The Influence of Collectivism, Social Orientation Achievement Motivation, and Affective Trust in Subordinates on the Intention of Supervisors to Share Knowledge with their Subordinates.

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Declaration

Statement of Originality

This work contains no material which has been accepted for the award of any other degree of diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text.

Acknowledgment of Authorship

I hereby certify that the work embodied in this thesis is the result of original research, the greater part of which was completed subsequent to admission to candidature for the degree.

Signature:

Date: 31st May 2011
Acknowledgement

My appreciation to Dr Gian Casimir for his inputs to made the completion of this thesis possible.

I will like to present this thesis to my lovely family members Yoong Yee, Zhi Ming and Zhi Wen.
Abstract

Individual knowledge collectively contributes to the organization’s knowledge bank, and the creation, transfer and sharing of knowledge which is valuable, rare, inimitable and non-substitutable within an organization is the basis of organizational competitive advantage. Downward knowledge sharing from supervisor to subordinate could be a means to improve the knowledge level of the workforce and in turn can enhance the competency of subordinates, ultimately leading to the organization’s competitive advantage.

Understanding the influence of factors such as the collectivism, social orientation achievement motivation and affective trust towards subordinates on the intention to share knowledge with subordinates and sharing knowledge with subordinates will add value to the literature on knowledge sharing. The research question of this study is how do collectivism, social orientation achievement motivation and trust influence the intention of supervisors to share knowledge with their subordinates and their knowledge sharing with subordinate? This study employed a hypothesis-testing quantitative method with a cross-sectional design. The unit of analysis is individual members of the Malaysian Institute of Chemistry who hold supervisory positions in their respective organizations based in Malaysia.

This study found that affective trust moderates the relationship between social orientation achievement motivation and intention to share knowledge with subordinates. Specifically, the strength of the positive relationship between social orientation achievement motivation and intention to share knowledge increases as affective trust increases. The relationship between collectivism and intention to share knowledge with subordinates was found to be mediated by social orientation achievement motivation only for supervisors with relatively higher affective trust in subordinates, for both explicit and implicit knowledge. These findings indicate that affective trust is a critical determinant of knowledge sharing.
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Chapter One

Introduction

1.1 Introduction

The aim of this research is to investigate the influence of socio-psychological factors on the intention of supervisors to share knowledge with their subordinates and their knowledge sharing with subordinates. This study uses the Malaysian Institute of Chemistry's members as the sample frame. The individual members of this institute are mostly involved in jobs within the chemistry field. The field strongly requires a sharing of work-related knowledge between the supervisor and the subordinate in order to achieve better performance in the highly competitive market environment of the chemistry industry.

Malaysia was found to be a collectivistic society and was ranked 52 on individualism, with the USA having the highest level of individualism (Hofstede, 1980). Collectivism is a social factor that might influence knowledge sharing because collectivists are concerned about the well-being and needs of their in-group members, and prefer to work in groups rather than work alone. Collectivism may also influence social orientation achievement motivation, which may influence knowledge sharing with subordinates. Trust in subordinates is likely to facilitate downward knowledge sharing.

The research problem investigated in this study is as follows:

‘How do collectivism, social orientation achievement motivation and trust influence the intention of supervisors to share knowledge with their subordinates and their knowledge sharing with subordinates?’
1.2 Background to the Research

1.2.1 Knowledge and Resource Based-View of Competitive Advantage

The study of knowledge sharing within the framework of knowledge management is critical in current knowledge-based economies where individual knowledge contributes to the organization’s knowledge bank (Nonaka, 1994; Nonaka, Byosiere, Borucki and Konno, 1994; Spender, 1994). The development of individual knowledge is derived from the individual’s personal learning process, which includes acquiring knowledge from other people or organizations (Nonaka, Toyama and Kuno, 2000; Nonaka, von Krog and Sven, 2006).

Knowledge is created, assimilated and held collectively through social interactions (Nonaka, 1994). The creation, transfer and sharing of knowledge which is valuable, rare, inimitable and non-substitutable within an organization is the basis of an organization’s competitive advantage (Barney, 1991; Barney, 1996; Grant, 1996a; Grant, 1997; Davenport and Prusak, 1998; Argote and Ingram, 2000).

Knowledge sharing is the central activity of knowledge management, and innovation that stems from the application of knowledge is a fundamental driver of competitive advantage (Nonaka, 1994; Jackson, Chuang, Harden, Jiang and Joseph, 2006b). Knowledge sharing is a function of organizational culture, leadership and individual behavior (Yang, 2008; Soliman, 2011).

Supervisors who share knowledge with their subordinates could increase the overall level of knowledge in the organization and consequently improve the competency of subordinates thereby improving organizational performance (Lado and Wilson, 1994). Knowledge sharing can improve the firm’s innovation capabilities and performance by increasing sales growth revenue through the efficient and cost-effective development of new products and services (Collins and Smith, 2006; Cummings, 2004; Hansen, 2002; Lin, 2007).
1.2.2 Types of Knowledge, Knowledge Management and Knowledge Sharing

Knowledge can be classified into two types: Tacit knowledge, which is implicit in nature and explicit knowledge (Polanyi, 1967; Nonaka, 1994). Compared to explicit knowledge, implicit knowledge is more valuable and more difficult to articulate, transfer and share (Brockmann and Anthony, 1998). The transfer of implicit knowledge has a strong influence on the development of innovative capabilities (Rhodes, Hung, Lok, Lien and Wu, 2008; Harlow, 2008; Alwis and Hartmann, 2008; Soliman, 2011).

Knowledge sharing is the most important aspect of knowledge-management activities (Bock and Kim, 2002). Knowledge held by an individual needs to be transferred within the organization to help other organizational members to perform their jobs more effectively and knowledge that is shared can lead to the creation of new knowledge leading to competitive advantage for the organization (Nonaka, Toyama and Konno, 2000).

There is widespread recognition that knowledge is an important asset for generating competitive advantages (Soliman and Youssef, 2003). As a result, there has been a proliferation of knowledge-management systems comprises of information technology platform systems for the purpose of managing knowledge in an company (e.g., Lotus Note). In reality, however, many organizations that have invested in knowledge-management systems have not reaped significant rewards for doing so because of the reluctance of employees to share knowledge with each other (Babcock, 2004). The failure of many knowledge-management projects is attributed mainly to the fact that they did not consider the organizational or interpersonal contexts, or individual characteristics of employees, all of which strongly influence knowledge sharing (Carter and Scarbrough, 2001; Voelpel, Dous and Davenport, 2005). Therefore organization who hope to reap long-term benefits from knowledge management need to consider not only the technical aspects of knowledge management but also other intangible factors such as the mindsets of employees and the dyadic relationships between them (Meso and Smith, 2000).
1.2.3 Socio-Psychological Forces of Knowledge Sharing

Cultural factors affect knowledge sharing (Tong and Mitra, 2009), and could have a negative effect on knowledge sharing (Yao, Kam and Chan, 2007). The promotion of knowledge sharing should emphasise socio-psychological factors (Riege, 2007; Sondergaard, Kerr and Clegg, 2007). A knowledge-sharing culture requires managers to act as leaders and mentors (Yang, 2007b), and is nurtured by management support including open communication, effective mentoring, respectful and trusting interpersonal relationships, dynamic team environments, co-location of team members, and a friendly technological infrastructure (Mcnichols, 2010).

The sharing of implicit knowledge occurs basically through a socialization process and is very much dependent on the individual’s willingness to share such knowledge (Bartol and Srivastava, 2002). The willingness to share knowledge depends on a wide range of factors. Psychological factors such as collectivism and social orientation achievement motivation can increase the willingness to share knowledge whilst relational aspects such as affective trust between parties also influence the sharing of implicit knowledge (Holste and Fields, 2010).

1.3 Justification for the Dissertation Project and Contribution to the Practice

The current literature on knowledge sharing focuses on communities of practice (e.g., virtual communities), peer-to-peer knowledge sharing, peer-to-supervisor knowledge sharing, and the studies on the antecedents of knowledge sharing have focused on management style, rewards, group membership, national culture, and organizational culture (Zhuge, 2008; Wei, Stankosky, Calabrese and Lu, 2008; Teagarden, Meyer and Jones, 2008). Knowledge sharing has also been examined with respect to attitudes and the intention to share knowledge (Bock and Kim, 2002; Bock, Zmud, Kim and Lee, 2005), the gap between intention and actual knowledge sharing (Kuo and Young, 2008a; Kuo and Young, 2008b), voluntary versus solicited knowledge sharing (Song and Teng, 2008), and the role of affective and cognitive trust in sharing complex knowledge (Chowdhury, 2005).
The relationships between supervisor’s collectivism, supervisor’s social orientation achievement motivation, supervisor’s downward affective trust in subordinates, and sharing knowledge with subordinates have not been investigated. This study addresses this important gap in the literature and will provide an understanding of how a supervisor’s collectivism, social orientation achievement motivation, and affective trust in a subordinate influence the supervisor’s knowledge sharing with the subordinate. The findings from this study might help to facilitate the implementation of human resource policies and practices that recognize the importance of the supervisor-subordinate dyadic social interaction with regards to the supervisor knowledge-sharing with subordinates.

1.4 Research Questions and Hypotheses

From the socio-psychological perspective, this research has four aims:

First and foremost, to examine if the relationship between the supervisor’s collectivism and intention to share knowledge with a subordinate is mediated by the supervisor’s social orientation achievement motivation. Secondly, to examine if the relationship between the supervisor’s social orientation achievement motivation and the intention to share knowledge downwards is moderated by the supervisor’s affective trust in the subordinate. Thirdly, to examine if the relationship between the supervisor’s social orientation achievement motivation and downward knowledge sharing is mediated by intention to share knowledge with the subordinate. Finally, to examine if the supervisor’s intention to share knowledge is positively related to knowledge sharing.

In order to examine the above mentioned research problems, the following four research questions were developed.

RQ 1: Is the relationship between a supervisor’s collectivism and the supervisor’s intention to share knowledge with a subordinate mediated by the supervisor’s social-oriented achievement motivation?
RQ 2: Is the relationship between a supervisor’s social orientation achievement motivation and the supervisor’s sharing knowledge with a subordinate mediated by the supervisor’s intention to share knowledge with the subordinate?

RQ 3: Is the relationship between a supervisor’s social orientation and the supervisor’s intention to share knowledge with a subordinate moderated by the supervisor’s affective trust in the subordinate?

RQ 4: Is intention to share knowledge positively related to knowledge sharing?

The research hypotheses are depicted in the conceptual model that is presented in Figure 1.1.

![Conceptual Framework for the Study](image)

Figure 1.1 Conceptual Framework for the Study

The black lines in Figure 1.1 indicate explicit knowledge and the red lines indicate implicit knowledge. The following variables will be used as control variables because they are thought to influence the key variables in the conceptual model: i) supervisor’s social desirability; ii) supervisor’s propensity to trust; and iii) supervisor’s job demand for knowledge sharing.
The following research hypotheses are proposed based on the above research questions:

Hypothesis 1a: The relationship between collectivism and intention to share explicit knowledge is mediated by social orientation achievement motivation.

Hypothesis 1b: The relationship between collectivism and intention to share implicit knowledge is mediated by social orientation achievement motivation.

Hypothesis 2a: The relationship between social orientation achievement motivation and sharing of explicit knowledge is mediated by intention to share explicit knowledge.

Hypothesis 2b: The relationship between social orientation achievement motivation and sharing of implicit knowledge is mediated by intention to share implicit knowledge.

Hypothesis 3a: The relationship between social orientation achievement motivation and intention to share explicit knowledge is moderated by affective trust. Specifically, the strength of the positive relationship between social orientation achievement motivation and intention to share explicit knowledge increases as affective trust increases.

Hypothesis 3b: The relationship between social orientation achievement motivation and intention to share implicit knowledge is moderated by affective trust. Specifically, the strength of the positive relationship between social orientation achievement motivation and intention to share implicit knowledge increases as affective trust increases.

Hypothesis 4a: Intention to share explicit knowledge is positively correlated with sharing explicit knowledge behaviour.

Hypothesis 4b: Intention to share implicit knowledge is positively correlated with sharing implicit knowledge behaviour.
1.5 Research Methodology

This is a hypothesis-testing quantitative study based on a cross-sectional design. The participants will be recruited from the Malaysian Institute of Chemistry, which is a non-profit, professional organization that regulates and represents the chemistry profession in Malaysia. The institute has approximately 3,000 members and members of the institute consist of managerial/supervisory and technical personnel who are proficient in English.

Data were collected via a self-administered, anonymous questionnaire (in English) that was mailed to members of the Malaysian Institute of Chemistry. Respondents were invited to complete a self-administered, anonymous questionnaire and then return the completed questionnaire to the researcher via a self-addressed, stamped envelope that was provided (Appendix A). Completion of the survey was taken as implied consent.

Established measures of the variables of interest were used. Collectivism was measured using Jackson, Wesson, Zapata-Phelan and Colquitt (2006) scale for collectivism. Social orientation achievement motivation was measured using Yu and Yang’s (1987) scale. Affective trust was measured using McAllister’s (1995) scale. Intention to share knowledge and knowledge sharing were measured using the scales from Bock et al. (2005).

Social desirability, propensity to trust, and job demand for knowledge sharing were included as control variables. Reynolds’ (1982) scale was used to measure social desirability, propensity to trust was measured using the scale from Schoorman, Mayer and Davis (1996), and job demand for knowledge sharing was measured using Loon and Casimir’s (2008) scale.
1.6 Major Findings

The relationship between social orientation achievement motivation and intention to share knowledge is moderated by affective trust. Specifically, the strength of the positive relationship between social orientation achievement motivation and intention to share knowledge increases as affective trust increases.

The relationship between collectivism and intention to share knowledge is mediated by social orientation achievement motivation only for the high affective trust group for both explicit and implicit knowledge. Finally, intention to share knowledge is positively correlated with sharing knowledge for both explicit knowledge and implicit knowledge.

1.7 Structure of the Dissertation

This section provides an overview of the entire structure of this dissertation which employed a five-chapter approach.

Chapter One outlined a general introduction of this study, providing an outline of the phenomena of interest that stimulate the inspiration and motivation of this study. A summary of issues and controversies were discussed to aid the development of problem definition. The justification for the dissertation project is provided in this section that leads to the research questions and hypotheses.

Chapter Two provides a literature review addressing the five constructs (collectivism, social orientation achievement motivation, affective trust, intention to share knowledge and knowledge sharing), the Resource-based View of the firm, types of knowledge, knowledge management, knowledge sharing, and the Theory of Reasoned Action.
Chapter Three provides details on the research methodology used in this study. The discussion covers the research questions, positivism and interpretivism paradigms of research, research design include sampling and data collection methods, questionnaire design, the measurement scale, and reliability and validity. Ethical considerations are also discussed and a conclusion to the chapter is provided in the last section.

Chapter Four provides the findings of this study. Finally, Chapter Five provides a summary of the findings and a discussion of the theoretical and practical implications of the findings, the limitations of this study, and recommendation for future research.
Chapter Two
Literature Review

2.1 Introduction

Davenport and Prusak (1998) described knowledge as a fluid mix of framed experience, values, contextual information, and expert insight that offer a framework for evaluating and incorporating new experiences and information. And O’Dell and Grayson (1998) described knowledge as information in action. The creation, transfer and sharing of knowledge within an organization is a basis for its competitive advantage (Argote and Ingram, 2000). An organization that can create knowledge and transfer this new knowledge across the organization can gain competitive advantage because new knowledge can lead to innovation (Nonaka, 1991).

Individual knowledge contributes to the organization’s knowledge bank, and the development of individual knowledge is derived from the individual’s personal learning process, which involves the acquisition of knowledge through social interactions. The sharing of personal knowledge is the main factor that drives the knowledge-creating company (Nonaka, 1994). The internalization of explicit knowledge leads to the creation of new knowledge in the form of implicit knowledge and the externalization of implicit knowledge to its explicit form is achieved through the codification process, which makes it easier to share and transfer knowledge (Nonaka, 1994).

According to Nonaka (1994), the creation of knowledge begins with the individual acquiring and processing knowledge by communicating with others, being involved in learning events such as training and coaching, and observing others. In other words, knowledge is created, assimilated and held collectively through social interactions (Brown and Duguid, 2001; Nahapiet and Ghoshal, 1998; Nonaka, 1994; Tsoukas, 1996).
The intention to share knowledge and knowledge sharing are strongly influenced by the personal characteristics of the knowledge sharer such as expertise and personality traits. The intention to share knowledge and knowledge sharing also depend on the cultural background of the knowledge provider. Cultural values and the differences in language, thinking and mental models, and perceived credibility affect knowledge-sharing behaviour (Li, 2010).

The literature on knowledge sharing focuses mainly on lateral (i.e., peer-to-peer) and upward (i.e., subordinate-to-supervisor) knowledge sharing (Zhuge, 2008; Wei, Stankosky, Calabrese and Lu, 2008; Teagarden, Meyer and Jones, 2008). This study differs from most studies because it focuses on downward (i.e., supervisor-to-subordinate) knowledge sharing. Specifically, this study examines the influence of collectivism, social orientation achievement motivation, and affective trust on the relationship between the intention to share knowledge and downward knowledge sharing.

This chapter is organised as follows: Section 2.2 provides a discussion of the Resource-based View of the firm and sustainable competitive advantage from a knowledge-based perspective; Section 2.3 provides a discussion of the different types of knowledge and the benefits of knowledge management, particularly the antecedents of knowledge sharing. Section 2.3 also provides a discussion of the antecedents of knowledge sharing including extrinsic motivators, organizational factors, demographic variables and social-psychological forces; Section 2.4 provides a discussion of national culture, especially Hofstede’s individualism-collectivism dimension, in relation to its influence on the intention to share knowledge and knowledge sharing; Section 2.5 provides a discussion of social orientation achievement motivation, its antecedents and its impact on knowledge sharing; Section 2.6 provides a discussion of trust and its antecedents, focusing on the propensity to trust and affective and cognitive trust, and also discusses the relationship between affective trust and the intention to share knowledge and knowledge sharing; Section 2.7 contains the hypotheses and a theoretical justification for each hypothesis; and Section 2.8 provides a conclusion to the chapter.
2.2 The Resource-Based View of the Firm

The core element of strategic management is the creation of competitive advantages that are efficient and durable (Barney, 1991; Prahalad and Hamel, 1990; Porter, 1996). The Resource-Based View of the firm is one of several theories that explain the creation of a firm’s competitive advantages. The Resource-Based View of the firm sees the firm as an entity consisting of a bundle of productive resources and capabilities (Peng and Heath, 1996; Pettus, 2001). According to this theory, each firm is unique in terms of embedded unique resources that serve as a foundation for competitive advantages (Grant, 1991). There are two key assumptions in the Resource-Based View of the firm. The first assumption is that all firms from the same industry are heterogeneous in terms of resources and capabilities (Hoopes, Madsen and Walker, 2003; Knott, 2003). The second assumption is that resources and capabilities that are unique to a firm are immobile or unavailable to competing firms (Afuah, 2002; Roberts, 1999).

The rare and valuable resources embedded within the firm which are hard to imitate can be exploited for sustainable competitive advantages and ultimately for performance above the market average (Barney, 1991; Zahra and George, 2002; Mcevily and Chakravarthy, 2002). It is the knowledge that was created, transferred and integrated from the human, social and organization capital embedded within the people and systems of the firm that is valuable, rare, inimitable and non-substitutable (Afiouni, 2007).

Among the bundle of productive resources and capabilities, the human resource is the one that can lead to innovations in the production and delivery of products and services (Melton and Hartline, 2010; Nasution, Mavondo, Matanda and Ndubisi, 2011). However, human resource activities such as in-house training, coaching and mentoring do not directly increase the organization’s level of performance but rather provide a platform to help improve the knowledge and skills of employees. Human resource activities also facilitate interactions between members of the organization, which leads to the transfer and sharing of knowledge. Interpersonal knowledge sharing activities facilitate individual knowledge transforming into organizational knowledge, which leads to the synthesis of
new knowledge that can increase the quality and quantity of the organization’s knowledge bank (Yang, 2007a). This set of new knowledge which is what ultimately drives the organization’s performance (Afiouni, 2007).

Compared to tangible resources, intangible resources such as knowledge are better for generating competitive advantages and are firm specific (Hitt, Bierman, Shimizu and Kochhar, 2001; Barney, 1986; Prahalad and Hamel, 1990; Markides, 1997; Bogner, Thomas and Mcgee, 1999). Knowledge does not weaken or deplete with consumption and is difficult and time-consuming to imitate. This combined with management activities that encourage and support organizational learning can provide the firm with sustainable competitive advantages (Argote and Miron-Spektor, 2011).

Organizational learning, firm’s memory and boundaries are initiated and expanded through the spreading of individuals’ knowledge. The formal and tangible structures of a firm cannot capture the deeply embedded knowledge of its employees (Barney and Hansen, 1994; Becker and Gerhart, 1996; Law, Tse and Zhou, 2003). On the other hand, the firm’s management activities can provide a mechanism to co-ordinate and integrate the vast knowledge embedded within the firm’s employees (Grant, 1996b). Employees who acquire implicit knowledge when interacting with other employees are the foundation for making a difference in the firm (Kogut and Zander, 1996), because it is the transfer, sharing, and application of knowledge that ultimately improves the firm’s performance (Kogut and Zander, 1992).

The Knowledge-Based View of competitive advantage focuses on the competency of the firm’s employees (Sveiby, 2001). It is the knowledge that employees possess privately and share with other employees that is the basic source and essence of the Resource-based View of competitive advantage (Kogut and Zander, 1992). Therefore, the antecedent for the creation of new value should be at the individual level (Felin and Hesterly, 2007).

Externally, it is virtually impossible for competitors to decipher, and hence imitate, the critical resources of a firm due to the implicit nature of knowledge which is deeply
embedded in the firm’s processes and structures. This asset is optimised through the active interactions of individuals at all levels of the firm. The transfer and sharing of knowledge leads to the conversion of knowledge from one form to another and can yield new knowledge thereby making it even more difficult for rivals to imitate the firm’s intellectual capital (Nonaka and Takeuchi, 1995).

### 2.3 Types of Knowledge, Knowledge Management and Knowledge Sharing

#### 2.3.1 Explicit and Implicit Knowledge

Knowledge can be classified as either explicit or implicit (Polanyi, 1967; Nonaka, 1994). Explicit knowledge can be shared easily as it is codified knowledge that can be found in operation procedures, manuals, digitized documents, and reports whereas implicit knowledge resides in the mind of the knowledge owner in various forms such as heuristics (e.g., rules of thumb or short cuts). The general literature has reached the consensus that implicit knowledge is hard to articulate and relatively difficult to transfer and share due to its “tacitness” and can only be acquired through the facilitation and learning process (Brockmann and Anthony, 1998).

The learning process for implicit knowledge involves mostly observations, imitation, and practice rather than language. In this aspect, Polanyi (1967) mentioned that the owners of implicit knowledge need to be aware of the knowledge they possess and find ways for expressing it. However, regardless of which perspective one takes, the sharing and transfer of knowledge has to involve interactions, collaborations, and socialization between individuals (Nonaka and Takeuchi, 1995; Droege and Hoobler, 2003).

Within an organization, getting people to talk about and share their knowledge is better than relying on the IT infrastructure because effective knowledge transfer requires face-to-face communication (Desouza, 2003; Lin and Zhang, 2007). The talking or narrative processes are social activities that have been proven to be a good medium for
conveying implicit knowledge and act as a bridge for its conversion into explicit knowledge (Linde, 2001). In other words, the sharing of implicit knowledge is a socialization process and the choice of whether or not to share one’s knowledge depends on the willingness of the individual to do so (Korac-Kakabadse, Kouzmin and Kakabadse, 2001; Bartol and Srivastava, 2002).

Implicit knowledge is transferred when an employee learns through the experiences, feelings, and intuition of others. Managers can initiate implicit-knowledge sharing by building good communication processes in the form of conversations and dialogues (Linde, 2001; Williams, 2006; Peroune, 2007). The transfer of implicit knowledge demands that all parties involved should share strong social ties (Augier and Vendelø, 1999).

2.3.2 Knowledge Management

Greiner, Böhm and Krcmar (2007) described knowledge management as all the activities that utilize knowledge to accomplish the organizational objectives in order to face the environmental challenges and stay competitive in the market place. Raghu and Vinza (2007) described knowledge management as a cyclical set of phases of storage and retrieval, knowledge sharing and knowledge synthesis. The alignment of knowledge management with business strategy leads to a positive relationship between knowledge management and organizational effectiveness, which is directly related to organizational financial performance (Soliman and Sponner, 2000; Greiner, Böhm and Krcmar, 2007; Zack, Mckeen and Singh, 2009). Other studies (e.g., Forstenlechner, Lettice and Bourne, 2009) indicate that knowledge-management practices improve financial performance.

