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**SOCIAL CAPITAL AND TACIT KNOWLEDGE SHARING IN
ORGANISATIONAL PROJECTS IN MALAYSIAN ICT COMPANIES**

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Doctor of Philosophy

ASTON UNIVERSITY

JUNE 2008

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**Rosmah Mat Isa
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Thesis Summary**

An increasing number of organisational researchers have turned to social capital theory in an attempt to better understand the impetus for knowledge sharing at the individual and organisational level. This thesis extends that research by investigating the impact of social capital on knowledge sharing at the group-level in the organisational project context. The objective of the thesis is to investigate the importance of social capital in fostering tacit knowledge sharing among the team members of a project.

The analytical focus is on the Nahapiet and Ghoshal framework of social capital but also includes elements of other scholars' work. In brief, social capital is defined as an asset that is embedded in the network of relationships possessed by an individual or social unit. It is argued that the main dimensions of social capital that are of relevance to knowledge sharing are structural, cognitive, and relational because these, among other things, foster the exchange and combination of knowledge and resources among the team members.

Empirically, the study is based on the grounded theory method. Data were collected from five projects in large, medium, and small ICT companies in Malaysia. Underpinned by the constant comparative method, data were derived from 55 interviews, and observations. The data were analysed using open, axial, and selective coding. The analysis also involved counting frequency occurrence from the coding generated by grounded theory to find the important items and categories under social capital dimensions and knowledge sharing, and for further explaining sub-groups within the data.

The analysis shows that the most important dimension for tacit knowledge sharing is structural capital. Most importantly, the findings also suggest that structural capital is a prerequisite of cognitive capital and relational capital at the group-level in an organisational project. It also found that in a project context, relational capital is hard to realise because it requires time and frequent interactions among the team members. The findings from quantitative analysis show that frequent meetings and interactions, relationship, positions, shared visions, shared objectives, and collaboration are among the factors that foster the sharing of tacit knowledge among the team members.

In conclusion, the present study adds to the existing literature on social capital in two main ways. Firstly, it distinguishes the dimensions of social capital and identifies that structural capital is the most important dimension in social capital and it is a prerequisite of cognitive and relational capital in a project context. Secondly, it identifies the causal sequence in the dimension of social capital suggesting avenues for further theoretical and empirical work in this emerging area of inquiry.

Keywords: Social capital, knowledge sharing, tacit knowledge, group project, Malaysia

DEDICATION

To My Husband and Children

Iqbal, Aliah, Afiah, and Fatih

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In the name of Allah, The Most Gracious, The Most Merciful

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KEYS TO RESPONDENTS' VERBATIMS

The following abbreviations and symbols are used in the quotes of interview transcripts in this thesis.

