiveness", Journal of Marketing Research, Vol. 31, pp. 351-63

Podsakoff, P.M., Ahearne, M. and MacKenzie, S.B. (1997), "Organizational citizenship behavior and the quantity and quality of work group performance", Journal of Applied Psychology,Vol. 82, pp. 262-70.

Porter, L. W., & Lawler, E. E. (1968), "Managerial Attitudes and performance", Homewood, Illinois: Dorsey Press. pp. 497-510

Price, J.L. & Mueller, C.W. (1986), "Handbook of Organizational Measurement", Pitman Publishing Inc

Puccinelli, B. (1998), "Strategies for sharing knowledge", Inform, Vol. 12, No.9, pp.40-41,

Quigley, N. R., Tesluk, P., Locke, E. and Bartol, K. (2007), "A multilevel investigation of motivational mechanisms underlying knowledge sharing and performance", Organizational Science, 18(1), pp. 71-88

Rainer K. (2003), "Change of paradigm in knowledge management -framework for the collaborative production and exchange of knowledge" IFLA Publications.

Rashman, L. and. Hartley, J. (2008), "Knowledge transfer: Sharing learning in public service organizations", (online) Retrieved 18 September 2008, from://www.renew.co.uk/FileUploads/Knowledge_ Transfer_FINAL.pdf.

Richter, Frank-Jurgen (2000), "The Asian Economic Catharsis: How Asian Firms Bounce Back from Crisis", Greenwood Publishing Group.

Riege, A. (2005), "Three dozen knowledge sharing barriers managers must consider", Q Emerald Group Publishing Limited, ISSN 1367-3270, Vol. 9, No. 3, pp. 18-35.

Robertson-Frey, Tanya, (2005), "Body image and pregnancy – application of TRA", University of Saskatchewan Library, Electronic Theses & Dissertations ETD Project

Robinson, J.P. & Shaver, P.R. (1973), "Measures of Social Psychological Attitudes", Survey Research Center Institute for Social Research

Ryan, R. M. and Deci, E. L. (2000 b), "Intrinsic and extrinsic motivations: Classic definitions and new directions", Contemporary Educational Psychology, 25:54–67.

Ryan, R.M., and Deci, E.L. (2000 a), "When rewards compete with nature: The undermining of intrinsic motivation and self-regulation", See Sansone & Harackiewicz, pp. 14-54.

Saade, R. G., Nebebe, F., Mak, T., (2009), "The Role of intrinsic motivation in System Adoption – A cross cultural perspective", Journal of Information, Information Technology and Organizations, Vol 4, available at http://jiito.org/articles/JIITOv4p107-126Saade.pdf

Saleh, S.D. and Wang, C.K. (1993), "The management of innovation: strategy, structure and Organization Climate", Vol. 1, pp 14-21, available http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=206645&tag=1

Salvi, Siddheshwar S. (2009), "what is Training and Development?" (Online) Available at https://www.amherst.edu/offices/human_resources/training/whatistraining

Samieh, Hanan M. and Wahba, Khaled (2007) "Knowledge sharing behavior from Game theory and Socio-psychology perspective" Proceedings of the 40th annual Hawai international conference on System Sciences (HICSS'07), IEEE

Sansone, C., and Harackiewicz, J.M. (2000), "Intrinsic and Extrinsic motivation – the search for optimal motivation and performance, San Diego, Academic Press

Sekaran, U. (2003), "Research Methods For Business: A Skill-Building Approach", 4th ed., Wiley, New York, NY,

Shamir, B. (1990), ''Calculations, values and identities: the sources of work motivation'', Human Relations, Vol. 43, pp. 313-32.

Shih, Ya-Yueh and Fang Kwoting (2004), "The use of a decomposed theory of planned behavior to study Internet banking in Taiwan", Internet Research, Volume: 14 Issue: 3 Page: 213 – 223, Emerald Group Publishing Limited

Skinner B.F (1969), "Contingencies of reinforcement", New York: Appleton-Century-Crofts.

Slocombe, Thomas E. (1999), "Applying the theory of reasoned action to the analysis of an individual's polychronicity", Journal of Managerial Psychology, Volume: 14 Issue: 3/4 Page: 313 – 324, MCB UP Ltd

Smith, C. A., Organ, D. W. & Near, J. P. (1983), "Organizational citizenship behavior: Its nature and antecedents", *Journal of Applied Psychology, 68*, 653–663.