Successful knowledge-management projects are mostly driven by a strong business need where the goal is to add value to the organization’s activities. From an economics and strategy perspective, the aim of knowledge management is to increase employees’ knowledge and thus improve the organization’s overall memory and intelligence level in order to achieve continuous innovations that can deliver better products and services. This involves the ‘value chain’ of knowledge management of capturing knowledge,
storing knowledge, reusing knowledge, sharing knowledge, and building new knowledge so that the organization can act as intelligently as possible in order to ensure its viability and success with the aim of realizing the best value from the knowledge available (Wiig, 1997).

Superb knowledge-management capabilities are the basis for the rapid acquisition and dispersal of new knowledge that can foster the continual innovations and improvements that form the foundation of a relatively inimitable competitive advantage (Lubit, 2001). The aim of knowledge management should be about getting the right knowledge to the right person at the right time and in the right format. The right knowledge is the knowledge required by the people who are the knowledge users to perform their required task at specific time frame. This process involves cross-disciplines and a convergence of ideas that include total quality management, business process re-engineering, organizational learning, information resource management, communities of practice, core competencies, and the Resource-based View of strategy (Soliman, 2009).

Knowledge management actually consists of two major components: A technology platform and the people within the system. Technology only contributes ten to thirty percent of the end result whereas managerial attitudes, organizational culture and the individuals’ behaviour are the major contributors to the success of knowledge management (Halawi, McCarthy and Aronson, 2006). Knowledge management is all about the management of people towards the development of intellectual capital for the maintenance and improvement of the firm’s performance. It is noted that the process of knowledge replication through sharing can lead to imitation and this has to be handled with care (Kogut and Zander, 1992).

The challenge for knowledge-based strategic management is to engineer and manage at the individual and group levels, for the purpose to facilitate better strategies and stronger commitment from employees of the firm (Soliman and Spooner, 2000; Hislop, 2003; Jerez-Gómez, Céspedes-Lorente and Valle-Cabrera, 2005; Kim and Lee, 2006). Within an organization, knowledge sharing involves transferring knowledge from one individual to another, which should improve the organization’s processes and business
decisions, which will then make the organization more competitive (Darroch, 2005; Soliman, 2010).

2.3.3 Knowledge Sharing

Knowledge sharing is well recognized as the most important part of knowledge management (Bock and Kim, 2002), but on the other side is the hoarding of knowledge, which is difficult to overcome (Haldin-Herrgard, 2000). Organizations have to create a healthy climate based on collaboration, co-operation, and trust to promote knowledge sharing. The ultimate goal of knowledge sharing is to transform individual employees’ knowledge into organizational assets and resources (Dawson, 2000).

Currently there are two perspectives of knowledge sharing, namely economic and social. From the economic perspective, knowledge owners who share explicit knowledge do not sacrifice their economic status but the sharing of implicit knowledge will affect their economic value. Researchers who adopt the economic perspective (Appleyard, 1996; Schrader, 1991) argue that the decision to share knowledge is affected predominantly by the degree of competition between the parties involved. The economic perspective focuses on the sharing of knowledge between individuals from different organizations. On the other hand, from the social perspective, the relationships between individuals are central to the decision to share knowledge. The social perspective focuses on the knowledge sharing between individuals within the same organization (Hansen, 1999; Nahapiet and Ghoshal, 1998; Szulanski, 1996).

2.3.4 Antecedents to Knowledge Sharing

Knowledge sharing still occurs on a regular basis despite the fact that knowledge sharing activities can lead to a social dilemma where the knowledge that is shared becomes public property and benefits opportunistic free riders (Cabrera and Cabrera, 2002; Michailova and Hutchings, 2006). The antecedents that influence knowledge-sharing behaviour include extrinsic motivators, organizational factors, demographic variables,
and socio-psychological factors (Bock, Zmud, Kim and Lee, 2005; Lin and Lee, 2006; Lin and Zhang, 2007; Lin and Huang, 2010).

2.3.4.1 Extrinsic Motivators

Amabile (1993, p. 188) commented that “individuals are extrinsically motivated when they engage in the work in order to obtain some goal that is apart from the work itself”. Common extrinsic motivators are monetary rewards, recognition, and promotion. For incentive systems to be effective, the organization needs to record the target behaviour and assess its value (Bartol and Srivastava, 2002). Reward and recognition programmes positively affect a person’s motivation, performance and interest level (Milne, 2007). Rewarding knowledge sharing using a piece-rated method is more effective than providing periodic incentives (Yang and Wu, 2007).

The different levels of knowledge intangibility also require different reward schemes. The sharing of knowledge with low levels of intangibility can be optimised through financial rewards. The sharing of explicit knowledge can be motivated by recognition from management. However, sharing non-expressible knowledge, which is implicit in nature, is not motivated by any kind of reward system (Nan, 2008).

In most studies on knowledge management, the general view is that extrinsic motivators such as financial rewards have a crowding out effect on intrinsic work motivators (Frey, 1997; Osterloh and Frey, 2000; Weibel, Rost and Osterloh, 2007). This view is also supported by the work of Fahey, Vasconcelos and Ellis (2007) and Harder (2008). However, there are other studies that have yielded the opposite results (Wah, Menkhoff, Loh and Evers, 2007). Some studies have actually indicated that even though there is a crowding out effect, the overall effect of extrinsic motivators is positive (Muller, Spiliopoulos and Lenz, 2005).

The sharing of explicit knowledge through direct contributions into databases, which is easily measured, is most likely to be motivated by financial rewards (Bartol and
Research on non-profit organizations indicates that intrinsic motivators are better than extrinsic motivators when it comes to promoting knowledge sharing. However, this may be due to the fact that the act of joining a non-profit organization is itself based on intrinsic motivation (Cruz, Pérez and Cantero, 2009).

2.3.4.2 Organizational Factors

Organizational factors can influence knowledge sharing (Sondergaard et al., 2007). For instance, a complex organizational structure and high levels of formalisation negatively impact knowledge sharing (Lin, 2007). Additionally, if the organizational climate is perceived as fair, innovative, and facilitates close affiliation between members, it is likely that there will exist a subjective norm that encourages knowledge sharing (Bock et al., 2005).

Although motivational dispositions and perceptual filters play an important role in knowledge sharing, an individual with a “bad motivational disposition” can be motivated to share knowledge when put into an appropriate organizational setting (Rost, 2007). The careful implementation of work designs that promote the socialisation of the organization’s members can lead to a common understanding and the building of trust that is needed for knowledge sharing (Lam and Lambermont-Ford, 2008). Other than that, the incorporation of a knowledge sharing element into the employees’ annual performance review can also significantly increase knowledge sharing (Wolfe and Loraas, 2008). Perceived organizational support leads to extra-role performance (Chen, Eisenberger, Johnson, Sucharski and Aselage, 2009), and is positively associated with knowledge sharing (Bartol, Liu, Zeng and Wu, 2009).

2.3.4.3 Demographic Variables

Demographic variables can affect knowledge sharing (Lin, 2006; Watson and Hewett, 2006), although most of the studies have not found demographic variables to have a strong influence on knowledge sharing. Some studies have found that women are more willing to share their knowledge than are men because women want to be perceived as
knowledgeable and want to obtain opportunities to further their careers more than do men (Lin, 2006). Other studies (Watson and Hewett, 2006; Chowdhury, 2005; Ojha, 2005) have found that gender does not have a significant impact on knowledge sharing. There is evidence that age does not have a significant impact on knowledge sharing (Watson and Hewett, 2006; Ojha, 2005). Organizational tenure has been found to be a significant and positive predictor of knowledge sharing (Watson and Hewett, 2006). There are no studies on whether ethnicity influences knowledge sharing.

2.3.4.4 Socio-Psychological Factors

Knowledge sharing is more of a social process than a technical process. However, both factors are needed to maximize knowledge sharing (Sondergaard et al., 2007). The motive to share one’s knowledge and knowledge sharing can be affected by various social and psychological factors. This dissertation focuses on the following factors: collectivism, social orientation achievement motivation, propensity to trust and the level of downward trust in the supervisor-subordinate relationship. The following sections provide a brief description of these socio-psychological factors.

2.4 Collectivism

Hofstede’s (2001) seminal work on national culture identified four dimensions of national culture: individualism-collectivism, power distance, femininity-masculinity, and uncertainty avoidance. Malaysia was found to be a collectivistic society and was ranked number fifty two on individualism. The USA had the highest level of individualism. At the societal level, individualism and collectivism appear as opposite poles of a single dimension. At the individual level, both individualism and collectivism exist not as polar opposites but as orthogonal and independent constructs (Jackson, Wesson, Zapata-Phelan and Colquitt, 2006a). Individualism and collectivism may differ but they can coexist within an individual so it is possible for an individual to be collectivistic on one occasion and individualistic on another (Triandis, 1996; Triandis, Bontempo, Villareal,
Asai and Lucca, 1988; Triandis and Gelfand, 1998; Kim, Triandis, Kagitcibasi, Choi and Yoon, 1994; Lu and Gilmour, 2006).

Due to the influence of a Western styled mass media and the process of modernization, Malaysian society has begun to appear to be bi-cultural. The traditional concept of collectivism now coexists together with the modern concept of individualism within contemporary Malaysian society (Noordin, Williams and Zimmer, 2002). A similar phenomenon has been found in Taiwan (Lu and Yang, 2006; Lu, 2008; Lu and Gilmour, 2006). Collectivistic societies are adapting well to the changing socio-economic environment because of their ability to adapt to new situations (Diaz-Guerroro, 1979).

Collectivistic societies are characterized by diffuse and mutual obligations and expectations based on ascribed statuses (Schwartz, 1990). A central feature of collectivism is that one identifies primarily with one’s in-groups (e.g., family, clan, alumni or working group) rather than oneself. In-group membership is a central aspect of identity for individuals in collectivistic societies (Kim et al., 1994; Markus and Kitayama, 1991). There is a marked distinction between one’s in-group members and one’s out-group members (Kim et al., 1994; Markus and Kitayama, 1991; Oyserman, 1993). The boundaries between in-groups and out-groups are stable, relatively impermeable, and important.

Within the in-group, personal relationships always prevails over the task (Hofstede and Hofstede, 2005; Schoorman, Roger and James, 2007). In-group members often share general collective interests and social identities. In-group members are interdependent, cooperative and bound by the collective norm, and tend to trust each other more than they trust out-group members (Mayer, Davis and Schoorman, 1995; Huff and Kelley, 2003).

In collectivistic societies, social units share a common fate, common goals and common values such that the personal aspect is simply a component of the social aspect (Triandis, 1995), in order to accommodate the social hierarchy. The goals of collectivism are reflected by the individual’s desire to fulfill and maintain harmonious relationships with
in-group members, which results in a willingness to self-sacrifice for the common good (e.g., Triandis, 1995; Markus and Kitayama, 1991; Oyserman et al., 1993).

A core element of collectivism is that one is bound to one’s in-groups. In-group membership involves mutual obligations and a sense of duty and obligation to the in-group (Oyserman, Coon and Kemmelmeier, 2002). The equality and generosity principles determine the types of exchanges between in-group members (e.g., Morris, Leung, Ames and Lickel, 1999; Triandis, 1995; Kim et al., 1994). Collectivists derive life satisfaction from fulfilling one’s social responsibilities and obligations (Kim et al., 1994; Markus and Kitayama, 1991), which are influenced by social context, situational constraints, and social roles (Morris and Peng, 1994).

In order to maintain in-group harmony, collectivists avoid conflict and individuals are valued for refraining from displaying emotional outbursts (Markus and Kitayama, 1991; Oyserman, 1993). This harmony can serve as an input resource for the group and helps to explain the group’s cohesiveness and success (Lun and Bond, 2006).

Based on previous work (e.g., Triandis, 1989, 1995, 1996; Ho and Chiu, 1994; Triandis and Bhawuk, 1997; Oyserman, Kemmelmeier and Coon, 2002), Jackson et al. (2006) proposed five facets of collectivism: preference, reliance, concern, norm acceptance, and goal priority. Preference is the belief that collective efforts are superior to individual ones and a preference to exist within the bounds of the in-group. Reliance is the sense of collective responsibility and belief that one person’s responsibility is the responsibility of the entire in-group and that one can rely on in-group members. Concern is the emphasis on collective interests rather than on self-interests. Norm acceptance is complying with the norms and rules of the in-group. Lastly, goal priority is the belief that in-group members should self-sacrifice for the common good because collective goals are regarded as more important than personal goals.
2.4.1 Cultural Aspects of Knowledge Sharing

National culture impacts knowledge management (Ang and Massingham, 2007; Lucas, 2006), knowledge sharing (Michailova and Hutchings, 2006), and the direction of knowledge flow (Ford and Chan, 2003). Cultural values affect knowledge transfer and therefore the implementation of knowledge-management systems needs to consider not only technological factors but also cultural factors (Wilkesmann, Fischer and Wilkesmann, 2009). The success of knowledge management in different cultures depends critically on how well the knowledge-management systems are adapted to the decision-making styles of their users (Martinsons and Davison, 2007).

Knowledge sharing may be more likely to occur in collectivistic cultures than in individualistic cultures (Ford and Chan, 2002). Studies conducted in China found that collectivism positively influences the tendency to share knowledge for the benefit of collective interests (Chow, Deng and Ho, 2000). Despite the destruction of trust during the “Cultural Revolution” in China, knowledge-sharing activities continued amongst in-group members (Hutchings and Michailova, 2006). The concept of “gaining face” also positively affects knowledge sharing (Huang, Davison and Gu, 2008), and knowledge sharing mostly happens within a trusting relationship. This could be due to the strong collectivistic influence where individuals have to comply with the in-group’s norms and where collective interests are paramount.

In order to promote knowledge sharing within a collectivist society, the strategy should lean more towards the preservation of harmony and the seeking of recognition within a group. It is advisable that participants are not required to stand out (Gambrel and Cianci, 2003). Studies done on IKEA operations in Russia, China, and Japan have indicated that personal networks enable reverse and lateral knowledge sharing to occur (Jonsson, 2008). This is an example of the in-group effect where good relationships within the in-group facilitate knowledge sharing.

Cultural differences in language, thinking, and the perceived credibility of knowledge sharing affect on-line knowledge sharing (Li, 2010). Cultural differences between the
knowledge sharer and the knowledge receiver can adversely affect knowledge transfer even in a structured knowledge transfer process (Chen, Sun and Mcqueen, 2010). Cultural values can determine opportunistic behavior (Chen, Peng and Saparito, 2002). For instance, compared to individualists, collectivists are less likely to engage in social loafing (Earley, 1989).

### 2.5 Social Orientation Achievement Motivation

The need for achievement is defined as the drive to achieve excellence in relation to a set of standards (Mcclelland, 1961; 1965; Mcclelland, Atkinson, Clark and Lowell, 1953). An individual who has a high need for achievement prefers jobs that require personal responsibility combined with a feedback system. These jobs usually have an intermediate degree of risk and tend to be more entrepreneurial in nature. McClelland’s achievement motivation theory has been criticized for focusing mostly on economic achievement, which is an easily measured construct (Maehr, 1974; Maehr, 1977; , 2008). It is now widely accepted that McClelland’s individualistic and “Protestant” background played a major role in the development of his theory, and recognized that achievement motivation can be interpreted differently in different cultures when motivation is regarded as a process rather than a trait (Maehr, 2008).

Individuals from different cultures are subjected to different situational/contextual causes of achievement motivation in the forms of normative, role-related, and individualized expectations. Normative expectations come from sources such as the family, clubs, school, work place, and other social groups that can define and promote certain types of individual achievement. Role expectations can change over time when the individual switches roles such as changing jobs, changing assignments or joining new groups (Yu and Yang, 1987).

The development and formation of achievement motivation theory should take into consideration the individual’s cultural and contextual background, and a better understanding of achievement motivation can be obtained when it is considered from a
socio-cultural perspective. This argument is consistent with cultural ecology, which states that an individual’s characteristics and behaviour are determined by societal factors, such as the individual’s socio-economic background. The antecedents for the formation of societal culture are the ecology type and the level of economic development (Whiting and Child, 1953; Barry, Child and Bacon, 1959; Inkeles, 1969; Berry, 1976).

Social orientation achievement motivation refers to individual achievement motivation in collectivistic situations (Yu and Yang, 1987; , 1994). Individuals possess both social orientation achievement motivation (SOAM) and individual orientation achievement motivation (IOAM), where SOAM refers to the tendency to achieve goals that are externally determined and socially desirable and IOAM refers to the tendency to achieve goals that are self-determined and in ways that are not necessarily socially desirable. In general, individuals from collectivistic societies are more motivated by SOAM whereas individuals from individualistic societies are more motivated by IOAM (Yu and Yang, 1987; , 1994).

SOAM and IOAM are seen as different types of achievement motivation rather than as opposite ends of a continuum. These two types of achievement motivation can co-exist, and functioning interactively within different domains of collectivistic society (Yu and Yang, 1987; Yu, 1993). This perspective is supported by the bicultural self-model which suggests that people may possess both individual orientation and social orientation and focus on a particular type of orientation in different situations (Lu and Yang, 2006; Lu, 2008). McClelland’s achievement motivation is regarded as IOAM.

2.5.1 Antecedents of Social Orientation Achievement Motivation

The economic structure of the traditional collectivistic Chinese society is dominated by agricultural activities combined with a dense population and limited resources (Fei, 1992). Under such circumstances, the stability of the social order and harmonious relationships are vital for survival and led to the formation of a hierarchical social structure. In this society, the nuclear family is positioned at the lowest level and the
head of the clan has authority over the distribution of resources. Individual members of
the nuclear family have their own roles and status within the extended family and clan,
and are obliged to fulfil their responsibilities and duties, which are clearly defined and
difficult to change. From the perspective of cultural ecology, collectivistic societies such
as traditional Chinese society are extended family/clan centred, with a strong sense of
belonging, respect for hierarchical authority, an emphasis on hierarchical relationships,
and focus on pro-social behaviour. All of these elements create a tight social structure
(Boldt, 1978; Witkin and Berry, 1975; Triandis, 1983).

Collectivistic societies have all the characteristics of social rigidity and structural
tightness and have a strong impact on an individual’s mindset, world view, and
behaviour (Yang, 1986). The individual’s expectations, behaviour and inter-personal
relationships are reinforced and pre-specified by others such as parents, family
members, teachers, colleagues and significant others. Individuals usually do not have a
choice about their preferred behaviour. For SOAM, the continuation and maintenance of
this motivation are monitored by parents, family members, teachers, colleagues, or
significant others. For the examination and correction of behaviour, individuals that are
in a collectivistic society depend on others for help. For a new behaviour to be able to
replace a previous behaviour, individuals in collectivistic societies will rely on whether
the new behaviour is acceptable to in-group members or significant others. This
reliance severely restricts the individual’s behavioural flexibility because individuals in
collectivistic societies focus on and comply with the norms and rules of in-group
members and significant others to foster harmony within the collective (Jackson et al.,
2006a).

Through the socialisation learning process, the achievement motivation of individuals in
collectivistic societies emphasises the objectives of the group or nuclear and extended
family up to the clan level. Judgements and evaluations on achievements are given by
family members, teachers, or other significant people such as a superior or colleague.
Therefore, individual achievements are moulded to be in line with group objectives and
this slowly develops into a potent social instrument that results in diminished functional
autonomy (Allport, 1961). Individual objectives align with social, in-group and family
objectives in order for the individual to meet his/her obligations. In a collectivistic social
structure, individualistic behaviour such as achievements through individual efforts is frowned upon whereas achievement that comes from co-operation in the name of the group is desirable (Yang, 1986). A person’s value concept is gained from life experiences through a long learning process. Individuals from different cultural backgrounds possess different values. These values shape achievement motivation and thus influence the types of goals that are pursued.

Collectivism is an antecedent of SOAM, which can be defined as a preference to establish and maintain a harmonious relationship with the social surrounding in order to effectively achieve collective goals (Yang, 1996). The power or drive for the achievement comes from significant others such as parents, family members, teachers, superiors or colleagues. In other words, SOAM is driven by the motivation to fulfil the expectations of one’s in-group, and represents the need to achieve collective goals and necessitates co-operating with others towards a common goal and maintaining a strong relationship orientation.

2.5.2 Social Orientation Achievement Motivation and Knowledge Sharing

Social norms are an external variable that can influence attitudes. Social norms about knowledge sharing can influence attitudes towards knowledge sharing because it shapes social orientation achievement motivation. When applied to knowledge sharing, The Theory of Reason Action (TRA) (Fishbein and Ajzen, 1975), predicts that attitude to knowledge sharing is linked to the subjective norm about knowledge sharing, intention to share knowledge, and actual knowledge sharing (Kim and Hunter, 1993).

Social orientation achievement motivation can be explained by the TRA, which essentially states that the attitude towards a behaviour drives the intention to perform the behaviour, which then drives the enactment of the behaviour. An attitude is defined as the individuals’ disposition towards the self, others and the environment through favourable or unfavourable responses (Fishbein and Ajzen, 1975; Clark and Soliman, 1999).
The attitude towards a particular behaviour is determined by a set of salient beliefs about the outcomes that will arise from the behaviour and the corresponding evaluation on these outcomes. These beliefs can be affected by external variables that do not vary with the consequences of the behaviour and which may exist and develop independently. By impacting on an individual’s salient beliefs about the behaviour, external variables can influence attitude towards the behaviour (Fishbein and Ajzen, 1975).

Social norms are an external variable that can influence attitude towards knowledge sharing because it shapes social orientation achievement motivation. Social norms are defined as our perceptions of the expectations that others have of us and is a perceived social pressure of whether or not to perform (Yang, 1986). In the TRA, social norms are referred to as ‘subjective norm’, which represents one’s perceptions of how one’s significant others perceive a particular behaviour.

A subjective norm that encourages knowledge sharing will increase the individual’s intention to share knowledge because of social pressure to conform to the norm. Such pressures are likely to be stronger in collectivistic cultures than in individualistic cultures. Social pressures change the payoff structure of the knowledge-sharing game. For example, even if hoarding knowledge provides greater benefits, a rational and self-interested individual will share knowledge when placed in situations where there is a strong subjective norm to share knowledge, knowledge-sharing behaviour is visible, and it is easy to identify the individual. In other words, even when it can be disadvantageous to share one’s knowledge or if one does not want to share one’s knowledge, social pressures alone can move people towards co-operation when the environment emphasizes the collective and frowns upon the hoarding of knowledge because collective goals are valued more than individual goals.

Supervisors who are collectivistic can satisfy their social needs of social affiliation and social comparison through striving for the achievement of collective goals. Supervisors who are collectivistic and who act as knowledge sharers could reach their objectives of being affiliated and identified with their work group through social activities such as
sharing knowledge with subordinates (Rosendaal, 2009; Hwang and Kim, 2007). Individuals with high social orientation achievement motivation are interested in developing social capital because social capital can increase the chances that one will fit into one’s social environment. It is important for collectivistic individuals with a high social orientation achievement motivation to fit into their social environment because doing so meets their needs for social affiliation and social identification.

Social Capital Theory highlights the formation of a network of relationships between individuals that capital exists and resides in the network to facilitates certain behaviours (Coleman, 1990). Social capital is a resource that is embedded within a social structure and can be accessed and mobilized by individuals through purposive action that exploits the connections between them and their networks (Putnam, 1995a, 1995b; Okoli and Oh, 2007).

Social Capital Theory can be used to explain a variety of pro-social behaviours such as involvement in community activities and differential social achievements (Coleman, 1988). The trust and generalized reciprocity among the people in social networks increase the social capital in the network (Realo, Allik and Greenfield, 2008). Social capital can lead to the creation of intellectual capital if knowledge sharing occurs between members of the social network (Nahapiet and Ghoshal, 1998).

Supervisors who are collectivistic tend to want to be affiliated with their colleagues and tend to believe that collective goals are superior to individual ones (Yang, 1986). Such supervisors will be likely to invest in and build their social networks so as to increase their social capital. Social capital can provide benefits such as greater access to information, increased power, and increased solidarity with members of the network. Sharing knowledge with colleagues is one way to increase one’s social capital. From the supervisor’s perspective, a supervisor who is willing to share his/her knowledge will develop social capital because sharing knowledge, especially implicit knowledge, is likely to increase one’s reputation (Wasko and Faraj, 2005). For example, sharing knowledge with one’s subordinates can improve a supervisor’s chances of promotion. Supervisor sharing knowledge with subordinates is to increase the likelihood of subordinates
engaging in organizational citizenship behaviours which will improve the performance of the supervisor. Additionally, supervisors can develop social capital by showing concern for the welfare of their subordinates. For example, a supervisor who is concerned about how subordinates in a competitive and stressful work environment perceive their jobs. Supervisor general work experience can alleviate the pressure faced by their subordinates by sharing knowledge through mentoring that can help their subordinates to perform their jobs more effectively and efficiently (Smith, 2002; Hezlett and Gibson, 2007; Lai, Liu and Shaffer, 2004).

Supervisors with a collectivistic orientation generate pressure for themselves because of their social orientation and subsequent concern about fitting in and being accepted by significant others. Such supervisors will tend to be concerned about social comparison, which is a form of competitiveness (Chang and Wong, 2008) and is one of the antecedents of social orientation achievement motivation. Supervisors tend to be central to the work-group network and thus are in a good position to contribute consistently and meaningfully to the collective knowledge bank. Such supervisors may feel that they are outstanding within the work group but feel that they need to be more outstanding in the organization. One way to stand out in the organization and advance one’s career is to increase one’s reputation and status within the organization by sharing one’s knowledge.