<i>Italic/underline</i>	emphasis in the quotes of transcripts
...	a pause of the interviewee during his/her conversation in the interview
... ..	unfinished sentence of the interviewee during his/her conversation in the interview
~~~~~	non-essential content located in the quoted quotes of transcripts not included in order to save space and maintain the flow of presentation of data
[ ]	actual meaning of the specific word

## CHAPTER 1

### INTRODUCTION

#### 1.0 INTRODUCTION

This chapter provides an overview and draws the premises of this thesis. It sets out the background to the research, and the aims and rationale of the study. It also outlines the remaining chapters of the thesis.

#### 1.1 BACKGROUND TO THE RESEARCH

Social capital is defined in this study as *“the sum of the actual and potential resources embedded within, available through and derived from the network of relationships possessed by an individual or social unit”* (Nahapiet and Ghoshal, 1998, p. 243). Social capital is an important mechanism to give individuals access to crucial resources available in other people (Coleman, 1988). As a key enabler for knowledge sharing (Brachos, Kostopoulos, Soderquist, and Prastacos, 2007; Chaminade and Roberts, 2002), it encourages organisational members to form relationships, communicate with each other, and act together more effectively in achieving organisational goals (Adler and Kwon, 2002; Burt, 1997; Cohen and Prusak, 2001a; Nahapiet and Ghoshal, 1998; Putnam, 1995; Tsai and Ghoshal, 1998). Earlier works on knowledge sharing and transfer emphasise the requirement of knowledge sharing in achieving organisational goals (Nonaka, 1994; Prahalad and Hamel, 1990; Winter, 1987). Besides, the creation and sharing of knowledge are also fundamental for organisations to gain competitive advantage (Argote and Ingram, 2000; Grant, 1996; Nicolas, 2006).

Theoretical and empirical research suggest that in order for organisations to gain competitive advantages such as efficiency and quality (Bolwijn and Kumpe, 1990), organisational members are required to share knowledge (Chow, Deng, and Ho, 2000; Davenport and Prusak, 1998; Drucker, 1998). Research has suggested that

most knowledge is created and shared in organisational projects (e.g., Bresnen, Edelman, Newell, Scarbrough, and Swan, 2003; Koskinen, Pihlanto, and Vanharanta, 2003; Newell, Tansley, and Huang, 2004). Knowledge in a project is vital as not only can it reduce project time and improve quality, but it can also enhance customer satisfaction (Love Edum-Fotwe, and Irani, 2003).

However, to facilitate knowledge sharing including among project team members, social capital needs to be developed first (Nahapiet and Ghoshal, 1998). Social capital development is to a large extent, affected by factors shaping the evolution of social relations such as time, interaction, interdependence, and closure (Nahapiet and Ghoshal, 1998; Nohria and Eccles, 1992). Furthermore, the dynamic nature of social capital, knowledge sharing, and projects (that often last only for a short period of time, are one-off, and consist of team members from diverse backgrounds), could hamper the development of social capital (Bourdieu, 1986; Granovetter, 1992; Nahapiet and Ghoshal, 1998), and knowledge sharing among individuals in a project (DeFillippi, 2001).

On the whole, in studying the development of social capital, it is important to differentiate between relationships with partners entering into a new network and partners already in an existing network (Walker, Kogut, and Shan, 1997). The majority of research on social capital and knowledge sharing (e.g., Inkpen and Tsang, 2005; Tsai, 2003; Wasko and Faraj, 2005; Yli-Renko, Autio, and Sapienza, 2001) has centred on the effect of existing social capital, with only few studies focusing on the development of social capital (e.g., Bresnen *et al.*, 2003). Although the findings from studies on the impact of social capital on knowledge sharing in the project context (e.g., Bresnen *et al.*, 2003; Newell *et al.* 2004) are suggestive and important, they have failed to provide adequate empirical evidence on how the interaction of social capital dimensions affects the network actors (project members) in sharing tacit knowledge. To explicitly understand these interactions or relationships, Leana and van Buren (1999) have suggested that future research should empirically refine the dimensions of social capital and develop specific

indicators for it. In addition, Chiu, Hsu, and Wang (2006) suggested that future research examine the interrelationship amongst social capital dimensions.

This study contributes to the social capital body of knowledge by empirically examining the dimensions and indicators of social capital. Grounded theory and frequency counts are utilised to identify the dimensions and categories of social capital and to explore their connection (Tesch, 1990). Findings from this study will provide a basis for understanding organisational practice in a project context. With this knowledge, implications for current practice will be identified and recommendations made for future research. The study findings make three important contributions to the understanding of the development of social capital and its importance in knowledge sharing in a project context by:

1. drawing on the rich data of three Malaysian (Information, Communication, Technology) ICT organisations' experiences. The study generates an understanding of the development, distinction, and relationship of social capital dimensions within the context of organisational projects. It generates a list of social capital dimensions and specific categories and items that are required for tacit knowledge sharing in the organisational project context;
2. incorporating the findings from this study with the insights from social capital, knowledge sharing and project implementation literature, this study will help the researchers and practitioners to clarify and predict social capital processes associated with knowledge sharing. The study generates a list of the significant categories and items of social capital dimensions for tacit knowledge sharing in the organisational project context. It also identifies factors that foster or hinder tacit knowledge sharing in the organisational project context; and
3. dealing with the complex project context, this study adds significant content to researchers' and practitioners' understanding of the central role played by each dimension of social capital in knowledge sharing performed in project implementation. The present study identifies the most influential dimensions

of social capital in tacit knowledge sharing in the organisational project context.