Song, S. (2002), "An internet knowledge sharing system", Journal of Computer Information Systems, Vol. 42 No. 3, pp. 25-30.

Staw & L. L. Cummings (1993), "Research in organizational behavior", Vol. 12 (pp. 43-72).

Stephen A. Sweet and Karen Grace-Martin (2003), "Data Analysis with SPSS, A first course in applied statistics" 2nd Ed. Pearson Education

Stephen B. K. (1995), "The Reward and Recognition process in TQM," ASQC Quality press Milwaukee, Wisconsin p 18-19, p 20-21,

Susan M. Heathfield, (2010), "What does a Training Manager, a Training Director, or a Training Specialist Do? (Online) available at http://humanresources.about.com/od/jobdescriptions/f/hr_job_train.htm

Sveiby, K.E. & Simons, R. (2002), ''Collaborative climate and effectiveness of knowledge work'', Journal of Knowledge Management, Vol. 6 No. 5, pp. 420-33

Sveiby, K.E. (1997), "The New Organizational Wealth", Berrett-Koehler, San Francisco, CA
Systems, Vol. 42 No. 3, pp. 25-30.

Szulanski, G. (1996) "Exploring internal stickiness: Impediments to the transfer of best practice within the firm." Strategic Management Journal, 17, 27-43

Tamam, E. Hassan, M.D., & Said, M.Y. (1996) "Are Malay middle-level executives more collectivistic or individualistic?" Malaysian Management Review, 31 (4), 50-56

Tang, T.L.-P., & Ibrahim, A.H.S. (1998), "Antecedents of Organizational Citizenship Behavior (OCB): Public personnel in the United States and in the Middle East", Public Personnel Management.

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

University of Phoenix, University of Phoenix (Ed.) (2003), "Organizational Behavior. [University of Phoenix Custom Edition e-text]. Boston: Pearson Custom Publishing. Retrieved May 2010, from University of Phoenix, Resource, MGT/331-Organizational Behavior Website: http://ecampus.phoenix.edu/secure/resource/resource.asp.

Wah, C. Y., Benjamin L., Menkhoff T., Evers, H. D. (2005), " Theorizing, Measuring, and Predicting Knowledge Sharing Behavior in Organizations – A Social Capital Approach" Proceedings of the 38th Hawaii International Conference on System Sciences.

Walz, S.M. and Niehoff, B.P. (2000), "Organizational citizenship behaviors: their relationship to organizational effectiveness", Journal of Hospitality & Tourism Research, Vol. 24 No. 3, pp. 301-99.

Wasko, M. M., & Teigland, R (2004), "Public goods or virtual commons, Applying theories of public goods, social dilemmas, and collective action to electronic networks of practice", Journal of Information Technology Theory and Application, 6(1), 25–41.

Watson, S. & Hewett, K. (2006) "A multi theoretical model of knowledge transfer in organizations: Determinants of knowledge contribution and knowledge reuse", Journal of Management studies, 43, 141-173.

Wiig KM, (2000), "Knowledge management: an emerging discipline rooted in a long history", Knowledge Horizons. Butterworth-Heinemann: Boston. pp. 3–26.

Williamson, O. E. (1985), "The economic institution of capitalism: Firms, markets, relational contracting", New York: Free Press.

Wilson, G., V., (2006), "the effects of external rewards on intrinsic motivation", available at http://www.abcbodybuilding.com/rewards.pdf.

Wright, P. (2004), ''do incentive schemes promote knowledge sharing?'', Melcrum Online Knowledge Articles, Vol. 20, (online) available at: www.km-review.com/knowledge/articles/04.htm.

Yang, Shu-Chen and Farn, Cheng-Kiang, (2007) "Exploring Tacit Knowledge Sharing Intention and Behavior within Workgroup from the Perspectives of Social Capital and Behavioral Control" 11th Pacific-Asia Conference on Information Systems.

Zárraga, C. and Bonache, J. (2003), "Assessing the team environment for knowledge sharing: an empirical analysis", International Journal of Human Resource Management, 14(7), pp. 1227-1245.