2.6 Trust

2.6.1 Propensity to Trust

Propensity to trust is a stable individual difference and a personality trait that refers to a willingness to trust other individuals. In Costa and McCraes’s (1999) NEO framework, the propensity to trust is a facet of agreeableness, which is related to sharing knowledge with others (Matzler, Renzl, Muller, Herting and Mooradian, 2008). People differ in propensity to trust (Rotter, 1980; Mayer et al., 1995), possibly due to differences in
oxytocin level (Zak, 2008). Individuals with a high propensity to trust will give their trust even in situations where most other people will not.

National culture moulds societal norms and values, and thus moulds the personality of individuals including their propensity to trust (e.g., Hofstede, 1980; Mayer, Davis and Schoorman, 1995; Doney, Cannon and Mullen, 1998; Downes, Hemmasi, Hofstede, 2001; Graf, Kelly and Huff, 2002). Huff and Kelly (2003) found that managers in the United States have a higher propensity to trust than their counterparts in Asian countries. People with a high propensity to trust are more likely than people with a low propensity to trust to act in a trustworthy manner, perform well on a task, and engage in organizational citizenship behavior (Van Dyne, Vandewalle, Kostova, Latham and Cummings, 2000; Colquitt, Scott and Lepine, 2007), and are less likely to be unhappy and engage in deviant behavior (e.g., cheating, lying, stealing) (Rotter, 1980).

Manager’s with a high propensity to trust expect their subordinates to reciprocate (Whitener, Brodt, Korsgaard and Werner, 1998) and tend to empower their staff (Gomez and Rosen, 2001). Other studies indicate that the propensity to trust of managers does not have a direct influence on perceptions of social exchange but on the other hand, the propensity to trust of subordinates does have a direct influence on perceptions of social exchange (Bernerth and Walker, 2009).

2.6.2 Interpersonal Trust

Interpersonal trust is widely accepted as stemming from distinct psychological processes (Mcallister, 1985; Kramer, 1999). Trust is considered as the most important element in the exchange of resources within a network (Mayer et al., 1995; Mcallister, 1985), and plays an important role in generating and sustaining an organization’s competitive advantages (Barney and Hansen, 1994). Trust is an important determinant of the actions of individuals (Ghoshal and Bartlett, 1994), and has a critical influence on how knowledge is shared within communities of practice (Kramer, 1999).
Mayer, Davis and Schoorman (1995 p.712) defined trust as “Willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the truster, irrespective of the ability to monitor or control that other party”. This definition implies the supervisor in the role of the truster must bear the risk of trusting subordinates thus rendering themselves vulnerable. Trust and risks are related (Das and Teng, 2004).

Interpersonal trust fosters greater co-operation among individuals which ultimately yields a richer exchange of information (Uzzi, 1996; Dyer and Chu, 2003). Positive outcomes such as organizational citizenship behaviour, better job performance (Dirks and Ferrin, 2001; Dirks and Ferrin, 2002), and an increase in the wellbeing and job satisfaction of employees are also derived from trust. Trust increases one’s confidence that the other will act co-operatively rather than opportunistically, thus increasing one’s own willingness to co-operate (Das and Teng, 1998; , 2004).

The frequency of supervisor-subordinate interactions is positively correlated with the level of interpersonal trust in the supervisor-subordinate relationship (Levin, Whitener and Cross, 2006). The relationship between the length of the supervisor-subordinate relationship and the level of trust in the supervisor-subordinate relationship is complex and curvilinear (Levin et al., 2006). For newer dyadic relationships, gender will determine the trust level. A dyad's of the same gender report higher trust levels than opposite sex dyads (Scott, 1983). For dyadic relationships at the intermediate stage, social interactions positively affect the level of trust. For mature dyadic relationships, shared understanding determines the level of trust (Levin et al., 2006). Beside the history and personalization of the dyadic relationship, factors such as the work environment affect interpersonal trust (Young and Daniel, 2003).

Culture affects the perception of ability, benevolence, and integrity towards other people (Schoorman, Mayer and Davis, 1996). The difference between the level of trust of in-group members and the level of trust of out-group members is greater amongst collectivists than amongst individualists. Supervisors may need more time in collectivistic cultures than in individualistic cultures to develop a trusting relationship.
with subordinates before working on tasks that require a high level of trust such as sharing implicit knowledge with subordinates.

In the supervisor-subordinate relationship, differences in hierarchical power and the asymmetry of information flow allow the supervisor to gather information about the subordinate in order to evaluate the subordinate’s trustworthiness. Thus, downward trust develops more quickly than does upward trust (Schoorman et al., 2007).

2.6.3 Affective and Cognitive Trust

Interpersonal trust has cognitive (Mayer et al., 1995) and affective components (Lewis and Weigert, 1985; Mcallister, 1985). Cognitive trust is derived from the ‘head’, is calculative in nature as it is based on instrumental assessments that are derived from knowledge of the person’s reliability, dependability and competence. In contrast, affective trust is derived from the ‘heart’ and is based on empathy, rapport, self-disclosure, emotional bonds, and mutual care and concern (Mcallister, 1985). Compared to cognitive trust, affective trust is more likely to lead to care and concern for the welfare of the other party, belief in the intrinsic value of the relationship (Rempel, Holmes and Zanna, 1985), and emotions that are generalized and enduring (Lewis and Weigert, 1985).

Cognitive trust and affective trust are positively correlated (Mcallister, 1985). Levels of cognitive trust are usually higher than levels of affective trust because cognitive trust is needed for affective trust to develop. In other words, affective trust is an extension or further development of cognitive trust. Affective trust and cognitive trust are causally connected but have different antecedents and consequences.

Different types of trust can lead to different outcomes (Levin and Cross, 2004; Ng and Chua, 2006), and manifest different effects on the exchange of implicit knowledge (Levin and Cross, 2004). In organizations, managers tend to display higher levels of affective trust with staff who are also personal friends (Chua, Ingram and Morris, 2008).
Comparing cognitive and affective trust, affective trust is the factor that differentiates the in-group from out-group especially for collectivists because they highly value communal sharing and emotional closeness with in-group members. Affective trust may therefore explain co-operative behaviours in collectivistic cultures (Chen, Chen and Meindl, 1998). In summary, in collectivistic societies affective trust is motivated by a commitment to the relationship and results in particularistic concerns for in-group members such as subordinates in the work group.

2.6.4 Affective Trust and Knowledge Sharing

People are more willing to share knowledge with those whom they trust (Zand, 1972), and trust plays a significant role in the sharing of knowledge that is complex and implicit in nature (Williams, 2001). Trust is central to the way knowledge is shared by individuals (Andrews and Delahaye, 2000). Cognitive trust and affective trust both improve knowledge transfer (Mcallister, 1985; Levin and Cross, 2004). The experience of trust is interplay of a person’s values, attitudes, moods, and emotions. With the development of unconditional trust in a dyadic relationship, the shared values of the underlying trust assure the individual that the knowledge shared will be used for a greater good, and therefore no need to protect one’s personal interests (Jones and George, 1998).

Trust is not reciprocal in nature (Brower, Schoorman and Tan, 2000). Nonetheless, based on Social Exchange Theory, supervisors who make the first move by trusting their subordinates and sharing knowledge with them will establish the trust in the relationship for two reasons. Firstly knowledge sharing can be construed as a demonstration of concern (Whitener et al., 1998). Secondly creating the impression that the supervisor is caring and trustworthy, and most people need reassurance first before giving their trust to someone (Pruitt and Kimmel, 1977).

One important barrier to the transfer of knowledge is a poor relationship between the knowledge sharer and receiver (Szulanski, 1996). With the absence of trust, sharing knowledge with others within the same work environment is not possible even when the job requires knowledge sharing. Environments that are highly competitive are likely
to impede knowledge sharing because of trust-related issues. Therefore interpersonal trust is a relational characteristic that influences and leads to knowledge transfer (Argote, Mcevily and Reagans, 2003; Adler, 2001; Tsai and Ghoshal, 1998).

Trust is a predictive factor for contribution in a social-dilemma setting. An individual’s opportunistic behaviour may lead to an attitude of self-interest maximization, thus the reluctance to share knowledge with others due to the fear that doing so will jeopardise one’s status and economic benefits. The codification of knowledge via activities such as documentation will turn the knowledge into public goods and can result in the fear of losing the advantages that stem from being the sole owner of the knowledge. Trust has a positive influence on knowledge codification (Renzl, 2008).

Affective trust is correlated with dyadic co-operation (Ng and Chua, 2006). In a social-dilemma setting, co-operative behaviour is positively related to trust but is not necessarily linked to reciprocal behaviour (Chaudhuri, Sopher and Strand, 2002).

Trust plays several roles in knowledge sharing, both as an antecedent and as a consequence of knowledge sharing. Trust strengthens interpersonal relationships and influences the sharing of knowledge both directly and indirectly through relationships and culture. Trust acts through shared knowledge to improve group performance (Nelson and Cooperider, 1996). Through organizational citizenship behaviour, the intention and actual sharing of implicit knowledge can be induced by affective trust (Yang and Farn, 2007).

There are mixed findings in relation to the influence of affective trust and cognitive trust on knowledge sharing. Some studies (e.g., Chowdhury, 2005: Brower, Schoorman and Tan, 2000) have found that cognitive and affective trust are both important for the sharing of implicit knowledge, although cognitive trust has a stronger influence than does affective trust. Another study (Ko, 2010), found that affective trust influences knowledge transfers whilst cognitive trust does not. Additionally, affective trust has a greater effect on the willingness to share implicit knowledge whereas cognitive trust plays a greater role in the willingness to use implicit knowledge (Holste and Fields, 2010).
Downward affective trust (i.e., supervisor's affective trust in subordinates) is positively correlated with the subordinate’s citizenship behaviour and in-role performance (Mcallister, 1985; Brower, Lester, Korsgaard and Dineen, 2008). Downward trust may lead to high quality interactions that make subordinates feel a sense of empowerment and confidence. Subordinates may consequently be motivated to exert greater effort within and beyond their prescribed roles.

For a supervisor to be willing to share knowledge with a subordinate, concerns about the issue of trustworthiness will definitely arise. The concept of trustworthiness is made up of three dimensions i.e., competence, integrity and benevolence (Mayer et al., 1995). These three dimensions are found to be positively linked to the knowledge sharing behaviour and must exist concurrently for the sharing behaviour to occur (Usoro, Sharratt, Tsui and Shekhar, 2007).

In a supervisor-subordinate relationship that is based on affective trust, sensitivity to personal and work-related issues tends to be high (Pruitt and Kimmel, 1977). Supervisors who have a high level of affective trust in subordinates tend to provide them with a lot of assistance by engaging in need-based monitoring because of a heightened awareness of their subordinates’ needs. Additionally, supervisors who display a high level of affective trust in subordinates tend to provide them with a lot of interpersonal citizenship behaviour, such as expression of care and concern toward subordinates (Whitener et al., 1998).

According to the affective-cognitive model of trust development (Williams, 2001), affect can directly or indirectly influence trust at all phases of trust development. This is significantly important in order to understand the moderating effect of affective trust on the intention to share knowledge downwards under the social oriented achievement motivation. Knowledge-sharing such as the disclosure of valuable implicit knowledge or personal networks without any expectation for reciprocation is a sign of a high level of trust. Knowledge seekers, who find that the source of the knowledge allows them to access limited or sensitive resources will develop and show reciprocal trust towards the
source thereby leading to the development of affective trust in the dyadic relationship (Abrams, Cross, Lesser and Levin, 2003).

2.7 Hypothesis Development

The theories chosen for answering the research questions need to be well established and reputable. Hofstede's seminal work on culture identified collectivism as one of the four dimensions of culture. McClelland’s Theory was selected because it is the most established theory of the need for achievement. McAllister's affective trust is a relatively new theory but it has been widely examined in the literature.

The following sections provide the theoretical rationale for the conceptual model depicted in Figure 2.1. Four pairs of hypotheses are proposed. These hypotheses can be combined to create the conceptual model that is depicted in Figure 2.1.

![Figure 2.1 Proposed Conceptual Frameworks](image)

Figure 2.1 Proposed Conceptual Frameworks

*a black lines indicate explicit knowledge and red lines indicate implicit knowledge.*
2.7.1 Collectivism and Intention to Share Knowledge

Collectivism is a social factor that might influence knowledge sharing because collectivists are concerned about the well-being and needs of their in-group members, and prefer to work in groups rather than work alone (Jackson et al., 2006a). The more the individuals are motivated by group norms, the more their attitudes will be group-oriented rather than self-oriented (Lee, 1990). Collectivists place the interests of the group ahead of their own interests because their self-concepts are based on group membership (Triandis, 1989a).

Collectivists emphasize co-operation and sharing with in-group members (Triandis, 1989a; Triandis, 2004) and can reach their objectives of being affiliated and identified with colleagues whom they regard as in-group members by sharing their knowledge with them (Rosendaal, 2009; Hwang and Kim, 2007). Collectivists will share their proprietary knowledge with in-group members, even if sharing such knowledge is costly (Triandis and Gelfand, 1998; Wolfe and Loraas, 2008).

According to the Theory of Reasoned Action, the subjective norm influences attitude to knowledge sharing, which then influences the intention to share knowledge. The findings of past studies support the notion that in a collectivistic culture, the subjective norm to share knowledge has a positive and direct effect on the intention to share knowledge (Bock et al., 2005). As a result, there should be a positive relationship between collectivism and intention to share knowledge.

2.7.2 Collectivism, Social Orientation Motivation and Intention to Share Knowledge

From a social perspective, knowledge sharing can be seen as a social-exchange process (Christensen, 2005). Social-exchange processes involve non-specific obligations (Blau, 1964) that are regulated through traditional establishments and in-groups such as clans, communities, and working group (Brown and Duguid, 2001).
As mentioned earlier in collectivistic settings, supervisors and subordinates are likely to be obligated to each other and driven by the norm of reciprocity to be helpful and cooperative with each other. This is because they are likely to place collective interests above their personal interests. As a result, they should have the intention not only to help each other but also share knowledge with each other.

Collectivists are likely to have a strong desire to fit into their social environment in order to meet their needs for affiliation and social identification (Triandis, 1989a; Triandis, 1993). Building harmonious working relationships with colleagues is therefore an important concern for collectivists (Triandis, 1989a; Triandis, 1989b; Triandis, 1993).

Collectivists are motivated by group norms and are thus likely to have attitudes that are group-oriented rather than self-oriented (Lee, 1990). Under these cultural forces, the building of a reputation and recognition within a community of practice is an important motivator (Bartol and Srivastava, 2002). Collectivistic are likely to be concerned about what others, especially such as subordinates in the working group, think of them (Triandis, 1993).

Collectivism is a social factor that might influence knowledge sharing because collectivists are concerned about the well-being and needs of their work group members, and prefer to work in groups rather than work alone (Jackson et al., 2006). The more that individuals are motivated by group norms, the more their attitudes will be group-oriented rather than self-oriented (Lee, 1990). Collectivists place the interests of the group ahead of their own interests because their self-concepts are based on group membership (Triandis, 1989a; Triandis, 1995).

Collectivists emphasize co-operation and sharing with in-group members (Earley, 1989) and can reach their objectives of being affiliated and identified with colleagues whom they regard as in-group members by sharing their knowledge with them (Hwang and Kim, 2007; Rosendaal, 2009). Collectivists will share their proprietary knowledge with in-group members, even if sharing such knowledge is costly to them (Triandis and Gelfand, 1998; Wolfe and Loraas, 2008).
Collectivism increases the motivation to share knowledge because sharing knowledge can increase one’s reputation or social status, which are important considerations for collectivists especially amongst in-group members (Muller et al., 2005). For example, there is evidence that collectivistic supervisors tend to be concerned about their reputation amongst their subordinates (Krackhardt and Kilduff, 1999). Collectivists are therefore likely to seek recognition and praise for their achievements, and want others to be aware of their expertise or achievements, which is a major feature of social orientation achievement motivation.

Supervisors with a high level of social orientation achievement motivation are concerned about what others think of them (Yu and Yang, 1987; Yu, 1993). They are fundamentally interested in building social capital within the organization. Social capital increases the chances of a supervisor fitting into their work group thereby increasing their power and opportunities for career advancement. One way for a supervisor to be outstanding within the work group and to advance his/her career in the organization is by enhancing his/her reputation and status in the organization. Being perceived as capable and helpful can enhance the reputation and status of supervisors. Sharing knowledge with subordinates is an effective way to demonstrate one’s expertise and leadership. Collectivism and social orientation achievement motivation should therefore be positively correlated.

According to the TRA, the subjective norm influences attitude to knowledge sharing, which then influences the intention to share knowledge. The findings of past studies support the notion that in collectivistic cultures, the subjective norm to share knowledge has a positive and direct effect on the intention to share knowledge (Bock et al., 2005). As a result, there should be a positive relationship between collectivism and intention to share knowledge.

The discussion in Section 2.7.1 suggests the following: i) collectivism and intention to share knowledge are positively correlated; ii) collectivism and the social orientation achievement are positively correlated; and iii) social orientation achievement motivation and the intention to share knowledge are positively correlated. It is plausible that
collectivism increases the intention to share knowledge partly because it increases social orientation achievement motivation, which then increases the intention to share knowledge. Based on this rationale, the following hypothesis is proposed:

Hypothesis 1a: The relationship between collectivism and intention to share explicit knowledge is mediated by social orientation achievement motivation.

Hypothesis 1b: The relationship between collectivism and intention to share implicit knowledge is mediated by social orientation achievement motivation.

2.7.3 Social Orientation Achievement Motivation, Intention to Share Knowledge, and Knowledge Sharing

Individuals with a high level of social orientation achievement motivation are interested in developing social capital because social capital can increase the likelihood that they will fit into their social environment. Individuals with a high level of social orientation achievement motivation seek to fit into their social environment because doing so meets their need for affiliation. From the supervisor’s perspective, a supervisor who shares knowledge will develop social capital because sharing knowledge, especially implicit knowledge, is likely to enhance his/her reputation within the organization (Wasko and Faraj, 2005) thereby increasing his/her status within the organization. A good way to demonstrate one’s mastery and enhance one’s reputation as an expert is to share one’s knowledge.

Meeting the needs for social affiliation and social identification is critical for individuals with a high level of social orientation achievement motivation because they want to feel a sense of belongingness to their social environment (Yu and Yang, 1987; , 1994). Supervisors with a high level of social orientation achievement motivation are likely to want to be respected and admired by their subordinates, and be concerned with their reputation and social standing. Such respect and admiration can be achieved by sharing knowledge with subordinates in order to demonstrate expertise and leadership.
Respect and admiration from subordinates as well as reputation and status within a social network are forms of social capital for supervisors. Supervisors who are concerned about acquiring social capital (i.e., those with a high level of social orientation achievement motivation) are therefore more likely than those who are not concerned about social capital (i.e., those with a low level of social orientation achievement motivation) to be willing to share their knowledge with their subordinates. This is because through sharing knowledge, especially implicit knowledge, is likely to increase one’s reputation and social status (Wasko and Faraj, 2005). Social orientation achievement motivation and knowledge sharing should therefore be positively correlated.

Numerous studies have shown that the intention to enact a behaviour is the best predictor of the behaviour being enacted. The positive relationship between intention and enactment has been reported with a wide range of behaviours (e.g., Bock, Zmud, Kim and Lee, 2005; Kuo and Young, 2008). Bock and Kim (2002) reported a strong positive correlation between the intention to share knowledge and knowledge sharing.

The discussion in Section 2.7.2 indicates the following: i) social orientation achievement motivation and knowledge sharing are positively correlated; ii) social orientation achievement motivation is positively correlated with intention to share knowledge; and iii) intention to share knowledge is positively correlated with knowledge-sharing behaviour. It is plausible that social orientation achievement motivation increases knowledge-sharing behaviour partly because it increases the intention to share knowledge, which then leads to knowledge sharing. Based on this rationale, the following hypothesis is proposed:

Hypothesis 2a: The relationship between social orientation achievement motivation and sharing of explicit knowledge is mediated by intention to share explicit knowledge.

Hypothesis 2b: The relationship between social orientation achievement motivation and sharing of implicit knowledge is mediated by intention to share implicit knowledge.
2.7.4 Social Orientation Achievement Motivation, Affective Trust, and Intention to Share Knowledge

One important barrier to the transfer of knowledge is a poor relationship between the knowledge provider and receiver (Szulanski, 1996). Poor relationships are characterized by low levels or an absence of interpersonal trust. With the absence of trust, sharing knowledge with others within the same work environment is not possible even when the job requires knowledge sharing. Environments that are highly competitive are likely to impede knowledge sharing because of trust-related issues. Therefore interpersonal trust is a relational characteristic that influences and leads to knowledge transfer (Argote et al., 2003; Adler, 2001; Tsai and Ghoshal, 1998).

As mentioned earlier, social orientation achievement motivation is expected to be correlated positively with intention to share knowledge. It might be the case that the relationship between social orientation achievement motivation and intention to share knowledge depends on the supervisor’s level of affective trust in the subordinate.

Within the knowledge management literature, trust has been acknowledged as an important determinant of people’s intention and willingness to share knowledge (Ford and Chan, 2003; Kramer, 1999). The decision regarding what to share and with whom is a complex one and is partly determined by the level of trust between the knowledge sharer and the knowledge receiver (Sveiby, 2001; Sveiby and Simons, 2002; Sveiby, 2007).

Affective trust has a positive influence on knowledge sharing (e.g. (Ko, 2010; Holste and Fields, 2010; Chowdhury, 2005; Levin and Cross, 2004; Brower et al., 2000; Mcallister, 1985) and individuals are more likely to share knowledge, particularly implicit knowledge, with those whom they trust (Zand, 1972; Williams, 2001). Some scholars (e.g., Roberts, 2000; Adler, 2001) have argued that interpersonal trust is crucial for knowledge sharing, especially for voluntarily sharing valuable implicit knowledge in work groups, (Pruitt and Kimmel, 1977).
The discussion in section 2.7.2 suggests that social orientation achievement motivation is more likely to positively influence the intention to share knowledge when the knowledge sharer has affective trust in the knowledge receiver. Based on this rationale, the following hypothesis is proposed:

Hypothesis 3a: The relationship between social orientation achievement motivation and intention to share explicit knowledge is moderated by affective trust. Specifically, the strength of the positive relationship between social orientation achievement motivation and intention to share explicit knowledge increases as affective trust increases.

Hypothesis 3b: The relationship between social orientation achievement motivation and intention to share implicit knowledge is moderated by affective trust. Specifically, the strength of the positive relationship between social orientation achievement motivation and intention to share implicit knowledge increases as affective trust increases.

2.7.5 Intention to share knowledge and knowledge sharing

According to the Theory of Reasoned Action, the intention to perform a behavior voluntarily is the best predictor of the behavior being enacted (Fishbein and Ajzen, 1975). There is vast support for the Theory of Reasoned Action (e.g., (Dong, Liem and Grossman, 2010; Ding and Ng, 2009; Chow and Chan, 2008) and several studies have shown that the intention to share knowledge is positively correlated to the sharing of knowledge (Reychav and Weisberg, 2010; Ding and Ng, 2009; Bock and Kim, 2002). As a result, the following hypothesis is proposed:

Hypothesis 4a: Intention to share explicit knowledge is positively correlated with sharing explicit knowledge behaviour.

Hypothesis 4b: Intention to share implicit knowledge is positively correlated with sharing implicit knowledge behaviour.
2.8 Conclusion

This chapter provided a review of the literatures relevant to the variables in the conceptual framework shown in Figure 2.1. A theoretical justification for each hypothesis has also been provided. The next Chapter provides a discussion of research methodology and a justification for selecting the particular methodology that will be used to collect the data that are necessary to test the hypotheses.
Chapter Three  
Methodology

3.1 Chapter Outline

In Chapter Two, the relevant literatures on the factors that affect knowledge-sharing and its significance to business organizations have been identified. The antecedents of knowledge-sharing such as societal culture of collectivism and the social orientation achievement motivation of the supervisor were examined in detail. In addition; the relationship between the intention to share knowledge and knowledge sharing was explored and discussed. Further to this, downward affective trust in supervisor-subordinate relationships was reviewed in relation to the topics mentioned earlier and a research gap was identified.