## **1.2 RESEARCH QUESTION**

Building upon the literature and concepts of social capital, knowledge sharing, knowledge management, and project management, this study seeks to explain the development process of social capital on tacit knowledge sharing in organisational projects, specifically in the Malaysian context. Thus, the present study seeks to answer the following grand research question:

*How is social capital developed and how does it foster tacit knowledge sharing among team members of an organisational project?*

## **1.3 RESEARCH OBJECTIVES**

The objectives of the present study are:

1. to further define social capital dimensions and identify categories and items under each of the dimensions. Under this objective, social capital in an organisational project context and how it is developed among the team members will be examined. The key existing dimensions of social capital will be further examined through the team members' activities in the project in order to explore and better understand the concept of social capital and how it is developed in the context of organisational projects;
2. to determine significant categories and items of social capital for tacit knowledge sharing. Under this objective, variables that foster or hinder

social capital development in knowledge sharing amongst team members working on projects will be identified; and

3. to identify the most influential dimension of social capital in fostering the sharing of tacit knowledge. This is to examine and distinguish the differences among three dimensions of social capital: structural, cognitive, and relational (Nahapiet and Ghoshal, 1998) in the project context.

#### **1.4 RATIONALE FOR THE STUDY**

Social capital has been argued to be an imperative element in a culture which affects managerial practices within organisations in different countries (Hitt, Lee, and Yucel, 2002). Studies have pointed out that there are some values, beliefs, politics, and cultures (see e.g. Merriam and Muhamad, 2002; Othman, Domil, Senik, Abdullah, and Hamzah, 2006), and business contextual dimensions that may influence social capital (see Hitt *et al.*, 2002). It has also been argued that the assumptions of western management theories are not shared by other cultures, such as those found in Asia (see Yoo, Ginzberg, and Ahn, 1999). For example, research has shown that managers in Asia and the U.S. develop and apply different strategic orientations (Dacin, Hitt, and Levitas, 1997). Therefore, the call for more studies conducted on Asian, or more specifically Malaysian organisations, is in line with such arguments.

As this study aims to identify themes or factors of social capital and knowledge sharing in a different situational context than those found in the extant literature, grounded theory approach is adopted. This is in line with Edelman, Bresnen, Newell, Scarbrough, and Swan (2004). The grounded theory approach will enable the study to explain differences in management practices before prescribing any management action (Boyacigiller and Adler, 1991), and thus enable the researcher to examine social capital while also capturing the contextual variables.



Moreover, most of the existing studies on social capital and knowledge sharing have been conducted in Western countries, and very little attempts have been made to explore the issue in other contextual settings. Although there are indications that some empirical research has been done on knowledge sharing in a non-Western context, particularly in China (e.g., Chow *et al.*, 2000; Li, 2005; Newell, 1999; Tsang, 2002), the focus in that work has been mainly on relational capital, particularly on trust. In addition, different situational contexts, the nature of knowledge and social capital, together with dissimilarity between cultures, the way “people create, organise, and communicate knowledge”, may differ from one organisation to another (Yoo *et al.*, 1999, p.502).

It is motivating to choose Malaysia as a research setting for the reasons mentioned above. In addition, the Malaysian economy has gone through different phases since its independence in 1957. It moved from an agricultural-based economy to an industrial one, and later on to technology. Currently, Malaysia has aspired to be a knowledge-based economy. Anuar and Jaafar (2000) argued that knowledge and people skills will account for the biggest share in Malaysia’s knowledge-based economy. They further suggested that there is an increasing need to harness human capital; however there is a lack of knowledge on how to manage human resources. Nowadays, Malaysian companies have realised the importance of understanding how social capital fosters knowledge creation and sharing among various agents. This is manifested in the keynote address by the Prime Minister of Malaysia, Dato' Seri Abdullah Bin Hj. Ahmad Badawi:

*"The success inherited by the country cannot be continued if creativity and innovation do not become part of the nation's culture. People are the most important factor in a knowledge-based economy, a new era which invariably leads to the subsequent knowledge management paradigm. As we move into this new, and for some, challenging, era where intellectual capital and organisation intelligence are recognized as the key factors for continued survival, competitiveness and growth, knowledge management becomes increasingly critical and fundamental for survival and self-sustenance."*

(Media Shoppe Sdn. Bhd., 2003)

Social capital can be examined at various levels of analysis: organisations, business units, groups, and individuals. In the present study, the researcher intends to investigate the social capital process at group-level. In this study, projects are chosen as groups. Chaminade and Roberts (2002, p.24) suggest that a “project is a good example of how social capital can be created and can serve as a mechanism to connect knowledge within and across firms”. Another reason is that a project is temporary in nature and involves individuals from different departments and subsidiaries who possess specialised knowledge (Newell *et al.*, 2004). Thus, it is a challenge for the team members to work together for a finite period of time to accomplish a specific project objective. In addition, some of them may not know each other prior to the project and thus, this poses a challenge for them to share knowledge in facilitating their work. Given the complexity of the project team structure, the interaction and relationship of the team members are problematic (Bresnen *et al.*, 2003; Koskinen *et al.*, 2003). It takes time for the team members to develop relationships and become effective at working together, especially in sharing knowledge (Bourdieu, 1986; Granovetter, 1992; Nahapiet and Ghoshal, 1998).