This chapter will provide a discussion of the methodology to be used in this research and is organized into ten sections. Section 3.2 contains a comparison of the positivism and the interpretivism research paradigms, and a justification for choosing a positivism methodology. Section 3.3 provides a discussion of research design, different types of quantitative studies, and a justification for selecting a cross-sectional design in this research. Section 3.4 provides a discussion of various types of sampling methods and a justification for using the convenient sampling method. Section 3.5 provides a discussion of the advantages and disadvantages of various data-collection methods, and a justification for using a self-administered mail questionnaire survey. Section 3.6 provides a discussion of various types of measurement scales and a justification for using a Likert Scale. Reliability and validity is also discussed and a justification provided for selecting various measures for the key constructs. Section 3.7 provides a discussion of questionnaire design. Section 3.8 provides a discussion of ethical issues that need to be considered when conducting the research. Finally, a summary of this chapter is provided in Section 3.9.
3.2 Research Philosophy and Paradigms

To perform a good research study, a specific and precise definition of the purpose of a research study needs to be established. The research process needs to be described in detail and thoroughly planned with adequate analysis and the findings presented unambiguously. Limitations of the research should be frankly revealed through the application of high ethical standards during and after the research process. The conclusions are to be justified (Cooper and Schindler, 2001). The underlying philosophy of research and its paradigms have strong implications and it is imperative to have a good research plan and design. In general, business researchers have two philosophical bases namely positivist research and interpretivist research or phenomenology.
3.2.1 Positivist Research

The quantitative research methodology of management science that applies the same positivist approach found in the research of natural science (Bryman, 1984). From the ontological paradigm perspective, the nature of reality is objective and singular and is separate from the researcher. From the epistemological paradigm assumption on the relationship between research subject and the researcher, quantitative research methodology considers the researcher as being independent from what is being researched. Through the searching of causal relationship and its regularity between the research elements, the researchers seek to predict and explain what happens in the social world. On the role of value, the axiological paradigm assumption is that the quantitative method is neutral, value-free and unprejudiced. As for the language of research, from the rhetorical paradigm assumption, the quantitative method is impersonal, formal and based on definitions. The process of research according to the methodological paradigm assumption is deductive, cause-and-effect, static, context free, generalized and possesses validity and reliability. The quantitative method employs experiment, structured interviews, questionnaire, non-participative observations and secondary source surveys which normally employ statistical methods for the testing of hypotheses in order to find and interpret knowledge.

3.2.1.1 Advantages of Quantitative Research

Quantitative research methodology has numerous advantages. The methods used, such as mail surveys, controlled observations and experiments, and the data gathered could achieve a high level of validity and reliability (Balsley, 1970). Quantitative measurements have the advantage of yielding data that are high in reliability and validity (Bryman, 2008; Karami, Rowley and Analoui, 2006). In addition, quantitative research is good in explaining the causality of the phenomena and its effects. The phenomenon or causes are stated in specific and precise terms and carry labels of independent variables and the effects carry the labels of dependent variables in the research reports. The assigning of independent and dependent variables is guided by the research objective and the
proposed hypothesis set at the beginning of the research process. The findings and conclusion of the causality of independent and dependent variables made under such research processes are more objective (Corbetta, 2003). With the use of representative of probability sampling, the findings from cross-sectional and longitudinal research designs have the characteristic of generalizability or external validity. The findings can explain the population from which the sample was selected. Finally, the minimizing and elimination of subjectivity judgments of quantitative research could achieve results that are replicable (Bryman, 2008).

3.2.1.2 The Critique of Quantitative Research

Quantitative research methodology employed in social science fails to distinguish between the elements of people and social institutions (Sale, Lohfeld and Brazil, 2002). This methodology tries to reduce all aspects of human undertaking to simple numbers. The simple numbers fails to deal with the meaning systems of people which includes the how and why of the way people think and feel (Bryman, 2008). The measurement process of quantitative research methodology possesses an unauthentic and artificial sense of precision and accuracy that leads to the proposed hypothesis. The confirmation from this quantitative research methodology is biased towards a pre-set conclusion. Individuals who are chosen to participate in the research process may not fully understand the questionnaires or the other survey tools, and when given a limited choice of answer the respondents may give an answer that they might not agree with or are not sure about.

The connections between research and daily life are obstructed by the reliance on procedures and instruments. Numerical data cannot provide a real and true picture of society; furthermore the statistical procedure is simply trying to hide the fact that all researchers have personal responses and participation in their research (Sale et al., 2002). Experiments that use people as subjects may also be unethical. A static view of social life was created though the analysis of relationships between variables that is independent of people’s lives. Questionnaires, surveys or structured interviews which are cross-sectional in nature only provide a static snapshot of the social world. It only
captures a person’s feelings at a specific moment in time despite the fact that people’s attitude and values can change over time. The statistical sample cannot represent entire social groups and neither does it allow the understanding of individual cases (Bryman, 2008).

3.2.2 Interpretivism

The differences between people’s experiences in the physical and social reality leads to the paradigm of interpretivist research (Burrell and Morgan, 1979). During the research process, the researcher will eventually interact and get involved with the individual subject due to the fact that reality is socially constructed. The natural world is multiple and subjective according to the ontological paradigm of interpretivism (Corbetta, 2003). Interpretivists assume that the social world is external to the individual and holds the view that all knowledge is a matter of interpretation by individuals (Bryman, 2008). On the relationship between the researcher and the research, the epistemological paradigm assumes that the researcher interacts with the research subject. The interpretivist will treat the social world as relativism and tends to reject the idea that science can generate any kind of objective knowledge (Bryman, 2008). On the role of values, the axiological paradigm assumes that values are laden and biased. From the aspect of the rhetorical paradigm, the language and qualitative words used in the research are personal and informal in nature. The research process, from the assumptions of the methodological paradigm is inductive and emerging, possesses patterns and is context bound (Bryman, 2008). The interpretivist researchers basically want to understand each and every individual in their sample and how these individuals act within a social context. The methodology employed is qualitative in nature such as unstructured interviews, covert and overt participant observations and content analysis.

3.2.2.1 Advantages of Qualitative Research

Qualitative research could possibly obtain a more realistic sense of the world and may provide a better insight and understanding of the research questions, when compared to the quantitative research use of numerical data and statistical analysis (Karami et al.,
The research question which is under investigation can be viewed holistically (Patton, 1980; Bogdan and Taylor, 1975), and the interaction with the research subject can be performed using the subject’s own language and based on their own terms (Kirk and Miller, 1986). The collection of data and their subsequent analysis and interpretation are more flexible in its execution, thus primary and unstructured data are better able to describe and portray the research subjects in a manner that is detailed and holistic.

3.2.2.2. Disadvantage of Qualitative Research

According to Cavana, Delahaye and Sekaran (2001), the focus on the subjective local and short-term events may be the disadvantages of this qualitative research methodology. Due to the changing nature of the research framework and perspective and the inductive nature of the research process, the initial research objective could depart along the research process (Cassell and Symon, 1994). The different personal characteristics of each researcher could lead to vastly different conclusions from the same collected information. Different research phenomena may be impossible to investigate for their causalities (Corbetta, 2003). The different and non-consistent conclusions from the research may be difficult to explain due to the differences in the quality and quantity of information obtained from different respondents (Bryman, 2008). The researchers need to be highly experienced and capable of obtaining targeted information from the respondents which require the researcher to use different probing techniques. The research participant may selectively ignore some part of the research questions and are comfortable to provide information according to the research participants liking. This will lead to a lack of consistency and affect the reliability of the research result.
3.2.3 Justification for Choosing a Quantitative Methodology

The justification for the employment of a quantitative is very much dependent on the research questions. The research questions of this research project clearly link one construct with other constructs. The deductive approach to methodology is best for these types of research questions. According to Edmondson and McManus (2007), methodological fit promotes the development of rigorous and compelling field research. The state of prior theories and studies are mature as it involves questions and/or hypotheses that are related to the existing constructs it is focused on. The type of data collected is quantitative which is focused on measures where extent or amount is meaningful.

The researcher’s own worldview is one of the good reasons for choosing the quantitative research methodology (Creswell, 2003). Under such circumstances, the researcher is more comfortable with the quantitative paradigm in relation to its ontological, epistemological, axiological, rhetorical and methodological assumptions. The researcher’s experience and expertise in terms of statistic knowledge, library skills, technical writing skills and the researcher’s psychological attributes. The discipline of following rules and guidelines in conducting research, together with a lack of tolerance for ambiguity and an aversion towards producing a time for a study of short duration, has led to the choice of the quantitative method.

3.3 Research Design

Besides the purpose of the research, research design also takes into account the study’s scope, researcher involvement, time span and financial burden, and the unit of analysis. The more rigorous and sophisticated the research design, more time and financial resource are required. In this case, the purpose is to test the proposed hypotheses and therefore a correlational design is employed. Furthermore, the hypothesis testing can explain the nature of the relationships between the independent and dependent variables (Cavana, Delahaye and Sekaran, 2001).
3.3.1 Different Types of Quantitative Method

3.3.1.1 Experimental Study

Experimental study is a research design that incorporates controlled testing in order to find the cause and effect of independent and dependent variables (Creswell, 2003). The independent variables are manipulated to determine their effect on the dependent variables. Controls are stringent for an experimental study as intervening variables or antecedent variables may lead to a zero relationship.

According to Shadish, Cook and Campbell (2002), the experimental study is a study in which an intervention is intentionally introduced to observe its effect. In social science, this is one method to investigate causal relationships between variables. Most of the experiments are conducted within a restricted range of settings or with a particular type of treatment, which normally have several measures. Convenience sampling is normally used and usually conducted at a particular point in time; therefore the findings can rapidly lose relevance. Most of these experiments are highly local but do have the potential to demonstrate that limited generalization may just be as valuable as broad generalization.

3.3.1.2 Cross-sectional Study

According to Bryman (2008, p. 44), ‘A cross-sectional design entails the collection of data on more than one case and at a single point in time in order to collect a body of quantitative or quantifiable data in connection with two or more variables, which are then examined to detect patterns of association’. At one particular point in time, the findings provide a cross sectional pattern of association among the variables in the study. An advantage of a cross-sectional study is that data can be collected for many variables at one time from a large number of dispersed subjects (Creswell, 2003). Data collected are mainly on human attitudes and behaviors and are suitable for exploratory and causal research study. The study can be replicated by other researchers in different contexts.
The cross-sectional design possesses strong external validity if random sampling is employed, but the external validity becomes questionable when the sample is non-random (Bryman, 2008).

A weakness of the cross-sectional study is its inability to measure changes as the results are static and time bound. The internal validity is typically weak through the use of cross-sectional (Bryman, 2008). The resulting data is unable to establish the causal direction of the variables studied. The use of self-completed questionnaires and structured observational schedule may jeopardize the ecological validity because the survey instruments could disrupt the natural habitat of the population.

3.3.1.3. Longitudinal Study

Longitudinal study is one where the researcher will conduct the study a number of times (Cavana et al., 2001). The resources used such as time, effort and costs are higher than for a cross-sectional study but the results may offer some very good insights. The method of data collection may change during the study. The interpretations of the results based on the time series research have to make the assumption that the present trend will continue without any changes. Any fluctuations in a longitudinal quantitative study are best explained by the qualitative research methods.

The student researcher of this research project faces financial and time constraints therefore the employment of a cross-sectional design and a self-completed questionnaire is justified. The unit of analysis is the individual supervisor in an organization. The research question tries to explore the associations between the various constructs and this is best performed by a cross-sectional study and the best data collection tool is through a self-completed questionnaire.
3.4 Sampling

A sample is a part or subset of a population (Berk, 1983). For this research, the sampling frame is the members of the Malaysian Institute of Chemistry which comprises approximately 3,000 members. The process of sampling is started with the selection of a sufficient number of individual elements from the population that is to be studied. The studying and understanding of the sample’s characteristic and properties would likely lead to a general understanding of the population’s characteristics and properties (Cavana et al., 2001).

In reality the researcher could not reach every individual element in the population. Therefore the use of sampling will reduce the impact of time, costs and other resources that restrict the possibilities of surveying the whole population. A sample is not the replica of the population; therefore, choosing the right sample is important for the purpose of representation of the population. When making the decision to choose sample, the size and design of sample are two important issues that need to be thought about (Cavana et al., 2001).

3.4.1 Different Types of Sampling Method

Quantitative research methodology consists of two type of sampling methods, namely; probability and non-probability methods. Probability sampling methods consists of simple random sampling and complex probability sampling, and the complex probability sampling are further divided into five different sampling designs, namely; stratified random sampling, systematic sampling, area sampling, cluster sampling, and double sampling (Bryman, 2008). In general, the least biased sampling method is probability sampling and offers the best generalization to the population. The disadvantages are the facts that it is expensive and cumbersome, and there are also often difficulties in obtaining the latest updated version of the population listing. This is a major issue and is largely responsible for the method’s unpopularity.
Non-probability sampling consists of convenience sampling and purposive sampling. The purposive sampling are further sub-divided into judgment sampling where individuals who are in the best position to provide the required information are selected as sample. On the other hand, snowball sampling uses an initial contact group to locate individuals who possess the specific knowledge required to complete the survey (Bryman, 2008). Finally, through the assignment of a quota, the quota sampling is the technique to make sure the required unit of analysis for the purpose of the research project is selected (Bryman, 2008). For non-probability sampling, the process involves the selection of individual element in the population with no attachment of probabilities to it. The findings of the research from this sample cannot be assertively applied to the general population. The elaboration of sampling methods, their descriptions, advantages and disadvantages are described in Table 3.1.
Table 3.1: Probability and Non Probability Sample Design (adopted from Cavana et al., pp. 266-267)

<table>
<thead>
<tr>
<th>Sampling Design</th>
<th>Description</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple random sampling</td>
<td>All elements in the population are considered and each element has an equal chance of being chosen as the subject</td>
<td>High generalisability of findings</td>
<td>Not as efficient as stratified sampling</td>
</tr>
<tr>
<td>Systematic sampling</td>
<td>Every nth element in the population is chosen starting from a random point in the sampling frame</td>
<td>Easy to use if sampling frame is available</td>
<td>Systematic biases are possible</td>
</tr>
<tr>
<td>Stratified random sampling</td>
<td>Population is first divided into meaningful segments; thereafter subjects are drawn:</td>
<td>Most efficient among all probability designs. All groups are adequately sampled and comparisons among groups are possible</td>
<td>Stratification must be meaningful. More time-consuming than simple random sampling or systematic sampling. Sampling frame for each stratum is essential.</td>
</tr>
<tr>
<td>Cluster sampling</td>
<td>Groups that have heterogeneous members are first identified, then some are chosen at random; all the members in each of the randomly chosen groups are studied</td>
<td>In geographic clusters, costs of data collection are low</td>
<td>The least reliable and efficient among the probability sampling designs since subsets of clusters are more homogeneous than heterogeneous</td>
</tr>
<tr>
<td>Area sampling</td>
<td>Cluster sampling is done within a particular area or locality</td>
<td>Cost-effective. Useful for decisions relating to a particular location.</td>
<td>Takes time to collect data from an era.</td>
</tr>
<tr>
<td>Double sampling</td>
<td>The same sample or a subset of the sample is studied twice</td>
<td>Offers more detailed information on the topic of study</td>
<td>Original biases, if any, will be carried over. Individuals may not be happy responding a second time.</td>
</tr>
</tbody>
</table>
Non-probability sampling

<table>
<thead>
<tr>
<th>Sampling Design</th>
<th>Description</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convenience sampling</td>
<td>The most easily accessible members are chosen as subjects</td>
<td>Quick, convenient, inexpensive</td>
<td>Not generalisable at all</td>
</tr>
<tr>
<td>Judgment sampling</td>
<td>Subjects are selected on the basis of their expertise in the subject investigated</td>
<td>Sometimes the only meaningful way to investigate</td>
<td>Generalisability is questionable; not generalisable to entire population</td>
</tr>
<tr>
<td>Snowball sampling</td>
<td>Initial sample is identified, then more subjects are selected from referrals</td>
<td>Useful when subjects have required characteristics but are hard to find and contact</td>
<td>Not normally generalisable</td>
</tr>
<tr>
<td>Quota sampling</td>
<td>Subjects are conveniently chosen from targeted groups according to some predetermined number or quota</td>
<td>Very useful where minority participation in a study is critical</td>
<td>Not easily generalisable</td>
</tr>
</tbody>
</table>

This research will employ convenience sampling due to the facts of insufficient financial resources and time constraint. The individual member who are in supervisor position of Malaysian Institute of Chemistry is the unit of analysis in this study. This method and the study site were chosen simply for its convenience because the researcher is a council member of this Institute and is able to obtain approval from the Institute to conduct the survey. The results from this convenience sampling strategy will be in no sense “random” and will be impossible to generalize the findings for the population as the representativeness of the sample is in doubt (Bryman, 2008).
### 3.5 Data Collection Method

An overview of interviews and questionnaires is presented in the Table 3.2.

Table 3.2 The Advantages and Disadvantages of Interviews and Questionnaires (Adopted from Cavana et al., pp. 245-246)

<table>
<thead>
<tr>
<th>Modes of data collection</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal or face-to-face interviews</td>
<td>Can establish rapport and motivate respondents</td>
<td>Takes up personal time</td>
</tr>
<tr>
<td></td>
<td>Able clarify questions, clear doubts, add new questions</td>
<td>Costs more when a wide geographic region is covered</td>
</tr>
<tr>
<td></td>
<td>Can read non-verbal cues</td>
<td>Respondents may be concerned about confidentiality of information given</td>
</tr>
<tr>
<td></td>
<td>Can use visual aids to clarify points</td>
<td>Interviewers need to be trained</td>
</tr>
<tr>
<td></td>
<td>Rich data can be obtained</td>
<td>Can introduce interviewer biases</td>
</tr>
<tr>
<td></td>
<td>CAPI can be used and responses entered in a portable computer</td>
<td></td>
</tr>
<tr>
<td>Telephone interviews</td>
<td>Less costly and speedier than personal interviews</td>
<td>Respondents can terminate the interview at any time</td>
</tr>
<tr>
<td></td>
<td>Can reach a wide geographic area</td>
<td>Non-verbal cues cannot be read</td>
</tr>
<tr>
<td></td>
<td>Greater anonymity than personal interviews</td>
<td>Interviews have to be kept short</td>
</tr>
<tr>
<td></td>
<td>Can be done using CATI</td>
<td>Obsolete telephone numbers or unlisted ones omitted from the sample</td>
</tr>
<tr>
<td>Personally administered questionnaire</td>
<td>Can establish rapport and motivate respondent</td>
<td>Organizations may be reluctant to open up company for the survey to be conducted with groups of employees assembled for the purpose</td>
</tr>
<tr>
<td></td>
<td>Doubts can be clarified</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Less expensive when administered to groups of respondents</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Almost 100% responses rate assured</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Anonymity of respondent is high</td>
<td></td>
</tr>
<tr>
<td>Mail questionnaires</td>
<td>Anonymity is high</td>
<td>Response rate is almost always low; 30 percent rate is quite acceptable</td>
</tr>
<tr>
<td></td>
<td>Wide geographic regions can be reached</td>
<td>Cannot clarify questions</td>
</tr>
<tr>
<td></td>
<td>Token gifts can be enclosed to seek compliance</td>
<td>Follow up procedure for non-responses are necessary</td>
</tr>
<tr>
<td></td>
<td>Respondent can take more time to respondent convenience</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Can be administered electronically, if desired</td>
<td></td>
</tr>
<tr>
<td>Electronic questionnaires</td>
<td>Easy to administer</td>
<td>Computer literacy is essential</td>
</tr>
<tr>
<td></td>
<td>Can reach out globally</td>
<td>Respondents must have access to the facility</td>
</tr>
<tr>
<td></td>
<td>Very inexpensive</td>
<td>Respondent must be willing to complete the survey</td>
</tr>
<tr>
<td></td>
<td>Fast delivery</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Respondents can answer at their convenience, as with the mail questionnaire</td>
<td></td>
</tr>
</tbody>
</table>
The data collection method employed for this research is self-completed questionnaires sent by post to respondents. This method is relatively cheap to administer especially when the sample is geographically dispersed (Bryman, 2008). If interview method is used to collect data, the researcher will need to travel to each of the respondents which will be time consuming, thus imposing higher research costs. Compared to online data collection, the cost of postal data collection is higher due to the costs incurred upon the sending and return of the postal survey and for both the collation and data-entry process. However, postal data collection can result in a higher responses rate compared to the online method (McDonald and Adam, 2003).

Self-completed questionnaires are efficient to administer because a large number of questionnaires can be sent out at one time (McDonald and Adam, 2003). A follow-up can be done by sending a reminder letter. The method will not suffer from interviewer effects, which may affect a respondent’s answers and there will be no interviewer variability as the questionnaire is self-completed by the respondent. Other added advantages are the ability of respondents to complete the questionnaire in their own free time and return it to the researcher within a specified time frame (Cavana et al., 2001; Bryman, 2008).

The disadvantage of self-completed questionnaires is the fact that without the presence of the researcher, respondents cannot be probed for further elaboration when answers are unclear or ambiguous. The use of open-ended questions can help to reduce this problem (Bryman, 2008). When the researcher is not present during the completion of the questionnaire, the respondent cannot seek verification on any doubts that may arise from the questions. The formulation of questions that are simple to understand and unambiguous will help to eliminate this disadvantage. As the number and wording of the questions are fixed; it will not be possible to ask other kinds of questions, therefore additional data cannot be collected. That is why the design of the questionnaire that includes appropriate questions for the variables of the construct is particularly important to further enhance the reliability and validity of the research findings (Cavana et al., 2001; Bryman, 2008).

There are other disadvantages to self-administered questionnaires. Respondents can read through the questionnaire first before answering questions, and invariably, this can lead to non independence of the answer given to the questions. Additionally, the
questionnaire may be answered by another person who is not the intended respondent. Therefore, to ensure the research findings are high in validity, it is vital to ensure proper inclusion and exclusion criteria are established (Cavana et al., 2001; Bryman, 2008).

### 3.6 Scales

#### 3.6.1 Reliability and Validity

In quantitative research, reliability and validity of the measurements used are the key issues. The research methodology and process that leads to the development of measurement method will affect its validity and reliability (Churchill Jr, 1979). There are several tests for reliability including spilt-half, test-retest, and internal consistency reliability. The internal consistency reliability of the set of variables within a scale is provided through the Cronbach alpha. The instrument itself must be reliable. There are also concerns about the consistency of the measures and whether the results are repeatable. The criterion for a good measurement tool is having good construct validity (Cronbach and Meehl, 1955). For any research, measures which have a Cronbach alpha value higher than 0.7 is acceptable for its internal reliability as the measure has to be reliable before it can be claimed as valid.

Due to time limitations and in order to meet the requirements and objectives of this research project, the constructs’ measurements are adapted from previous similar work. Generally for a newly created variable, contemporary researchers usually start off with twelve to fifteen items and then subsequently reduce to a minimum of five per dimension to ensure the reliability of the measure. The determination of the number of dimensions underlying the construct is then performed through factor analysis (Churchill Jr, 1979).
3.6.2 Validity

The integrity of the research findings is reflected through the validity of the research results. The measurement of the validity of the causal relationship between two or more variables is performed through the internal validity. On the other hand, the external validity has to be achieved by the research on the grounds that the result can be generalized across the population by using representative samples. Ecological validity needs to be achieved due to the concerns about whether the findings are applicable to the natural social settings and people’s daily life (Cavana et al., 2001; Bryman, 2008).

3.6.3 Measurement Scales

The measurement of feelings, attitudes and perceptions is more complicated than the measurement of physical occurrences such as floor area or distance which can easily be measured with physical devices. The measurement of the subjective variable is through the reduction of the abstract concept to measurable and observable behaviour (Bryman, 2008). This process of concepts operationalization and the measuring task is performed by using measurement scales to measure different variables (Cavana et al., 2008).

According to Cavana et al., (2008), measurement scales are categorized into four types; namely nominal, ordinal, interval and ratio. The rating scale commonly used in business is the dichotomous rating scale where the aim is to elicit a yes or no answer (Cavana et al., 2008). The questions used are normally close-ended. Category rating scales use multiple items to obtain a single response and either uses nominal or ordinal measurement scales depending on the question asked. The Likert rating scale which is commonly use in socio-psychological research is designed to study the degree of subjects’ agreement or disagreement with a statement on a five-point scale. Likert rating scales usually have an odd number of responses where the midpoint is always a neutral response (Likert, 2009). Semantic differential rating scales are designed to measure the respondent’s attitude on a bipolar scale. The wording of bipolar attributes is normally adjectives and the responses are plotted to attain an idea of what were the
perceptions of the respondent. This is a type of interval measurement scale (Cavana et al., 2001; Bryman, 2008).

Numerical rating scales are alike to semantic differential scales except that they use five-point scale with bipolar adjectives at either end. This is a type of interval measurement scale. The forced-choice scale is a ranking scale that can measure the preference of respondents between two or more objects or items. Among the choices provided, the respondents need to rank objects relative to one another (Cavana et al., 2001; Bryman, 2008).

3.6.4 Justification for the Use of a Likert Scale

This study will employ a five-point Likert scale. There is no evidence that the five-point Likert scale or seven-point Likert scales possess the same mean score after the rescaling process (Dawes, 2008). The statements (or items) which are focused on certain issues or themes are written in simple language and respondents only need to response to the statements by indicating their degree of agreement or disagreement towards the provided statements.

3.6.5 Demographic Measures

The first demographic variable to be measured is the respondent’s gender. For measuring this demographic variable, the respondents were asked to reveal their gender by ticking Male (number 1) or Female (number 2). The second demographic variable to be measured is the age and this demographic variable was measured by asking the respondent to indicate their age. The age range will be expected to range above 21 years to 60 years. Even if there are respondents who are aged above 60 years, the researcher expects that they are likely those who are self-employed or their employment contract was extended by the employer. Demographics such as ethnicity
are an important element for this research because Malaysia is a multi-ethnic country comprising of three major ethnic groups namely Malay, Chinese and Indian. Native or minority groups will be classified under ‘Others’ in this study. The first category (Number 1) is for Malay, the second category (number 2) is for Chinese, the third category (number 3) is for Indian and the fourth category (number 4) is for ethnicities other than the above three categories. The respondents are requested to fill in the total years of work experience, number of years as supervisor/manager and the length of relationship with a specific subordinate.

3.6.6 The Measures of Variables

3.6.6.1 The Measurement of Psychological Collectivism

Hofstede’s (1984) seminal cross-cultural study ranked Malaysia 36 in terms of individualism, which suggests that Malaysia is a society that leans toward collectivism. Jackson et al.’s (2006a) meta-analysis found three principle groups of measures for collectivism, namely Triandis, Earley and Wagner. All three groups share items but emphasize different facets of individualism. Oyserman et al. (2002) commented that poor reliability measurements were used in half of the cross-cultural studies on collectivism. Jackson et al. (2006a) meta-analysis has indicated that reliability is a main concern for the three groups of collectivism measures. In terms of content validity, the three groups of collectivism measures were criticized for their measurement of unrelated constructs (Oyserman, Kemmelmeier and Coon, 2002; Fiske, 2002; Earley and Gibson, 1998). Under the Triandis group of collectivism study, scales in different facets used to measure collectivism do not correlate to each other and sometimes even have negative correlations (Hui and Yee, 1994). The Wagner group of measures faced similar problems (Ramamoorthy and Carroll, 1998; Moorman and Blakely, 1995; Wagner, 1995; Wagner and Moch, 1986). This raises the question of whether the various facets are measuring the same underlying construct. Based on the above argument, Jackson et al. (2006) developed and tested a new measure for collectivism comprising five facets presented in Table 3.3.
Table 3.3 Key Facets of the Collectivism Construct (Adopted from Jackson et al., 2006)

<table>
<thead>
<tr>
<th>Facet</th>
<th>Discussion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preference</td>
<td>Collectivists emphasize on the relationship with in-group members and prefer to exist within the bounds of the in-group. They are affiliative by nature and believe that collective efforts are superior to individual ones.</td>
</tr>
<tr>
<td>Reliance</td>
<td>Collectivists believe that one person’s responsibility is the responsibility of the entire in-group. This sense of collective responsibility makes them comfortable relying on other members of the in-group.</td>
</tr>
<tr>
<td>Concern</td>
<td>Collectivists are motivated not by self-interest but by a concern for the well-being of the in-group and its members.</td>
</tr>
<tr>
<td>Norm Acceptance</td>
<td>Collectivists focus on norms and rules of the in-group and comply with those norms and rules in order to foster harmony within the collective.</td>
</tr>
<tr>
<td>Goal Priority</td>
<td>Collectivists’ actions are guided by the consideration of the in-group’s interests. Thus in-group goals take priority over individual goals, even if this causes the in-group member to make certain sacrifices.</td>
</tr>
</tbody>
</table>

The five facets of collectivism overall have strong construct validity ($\alpha=.85$), and the five specific facets reliability ($\alpha$) is ranged from 0.75 to 0.93 (Jackson et al., 2006a). The measure for psychological collectivism from Jackson et al., (2006a) was adapted and used in this study and is presented in Table 3.4.
Table 3.4: Adapted Version of Psychology Collectivism Measure Item to be Use in this Research Study

<table>
<thead>
<tr>
<th>Measure Item</th>
<th>Facet</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I prefer to work in groups rather than work alone</td>
<td>Preference</td>
</tr>
<tr>
<td>2. Working in groups is better than working alone</td>
<td>Preference</td>
</tr>
<tr>
<td>3. I want to work in groups and not alone</td>
<td>Preference</td>
</tr>
<tr>
<td>4. I feel comfortable counting on others to do their part</td>
<td>Reliance</td>
</tr>
<tr>
<td>5. I am not bothered by the need to rely on others</td>
<td>Reliance</td>
</tr>
<tr>
<td>6. I feel comfortable trusting others to do their tasks</td>
<td>Reliance</td>
</tr>
<tr>
<td>7. The well-being of my work group is important to me</td>
<td>Concern</td>
</tr>
<tr>
<td>8. I care about the well-being of my work group</td>
<td>Concern</td>
</tr>
<tr>
<td>9. I am concerned about the needs of members in my work group</td>
<td>Concern</td>
</tr>
<tr>
<td>10. I follow the norms of my work group</td>
<td>Norm acceptance</td>
</tr>
<tr>
<td>11. I follow the procedures used by my work group</td>
<td>Norm acceptance</td>
</tr>
<tr>
<td>12. I accept the rules of my work group</td>
<td>Norm acceptance</td>
</tr>
<tr>
<td>13. I care more about the goals of my work group than my own goals</td>
<td>Goal priority</td>
</tr>
<tr>
<td>14. I think more about the goals of my work group than my own goals</td>
<td>Goal priority</td>
</tr>
<tr>
<td>15. The goals of my work group are more important to me than my own personal goals</td>
<td>Goal priority</td>
</tr>
</tbody>
</table>

3.6.6.2 The Measurement of Social Orientation Achievement Motivation

Maehrs (1974, 1977, 2008) pointed out that McClelland’s achievement motivation failed to take into account the cultural influences that may define achievement differently for different societies. This leads to the argument that McClelland’s construct is only valid for individualistic societies because it is based solely on this culture. The construct of social orientation achievement motivation was first proposed by Yu and Yang (1987) as a
response to the shortcomings in McClelland’s achievement motivation when used in Far Eastern societies.

In a social-orientation society, a person has the need to establish and maintain a harmonious relationship with, and merge into, the surroundings so that collective and social relational goals can be effectively achieved. Individual goals need to comply with the general values of the in-group and only then can self-realization be achieved within a collectivistic society. The achievement motivation construct is multi-dimensional and is content and context bound by the socio-cultural environment and subjected to the stimulus of social incentive (Yu and Yang, 1987; Yu, 1993).

In a collectivistic society, an individual’s social orientation achievement motivation is the dynamic motivation to achieve or surpass the externally set targets or standards of performance. The individuals’ selection of a target or standard is determined by the environment or the in-group; for example, the family or the work group. An individual with a high social orientation achievement motivation is very concerned about the in-group’s expectations. The high social stimuli has a positive impact on the individual to perform and under these circumstances, he/she is more likely to seek help from in-groups members in order to achieve the target (Yu, 1993).

Social orientation achievement motivation and individual orientation achievement motivation can be seen as two mutually independent psychological constructs where individual orientation achievement motivation is determined by an individual’s own decisions whereas social orientation achievement motivation is determined by the context in which he/she is in. Two scales, one for social orientation achievement motivation and one for individual orientation achievement motivation were developed by Yu and Yang (1987), and both have a high internal consistency. The measurement scales for social orientation achievement consists of 30 items, of which 11 are kin related, 9 are academic related, and 10 are socially related. In several studies the Cronbach alpha of 0.89 to 0.91 was recorded (Yu and Yang, 1994). The measurement scales were in Chinese. For this research, the 10 socially related and one academic related items were chosen from Yu and Yang’s (1987) Chinese socially orientation achievement motivation scales and translated into English according to the recommendation from Behling and Law (2002) regarding the translation and back translation process and presented in Table 3.5.
Table 3.5 Adapted Version of Eleven Items from Yu and Yang (1987) Social Orientation Achievement Motivation Scale

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I usually follow the standards of my colleagues when setting my own personal work target</td>
</tr>
<tr>
<td>2.</td>
<td>I welcome advice and directions from others before initiating a task</td>
</tr>
<tr>
<td>3.</td>
<td>I wish to know how others rate my job performances</td>
</tr>
<tr>
<td>4.</td>
<td>I prefer others to judge the results of my work</td>
</tr>
<tr>
<td>5.</td>
<td>I work hard to achieve whatever society values</td>
</tr>
<tr>
<td>6.</td>
<td>I do my best at work to prove that I am highly capable</td>
</tr>
<tr>
<td>7.</td>
<td>I admire most those who have a high position in society</td>
</tr>
<tr>
<td>8.</td>
<td>I work hard at every job merely to prove that I am an ambitious person</td>
</tr>
<tr>
<td>9.</td>
<td>I consider giving up when others do not help me to solve my problems at work</td>
</tr>
<tr>
<td>10.</td>
<td>I feel no sense of accomplishment if no one is aware of me successfully completing a task</td>
</tr>
<tr>
<td>11.</td>
<td>I hope to reach a level of expertise that is recognised by all in whatever career I choose</td>
</tr>
</tbody>
</table>

3.6.6.3 The Measures of Dependent Variables

3.6.6.3.1 Measurement of Intention to Share Knowledge

The empirical study of knowledge sharing is still in its early stages (Bock and Kim, 2002; Schulz, 2001; Schulz and Jobe, 2001), leading to the situation where there are no established measures that can be used for the study of constructs such as the intention to share knowledge. A total of fifteen items are used in this research to measure intention to share knowledge. Some of the items have been adapted from previous work and some have been created by the researcher. The items use for the construct of sharing knowledge refers to the works of Cheng and Li (2001), Bock, Zmud, Kim and Lee (2005), Choo (2000), Clarke and Rollo (2001), Davenport and Grove (2001), Haldin-Herrgard (2000), and Wong and Radcliffe (2000). These variables concentrate on the sharing of documents, manual, methodologies, models, observation, experience,
expertise, work tips, knowhow and know who are presented in Table 3.6. Items 1, 2, 3, 4, 5, 6, 9 and 14 are developed by researchers of this project.

Table 3.6 Fifteen Items to Measure the Intention to Share Knowledge

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I am willing to share my work reports and official documents with this subordinate</td>
</tr>
<tr>
<td>2</td>
<td>I am willing to provide my manuals, methodologies and models to this subordinate</td>
</tr>
<tr>
<td>3</td>
<td>I am willing to allow this subordinate to spend a significant amount of time observing and collaborating with me in order for him/her to better understand and learn from me</td>
</tr>
<tr>
<td>4</td>
<td>I am willing to write down what I know about the work and share it with this subordinate</td>
</tr>
<tr>
<td>5</td>
<td>I am willing to provide any information and documents that I have that may help him/her</td>
</tr>
<tr>
<td>6</td>
<td>I am willing to deposit all my work documents into a database and share it with this subordinate</td>
</tr>
<tr>
<td>7</td>
<td>I am willing to share my job experience with this subordinate</td>
</tr>
<tr>
<td>8</td>
<td>I am willing to share my expertise with this subordinate</td>
</tr>
<tr>
<td>9</td>
<td>I am willing to give this subordinate any tips I have that can help him/her with his/her job</td>
</tr>
<tr>
<td>10</td>
<td>I intend to share my experience or know-how from work with this subordinate</td>
</tr>
<tr>
<td>11</td>
<td>I am willing to provide my know-where and know-whom with this subordinate</td>
</tr>
<tr>
<td>12</td>
<td>I am willing to share my expertise from my education or training with this subordinate in an effective way</td>
</tr>
<tr>
<td>13</td>
<td>For work-related incidents that are difficult to explain, I am willing to conduct demonstrations for this subordinate</td>
</tr>
<tr>
<td>14</td>
<td>I am willing to share my secrets for achieving job-performance targets with this subordinate</td>
</tr>
<tr>
<td>15</td>
<td>I am willing to share my ideas with this subordinate</td>
</tr>
</tbody>
</table>

3.6.6.3.2 Measurement of Voluntary Knowledge Sharing

Consistent with the discussion above, voluntary knowledge sharing behavior is measured by asking the subjects to indicate their degree of voluntary sharing behavior.
This study uses fifteen items developed by the researcher based on the measurement of intention to share knowledge and presented in Table 3.7.

Table 3.7 Fifteen Items to Measure the Voluntary Knowledge Sharing

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I have voluntarily shared my work reports and official documents with this subordinate of my organization</td>
</tr>
<tr>
<td>2</td>
<td>I have voluntarily provided my manuals, methodologies and models to this subordinate</td>
</tr>
<tr>
<td>3</td>
<td>I have voluntarily allowed this subordinate to spend a significant amount of time observing and collaborating with me in order for him/her to better understand and learn from my work</td>
</tr>
<tr>
<td>4</td>
<td>When writing a report on work activities, I have voluntarily write down what I know about the work and share it with this subordinate</td>
</tr>
<tr>
<td>5</td>
<td>When this subordinate asked for help, I have voluntarily provided the information and documents he/she needs</td>
</tr>
<tr>
<td>6</td>
<td>I have voluntarily deposit all my work documents into a database and share it with this subordinate</td>
</tr>
<tr>
<td>7</td>
<td>I have voluntarily shared my job experience with this subordinate</td>
</tr>
<tr>
<td>8</td>
<td>I have voluntarily shared my expertise with this subordinate</td>
</tr>
<tr>
<td>9</td>
<td>I have voluntarily given this subordinate my tips about his/her job</td>
</tr>
<tr>
<td>10</td>
<td>I have voluntarily shared my experience or know-how from work with this subordinate</td>
</tr>
<tr>
<td>11</td>
<td>I have voluntarily provided my know-where and know-whom to this subordinate</td>
</tr>
<tr>
<td>12</td>
<td>I have voluntarily shared my expertise from my education or training with this subordinate</td>
</tr>
<tr>
<td>13</td>
<td>For work-related incidents that are difficult to explain, I have voluntarily conduct demonstrations for this subordinate</td>
</tr>
<tr>
<td>14</td>
<td>I voluntarily share my secrets for achieving job-performance targets with this down-line colleague.</td>
</tr>
<tr>
<td>15</td>
<td>I have voluntarily shared my ideas with this subordinate</td>
</tr>
</tbody>
</table>
3.6.6.4 The Moderator

3.6.6.4.1 Affective Trust Measurement

Trust is a major concept in management science and its study mainly focuses on the development and maintenance of trust at organizational, team and interpersonal levels (Mayer and Gavin, 2005; Zeffane and Connell, 2003). Meta-analytic studies indicate that the study of trust is focused on the issue of worker’s trust toward those in leadership (Dirks and Ferrin, 2002). There has been no studies done on the downward trust of supervisor towards subordinate and it’s correlation with other constructs such as the intention to share knowledge with subordinate.

Trust was categorized into cognitive trust and affective trust as suggested by McAllister (1995). Trustee’s reliability and dependability provide the building block for cognitive trust whereas the foundation of affect trust is based on the trustor’s and trustee’s reciprocated interpersonal care and concern. Peer citizenship behavior and the frequency of interactions with the manager are positively associated with the manager’s affective trust toward their peer (McAllister, 1995). This research study will focus on the supervisor’s affective trust in the subordinate. The affective trust measure developed by McAllister (1995) has satisfactory Cronbach alpha value ($\alpha = 0.89$) and is used in this research as presented in Table 3.8.

Table 3.8 Five Items to Measure the Supervisor’s Affective Trust in the Subordinate

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>This subordinate and I have a sharing relationship. We both freely share our ideas, feelings, and hopes</td>
</tr>
<tr>
<td>2.</td>
<td>I can talk freely to this subordinate about difficulties I am having at work and know that she/he will want to listen</td>
</tr>
<tr>
<td>3.</td>
<td>This subordinate and I would both feel sense of loss if one of us was transferred and we could no longer work together</td>
</tr>
<tr>
<td>4.</td>
<td>If I shared my problems with this subordinate, I know he/she would respond constructively and caringly</td>
</tr>
<tr>
<td>5.</td>
<td>I would have to say that this subordinate and I have both made considerable emotional investments in our working relationship</td>
</tr>
</tbody>
</table>
3.6.6.5 Control Variables

The function of control variables is to act as a filter to clean up the collected data that may have been contaminated by demographic information such as gender, ethnicity and length of relationship (Bryman, 2008; Cavana et. al., 2001). The variables used in this study and their control variables are as follows:

1. Collectivism of supervisor: None
2. Social oriented achievement motivation: Social desirability
3. Norm of reciprocity: Social desirability
4. Supervisor’s intention to share knowledge with subordinate: Social desirability
5. Supervisor’s voluntary knowledge sharing with subordinate: Job demand knowledge sharing.
6. Supervisor’s affective trust to subordinate: Propensity to trust

3.6.6.5.1 Social Desirability Bias and its Measurement

Social desirability bias is a responses bias where respondents may over or under report for the purpose of impressing the management in order to look good, thus leading to a contamination of the data. Social desirability bias have two facets namely, impression management and self-deceptive enhancement (Zerbe and Paulhus, 1987; Arnold, Feldman and Purbhoo, 1985). Impression management refers to the over-reporting of desirable behaviors and the under-reporting of undesirable behaviors, whereas self-deceptive enhancement is the tendency to give overly positive reports about oneself that are honestly believed to be true.

The control of social desirability bias can be in the form of scale selection which uses items that are low in social desirability. Instrument construction such as the phrasing of items which are neutral and may therefore reduce social desirability bias and the randomized response technique can also reduce social desirability bias. Instrument
administration where the pencil-and-paper postal questionnaire is anonymously administrated can also reduce social desirability bias (King and Bruner, 2000). Postal questionnaires are better than interviews in terms of avoiding social desirability bias (Sudman and Bradburn, 1982, cited in Bryman 2008). The social desirability bias in surveys is contextual and dependent on the respondent’s situation and also on the method of data collection such as the degree of privacy it offers (Tourangeau and Yan, 2007). Besides the factors above, this research study will employ the statistical control technique to take into the consideration of the effects of social desirability bias.

This research will adopt the short form of the Marlowe-Crowne Social Desirability Scale (Reynolds, 1982), which is provided in Table 3.11. This 10 item-scale described as M-C Form X2 in Reynolds (1982) has an acceptable level of reliability and validity, and is a subset of the 33-Item Marlowe-Crowne Social Desirability full scale. Additionally, the short-scale correlates strongly with the full version and is presented in Table 3.9.

Table 3.9 List of Variables to Measure Social Desirability Bias adapted from Reynolds (1982)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I never hesitate to go out of my way to help someone in trouble</td>
</tr>
<tr>
<td>2.</td>
<td>I have never intensely disliked anyone</td>
</tr>
<tr>
<td>3.</td>
<td>There have been times when I was jealous of the good fortune of others</td>
</tr>
<tr>
<td>4.</td>
<td>I would never think of letting someone else be punished for my wrongdoings</td>
</tr>
<tr>
<td>5.</td>
<td>I sometimes feel resentful when I don’t get my way</td>
</tr>
<tr>
<td>6.</td>
<td>There have been times when I felt like rebelling against people in authority even though I knew they were right</td>
</tr>
<tr>
<td>7.</td>
<td>I am always courteous, even to people who are disagreeable</td>
</tr>
<tr>
<td>8.</td>
<td>When I don’t know something, I don’t mind at all admitting it</td>
</tr>
<tr>
<td>9.</td>
<td>I can remember ‘playing sick’ to get out of something</td>
</tr>
<tr>
<td>10.</td>
<td>I am sometimes irritated by people who ask favors of me</td>
</tr>
</tbody>
</table>
3.6.6.5.2 Propensity to Trust and its Measurement

Propensity to trust is a personality attribute that refers to a willingness to trust others and remains stable across situations. A person with a high propensity to trust will give their trust even in situations where most other people will not. The formation of such a willingness to trust is through culture, experience and personality (Mayer et al., 1995). In this research, the propensity to trust may influence the supervisor’s affective trust toward his/her subordinate. A supervisor with high propensity to trust may trust their subordinate more than other supervisors who have a lower propensity to trust. Therefore, the control of the effects of propensity to trust on the measurement of supervisor’s affective trust in subordinate is required. The measurement of propensity to trust will be adopted from the work of Schoorman et al., (1996), due to its relatively high internal reliability and presented in Table 3.10.

Table 3.10 List of Variables to Measure Propensity to Trust, adopted from Schoorman et al., (1996)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>One should be very cautious with strangers</td>
</tr>
<tr>
<td>2</td>
<td>Most experts tell the truth about the limits of their knowledge</td>
</tr>
<tr>
<td>3</td>
<td>Most people can be counted on to do what they say they will do</td>
</tr>
<tr>
<td>4</td>
<td>These days, you must be alert or someone is likely to take advantage of you</td>
</tr>
<tr>
<td>5</td>
<td>Most salespeople are honest in describing their products</td>
</tr>
<tr>
<td>6</td>
<td>Most repair people will not overcharge people who are ignorant of their specialty</td>
</tr>
<tr>
<td>7</td>
<td>Most people answer public opinion polls honestly</td>
</tr>
<tr>
<td>8</td>
<td>Most adults are competent at their jobs</td>
</tr>
</tbody>
</table>

3.6.6.5.3 Job Demand for Knowledge Sharing and its Measurement

Knowledge sharing needs to be performed as part of one’s job, especially for supervisors who need to share knowledge with their subordinate. Without controlling for the demands placed on supervisors, the measurement of voluntary knowledge sharing may be contaminated by the job demand for knowledge sharing. In this research, job
demand for knowledge sharing will be measured with three items developed by the researcher and presented in Table 3.11.

Table 3.11 List of Variables to Measure Job Demand for Knowledge Sharing, adopted from Loon and Casimir (2008)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>My job requires me to share knowledge regularly with this subordinate</td>
</tr>
<tr>
<td>2</td>
<td>It is part of my job to share knowledge with this subordinate</td>
</tr>
<tr>
<td>3</td>
<td>This subordinate needs me to share my knowledge with him/her to perform his/her job</td>
</tr>
</tbody>
</table>

3.7 Questionnaire Design

The questionnaire design is critical for providing accurate and useable data for the researcher. The feedback from the respondent in the postal questionnaire does not allow the researcher to adjust or answer questions from the respondent. It is therefore pertinent that the questionnaire be designed in the best possible way to encourage the respondent to fill out the questionnaire and return it to the researcher upon completion (Yu and Cooper, 1983).

The appropriateness of the questions depends on the type of variable (e.g., subjective or objective) being measured. The language used has to consider the respondent’s level of understanding to make certain that the respondent is answering the questions correctly. The questions are normally worded positively and some negatively worded questions are used to serve as checking questions. Shorter questions are preferred over longer questions unless there is a requirement to explain in detail. The sequence of questions should employ the funnel approach. The respondent are first asked to answer simple and general questions that eventually leads to answering relatively difficult and specific questions (Festinger and Katz, 1966 cited in Cavana et al., 2001).
Questionnaires on white paper sized 14.85cm x 21cm and with a cover page obtain higher response rates (De Rada, 2005). Even though the personalization of the cover letter does not significantly increase the response rate of a postal survey, it is useful to do so because, at worst, there is no effect but, on the other hand, it might have a positive effect (Gendall, 2005). The participants perceived amount of work to complete the questionnaire and the participants’ interest in the research topic is a factor that influence the response rate of a postal survey in marketing research (Aaker, Day and Kumar, 1998). The sample characteristics and the credibility of the sponsoring organization also affect the response rate. Shorter questionnaires tend to have higher response rates than do longer questionnaires (Smith, Olah, Hansen and Cumbo, 2003).

3.8 Ethical Considerations

In social research, there are four main ethical principles, namely harm to participants, lack of informed consent, the invasion of privacy, and issues involving deception (Diener and Crandall (1978) cited in Bryman, 2008). This research had the approval from Human Research Ethics Committee of University of Newcastle with reference number of H-2010-1222.

3.8.1 Harm to Participants

During the research process, the harm to participants could be physically and/or psychologically related as well after publishing of the research results. As this research study has no direct contact between the researcher and the participants, the harm incur may be mainly psychologically related such as inducing stress and causing the loss of self-esteem to the participants. The disturbance caused by the social researcher to the subjects and subject’s relationships with their environment can be minimize through no contact with subjects. One critical method is to protect the participants by ensuring confidentiality of the data and their anonymity. The published findings should be able to ensure that individual research participants are not identified or identifiable (Bryman,
In quantitative research, the anonymity of the research participants during the research and reporting is easily achieved, especially with mail surveys.

### 3.8.2 Lack of Informed Consent

The researcher should provide prospective research participants with as much information as possible. With sufficient and correct information provided by the researcher, participants are able to judge and make the decision to participate in the study (Bryman, 2008). Many researchers use informed consent forms, which also provide a means of obtaining a participants’ personal information as participants need to put their names on the form and therefore it is good for qualitative surveys such as focus group interviews. With a mail survey, consent is assumed if participants return the completed questionnaire to the researcher.