Furthermore, in order to promote social capital, project managers must understand how individuals experience social capital during project implementation and how it develops between people or groups over time. Therefore, it is pertinent to understand how social capital is developed among the team members, and its importance in knowledge sharing. Moreover, it is essential to understand factors that are likely to foster and hinder social capital development and maintenance.

#### **1.4.1 Overview of Research Design**

This study applies social capital theory in examining how team members develop their social capital in organisational projects and how it fosters their knowledge sharing. According to Nahapiet and Ghoshal (1998), there are three dimensions of social capital: structural, cognitive, and relational capitals. This theory argues that workers have to be able to trust others to discharge their obligations. It also contends that social capital is not only an enabler to increase co-operation, but also a

catalyst to improve flexibility, lower cost or co-ordinating activities, and increase the level of knowledge transfer (Chaminade and Robert, 2002; Inkpen, 1998).

The majority of past studies on social capital and knowledge sharing have either adopted a case study or a survey method. Both these approaches have their own limitations (Bresnen *et al.*, 2003). In this study, the grounded theory approach is adopted to gain insights from the case study data (Yin, 1989). Given the difficulty in distinguishing social capital dimensions and the dynamic nature of tacit knowledge, this method will provide an in-depth discovery of knowledge in this area. A grounded theory will increase the practitioners', and researchers' understanding of the development of social capital among the team members in organisational projects, and its role in fostering the sharing of tacit knowledge among them (Edelman *et al.*, 2004).

Data will be collected through interviews, participant observations, and documents. Two kinds of analysis will be conducted. First, the data will be analysed following grounded theory procedure which uses open coding techniques: open, axial, and selective coding (Strauss and Corbin, 1990). This procedure involves closely examining the interview transcripts looking for specific events and activities which could be considered as social capital items under each category. This iterative process will then be matched with the existing literature to find the categories and items of each of the social capital dimensions for knowledge sharing, thereby achieving the first objective of the study — to further define social capital dimensions and identify categories and items under each of those dimensions.

Secondly, once all categories and items have been identified in the selective coding, frequency counts will also be performed to identify the most important categories and items among all the dimensions in social capital within the context of tacit knowledge sharing involving team members of a project. The frequency counts procedure involves counting the number of times the events or the activities occur. In improving the extent of agreement, the counting of the frequency is assigned 5

point-scale scores. Such procedure enables the identification of the most important dimensions, categories, and items of social capital, thus achieving objectives 2 and 3 of the study— to determine significant categories and items of social capital for tacit knowledge sharing, and to identify the most influential dimension of social capital in fostering the sharing of tacit knowledge.

Malaysian ICT companies were chosen because of the project-based nature of the industry, and the presence or absence of social capital dimensions in project implementation activities in three such companies (large, medium, and small enterprises) was explored. A total of five projects were examined; two projects each from two companies and one from the remaining company. Four of the projects investigated were concerned with the development of new information technology products and one was concerned with the introduction of new management practice. All projects were tacit knowledge-based, i.e. all the team members were knowledge workers and the projects led to the creation of new solutions in the organisation (Rosenberg, 1982). In total, 45 project members were interviewed (see Tables 3-1 and 3-2 for the details of the company profiles and their projects).

## **1.5 STRUCTURE OF THE THESIS**

This section briefly outlines each of the chapters in the thesis.

Chapter 1 introduces the research topic and rationale for the study.

Chapter 2 discusses two main bodies of literature, those relating to social capital, and knowledge management theory. The first part of the chapter establishes the importance of social capital in organisational relationships, continuing to explain the variety of social capital definitions, and elaborating on the three dimensions of social capital, i.e. structural, cognitive, and relational. The second part of the chapter discusses the different types of knowledge, the importance of knowledge and how it relates to an organisation's competitive advantage. The chapter ends with an explanation of the relationship between social capital, knowledge sharing, and

projects. Table 2-6 summarises the outline of the existing research gaps and how the study helps to address these.

Chapter 3 discusses the methodology employed in the study. It describes the grounded theory method involved and the justification for adopting this approach. It also considers the design of the study, issues relating to access, the data collection procedures adopted during different stages of research, and the research techniques employed in the study. This is followed by a discussion of the methods used for data analysis - grounded theory techniques and frequency counts. The chapter ends with a discussion on gaining trust, reliability and validity issues, and the ethical considerations associated with the study. Table 3-10 summarises the research method and design of the study.

Chapter 4 reports the qualitative results obtained from the fieldwork. The emerging themes are further discussed according to the dimensions of social capital, i.e. structural, cognitive, and relational, as indicated by Nahapiet and Ghoshal (1998). Table 4-1 lists the themes that arose from the data.

Chapter 5 discusses the quantitative results derived from the frequency counts of the data. It begins by describing the findings from the univariate analysis, such as frequencies and means of the categories and items under the social capital dimensions for tacit knowledge sharing. A report of the results of the bivariate analysis follows.

Chapter 6 presents a more detailed interpretation of the findings reported in Chapters 4 and 5. It begins by presenting a thorough discussion of the findings and compares these with the literature to determine whether there is consistency or new insights have emerged. Secondly, it revisits the theoretical propositions of Nahapiet and Ghoshal (1998) as a basis for discussing any emerging social capital causal sequence found in this study. Lastly, it highlights the contributions and implications of the