### 3.8.3 Invasion of Privacy

Invasion of privacy is related to informed consent. In mail surveys, consent is assumed if participants return the completed questionnaire to the researcher. This directly translates to that participants had acknowledged that they surrender their right to privacy for the purpose of the participated research study (Bryman, 2008). For this project, the demography data does not contain participant’s name, address, contact telephone number or any other information that will disclose a participant’s identity. The Institute will provide the member list address label and concurrently the researcher will provide the survey package to the postal service provider for mailing out to the research participants. This will ensure the anonymity and confidentiality in relation to the completed survey questionnaire and therefore no invasion of privacy can occur through this mail survey exercise.
3.8.4 Deception

Bryman (2008) commented that deception occurs when researchers hide their intention for performing the research by giving information to participants that is not related to the study in order to make them believe and create a false sense of comfort for them to participate in a study. On the other hand, there have been arguments pertaining to the difficulty in providing complete information on the research to potential participants prior to data collection because doing so could possibly influence the responses of participants. It is not the researcher’s intention to hide the purpose and objectives of this research study from the participants, and it is also difficult to balance the amount of information provided to the participants without possibly compromising the responses from the participants. This poses a difficulty to the researcher to hold a definitive stance on drawing the exact line for deception in the study.

3.9 Summary

This chapter described and proposed the methodology chosen to test the relationships hypothesized in the conceptual framework. The positivist research paradigm with a cross sectional study using a self-administered questionnaire was selected. The variables depicted in the conceptual framework are measured in multiple-item measures with a five-point Likert scale. Control variables such as gender, social desirability, propensity to trust and job demand for knowledge sharing are also measured to take into account the effects these variables may have on the variables in the conceptual framework. This research employs a convenience sampling method where the sample consists of members of the Malaysian Institute of Chemistry member’s mailing list.

The next chapter provides the results from the descriptive analyses that were conducted to examine the characteristics of the sample. The next chapter also provides the findings from the analyses that were conducted to assess the internal reliability and discriminant validity of the measures that were used for the key variables as well as the findings from the analyses that were conducted to test the hypotheses.
Chapter Four
Data Analysis and Findings

4.1 Introduction

Chapter Four provides the results from the analyses that were conducted on the data that were collected according to the methodology described in Chapter Three. The data were analyzed using SPSS (Statistical Package for the Social Sciences) version 14.0. A total of 2,800 survey questionnaire forms were sent out and 214 were returned. The response rate is therefore 7.64%. Seven of the returned questionnaires were not used because of incomplete information or because the respondent did not meet the inclusion criterion of occupying a supervisory position. The final sample size is therefore 207.

Chapter Four contains five sections. The first section provides the findings from descriptive analyses that were conducted on the demographic variables. The second section contains descriptive statistics of the key variables. The findings from the principal component analyses and the internal reliability analyses that were conducted on the measures of the key variables are provided in the third section. The findings from the hypothesis testing are provided in the fourth section. The fifth section contains a summary of the major findings.

4.2 Demographic Variables

4.2.1 Demographics of Respondents

As shown in Table 4.1, there are slightly more males than females in the sample. Almost two-thirds of the samples are Chinese.
Table 4.1 Descriptive Statistics for Gender and Ethnicity

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>117 (56.5)</td>
</tr>
<tr>
<td>Female</td>
<td>90 (43.5)</td>
</tr>
<tr>
<td>Total</td>
<td>207 (100)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chinese</td>
<td>135 (65.2)</td>
</tr>
<tr>
<td>Malay</td>
<td>59 (28.5)</td>
</tr>
<tr>
<td>Indian</td>
<td>8 (3.9)</td>
</tr>
<tr>
<td>Others</td>
<td>4 (1.9)</td>
</tr>
<tr>
<td>Missing</td>
<td>1 (0.5)</td>
</tr>
<tr>
<td>Total</td>
<td>207 (100)</td>
</tr>
</tbody>
</table>

Descriptive statistics for age, work experience, supervisory experience, and duration of supervisor-subordinate relationship are shown in Table 4.2. The age of respondents ranges from 25 years to 67 years with a mean of 41.3. The total of number of years working experience of the respondents ranges from 2 years to 43 years with a mean of 16.9 years. The total number of years of supervisory experience of the respondents ranges from 1 to 40 years with a mean of 11.2 years. The total of number of years with the subordinate referred to in the survey ranges from 1 year to 33 years with a mean of 7.5 years. The supervisor’s work experience and years working with a subordinate may influence downward knowledge sharing and therefore need to be controlled statistically.
Table 4.2 Descriptive Statistics for Age, Work Experience, Supervisory Experience and Duration of Supervisor-subordinate Relationship

<table>
<thead>
<tr>
<th></th>
<th>Mean (S. D.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>41.3 years (10.2)</td>
</tr>
<tr>
<td>Work Experience</td>
<td>16.9 years (9.8)</td>
</tr>
<tr>
<td>Supervisory Experience</td>
<td>11.2 years (8.4)</td>
</tr>
<tr>
<td>Duration of supervisor-subordinate relationship</td>
<td>7.5 years (6.1)</td>
</tr>
</tbody>
</table>

4.2.2 Construct Validity

Construct validity refers to how well a scale or set of measures accurately represents the investigated concept (Hair Jr, Black, Babin, Anderson and Tatham, 2006). Convergent validity and discriminant validity are two widely accepted forms of validity (Peter, 1981). Convergent validity is confirmed when the scores produced by two different instruments measuring the same concept are highly correlated (Cavana et al., 2001). Discriminant validity, on the other hand, is confirmed when it is theoretically predicted that two variables are not correlated, and the results show that they are not correlated (Cavana et al., 2001). Correlation analysis is used to examine whether there is relationship between two or more variables. Patterns of inter-correlations among the measures are then studied. In order to establish convergent validity, one has to show high correlations between theoretically related measures. In order to establish discriminant validity, one has to show low correlations between theoretically unrelated measures.
4.2.2.1 Principal component analysis

Hair et al. (2006) comment the underlying structure among the variables in the analysis is defined by factor analysis. For this study, principal component analysis can be used to examine the underlying structure of multiple items. This analytical technique is referred to as a data-reduction technique because it aims to find the most parsimonious set of items that can accurately represent the variable of interest (Coakes and Steed, 2007).

A five-component Varimax solution was sought for the Collectivism scale based on the theoretical underpinnings of the scale. As shown in Table 4.3, a principal component analysis revealed a five-component solution for the Collectivism scale. The first component consists of three items that measure preference, the second component consists of two items that measure reliance (one item for reliance was deleted because it loaded poorly), the third component consists of three items that measure concern, the fourth component consists of three items that measure norm acceptance and last component consists of three items that measure goal priority. The average of the items shown in Table 4.3 was used as an overall score for Collectivism. Cronbach’s Alpha for this scale is .84. According to Nunnally (1978), a Cronbach’s Alpha of .7 or more indicates satisfactory internal reliability.
Table 4.3 Principal Component Analysis findings for Collectivism

<table>
<thead>
<tr>
<th></th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Colref1</td>
<td>.92</td>
</tr>
<tr>
<td>Colref2</td>
<td>.90</td>
</tr>
<tr>
<td>Colref3</td>
<td>.89</td>
</tr>
<tr>
<td>Colrel2</td>
<td></td>
</tr>
<tr>
<td>Colrel3</td>
<td></td>
</tr>
<tr>
<td>Colcon1</td>
<td></td>
</tr>
<tr>
<td>Colcon2</td>
<td></td>
</tr>
<tr>
<td>Colcon3</td>
<td></td>
</tr>
<tr>
<td>Colnorm1</td>
<td></td>
</tr>
<tr>
<td>Colnorm2</td>
<td></td>
</tr>
<tr>
<td>Colnorm3</td>
<td></td>
</tr>
<tr>
<td>Colgoal1</td>
<td></td>
</tr>
<tr>
<td>Colgoal2</td>
<td></td>
</tr>
<tr>
<td>Colgoal3</td>
<td></td>
</tr>
</tbody>
</table>
A one-component solution was sought for the Social Orientation Achievement Motivation scale based on the theoretical underpinnings of the scale. As shown in Table 4.4, a principal component analysis revealed that all five items loaded satisfactorily on one-component. The average of the items shown in Table 4.4 was used as an overall score for social orientation achievement motivation. Cronbach’s Alpha for this seven-item scale is .71 indicates satisfactory of internal reliability (Nunnally, 1978).

Table 4.4 Principal Component Analysis findings for Social Orientation Achievement Motivation

<table>
<thead>
<tr>
<th>Component</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOAM3</td>
<td>.53</td>
</tr>
<tr>
<td>SOAM4</td>
<td>.56</td>
</tr>
<tr>
<td>SOAM5</td>
<td>.61</td>
</tr>
<tr>
<td>SOAM6</td>
<td>.69</td>
</tr>
<tr>
<td>SOAM7</td>
<td>.61</td>
</tr>
<tr>
<td>SOAM8</td>
<td>.72</td>
</tr>
<tr>
<td>SOAM11</td>
<td>.54</td>
</tr>
</tbody>
</table>
A two-component Varimax solution was sought for the Intention to Share Knowledge scale based on the theoretical underpinnings of the scale. As shown in Table 4.5, a principal component analysis revealed a two-component solution for this scale. One item for intention to share implicit knowledge was deleted because it loaded poorly. The first component consists of four items that measure intention to share explicit knowledge, whereas the second component consists of nine items that measure intention to share implicit knowledge. The average of the items shown in Table 4.5 was used as an overall score for intention to share explicit knowledge and intention to share implicit knowledge respectively. Cronbach’s Alpha for the scale for intention to share explicit knowledge is .78 whilst Cronbach’s Alpha for the scale for intention to share implicit knowledge is .93 where both Cronbach’s Alpha figure indicates satisfactory of internal reliability (Nunnally, 1978).

Table 4.5 Principal Component Analysis findings for Intention to Share Knowledge

<table>
<thead>
<tr>
<th>Component</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISExpK1</td>
<td></td>
<td>.85</td>
</tr>
<tr>
<td>ISExpK2</td>
<td></td>
<td>.82</td>
</tr>
<tr>
<td>ISExpK3</td>
<td></td>
<td>.61</td>
</tr>
<tr>
<td>ISExpK4</td>
<td></td>
<td>.56</td>
</tr>
<tr>
<td>ISImpK2</td>
<td></td>
<td>.67</td>
</tr>
<tr>
<td>ISImpK3</td>
<td></td>
<td>.83</td>
</tr>
<tr>
<td>ISImpK4</td>
<td></td>
<td>.78</td>
</tr>
<tr>
<td>ISImpK5</td>
<td></td>
<td>.89</td>
</tr>
<tr>
<td>ISImpK6</td>
<td></td>
<td>.85</td>
</tr>
<tr>
<td>ISImpK7</td>
<td></td>
<td>.76</td>
</tr>
<tr>
<td>ISImpK8</td>
<td></td>
<td>.73</td>
</tr>
<tr>
<td>ISImpK9</td>
<td></td>
<td>.69</td>
</tr>
<tr>
<td>ISImpK11</td>
<td></td>
<td>.74</td>
</tr>
</tbody>
</table>
As shown in Table 4.6, a principal component analysis revealed a two-component solution for the Knowledge-Sharing Scale. The first component consists of four items that measure sharing explicit knowledge whereas the second component consists of nine items that measure sharing implicit knowledge (one item for sharing implicit knowledge was deleted because it loaded poorly). The average of the items shown in Table 4.6 was used as an overall score for sharing explicit knowledge and sharing implicit knowledge. Cronbach’s Alpha for the scale for sharing explicit knowledge is .82 whilst Cronbach’s Alpha for the scale for sharing implicit knowledge is .94 where both Cronbach’s Alpha figure indicates satisfactory of internal reliability (Nunnally, 1978).

Table 4.6 Principal Component Analysis findings for Knowledge Sharing

<table>
<thead>
<tr>
<th>Component</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>KSExp1</td>
<td>.80</td>
<td></td>
</tr>
<tr>
<td>KSExp1</td>
<td>.77</td>
<td></td>
</tr>
<tr>
<td>KSExp1</td>
<td>.63</td>
<td></td>
</tr>
<tr>
<td>KSExp1</td>
<td>.74</td>
<td></td>
</tr>
<tr>
<td>KSImp2</td>
<td>.56</td>
<td></td>
</tr>
<tr>
<td>KSImp3</td>
<td>.82</td>
<td></td>
</tr>
<tr>
<td>KSImp4</td>
<td>.84</td>
<td></td>
</tr>
<tr>
<td>KSImp5</td>
<td>.84</td>
<td></td>
</tr>
<tr>
<td>KSImp6</td>
<td>.86</td>
<td></td>
</tr>
<tr>
<td>KSImp7</td>
<td>.75</td>
<td></td>
</tr>
<tr>
<td>KSImp8</td>
<td>.79</td>
<td></td>
</tr>
<tr>
<td>KSImp9</td>
<td>.73</td>
<td></td>
</tr>
<tr>
<td>KSImp11</td>
<td>.56</td>
<td></td>
</tr>
</tbody>
</table>
A one-component solution was sought for the Affective Trust in Subordinate scale based on the theoretical underpinnings of the scale. As shown in Table 4.7, a principal component analysis revealed that all five items load satisfactorily on one-component. The average of the items shown in Table 4.7 was used as an overall score for affective trust in subordinate.

Table 4.7 Principal Component Analysis findings for Affective Trust in Subordinate

<table>
<thead>
<tr>
<th>Component</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>AffTrust1</td>
<td>.76</td>
</tr>
<tr>
<td>AffTrust2</td>
<td>.81</td>
</tr>
<tr>
<td>AffTrust3</td>
<td>.67</td>
</tr>
<tr>
<td>AffTrust4</td>
<td>.79</td>
</tr>
<tr>
<td>AffTrust5</td>
<td>.78</td>
</tr>
</tbody>
</table>

A one-component solution was sought for the Propensity to Trust scale. As shown in Table 4.8, a principal component analysis revealed that six of the eight items load satisfactorily on one-component. The average of the six items shown in Table 4.8 was used as an overall score for propensity to trust. Cronbach’s Alpha for this scale is .68 indicates satisfactory of internal reliability (Nunnally, 1978).

Table 4.8 Principal Component Analysis findings for Propensity to Trust

<table>
<thead>
<tr>
<th>Component</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>PropTrust2</td>
<td>.60</td>
</tr>
<tr>
<td>PropTrust3</td>
<td>.60</td>
</tr>
<tr>
<td>PropTrust5</td>
<td>.66</td>
</tr>
<tr>
<td>PropTrust6</td>
<td>.56</td>
</tr>
<tr>
<td>PropTrust7</td>
<td>.67</td>
</tr>
<tr>
<td>PropTrust8</td>
<td>.66</td>
</tr>
</tbody>
</table>
A one-component solution was sought for the Job Demand for Knowledge Sharing scale. As shown in Table 4.9, a principal component analysis revealed that all three items load satisfactorily on one-component. The average of the items shown in Table 4.9 was used as an overall score for job demand for knowledge sharing. Cronbach’s Alpha for this scale is .75 indicates satisfactory of internal reliability (Nunnally, 1978).

Table 4.9 Principal Component Analysis findings for Job Demand for Knowledge Sharing

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>JDKS1</td>
<td>.86</td>
</tr>
<tr>
<td>JDKS 2</td>
<td>.88</td>
</tr>
<tr>
<td>JDKS 3</td>
<td>.71</td>
</tr>
</tbody>
</table>

A principal components analysis was not conducted on the scale for social desirability because this scale uses True/False responses. The procedure described by the creators of this scale (i.e., Crowne and Marlowe, 1964) for obtaining an overall score for social desirability was used.

4.2.4 Descriptive Statistics of Variables

Descriptive statistics for collectivism, social orientation achievement motivation, norm of reciprocity, affective trust, intention to share knowledge and knowledge sharing are summarized in Table 4.10. The normality assumption was tested using a distribution’s skewness and kurtosis (Hair et al., 2006). For the normal distribution, the skewness and kurtosis have values of zero. If the ratio of skewness, or kurtosis, to its standard error between -2 and +2, then the distribution is regarded as not having significant skewness, or kurtosis, as long as the sample size exceeds 200 (Hair et al., 2006). Regression and
correlation analysis are possible to perform even though normality assumption is not supported (Box and Watson, 1962).

Table 4.10 Descriptive Statistics for the Latent Constructs

<table>
<thead>
<tr>
<th>COL</th>
<th>SOAM</th>
<th>AffTrust</th>
<th>ISExp</th>
<th>ISImp</th>
<th>KSExp</th>
<th>KSImp</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>3.75</td>
<td>3.78</td>
<td>3.40</td>
<td>3.80</td>
<td>4.0</td>
<td>3.67</td>
</tr>
<tr>
<td>S.D.</td>
<td>0.45</td>
<td>0.51</td>
<td>0.66</td>
<td>0.60</td>
<td>0.48</td>
<td>0.63</td>
</tr>
<tr>
<td>Median</td>
<td>3.79</td>
<td>3.86</td>
<td>3.40</td>
<td>4.00</td>
<td>4.00</td>
<td>4.00</td>
</tr>
<tr>
<td>Mode</td>
<td>3.90</td>
<td>3.70</td>
<td>4.00</td>
<td>4.00</td>
<td>4.00</td>
<td>4.00</td>
</tr>
<tr>
<td>Skewness</td>
<td>-0.70</td>
<td>-0.04</td>
<td>-0.38</td>
<td>-0.56</td>
<td>-0.42</td>
<td>-1.34</td>
</tr>
<tr>
<td>S.E. Skewness</td>
<td>0.17</td>
<td>0.17</td>
<td>0.17</td>
<td>0.17</td>
<td>0.17</td>
<td>0.17</td>
</tr>
<tr>
<td>Skewness/ S.E. Skewness</td>
<td>-4.12</td>
<td>-0.22</td>
<td>-2.24</td>
<td>-3.29</td>
<td>-2.47</td>
<td>-7.88</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>2.81</td>
<td>-0.05</td>
<td>0.11</td>
<td>1.13</td>
<td>3.06</td>
<td>2.35</td>
</tr>
<tr>
<td>S.E. Kurtosis</td>
<td>0.34</td>
<td>0.34</td>
<td>0.34</td>
<td>0.34</td>
<td>0.34</td>
<td>0.34</td>
</tr>
<tr>
<td>Kurtosis/ S.E. Kurtosis</td>
<td>8.26</td>
<td>-0.15</td>
<td>0.32</td>
<td>3.32</td>
<td>9.00</td>
<td>6.91</td>
</tr>
</tbody>
</table>

COL = Collectivism; SOAM = Social oriented achievement motivation; AffTrust = Affective Trust; ISExp = Intention to share explicit knowledge; ISImp = Intention to share implicit knowledge; KSExp = Sharing explicit knowledge; KSImp = Sharing implicit knowledge.
Figure 4.1 displays the frequency distribution for collectivism and together with information shown in Table 4.10, it can be concluded that the distribution for collectivism is significantly negatively skewed and leptokurtic (Hair et al., 2006).

![Histogram of Collectivism](image)

Figure 3.1 Frequency Distribution of Collectivism

**Histogram**

- **Mean:** 3.75
- **Std. Dev.:** 0.454
- **N:** 207
Figure 4.2 displays the frequency distribution for social oriented achievement motivation and together with information shown in Table 4.10, it can be concluded that the distribution for social oriented achievement motivation does have significant skewness or significant kurtosis (Hair et.al., 2006).
Figure 4.3 displays the frequency distribution for affective trust and together with information shown in Table 4.10, it can be concluded that the distribution for affective trust is significantly negatively skewed but does not have significant kurtosis (Hair et al., 2006).

Figure 4.3 Frequency Distribution of Affective Trust
Figure 4.4 displays the frequency distribution for intention to share explicit knowledge and together with information shown in Table 4.10, it can be concluded that the distribution for intention to share explicit knowledge is significantly negatively skewed and leptokurtic (Hair et.al., 2006).

Figure 4.4 Frequency Distribution of Intention to Share Explicit Knowledge
Figure 4.5 displays the frequency distribution for intention to share implicit knowledge and together with information shown in Table 4.10, it can be concluded that the distribution for intention to share implicit knowledge is significantly negatively skewed and leptokurtic (Hair et al., 2006).
Figure 4.6 displays the frequency distribution for sharing explicit knowledge and together with information shown in Table 4.10, it can be concluded that the distribution for intention to sharing explicit knowledge is significantly negatively skewed and leptokurtic (Hair et.al., 2006).

![Frequency Distribution of Sharing of Explicit Knowledge](image)

**Figure 4.6 Frequency Distribution of Sharing of Explicit Knowledge**
Figure 4.7 displays the frequency distribution for sharing implicit knowledge and together with information shown in Table 4.10, it can be concluded that the distribution for intention to sharing implicit knowledge is significantly negatively skewed and leptokurtic (Hair et al., 2006).

![Frequency Distribution of Sharing of Implicit Knowledge](image_url)

**Figure 4.7 Frequency Distribution of Sharing of Implicit Knowledge**
<table>
<thead>
<tr>
<th></th>
<th>Mean (SD)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gender</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
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<td>--</td>
</tr>
<tr>
<td>2. Age</td>
<td>41.3 (10.2)</td>
<td>- .33</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
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<td>--</td>
</tr>
<tr>
<td>3. Ethnic</td>
<td>--</td>
<td>.09</td>
<td>.06</td>
<td>--</td>
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<td>--</td>
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<td>--</td>
</tr>
<tr>
<td>4. WkExp</td>
<td>16.85 (9.78)</td>
<td>- .34</td>
<td>.97</td>
<td>.03</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
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<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>5. YearsSuperv</td>
<td>11.23 (8.39)</td>
<td>- .28</td>
<td>.78</td>
<td>- .03</td>
<td>.79</td>
<td>--</td>
<td>--</td>
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<td>--</td>
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<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>6. YearsSubord</td>
<td>7.49 (6.14)</td>
<td>- .20</td>
<td>.60</td>
<td>- .06</td>
<td>.61</td>
<td>.66</td>
<td>--</td>
<td>--</td>
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<td>--</td>
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<td>--</td>
</tr>
<tr>
<td>7. Collectivism</td>
<td>3.75 (0.45)</td>
<td>- .14</td>
<td>.11</td>
<td>- .22</td>
<td>.10</td>
<td>.09</td>
<td>.11</td>
<td>.84</td>
<td>--</td>
<td>--</td>
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<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>8. SOAM</td>
<td>3.78 (0.51)</td>
<td>.05</td>
<td>- .18</td>
<td>- .18</td>
<td>- .11</td>
<td>- .08</td>
<td>.28</td>
<td>.71</td>
<td>--</td>
<td>--</td>
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<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>9. PropTrust</td>
<td>2.68 (0.54)</td>
<td>- .02</td>
<td>.01</td>
<td>- .16</td>
<td>.01</td>
<td>- .02</td>
<td>.09</td>
<td>.27</td>
<td>.06</td>
<td>.68</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>10. ISKExp</td>
<td>3.80 (0.60)</td>
<td>.01</td>
<td>.02</td>
<td>- .01</td>
<td>.02</td>
<td>.09</td>
<td>- .00</td>
<td>.22</td>
<td>.14</td>
<td>.18</td>
<td>.78</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>11. ISKImp</td>
<td>4.00 (0.48)</td>
<td>- .03</td>
<td>.04</td>
<td>- .08</td>
<td>.03</td>
<td>.06</td>
<td>- .00</td>
<td>.35</td>
<td>.22</td>
<td>.07</td>
<td>.67</td>
<td>.93</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>12. JDKS</td>
<td>3.78 (0.60)</td>
<td>- .05</td>
<td>.06</td>
<td>- .07</td>
<td>.04</td>
<td>.12</td>
<td>.10</td>
<td>.22</td>
<td>.21</td>
<td>.12</td>
<td>.50</td>
<td>.39</td>
<td>.75</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>13. AffTrust</td>
<td>3.40 (0.66)</td>
<td>- .09</td>
<td>.01</td>
<td>- .18</td>
<td>.01</td>
<td>.06</td>
<td>.12</td>
<td>.26</td>
<td>.22</td>
<td>.10</td>
<td>.27</td>
<td>.20</td>
<td>.39</td>
<td>.82</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>14. KSExp</td>
<td>3.67 (0.63)</td>
<td>- .11</td>
<td>.06</td>
<td>- .06</td>
<td>.04</td>
<td>.04</td>
<td>.27</td>
<td>.13</td>
<td>.09</td>
<td>.72</td>
<td>.51</td>
<td>.45</td>
<td>.32</td>
<td>.82</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>15. KSImp</td>
<td>3.94 (0.48)</td>
<td>- .06</td>
<td>.02</td>
<td>- .05</td>
<td>.01</td>
<td>.01</td>
<td>- .01</td>
<td>.20</td>
<td>.08</td>
<td>.09</td>
<td>.57</td>
<td>.64</td>
<td>.43</td>
<td>.26</td>
<td>.72</td>
<td>.94</td>
</tr>
<tr>
<td>16. SocDesire</td>
<td>6.69 (1.93)</td>
<td>- .11</td>
<td>.09</td>
<td>- .01</td>
<td>.07</td>
<td>.04</td>
<td>- .01</td>
<td>.19</td>
<td>- .04</td>
<td>.10</td>
<td>.12</td>
<td>.18</td>
<td>.09</td>
<td>- .01</td>
<td>.09</td>
<td>.19</td>
</tr>
</tbody>
</table>

$r > .11, p < .05; r > .16, p < .01; r > .22, p < .001$ (one-tailed)

*Cronbach’s alphas are presented in bold on the diagonal.