study for theoreticians and practitioners. The study's limitations are addressed, and suggestions for future research are made.

Chapter 7 presents a conclusion to the research, and Table 7-1 provides an overall summary of the research objectives and their respective research contributions.

## **1.6 CONCLUSION**

This chapter has presented the background and rationale for the present study, described its research objectives, research design, and outlined the structure of the thesis. Briefly, the objectives of the study are to explore and elaborate the development of social capital and how it fosters the knowledge sharing among the team members of organisational projects in Malaysian ICT companies. The next chapter will review the literature on social capital and knowledge management, and specifically knowledge sharing.

## CHAPTER 2

### LITERATURE REVIEW

#### 2.0 INTRODUCTION

The pre-requisites when researching the role of social capital in fostering tacit knowledge sharing include a clear definition of the term social capital, and an elaboration of its dimensions specific to the project context. To achieve this aim, in this chapter, a review of the literature related to social capital, knowledge management, and project management is presented. The first part of the chapter will review the literature on social capital, with the focus on the impact of social capital on tacit knowledge sharing. The second part of the chapter will then focus on knowledge management with particular attention to tacit knowledge sharing. It will explain the nature of tacit knowledge sharing and the social capital required to make this happen. The overall objective of this chapter is to provide a basic understanding of the importance of social capital in tacit knowledge sharing.

#### 2.1 BACKGROUND

In recent years, considerable attention has been given to managing knowledge, as it constitutes a major source of competitive advantage in many industries (e.g., Grant, 1996; Kogut and Zander, 1992; Nahapiet and Ghoshal, 1998; Nonaka and Takeuchi, 1995; Prahalad and Hamel, 1990). A large volume of literature has emphasised the importance of factors such as enablers, processes, and organisational performance in regard to managing knowledge (e.g., Demarest, 1997; Lee and Choi, 2003; O'Dell and Grayson, 1999). It has been argued that knowledge management enablers (e.g., socialisation, trust, collaboration, learning, formalisation, and knowledge creation) facilitate the relationships as well as the interactions necessary for sharing knowledge across an organisation or beyond its geographic and cultural borders (Lee and Choi, 2003; von Krogh, Ichijo, and Nonaka, 2000). However, this knowledge is explicit in nature and is, therefore, easily imitated by other organisations. Conversely, the focal concern of organisations today is on how to manage their

intellectual capital or tacit knowledge since it can provide them with sustainable competitive advantage (Nahapiet and Ghoshal, 1998; Teece, 2002).

There is a significant and growing body of research suggesting that social capital is not only an antecedent, but is also associated with important outcomes and processes in the organisations (e.g., Nahapiet and Ghoshal, 1998; Nohria and Eccles, 1992; Meyer, 1994). The research on social capital and knowledge sharing has recognised the pivotal role of social capital in affecting the behaviour and attitudes of organisational members in sharing tacit knowledge. Social capital theory, in particular, argues that firms have potentials for creating and sharing knowledge that improves their innovative capabilities through networks, interaction, and learning (Landry, Amara, and Lamari, 2002). While tacit knowledge is increasingly being recognised as a strategic asset (Winter, 1987), social capital is anticipated to be a mechanism that is associated with the extent of knowledge sharing (Adler and Kwon, 2002; De Long and Fahey, 2000; Nahapiet and Ghoshal, 1998; Tsai and Ghoshal, 1998).

More importantly, the ability of an organisation to share knowledge internally in an effective way is fundamental for organisations to maintain their competitive advantage (Grant, 1996; Kogut and Zander, 1993; Spender, 1996). Thus, in order to be competitive, organisations need employees who can learn, innovate, contribute, and increase value in the future (Mayo, 1999). However, it is not easy to extract these values without organisational support. Gronhaug and Nordhaug (1992) propose that organisations must capture, share, and utilise their employees' competencies efficiently and effectively. Through their strategies and initiatives, organisations can provide all the mechanisms necessary to encourage employees to share knowledge (Grant, 1996; Nicolas, 2006; Spender, 1996; Zack, 1999b). Organisations must, therefore, be able to harvest the knowledge, skills, and abilities of their human capital faster than their competitors.

Carneiro (2000) argues that if organisations recognise the importance of their human capital, they would pay more attention to encouraging and improving the knowledge



of their human capital, and hence be much more prepared to face rapid changes and innovate in the domain where they decide to invest. In line with this argument, Nonaka and Takeuchi (1995) suggest that individuals and firms may need outside sources of cognition and competence to complement their own in order to convert new knowledge to develop new products, processes, or services. Therefore, there is a need to unlock this knowledge through sharing and disseminating. However, organisations must understand that not all people are willing to share their knowledge unless they can get something in return (Coleman, 1988). Consequently, organisations must consider how to encourage these phenomena to happen, such as by, for instance, facilitating frequent interaction, encouraging participation from the organisational members in meetings, and providing space and opportunities for informal meetings.

The next section examines the importance of social capital in organisational knowledge and then describes its dimensions.

## **2.2 SOCIAL CAPITAL**

In recent years, the concept of social capital has become increasingly popular in the social sciences. In the field of sociology, organisation, and economy, the concept of social capital has been called upon to answer issues pertaining to their own fields (e.g., Adler and Kwon, 2002; Bourdieu, 1986; Burt, 1997; Coleman, 1988, Putnam; 1995). Interestingly, in organisational studies, the concept of social capital is gaining currency, whilst in management literature, in particular in Asian countries like Malaysia, social capital affects the culture, business conduct, and academic writings (Hitt *et al.*, 2002).