WkExp = Work Experience; YearsSuperv = Supervisory Experience; YearsSubord = Years with Subordinate; SOAM = Social Orientation Achievement Motivation; PropTrust = Propensity to Trust; ISKExp = Intention to Share Explicit Knowledge; ISKImp = Intention to Share Implicit Knowledge; JDKS = Job Demand Knowledge Sharing; AffTrust = Affective Trust; KSExp = Sharing Explicit Knowledge; KSImp = Sharing Implicit Knowledge; SocDesire = Social Desirability.
4.4 Hypothesis testing

The following section provides the findings from the multiple linear regression analyses that were conducted to test the hypotheses. Prior to conducting the hypothesis testing, the effects of some confounding variables on some of the key variables were controlled by using the standard residuals procedure. Specifically, as shown in Table 4.11, affective trust has a significant negative correlation with ethnicity and a significant positive correlation with years with subordinate. Additionally, propensity to trust has been shown by numerous studies to be positively related to measures of trust and Table 4.11 shows that it is marginally non-significant. As a result, affective trust was controlled for the effects of ethnicity, years with subordinate and propensity to trust.

As shown in Table 4.11, intention to share explicit knowledge and intention to share implicit knowledge have significant positive correlations with social desirability and job demand for knowledge sharing. As a result, the effects of social desirability and job demand for knowledge sharing on these two variables were controlled.

As shown in Table 4.11, sharing explicit knowledge has a significant negative correlation with gender and a significant positive correlation with job demand for knowledge sharing whilst sharing implicit knowledge has a significant positive correlation with both job demand for knowledge sharing and social desirability. As a result and in order to be consistent, the effects of gender, job demand for knowledge sharing, and social desirability were controlled for both sharing explicit knowledge and sharing implicit knowledge.

Controlled versions of the following variables were used in all subsequent analyses: i) affective trust (controlled for the effects of ethnicity, years with subordinate and propensity to trust); ii) intention to share explicit knowledge (controlled for the effects of social desirability and job demand for knowledge sharing); iii) intention to share implicit knowledge (controlled for the effects of social desirability and job demand for knowledge sharing); iv) sharing explicit knowledge (controlled for the effects of gender, job demand for
knowledge sharing, and social desirability); and v) sharing implicit knowledge (controlled for the effects of gender, job demand for knowledge sharing, and social desirability).

For mediation effects to be claimed, three conditions need to be met (Baron and Kenny, 1986; Judd and Kenny, 1981). The first condition is that the independent variable significantly predicts the dependent variable (i.e., Condition 1). The second condition is that the independent variable significantly predicts the mediator variable (i.e., Condition 2). The third condition is that the mediator significantly predicts the dependent variable when the dependent variable is regressed on both the mediator and the independent variable. Additionally, the predictive utility of the independent variable must be less than that in Condition 1 (i.e., Condition 3). Furthermore, partial mediation occurs when both the mediator and the independent are significant whereas full mediation occurs when the mediator is significant and the independent variable is not significant. Kenny, Kashy and Bolger (1998) commented that only Condition 2 and Condition 3 need to be met to claim mediation effects.

**Hypothesis 1a:** The relationship between collectivism and intention to share explicit knowledge is mediated by social orientation achievement motivation.

**Hypothesis 1b:** The relationship between collectivism and intention to share implicit knowledge is mediated by social orientation achievement motivation.

Baron and Kenny's analysis was used to test Hypothesis 1a and 1b, and collectivism significantly predicts intention to share explicit knowledge ($\beta = .12, p < .05$: Condition 1 met) and social orientation achievement motivation ($\beta = .28, p < .001$: Condition 2 met). Intention to share explicit knowledge was then regressed on both collectivism and social orientation achievement motivation ($\beta = .11, p > .05$ and $\beta = .01, p > .05$, respectively): Condition 3 not met. Hypothesis 1a is therefore not supported as social orientation achievement motivation does not mediate the relationship between collectivism and intention to share explicit knowledge.
Collectivism significantly predicts intention to share implicit knowledge (β = .27, p < .001: Condition 1 met) and social orientation achievement motivation (β = .28, p < .001: Condition 2 met). Intention to share implicit knowledge was then regressed on both collectivism and social orientation achievement motivation (β = .24, p < .001 and β = .10, p > .05, respectively): Condition 3 not met. Hypothesis 1b is therefore not supported as social orientation achievement motivation does not mediate the relationship between collectivism and intention to share implicit knowledge.

Hypothesis 2a: The relationship between social orientation achievement motivation and sharing of explicit knowledge is mediated by intention to share explicit knowledge.

Hypothesis 2b: The relationship between social orientation achievement motivation and sharing of implicit knowledge is mediated by intention to share implicit knowledge.

Baron and Kenny's analysis was used to test Hypothesis 2a and 2b, and social orientation achievement motivation does not significantly predict sharing explicit knowledge (β = .05, p > .05: Condition 1 not met) and does not predict intention to share explicit knowledge (β = .04, p > .05: Condition 2 not met). Sharing explicit knowledge was then regressed on both social orientation achievement motivation and intention to share explicit knowledge (β = .03, p > .05 and β = .65, p < .001, respectively): Condition 3 met. Hypothesis 2a is therefore not supported as intention to share explicit knowledge does not mediate the relationship between social orientation achievement motivation and sharing explicit knowledge.

Social orientation achievement motivation does not significantly predicts sharing implicit knowledge (β = .00, p > .05: Condition 1 not met) but does predict intention to share implicit knowledge (β = .16, p < .01: Condition 2 met). Sharing implicit knowledge was then regressed on both social orientation achievement motivation and intention to share implicit knowledge (β = -.09, p < .05 and β = .57, p < .001, respectively): Condition 3 met. Hypothesis 2b is therefore supported as intention to share implicit knowledge fully mediates
the relationship between social orientation achievement motivation and sharing implicit knowledge.

**Hypothesis 3a:** The relationship between social orientation achievement motivation and intention to share explicit knowledge is moderated by affective trust. Specifically, the strength of the positive relationship between social orientation achievement motivation and intention to share explicit knowledge increases as affective trust increases.

**Hypothesis 3b:** The relationship between social orientation achievement motivation and intention to share implicit knowledge is moderated by affective trust. Specifically, the strength of the positive relationship between social orientation achievement motivation and intention to share implicit knowledge increases as affective trust increases.

A hierarchical regression analysis was used to test the moderation hypotheses. This analysis involves creating a product-term, which is obtained by multiplying the scores for the independent and the scores for the moderator variable. However, the independent variable and the moderator variable need to be centred or standardised before creating the product-term to reduce the correlation between the product-term and both the independent variable and the moderator variable (Baron and Kenny, 1986).

The hierarchical regression analysis revealed that affective trust moderates the relationship between social orientation achievement motivation and intention to share explicit knowledge: For the product-term, \( b = .15, p < .001, \Delta R^2 = .076 \). The moderation effect was examined more closely by splitting affective trust into three groups (i.e., low, \( n = 68 \); medium, \( n = 71 \); and high, \( n = 68 \)), using the 33rd and 67th percentiles as cut-off points. The correlation between social orientation achievement motivation and intention to share explicit knowledge was then calculated for each of the three groups. These correlation analyses revealed that the correlation between social orientation achievement motivation and intention to share explicit knowledge is significant for the high affective trust group (i.e., \( r = .30, p < .01 \)) but not for the low or medium groups (\( r = -.13, p > .05 \) and \( r = .07, p > .05 \), respectively). These findings support Hypothesis 3a.
The hierarchical regression analysis revealed that affective trust moderates the relationship between social orientation achievement motivation and intention to share implicit knowledge: For the product-term, $b = .12$, $p < .001$, $\Delta R^2 = .068$. The moderation effect was examined more closely by splitting affective trust into three groups (i.e., low, $n = 68$; medium, $n = 71$; and high, $n = 68$), using the 33rd and 67th percentiles as cut-off points. The correlation between social orientation achievement motivation and intention to share implicit knowledge was then calculated for each of the three groups. These correlation analyses revealed that the correlation between social orientation achievement motivation and intention to share implicit knowledge is significant for the high affective trust group (i.e., $r = .30$, $p < .01$) but not for the low or medium groups ($r = -.02$, $p > .05$ and $r = .19$, $p > .05$, respectively). These findings support Hypothesis 3b.

**Hypothesis 4a:** Intention to share explicit knowledge is positively correlated with sharing explicit knowledge behaviour.

**Hypothesis 4b:** Intention to share implicit knowledge is positively correlated with sharing implicit knowledge behaviour.

Intention to share explicit knowledge is positively correlated with the intention to share implicit knowledge ($r = .60$, $p < .001$), sharing explicit knowledge ($r = .65$, $p < .001$), and sharing implicit knowledge ($r = .45$, $p < .001$). Furthermore, intention to share implicit knowledge is positively correlated with both sharing implicit knowledge ($r = .56$, $p < .001$) and sharing explicit knowledge ($r = .41$, $p < .001$). Therefore both hypothesis 4a and 4b are supported.

Hypothesis 1a was not supported but Hypothesis 3a revealed that the relationship between social orientation achievement motivation and intention to share explicit knowledge is moderated by affective trust. As a result, Hypothesis 1a was re-tested. Instead of testing
H1a for the whole sample, H1a was tested for three sub-samples based on level of trust (i.e., low, medium, and high). Baron and Kenny's analysis was used to test H1a and then to re-test H1a for the three different groups of affective trust. The findings from these analyses are presented in Table 4.12.

Table 4.12 Mediation Findings for Hypothesis 1a by Affective Trust

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Condition 1</th>
<th>Condition 2</th>
<th>Condition 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(criterion ISKexp)</td>
<td>(criterion SOAM)</td>
<td>(criterion ISKexp)</td>
</tr>
<tr>
<td>Low AffTrust</td>
<td>b 0.03, t 0.16</td>
<td>b -0.09, t -0.62</td>
<td>b 0.01, t 0.08</td>
</tr>
<tr>
<td>Collectivism</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOAM</td>
<td>-----</td>
<td>-----</td>
<td>-0.16, t -1.06</td>
</tr>
<tr>
<td>Medium AffTrust</td>
<td>b -0.03, t -0.25</td>
<td>b 0.66, t 4.99***</td>
<td>b 0.01, t 0.06</td>
</tr>
<tr>
<td>Collectivism</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOAM</td>
<td>-----</td>
<td>-----</td>
<td>-0.06, t -0.53</td>
</tr>
<tr>
<td>High AffTrust</td>
<td>b 0.29, t 2.41***</td>
<td>b 0.30, t 2.82**</td>
<td>b 0.22, t 1.70*</td>
</tr>
<tr>
<td>Collectivism</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOAM</td>
<td>-----</td>
<td>-----</td>
<td>0.20, t 1.88*</td>
</tr>
</tbody>
</table>

ISKExp = intention to share explicit knowledge, SOAM = social orientation achievement motivation, AffTrust = affective trust.

* p < .05, ** p < .01, *** p < .001.

As shown in Table 4.12, none of the three conditions specified by Baron and Kenny (1986) that need to be met to claim a mediation effect has been met for the Low Affective Trust group. For the Medium Affective Trust group, only Condition 2 is met, therefore a mediation effect cannot be claimed. For the High Affective Trust group, all three conditions are met and therefore there is support for Hypothesis 1a in that the relationship between collectivism and intention to share explicit knowledge is partially mediated by social orientation achievement motivation) only for the high Affective Trust Group. The results of
these analyses reveal a moderated mediation effect in that the indirect effect of collectivism on intention to share explicit knowledge via social orientation achievement motivation is moderated by affective trust.

Hypothesis 1b was not supported but Hypothesis 3b revealed that the relationship between social orientation achievement motivation and intention to share implicit knowledge is moderated by affective trust. As a result, instead of testing H1b for the whole sample, H1b was tested for three sub-samples based on level of trust (i.e., low, medium and high). Baron and Kenny’s analysis was used to test H1b and then to re-test H1b for the three different groups of affective trust. The findings from these analyses are presented in Table 4.13.

Table 4.13 Mediation Findings for Hypothesis 1b by Affective Trust

<table>
<thead>
<tr>
<th>Condition 1 (criterion ISKImp)</th>
<th>Condition 2 (criterion SOAM)</th>
<th>Condition 3 (criterion ISKImp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predictors</td>
<td>b t</td>
<td>b t</td>
</tr>
<tr>
<td>Low AffTrust</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collectivism</td>
<td>0.16 1.29</td>
<td>-0.09 -0.62</td>
</tr>
<tr>
<td>SOAM</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>Medium AffTrust</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collectivism</td>
<td>0.17 1.39</td>
<td>0.66 4.99***</td>
</tr>
<tr>
<td>SOAM</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>High AffTrust</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collectivism</td>
<td>0.44 3.97***</td>
<td>0.30 2.82**</td>
</tr>
<tr>
<td>SOAM</td>
<td>-----</td>
<td>-----</td>
</tr>
</tbody>
</table>

ISKImp = intention to share implicit knowledge, SOAM = social orientation achievement motivation, AffTrust = affective trust.

† p < .10  * p < .05, ** p < .01, *** p < .001.
As shown in Table 4.13, none of the three conditions specified by Baron and Kenny (1986) that need to meet to claim a mediation effect has been met for the Low Affective Trust group. For the Medium Affective Trust group, only Condition 2 is met, therefore a mediation effect cannot be claimed. For the High Affective Trust group, Condition 1 and Condition 2 are met. However, Condition 3 is not met because the mediator (i.e., SOAM) has a non-significant effect on the dependent variable (i.e., ISIK) in the presence of the independent variable (i.e., collectivism).

As shown in Table 4.13, Condition 3 was marginally non-significant so another analysis was conducted to more closely examine the moderation effect of affective trust on the indirect effect of collectivism on intention to share implicit knowledge via social orientation achievement motivation. This analysis involved splitting the sample into four groups based on quartiles according to level of affective trust. The results of this analysis are presented in Table 4.14.

As shown in Table 4.14, none of the three conditions specified by Baron and Kenny (1986) that need to met to claim a mediation effect has been met for the 1st Quartile Affective Trust group and only Condition 2 has been met for the 2nd Quartile Affective Trust group and the 3rd Quartile Affective Trust group. All three conditions have been met for the 4th Quartile Affective Trust group. These findings provide support for Hypothesis 1b in that the relationship between collectivism and intention to share implicit knowledge is partially mediated by social orientation achievement motivation only for the 4th Quartile Affective Trust group, which is the group that has the highest level of affective trust. Furthermore, these findings reveal a moderated mediation effect in that the indirect effect of collectivism on intention to share implicit knowledge via social orientation achievement motivation is moderated by affective trust.
Table 4.14 Mediation Findings for Hypothesis 1b for Four Groups of Affective Trust

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Condition 1 (criterion ISKImp)</th>
<th>Condition 2 (criterion SOAM)</th>
<th>Condition 3 (criterion ISKImp)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b     t</td>
<td>b     t</td>
<td>b     t</td>
</tr>
<tr>
<td>1st Quartile AffTrust</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collectivism</td>
<td>0.17 1.18</td>
<td>-0.14 -1.01</td>
<td>0.16 1.16</td>
</tr>
<tr>
<td>SOAM</td>
<td>----- -----</td>
<td>----- -----</td>
<td>-0.00 -0.02</td>
</tr>
<tr>
<td>2nd Quartile AffTrust</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collectivism</td>
<td>0.18 1.26</td>
<td>0.48 3.80***</td>
<td>0.13 0.82</td>
</tr>
<tr>
<td>SOAM</td>
<td>----- -----</td>
<td>----- -----</td>
<td>0.10 0.60</td>
</tr>
<tr>
<td>3rd Quartile AffTrust</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collectivism</td>
<td>0.03 0.22</td>
<td>0.38 2.91**</td>
<td>0.06 0.41</td>
</tr>
<tr>
<td>SOAM</td>
<td>----- -----</td>
<td>----- -----</td>
<td>-0.08 -0.54</td>
</tr>
<tr>
<td>4th Quartile AffTrust</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collectivism</td>
<td>0.52 4.26***</td>
<td>0.42 3.20**</td>
<td>0.38 3.02**</td>
</tr>
<tr>
<td>SOAM</td>
<td>----- -----</td>
<td>----- -----</td>
<td>0.33 2.58**</td>
</tr>
</tbody>
</table>

ISKImp = intention to share implicit knowledge, SOAM = social orientation achievement motivation, AffTrust = affective trust.
* p < .05, ** p < .01, *** p < .001.

Hypothesis 2a was not supported but Hypothesis 3a revealed that the relationship between social orientation achievement motivation and intention to share explicit knowledge is moderated by affective trust. Hypothesis 2a was therefore re-tested, instead of testing H2a for the whole sample, H2a was re-tested for sub-samples based on level of trust (i.e., low, medium and high) for the three groups of affective trust. The findings from these analyses are presented in Table 4.15.
As shown in Table 4.15, of the three conditions specified by Baron and Kenny (1986), only Condition 3 is met for the Low and Medium Affective Trust groups. For the High Affective Trust group, all three conditions are met and therefore there is support for Hypothesis 2a in that the relationship between social orientation achievement motivation and sharing explicit knowledge is partially mediated by intention to share explicit knowledge only for the High Affective Trust Group. The results of these analyses reveal a moderated mediation effect in that the indirect effect of social orientation achievement motivation on sharing explicit knowledge via intention to share explicit knowledge is moderated by affective trust.

<table>
<thead>
<tr>
<th>Condition 1</th>
<th>Condition 2</th>
<th>Condition 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>(criterion KSExp)</td>
<td>(criterion ISKExp)</td>
<td>(criterion KSExp)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Predictors</th>
<th>b / t</th>
<th>b / t</th>
<th>b / t</th>
</tr>
</thead>
</table>

**Low AffTrust**

SOAM: -0.21 / -1.31
ISKExp: ----- / ----- -0.10 / -0.80

**Medium AffTrust**

SOAM: -0.03 / -0.29
ISKExp: ----- / ----- -0.01 / 0.07

**High AffTrust**

SOAM: 0.34 / 2.44**
ISKExp: ----- / ----- -0.10 / 0.93

ISKExp = intention to share explicit knowledge, SOAM = social orientation achievement motivation, AffTrust = affective trust, KSExp = sharing explicit knowledge

Although Hypothesis 2b was supported, it is worthwhile to check if it holds across all three affective-trust groups given the findings reported in Tables 4.12 to Table 4.15. Hypothesis
2b was therefore re-tested for the three groups of affective trust and the findings from these analyses are presented in Table 4.16.

As shown in Table 4.16, of the three conditions specified by Baron and Kenny (1986), only Condition 3 is met for the Low and Medium Affective Trust groups. For the High Affective Trust group, all three conditions are met and therefore there is support for Hypothesis 2b in that the relationship between social orientation achievement motivation and sharing implicit knowledge is mediated by intention to share implicit knowledge only for the High Affective Trust Group. The results of these analyses reveal a moderated mediation effect in that the indirect effect of social orientation achievement motivation on sharing implicit knowledge via intention to share implicit knowledge is moderated by affective trust.

Table 4.16 Mediation Findings for Hypothesis 2b by Affective Trust

<table>
<thead>
<tr>
<th>Condition 1 (criterion KSImp)</th>
<th>Condition 2 (criterion ISKImp)</th>
<th>Condition 3 (criterion KSimp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predictors</td>
<td>b</td>
<td>t</td>
</tr>
<tr>
<td><strong>Low AffTrust</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOAM</td>
<td>-0.14</td>
<td>-1.10</td>
</tr>
<tr>
<td>ISKImp</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td><strong>Medium AffTrust</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOAM</td>
<td>-0.12</td>
<td>-1.80</td>
</tr>
<tr>
<td>ISKImp</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td><strong>High AffTrust</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOAM</td>
<td>0.25</td>
<td>2.08*</td>
</tr>
<tr>
<td>ISKImp</td>
<td>-----</td>
<td>-----</td>
</tr>
</tbody>
</table>

ISKImp = intention to share implicit knowledge, SOAM = social orientation achievement motivation, AffTrust = affective trust, KSImp = sharing implicit knowledge

* p < .05, ** p < .01, *** p < .001.
All of the data for the key variables are self-report, from the same source, and were obtained using the same method (i.e., Likert-scale based items). As a result, common self-report, mono source, and common-method biases come into play (Donaldson and Grant-Vallone, 2002). To examine the extent to which these biases may have influenced the findings, a principal components analysis was conducted on all of the items that were used in the final measures of the key variables and the control variables except for social desirability and gender, and a one-component solution was sought. The findings from this analysis revealed that 24.5% of the variance in these items are explained by a single component thereby indicating that the correlations between the variables are not mainly due to such biases. Additionally, that mediation and moderation effects were found further indicates that the data are not strongly contaminated by these biases.

### 4.5 Summary

To conclude Chapter Four, the findings are summarized. There are slightly more males than females in the sample. The majority of the respondents are Chinese. The mean age of respondents is 41.3 years; they have an average of 16.9 years work experience and have been in supervisory positions on average for 11.2 years. The average number of years that respondents have been working with the subordinate to which they referred to when completing the questionnaire is 7.5 years. Table 4.17, provides a summary of the findings from the analyses that were conducted to test the hypotheses.
### Table 4.17 Summary of the Findings from the Hypothesis Testing

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a: The relationship between collectivism and intention to share explicit knowledge is mediated by social orientation achievement motivation.</td>
<td>Partially (High Affective Trust Group only)</td>
</tr>
<tr>
<td>1b: The relationship between collectivism and intention to share implicit knowledge is mediated by social orientation achievement motivation.</td>
<td>Partially (High Affective Trust Group only)</td>
</tr>
<tr>
<td>2a: The relationship between social orientation achievement motivation and sharing explicit knowledge is mediated by intention to share explicit knowledge.</td>
<td>Partially (High Affective Trust Group only)</td>
</tr>
<tr>
<td>2b: The relationship between social orientation achievement motivation and sharing implicit sharing is mediated by intention to share implicit knowledge.</td>
<td>Partially (High Affective Trust Group only)</td>
</tr>
<tr>
<td>3a: The relationship between social orientation achievement motivation and intention to share explicit knowledge is moderated by affective trust. Specifically, the strength of the positive relationship between social orientation achievement motivation and intention to share explicit knowledge will increase as affective trust increases.</td>
<td>Yes</td>
</tr>
<tr>
<td>3b: The relationship between social orientation achievement motivation and intention to share implicit knowledge is moderated by affective trust. Specifically, the strength of the positive relationship between social orientation achievement motivation and intention to implicit share knowledge will increase as affective trust increases.</td>
<td>Yes</td>
</tr>
<tr>
<td>4a: Intention to share explicit knowledge is positively correlated with sharing explicit knowledge behaviour.</td>
<td>Yes</td>
</tr>
<tr>
<td>4b: Intention to share implicit knowledge is positively correlated with sharing implicit knowledge behaviour.</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Figure 4.8 Overall Findings* for the Proposed Conceptual Framework

* significant relationships are represented by solid arrows
a black = explicit knowledge and red = implicit knowledge

The next chapter includes a discussion of the findings, the theoretical and practical implications of the findings, and a conclusion to this study
Chapter Five
Findings, Implications and Conclusions

5.1 Introduction

This chapter comprises six parts. Section 5.1 outlines how this chapter is organised. Section 5.2 provides a discussion of the major findings. Section 5.3 presents the implications the findings may have for managers whilst Section 5.4 presents the theoretical implications of the findings. The limitations of this study and recommendations for future research are discussed in Section 5.5 and Section 5.6 provides a conclusion to the dissertation.

5.2 Major Findings

This section provides a discussion of the major findings and links the findings to previous research.

Finding One: The relationship between social orientation achievement motivation and intention to share knowledge is moderated by affective trust. Specifically, the strength of the positive relationship between social orientation achievement motivation and intention to share knowledge increases as affective trust increases.

Social orientation achievement motivation renders people especially concerned about their reputation and image (Yu and Yang, 1994). Supervisors who seek to increase their social capital (i.e., those with social orientation achievement motivation) should be willing to share their knowledge with their subordinates because sharing knowledge, especially implicit knowledge, is likely to increase the supervisor’s social capital because sharing knowledge can enhance the supervisor’s reputation and social status (Wasko and Faraj, 2005). Social orientation achievement motivation amongst supervisors can therefore be
expected to facilitate them wanting to share their knowledge with their subordinates in order to enhance their workplace reputation. However, the findings show that social orientation achievement motivation is likely to facilitate the intention to share knowledge with subordinates for both types of knowledge only when the supervisor has a sufficient level of affective trust in subordinates.

Given the strong correlations that were found between intention to share knowledge and knowledge sharing for both explicit knowledge and implicit knowledge, this finding shows that affective trust is critical for social orientation achievement motivation to facilitate the downward sharing of both explicit knowledge and implicit knowledge. These results are consistent with those from several previous studies that have reported people share knowledge with those whom they trust (Usoro et al., 2007; Williams, 2001; Mayer et al., 1995; Zand, 1972), particularly with those in whom they place affective trust (Ko, 2010).

There are several reasons why a supervisor needs to trust a subordinate in order to be willing to share knowledge with the subordinate. Sharing knowledge can be costly for the knowledge sharer, in this case the supervisor, because it can reduce the supervisor’s expert power over his/her subordinates. The supervisor therefore has to be confident that sharing knowledge with the subordinate will not jeopardise his/her position in the organization or reduce his/her value to the organization. Furthermore, the supervisor needs to believe that the knowledge shared with the subordinate will be used for the greater good and thus there is no need to protect his/her personal interests (Jones and George, 1998). In other words, the supervisor needs to feel assured that the subordinate is concerned about the supervisor’s welfare and will not exploit the supervisor otherwise the supervisor will be reluctant to share knowledge with the subordinate.

**Finding Two:** The relationship between collectivism and intention to share knowledge is mediated by social orientation achievement motivation only for the high affective trust group for both explicit and implicit knowledge.
The finding that social orientation achievement motivation mediates the relationship between collectivism and intention to share knowledge only for the high affective trust group for both explicit and implicit knowledge is consistent with the findings reported by several other studies (e.g., Yu and Yang, 1987; 1994; Wasko and Faraj, 2005).

People who are collectivistic are likely to have achievement motivation that is socially oriented because they prefer harmonious working relationships and want to be respected and recognized for their work-related knowledge. Such people are thus likely to be concerned about how others perceive them (Yu and Yang, 1987; 1994). This might especially be the case for supervisors because supervisors are generally supposed to have more job-related knowledge than their subordinates. With regards to supervisors in a collectivistic setting such as in Malaysia, supervisors can be expected to be concerned about how subordinates perceive them in terms of their ability to perform the supervisory role.

Collectivism influences the sharing of knowledge because collectivists are concerned about collective interests and one way to serve collective interests is to share one’s knowledge with other members of the collective (e.g., Jonsson, 2008; Hutchings and Michailova, 2006; Chow, Deng and Ho, 2000), such as subordinates. The positive correlation found between collectivism and intention to share knowledge, even after the effects of intention to share knowledge was controlled for the effects of social desirability and job demand for knowledge sharing were controlled, supports this line of reasoning.

People who have social orientation achievement motivation believe that sharing knowledge, especially implicit knowledge, can increase their social capital because it strengthens their social network and enhances their reputation (Wasko and Faraj, 2005). However, the findings from the present study indicate that social orientation achievement motivation has a stronger positive correlation with explicit knowledge than with implicit knowledge. This finding is consistent with the argument that people are less willing to part with implicit
knowledge because it is so difficult to attain whilst explicit knowledge is often publicly available.

The findings show that the intention to share knowledge with subordinates and downward knowledge sharing depend on supervisors having sufficient affective trust in their subordinates. This finding is consistent with several other studies that have examined the relationship between affective trust and knowledge sharing. Several studies have shown that affective trust positively influences knowledge sharing (Ko, 2010; Holste and Field, 2010; Brower, Schoorman and Tan, 2000; Chowhury, 2005) and that downward knowledge sharing depends on interpersonal trust between the supervisor and the subordinate (Argote et al., 2003; Adler, 2001; Andrews and Delahaye, 2000; Tsai and Ghoshal, 1998).

**Finding Three:** *Intention to share knowledge is positively correlated with sharing knowledge for both explicit knowledge and implicit knowledge.*

A strong positive correlation was found between intention to share knowledge and knowledge sharing even after controlling intention to share knowledge for the effects of social desirability and job demand for knowledge sharing and controlling knowledge sharing for the effects of gender, social desirability and job demand for knowledge sharing. It is noteworthy that intention to share explicit knowledge had a strong positive correlation with sharing implicit knowledge and that intention to share implicit knowledge had a strong positive correlation with sharing explicit knowledge. However, these ‘cross-over’ correlations are not as strong as the direct correlations. In other words, the correlation coefficient, for example, for intention to share explicit knowledge and sharing explicit knowledge is larger than the correlation coefficient for intention to share explicit knowledge and sharing implicit knowledge.

The strong positive correlation between intention to share knowledge and knowledge sharing provides further support for Ajzen and Fisbein’s (1980) Theory of Reasoned Action.
According to this theory, the ultimate determinant of behaviour is the intention to enact the behaviour. Several other studies (e.g., Reychav and Weisberg, 2010; Bock and Kim, 2002) have reported a strong positive correlation between intention to share knowledge and knowledge sharing. This finding indicates that the ultimate determinant of voluntary behaviour might be the intention to enact the behaviour

5.3 Implications of the Findings for Practice

The major findings of this study can be summarized as follows: Downward knowledge sharing is driven by the intention to share knowledge with subordinates. The intention to share knowledge with subordinates is driven by social orientation achievement motivation and depends on supervisors having affective trust in their subordinates. Social orientation achievement motivation is driven by collectivism. The major findings of this study are relevant to human-resource practitioners because they provide insights into how downward knowledge sharing is influenced by socio-psychological factors.

The following are recommendations for practitioners based on the major findings: Firstly, organizations need to develop cultures that encourage the development of downward affective trust because it is an important determinant of the intention to share knowledge downwards. The development of affective trust can be nurtured by creating an organizational culture that encourages employees to consistently demonstrate a genuine concern for their colleagues and act in ways that take into consideration the best interests of their colleagues. One way to encourage employees to act in these ways is to provide them with a culture that is friendly and co-operative where rewards are collective rather than individualistic. Furthermore, supervisors should be rewarded and recognized for being friendly and supportive towards their subordinates because people are more likely to be friendly to those who are friendly to them than to those who are unfriendly to them. Friendship and affective trust are intricately intertwined.
Even though trust is not always reciprocated, supervisors who make the first move by sharing knowledge with subordinates, especially implicit knowledge, can facilitate the development of a trusting relationship between them and their subordinates for the following two reasons. Firstly, knowledge sharing can be construed as a demonstration of concern (Whitener, Brodt, Korsgaard and Werner, 1998) thereby creating the impression that the supervisor cares about the subordinate. Concern for the other party is an important aspect of affective trust (Chen, Chen, & Meindl, 1998). Secondly, most people need reassurance first before giving their trust to someone (Pruitt and Kimmel, 1977). Supervisors who share knowledge with their subordinates may therefore be likely to initiate the development of an image in the minds of their subordinates that they are trustworthy and want to have a close relationship with their subordinates. Sharing knowledge with subordinates may therefore facilitate supervisors being trusted by their subordinates.

In developing human resource practices that will facilitate knowledge sharing, organizations need to pay attention to socio-psychological factors such as collectivism and social orientation achievement motivation because the findings of this study indicate that these are drivers of knowledge sharing. Recruitment practices should incorporate the selection of supervisors who have collectivistic tendencies especially in organizations that rely heavily on teams. The selection of supervisors whose achievement motivation is socially oriented is also likely to benefit organizations that have goals that can essentially be attained only through effective teams. In addition, there should be efforts made to develop training programs to improve supervisors’ awareness of how socio-psychological factors can influence their willingness to share their knowledge with their subordinates.

5.4 Implications of the Findings for Theory

The findings of this study contribute to the literature on the antecedents of the intention to share. The Theory of Reasoned Action has a long and rich literature and many studies have examined the antecedents of the intention to enact a wide range of behaviours. However,
there are currently no studies published that have examined how collectivism, social orientation achievement motivation and affective trust combine to influence the intention to share knowledge.

This study contributes to the understanding of knowledge sharing in several ways. Firstly, it treats collectivism and social orientation achievement motivation as psychological antecedents of the intention to share knowledge with subordinates and affective trust in subordinates as a social antecedent of the intention to share knowledge with subordinates. Secondly, it examines the influence of these antecedents on the downward sharing of explicit knowledge and implicit knowledge.

The findings contribute to theory by showing that downward affective trust is a critical determinant of downward knowledge sharing for explicit knowledge and implicit knowledge. The findings further contribute to our understanding of downward knowledge sharing by showing that, for all intents and purposes, there is no difference between explicit and implicit knowledge when it comes to the influence of collectivism, social orientation achievement motivation, and downward affective trust on the intention to share knowledge with subordinates.

### 5.5 Limitations and Future Research

This study has several limitations that need to be kept in mind when considering the findings. The first limitation is the employment of convenient sampling rather than random sampling. Convenient samples are problematic in that they may not be representative of the population. The second limitation is that all of the participants in the sample are chemists and as such the results should not be generalized to other occupational groups. The third limitation is the use of a cross-sectional design. A feature of a cross-sectional design study is that data are collected only once. Another limitation of the design used in this study is that all of the relationships were examined via correlation-based techniques
such as multiple linear regression and principal component analysis. As a result of the use of a cross-sectional design and correlation-based analyses to test the hypotheses, causality can only be inferred rather than proven. The fourth limitation of this study is that all of the data were obtained from a single source (i.e., supervisors) and a single method (i.e., self-report, Likert-scale based questionnaire) therefore self-report, mono-source, and common-method biases need to be taken into consideration. It is likely that respondents might have responded similarly on all scales given the similarity of their format (Cook and Campbell, 1983). However, a single-component test revealed that a single component explains less than one quarter of the total variance in the items that were used to measure the key variables and the control variables except for social desirability and gender. Additionally, that there are mediation and moderation effects further indicates that these biases did not have a major effect on the data.

There are several recommendations for future research. The first recommendation is that the conceptual model should be examined using different occupational and cultural groups because contextual factors may influence the hypothesized relationships. A second recommendation is to use qualitative research methods to investigate the antecedents of intention to share explicit knowledge and implicit knowledge. Qualitative research methods might be particularly valuable when examining the antecedents of sharing implicit knowledge because implicit knowledge is more difficult than explicit knowledge to articulate and measure using quantitative methods. A third recommendation is to use a wider range of control variables such as role competence because sharing knowledge depends not only on the individual’s willingness to share but also on the individual possessing knowledge that is beneficial to others. A fourth recommendation is to collect data on knowledge sharing from subordinates so as to remove the problem of mono-source variance between the antecedents and the dependent variable. A fifth recommendation is to employ a longitudinal study to examine the conceptual model to obtain a better understanding of the hypothesized causal mechanisms. A sixth recommendation, only affective trust in subordinates was examined in this study. Future studies may include cognitive trust to examine whether the two types of trust have different effects on the intention to share.
knowledge with subordinates. Finally, future studies could test the conceptual framework using more sophisticated statistical methods such as structural equation modelling.

5.6 Summary and Concluding Remarks

Effective supervisors provide mastery experiences, vicarious learning, social persuasion and psychological arousal that improves the learning efficiency of subordinates (Hannah and Lester, 2009). Downward knowledge sharing could result through a mentoring process provided by the supervisor which requires a lot of face-to-face contact and promotes a close relationship (Hansen, 1999; Granovetter, 1973) that strengthens the emotional bonds between supervisors and subordinates (Wang, 2008).

The concept of this study adds value to current knowledge management study by adding new variables to the knowledge-sharing literature and by examining downward knowledge sharing. The major contribution of this study is that it has demonstrated the importance of affective trust in subordinates as a major determinant of downward knowledge sharing for both explicit knowledge and implicit knowledge. To conclude this study, the author of this paper strongly advocates that interpersonal affective trust can impede or facilitate the intention to share knowledge regardless of whether the knowledge is explicit or implicit. The findings show that the intention to share knowledge downwards will only be sparked when affective trust reaches a threshold level.
References


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Appendix A: Returned Questionnaire

Newcastle Business School
Level 3, University House
Corner King and Auckland Street
Newcastle 2300 AUSTRALIA

For further information:
Mr. Peng Hong Teh, Tel: +60 12 287 9131, Email: penghong.teh@gmail.com
Dr. Gian Casimir, Phone: +65 6401 9102 Email: Gian.Casimir@newcastle.edu.au

25TH OCTOBER 2010

Re: Invitation to participate in a study titled “Collectivism, social orientation achievement motivation, norm of reciprocity, affective trust in subordinates, and sharing knowledge with subordinates”.

Dear Madan/Sir,

Mr. Peng Hong Teh is a Council Member of the Malaysian Institute of Chemistry and is enrolled in the Doctor of Business Administration (DBA) programme with the University of Newcastle’s Business School. Dr Gian Casimir is his research supervisor.

If you are in a supervisory or managerial position, we invite you to participate in a study that we are conducting as part of Mr Teh’s DBA. The aim of this study is to examine the relationships between collectivism, social orientation achievement motivation, norm of reciprocity, affective trust in subordinates, and sharing knowledge with subordinates. The data will be used for research purposes only.

If you wish to take part in this study, it will take approximately 20 minutes to complete the questionnaire and return it to the researchers via the stamped, self-addressed envelope provided. We will assume you have agreed to participate in this study if you return the completed questionnaire to the researchers. Please note that, because the questionnaire is to be completed anonymously, you will not be able to withdraw from the study after you have returned the completed questionnaire to the researchers.

Participation in this study will entail no risks or benefits to you and is entirely voluntary. However, upon completion of this study, a report will be provided to the Malaysian Institute of Chemistry and we will recommend that this report be provided to all the members in this organisation. Alternatively, you can contact the researchers via email or telephone for a copy of the report. The findings of this study may be published in a scholarly journal and Mr. Peng Hong Teh’s dissertation but neither you nor your organisation will be named or be able to be identified from any published reports.

The confidentiality of your responses is assured as only Mr. Peng Hong Teh and Dr Gian Casimir can access the completed questionnaires, which will be shredded after final acceptance of the thesis by the Newcastle Business School. At the completion of the study, an electronic copy of the data will be kept at the University of Newcastle on a password protected computer for a minimum period of 5 years from the date of final acceptance of the dissertation.

Participation in this study is entirely voluntary. Your decision to participate or not to participate will not affect you in any way and no one will know whether or not you have participated in this study. Additionally, non-participation will not affect your relationship with the University of Newcastle.

If you would like more information about this study, please contact Mr. Peng Hong Teh or Dr. Gian Casimir.

29 NOV 2010

*************
Thank you for taking the time to consider this invitation.

Yours sincerely,

Peng Hong, Teh LMIC                               Dr Gian Casimir

Complaints Clause:
This project has been approved by the University’s Human Research Ethics Committee, Approval No. Bus-Law - [insert approval number when known].

The University requires that should you have concerns about your rights as a participant in this research, or you have a complaint about the manner in which the research is conducted, it may be given to the researcher, or, if an independent person is preferred, to the Human Research Ethics Officer, Research Office, The Chancellery, The University of Newcastle, University Drive, Callaghan NSW 2308, telephone (+61 249 216 333, email HumanEthics@newcastle.edu.au)
Questionnaire for the Doctoral Research Project

A study on collectivism, social orientation achievement motivation, norm of reciprocity, affective trust in subordinates, and sharing knowledge with subordinates

Doctoral Research Candidate:
Mr Peng Hong Teh

Research Supervisor:
Dr Gian Casimir

Newcastle Business School
Level 3, University House,
Corner King and Auckland Street, Newcastle 2300
AUSTRALIA

For further information:
Mr Peng Hong Teh, Phone: +60 12 287 9131, Email: penghong.teh@gmail.com
Dr Gian Casimir, phone: + 65 6401 9102, Email: gian.casimir@newcastle.edu.au
Firstly, thank you very much for your time and help. Your contribution to this study is important and your participation is highly appreciated. This is an anonymous survey. Your personal or business identities are not required. Your responses will be kept confidential and used only for academic purposes. Please complete this questionnaire and send it back using the self-addressed envelope provided before 30th December, 2010. If you require further information, please contact the researchers via telephone or email.

GENERAL INSTRUCTIONS
1. There are no trick questions that will put you in any awkward situations.
2. We are concerned only with your opinions so please respond as honestly as possible. There are no right or wrong answers.
3. Specific instructions are given at the start of each section. Please read them carefully before answering and use the response scale provided.
4. Please answer all of the questions.

Section 1:
This section contains one question to determine if you are eligible to participate in this study. We are seeking responses only from those members who occupy supervisory or managerial positions
Answer: Yes or No (please circle one)
If you answered No to Question 1, kindly stop here as we are interested only in the responses from employees in supervisory roles. Thank you for participating in this study. Please return this form to the researchers via the stamped, self-addressed envelope that has been provided.

Section 2:

Personal and Business Demographics Information
1. My gender is (please tick one)
   
   [ ] (1) Male
   
   [X] (2) Female

2. My age is ___ years

3. My ethnicity is (please tick one)
   
   [X] (1) Malay
   
   [ ] (2) Chinese
   
   [ ] (3) Indian
   
   [ ] (4) Others (Please specify________________________)

4. My total years of working experience _______ Years.

5. I have been working as supervisor/manager for _______ years.
Section 3:
This section contains questions about your perception on your daily working life.
Please use the following response scale:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD</td>
<td>D</td>
<td>N</td>
<td>A</td>
<td>SA</td>
</tr>
</tbody>
</table>

Please circle one scale

1. I prefer to work in groups rather than work alone.  
2. Working in groups is better than working alone.  
3. I want to work in groups and not alone.  
4. I feel comfortable relying on others to do their part.  
5. I am not bothered by the need to rely on others.  
6. I feel comfortable trusting others to do their tasks.  
7. The well-being of my work group is important to me.  
8. I care about the well-being of my work group.  
9. I am concerned about the needs of members in my work group.  
10. I follow the norms of my work group.  
11. I follow the procedures used by my work group.  
12. I accept the rules of my work group.  
13. I care more about the goals of my work group than my own goals.  
14. I think more about the goals of my work group than my own goals.  
15. The goals of my work group are more important to me than my own personal goals.  
16. I usually follow the standards of my colleagues when setting my own personal work target.  
17. I welcome advice and directions from others before initiating a task.  
18. I wish to know how others rate my job performance.  
19. I prefer others to judge the results of my work.  
20. I work hard to achieve whatever society values.  
21. I do my best at work to prove that I am highly capable.  
22. I admire most those who have a high position in society.  
23. I work hard at every job merely to prove that I am an ambitious person.  
24. I consider giving up when others do not help me to solve my problems at work.  
25. I feel no sense of accomplishment if no one is aware of me successfully completing a task.  
26. I hope to reach a level of expertise that is recognised by all in whatever career I choose.  
27. One should be very cautious with strangers.  
28. Most experts tell the truth about the limits of their knowledge.  
29. Most people can be counted on to do what they say they will do.  
30. These days, you must be alert or someone is likely to take advantage of you.  
31. Most salespeople are honest in describing their products.  
32. Most repair people will not overcharge people who are ignorant of their specialty.  
33. Most people answer public opinion polls honestly.  
34. Most adults are competent at their jobs.  

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Section 4:
To answer the questions in this section, please think of one subordinate and proceed to the next question.

Question: How long have you been working with the subordinate that you have chosen for the purpose of answering the questions in this section? Answer: 9 years

Please use the following response scale:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD</td>
<td>D</td>
<td>N</td>
<td>A</td>
<td>SA</td>
</tr>
</tbody>
</table>

Please circle one scale

1. If this subordinate and I do favours for each other, we want to return them as soon as possible so we do not feel indebted to one another.

2. If this subordinate and I do a favour for one another, we expect the other to return the favour right away.

3. When I do something extra for this subordinate, I watch for him/her to pay me back.

4. When exchanging favours, this subordinate and I pay attention to what we get relative to what was given.

5. This subordinate and I expect each other to give back exactly what was given.

6. I have learned to look out for myself in my relationship with this subordinate.

7. This subordinate looks out for himself/herself first.

8. I am more concerned that this subordinate gets what he/she needs than I am about satisfying my own interests.

9. If necessary, I would place this subordinate’s needs above my own needs.

10. If necessary, this subordinate would place my needs above his/her own needs.

11. This subordinate and I try to do what is best for each other.

12. If this subordinate or I saw that the other needed something, we would do it for the other without being asked.

13. This subordinate and I look out for one another.

14. This subordinate and I would do just about anything for the other.

15. I am willing to share my work reports and official documents with this subordinate.

16. I am willing to provide my manuals, methodologies and models to this subordinate.

17. I am willing to allow this subordinate to spend a significant amount of time observing and collaborating with me in order for him/her to better understand and learn from me.

18. I am willing to write down what I know about the work and share it with this subordinate.

19. I am willing to provide any information and documents that I have that may help him/her.

20. I am willing to deposit all my work documents into a database and share it with this subordinate.

21. I am willing to share my job experience with this subordinate.

22. I am willing to share my expertise at with this subordinate.

23. I am willing to give this subordinate any tips I have that can help him/her with his/her job.

24. I intend to share my experience or know-how from work with this subordinate.

25. I am willing to provide my know-where and know-whom with this subordinate.

26. I am willing to share my expertise from my education or training with this subordinate in an effective way.

27. For work-related incidents that are difficult to explain, I am willing to conduct demonstrations for this subordinate.
<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>I am willing to share my secrets for achieving job-performance targets with this subordinate.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
</tr>
<tr>
<td>29</td>
<td>I am willing to share my ideas with this subordinate.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
</tr>
<tr>
<td>30</td>
<td>My job requires me to share knowledge regularly with this subordinate.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
</tr>
<tr>
<td>31</td>
<td>It is part of my job to share knowledge with this subordinate.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
</tr>
<tr>
<td>32</td>
<td>This subordinate needs me to share my knowledge with him/her to perform his/her job effectively.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
</tr>
<tr>
<td>33</td>
<td>This subordinate and I have a sharing relationship. We both freely share our ideas, feelings, and hopes.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
</tr>
<tr>
<td>34</td>
<td>I can talk freely to this subordinate about difficulties I am having at work and know that she/he will want to listen.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
</tr>
<tr>
<td>35</td>
<td>This subordinate and I would both feel a sense of loss if one of us was transferred and we could no longer work together.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
</tr>
<tr>
<td>36</td>
<td>If I shared my problems with this subordinate, I know he/she would respond constructively and caringly.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
</tr>
<tr>
<td>37</td>
<td>I would have to say that this subordinate and I have both made considerable emotional investments in our working relationship.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
</tr>
<tr>
<td>38</td>
<td>I have voluntarily shared my work reports and official documents with this subordinate of my organization.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
</tr>
<tr>
<td>39</td>
<td>I have voluntarily provided my manuals, methodologies and models to this subordinate.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
</tr>
<tr>
<td>40</td>
<td>I have voluntarily allowed this subordinate to spend a significant amount of time observing and collaborating with me in order for him/her to better understand and learn from my work.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
</tr>
<tr>
<td>41</td>
<td>When writing a report on work activities, I have voluntarily written down what I know about the work and shared it with this subordinate.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
</tr>
<tr>
<td>42</td>
<td>When this subordinate asked for help, I have voluntarily provided the information and documents he/she needed.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
</tr>
<tr>
<td>43</td>
<td>I have voluntarily deposit all my work documents into a database and share it with this subordinate.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
</tr>
<tr>
<td>44</td>
<td>I have voluntarily shared my job experience with this subordinate.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
</tr>
<tr>
<td>45</td>
<td>I have voluntarily shared my expertise with this subordinate.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
</tr>
<tr>
<td>46</td>
<td>I have voluntarily given this subordinate my tips about his/her job.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
</tr>
<tr>
<td>47</td>
<td>I have voluntarily shared my experience or know-how from work with this subordinate.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
</tr>
<tr>
<td>48</td>
<td>I have voluntarily provided my know-where and know-whom to this subordinate.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
</tr>
<tr>
<td>49</td>
<td>I have voluntarily shared my expertise from my education or training with this subordinate in an effective way.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
</tr>
<tr>
<td>50</td>
<td>For work-related incidents that are difficult to explain, I have voluntarily conducted demonstrations for this subordinate.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
</tr>
<tr>
<td>51</td>
<td>I have voluntarily shared my secrets for achieving job-performance targets with this subordinate.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
</tr>
<tr>
<td>52</td>
<td>I have voluntarily shared my ideas with this subordinate.</td>
<td>SD</td>
<td>D</td>
<td>N</td>
</tr>
</tbody>
</table>
Section 5:
This section contains questions about your perception on yourself and others. Please circle one, either TRUE or FALSE.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I never hesitate to go out of my way to help someone in trouble.</td>
</tr>
<tr>
<td>2</td>
<td>I have never intensely disliked anyone.</td>
</tr>
<tr>
<td>3</td>
<td>There have been times when I was jealous of the good fortune of others.</td>
</tr>
<tr>
<td>4</td>
<td>I would never think of letting someone else be punished for my wrongdoings.</td>
</tr>
<tr>
<td>5</td>
<td>I sometimes feel resentful when I don’t get my way.</td>
</tr>
<tr>
<td>6</td>
<td>There have been times when I felt like rebelling against people in authority even though I knew they were right.</td>
</tr>
<tr>
<td>7</td>
<td>I am always courteous, even to people who are disagreeable.</td>
</tr>
<tr>
<td>8</td>
<td>When I don’t know something, I don’t mind at all admitting it.</td>
</tr>
<tr>
<td>9</td>
<td>I can remember ‘playing sick’ to get out of something.</td>
</tr>
<tr>
<td>10</td>
<td>I am sometimes irritated by people who ask favours of me.</td>
</tr>
</tbody>
</table>

THANK YOU FOR TAKING THE TIME TO COMPLETE THIS QUESTIONNAIRE.
PLEASE RETURN THE COMPLETED QUESTIONNAIRE IN THE ENVELOPE PROVIDED