### **2.2.1 Defining Social Capital**

It is important to note that although research on the concept of social capital has gained considerable attention from various fields, the concept is still evolving (e.g., Adler and Kwon, 2002, Beugelsdijk, 2006; Inkpen and Tsang, 2005; Leana and van Buren, 1999; Nahapiet and Ghoshal, 1998). Theoretically, there is a lack of

consensus on how to define social capital (Inkpen and Tsang, 2005; Nahapiet and Ghoshal, 1998), as is evident in the different uses and connotations in various scholarly perspectives found in the literature (Adler and Kwon, 2002; De Carolis and Saporito, 2006; Inkpen and Tsang, 2005). Indeed, several disciplines have utilised the concept of social capital with partially varying definitions (Hitt *et al.*, 2002), and operationalised these at different organisational levels of analysis (Tsai and Ghoshal, 1998) or applied them to different social phenomena (Nahapiet and Ghoshal, 1998). For example, the concept has been used to illuminate the influence of social capital in the development of human capital (Coleman, 1988), organisations (Burt, 1992), geographic regions and societies (Putnam, 1995), and nations (Fukuyama, 1995).

There is evidence, which demonstrates two patterns in the various definitions of social capital (e.g. Adler and Kwon, 2002; Leana and van Buren, 1999; Inkpen and Tsang, 2005), these being private benefits where actors gain values individually (Burt, 1997), and public benefits where individuals as well as the group members at large, gain values (Bourdieu, 1986; Coleman, 1988; Putnam, 1993). Table 2-1 summarises the definitions of social capital used in selected studies.

**Table 2-1: Social Capital Definitions**

Author	Definition
Baker (1990); Bourdieu (1986)	Aggregate of actual or potential resources that are linked to the actors of a durable network.
Burt (1992); Coleman (1988)	Social capital is defined by its function. It is not a single entity but a variety of different entities, with two elements in common: they all consist of some aspects of social structures, and they facilitate certain actions or actors - whether persons or corporate actor - within the structure.
Putnam (1995); Walker <i>et al.</i> (1997)	Features of social organisations such as networks, norms and social trust that facilitate co-ordination and co-operation to pursue shared objectives.
Inkpen and Tsang (2005); Burt (1997); Coleman (1990)	Asset that is embedded in relationships of individuals, communities, networks, and societies.

A variety of entities having two characteristics in common.

Tsai and Ghoshal (1998)	Norms and values associated with relationship.
Nahapiet and Ghoshal (1998)	Actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit
Fukuyama (1999)	Informal norms that promote co-operation between two or more individuals by reducing transaction cost between them.
Lin (2001)	Resources embedded in a social structure that are accessed and/or mobilised in purposive action.
Leana and van Buren (1999)	Asset that benefits both the organisation and its members through collective goal orientation and shared trust which create value by facilitating collective action.
Cohen and Prusak (2001a)	The stock of active connections among people: trust, mutual understanding, shared values and behaviour that bind the members or human networks and communities and make co-operative action possible.
Adler and Kwon (2002); Hitt <i>et al.</i> (2002)	Relationships between individuals and organisations that facilitate action and thereby create value.
Newell <i>et al.</i> (2004); Bresnen <i>et al.</i> (2003); Fernie <i>et al.</i> (2003)	Resources or assets embedded in the relationship of the organisational members.

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[Source: Compiled by author]

A review of these definitions shows that a large number of studies limit the definition of social capital to the relationship between the actors and values or assets embedded in that relationship (e.g., Baker, 1990; Bourdieu, 1986; Burt, 1992; Putnam, 1995). On the other hand, the definition of Nahapiet and Ghoshal (1998), that social capital is "... *the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit*" (p.243), focuses on the actors as well as the process

involved in their deeds and the embedded nature of the networking in their thinking. Thus, this definition is the most suited for the present study as it involves the behaviour and activities of the actors, their thinking and deeds, and the process of knowledge sharing in the project implementation. Additionally, it is also applicable in a project context where social capital is assumed to be developed and possessed by organisational members who are brought together from different work sites and backgrounds. The process, in the end, benefits the individual as well as the organisation at large.

### **2.2.2 The Importance of Social Capital on Knowledge Sharing**

There has been a large increase in the number of studies on how social capital impacts upon organisational knowledge. This is due to the growing awareness of the benefits of social capital in generating and sharing tacit knowledge in organisations (Adler and Kwon, 2002; Baker, 2000; Inkpen and Tsang, 2005; Levin and Cross, 2004; Nahapiet and Ghoshal, 1998). Athanassiou and Maznevski (2002) argued that managers could leverage social capital to acquire tacit knowledge by manipulating the networks of interpersonal relationships that are critical for the transfer of tacit knowledge. Nevertheless, although social capital is a resource or capital, it is impossible to be transferred, traded, or bought (Cohen and Prusak, 2001a; Leana and van Buren, 1999), nor owned by an individual. It is instead, accrued through a history of interaction amongst actors and it can only be shared and strengthened through established networks of relationships (Edelman *et al.*, 2004; Nahapiet and Ghoshal, 1998). Hence, it is essential to know that a company can benefit from social capital by changing its physical and social architecture in such way that it results in increased interaction, openness, and trust (Baker, 2000). Nevertheless, the question of how it can be developed at the beginning of the relationship, particularly among those who have to work together to achieve certain goals, is still under-explored.

Recently, many researchers have utilised the concept of social capital to help explain relations between individuals within and outside firms, and between organisational

units within firms and between firms (Adler and Kwon, 2002). For example, in the project management literature, it is often argued that close and frequent interactions between teams lead to project effectiveness (e.g. Bresnen *et al.*, 2003; Newell *et al.*, 2004). In this literature, efficient knowledge sharing is characterised by solidified relationships between people from different organisational sub-units. Within the context of project implementation, social capital is a resource as well as an asset embedded in the relationship of the organisational members. This relationship is established when individuals work together either on a project or in a similar unit or department, and work in such a way that facilitates co-ordination and co-operation to ensure project success (Bresnen *et al.*, 2003; Fernie, Green, Weller, and Newcombe, 2003; Nahapiet and Ghoshal, 1998; Newell *et al.*, 2004).

Just as the management of knowledge requires strong management support, social capital also demands support from the management (Cohen and Prusak, 2002). In other words, since the networks of social connection, trust, and commitment are impossible to manufacture, support from management is crucial to encourage the development of social capital. For example, management can encourage knowledge networks by fostering frequent, repeated, and significant interactions amongst different members of the organisation (Ghoshal and Bartlett, 1990). Additionally, Brachos *et al.* (2007) highlight the importance of top management recognition of their need to be involved in the knowledge sharing process in organisations. As such, they should frequently and constantly urge their employees to share knowledge, and should provide relevant organisational contexts in which this can occur. In support of this, Nahapiet and Ghoshal (1998) assert that organisations can provide an institutional environment conducive to the development of social capital. They further argue that the combination and exchange of knowledge is facilitated when individuals are connected together (structural capital), have the ability to understand and apply knowledge (cognitive capital), and have strong and positive relationships with one another (relational capital).

In the next section, the dimensions of social capital will be discussed.

### 2.2.3 Dimensions of Social Capital

The various definitions of social capital and lack of consensus in the wider literature, have resulted in the recognition of different dimensions of social capital as highlighted by researchers (e.g., Flap and Volker, 2001; Leana and van Buren, 1999; Nahapiet and Ghoshal, 1998). Traditionally, social capital has been understood as a uni-dimensional concept, but recent researchers have adopted a multi-dimensional perspective of social capital (Nahapiet and Ghoshal, 1998). Nahapiet and Ghoshal (1998) have identified three dimensions of social capital: structural, cognitive, and relational (refer to sections 2.2.3.1-2.2.3.3). Leana and van Buren (1999) have described two components of social capital: strong associability and trust. Flap and Volker (2001) have identified another dimension of social capital: the position that someone has in the network of relationships that influences the willingness and ability of others to provide help. Yli-Renko *et al.* (2001) indicated three dimensions of social capital in their study, namely social interaction, relationship quality, and network ties. Landry *et al.* (2002) observed two dimensions of social capital and suggested six indices to measure social capital, but ignored the cognitive dimension highlighted by Nahapiet and Ghoshal (1998). A summary of the dimensions of social capital is presented in Table 2-2.

**Table 2-2: Dimensions of Social Capital**

Author	Dimensions	Structural	Cognitive	Relational
Nahapiet and Ghoshal (1998)	Three dimensions of social capital are structural, cognitive, and relational.	*	*	*
Leana and van Buren (1999)	Two dimensions of social capital are associability and trust.	*		*
Flap and Volker (2001)	One dimension of social capital is network structure but includes the position of the actor in the network.	*		
Yli-Renko, Autio, and Sapienza (2001)	Three dimensions of social capital are social interaction, relationship quality, and network ties.	*		*
Landry <i>et al.</i> (2002)	Two dimensions of social capital are structural and relational.	*		*

[Source: Compiled by author]

For the discussion on social capital, the framework offered by Nahapiet and Ghoshal (1998) is used for the purpose of identifying its dimensions. These dimensions of social capital appear more appropriate for this study since they encompass not only the network between the actors (structural) but also the embedded nature of the networking in their thinking (cognitive) as well as in their deeds (relational), which accrue from the previous two capitals. Thus, these three dimensions have been selected because of their comprehensiveness. The literature seems to suggest that these dimensions of Nahapiet and Ghoshal (1998) have been adopted by many researchers (e.g. Bresnen *et al*, 2003; Chiu *et al.*, 2006; Inkpen and Tsang, 2005; Wasco and Faraj, 2005). While the discussions in the following sub-section focus on the elements of social capital, the difficulty in distinguishing the three dimensions of social capital as they overlap, will also be highlighted (Inkpen and Tsang, 2005; Nahapiet and Ghoshal, 1998).

#### **2.2.3.1 Structural Capital**

According to Nahapiet and Ghoshal (1998), the structural dimension refers to the network structure or connection between the actors. Bourdieu (1986) suggests that structural capital forms an institutionalised relationship, which can result in actors being able to mobilise social capital. This relationship is very important as it can enhance both firm and individual performance in two ways: first, by facilitating access to information and resources, and second, by helping to co-ordinate task interdependencies (Gargiulo and Benassi, 2000). However, Floyd and Wooldridge (1999) contend that to materialise these benefits, this relationship must be similar because theoretically two individuals with similar social relationships should have access to the same information and thus, share similar values, attitudes, and opinions.

The relationship between these actors creates a social process known as network ties. These network ties encourage the sharing of knowledge among organisational members such as business units, functional groups, and project teams. For example, knowledge required for innovation is shared and distributed within and across

organisations through network ties. Swan, Newell, Scarbrough, and Hislop (1999) have emphasised the importance of networks and networking for innovation. They suggest that through networking activity, individuals become aware of new technologies that may be relevant to their own organisations. However, since knowledge is sticky (Szulanski, 1996; Von Hippel, 1994) and must be given meaning through active networking processes, the actors involved in the networks can engage in negotiation as well as sense-making (Weick, 1990) and be able to recognise whether to reciprocate or trust (Bock and Kim, 2002; Hinds and Pfeffer, 2003; Scarbrough and Swan, 2001).

The development of effective network ties is conditional upon three things, the first being network closure or strength of relationship (Burt, 1992, Scott, 1991). The network ties depend on how close the relationship is between the individuals. Network closure refers to the frequency, reciprocity, emotional intensity, and intimacy of that relationship (Burt, 1992; Granovetter, 1973), and can be a significant factor to determine the flow of information. For instance, in a close network, communication flows quickly and easily, so that every network member knows the same things and because of this embeddedness, network members are assumed to trust each other (Flap and Volker, 2001). In addition, Nahapiet and Ghoshal (1998) contend that network closure is important for the mobilisation of social capital because it supports the creation of norms and reinforces obligations and expectations. Thus, network closure is a pertinent factor in ensuring that there is a willingness to share information with colleagues, which is particularly important in an organisational context such as a project. However, the type of information shared is contingent on structure and content of the ties (Flap and Volker, 2001), for example whether the closure is based on a formal network structure (e.g. team members of a project) or based on friendship.

In addition, Jones and George (1998) argue that it is reasonable to infer that due to strong ties, the actors within a connected group exchange and share information that is exclusive to them. With strong ties, trust is believed to develop and function as an essential condition for the effective functioning of knowledge. Where there are



strong ties, actors can also know each other well, norms and rules can be established, and trust can evolve and hence facilitate complex information and tacit knowledge sharing (Hansen, Nohria, and Tierney, 1999). This is particularly important when the problem concerns difficult technical issues (Koruna, 2004; Koskinen and Vanharanta, 2002; Koskinen, 2000). Tsai and Ghoshal (1998) also stress the importance of network ties as a conduit for knowledge creation, sharing and diffusion, especially for innovation.

Nevertheless, although network ties serve an important function in building and maintaining social capital, the expectations of actors and the duration of their relationship may constrain the inter-action among them. For instance, actors or partners who do not perform according to each other's expectations will hinder co-operation and collaboration. Secondly, the length of time that actors have known each other may impact on the degree of inter-action, as found by Walker *et al.* (1997) who studied network formation in the biotechnology industry, and identified the potential influence of the duration of the relationship on actors' behaviour. In that study it was suggested that in a network of shorter duration, the network structure would be less stable and less available as a resource for action. Particularly in a project context, the form of relationship is shorter in duration, than in situations where teams are permanent, and is likely to be terminated when the project is completed.

In contrast to the strong ties argument, it has also been suggested that weak ties can be efficient in knowledge sharing because they provides access to knowledge by bridging disconnected actors, thereby eliminating the redundant knowledge that occurs in close networks as a result of each person knowing what the other knows (Hansen, 1999). Hansen's (1999) study of a large multidivisional and multinational electronic and computer company found that weak ties are more advantageous for instrumental task or non-complex knowledge transfer, and also avoid redundancy of knowledge shared. However, that study also indicated that for complex knowledge, strong inter-unit ties still provide the highest relative net effect. And a strong argument is offered by Tsai and Ghoshal (1998) who suggest that actors must

ensure that they have frequent and close interaction in order to strengthen their network ties, because through these they can not only get to know one another, but can also share information and create common understanding. Concurring with this observation, Krackhardt (1992) notes that frequent and close interaction strengthen ties between actors, which as indicated by Nahapiet and Ghoshal (1998), in turn facilitate the transfer of tacit knowledge.

Secondly, the effectiveness of network ties depends on the number of interactions. Koskinen (2000) argues that in order to benefit from tacit knowledge, interaction is important as a reinforcing factor. Organisational life that is characterised by a substantial number of interactions, such as meetings, brainstorming, and workshops, fosters collective investment strategies and maintenance of a dense network (Nahapiet and Ghoshal, 1998). For example, traditional face-to-face meetings offer a better vehicle for expressing ideas and opinions. Not only does frequent interaction help in building consensus in decision-making, but it also allows participants to exchange a variety of verbal cues and non-verbal cues of information (Chidambaram and Jones, 1991). In support of this, Ruuska and Vartiainen (2005) in their study on characteristics of knowledge sharing communities in organisational projects, found that the most frequent and valuable activities for knowledge sharing in these circumstances are face-to-face interactions.

Thirdly, issues of position or status are important in creating effective network ties. In a study by Flap and Volker (2001), evidence was found that the position someone has in the structure of a network might influence that person's relationship as well as his/her willingness and capabilities to provide help. For example, an employee might share his/her knowledge with his/her boss not out of a genuine willingness to share but rather because of being in the position of subordinate. Obviously, such action is not based on trust or reciprocity but on fear of hierarchical power (Pretty and Ward, 2001). This supports Bourdieu's (1986) argument that individuals, who have certain positions or status, can mobilise their social capital to benefit themselves or their groups. Besides positions, there may be other variables that influence knowledge sharing. Particularly in the Asian culture, the society being

collective—e.g., a team member would work co-operatively and harmoniously for the good of the team, may be one factor that encourages knowledge sharing.

However, some people may be reluctant to share knowledge due to certain reasons, such as, fear of losing superiority or a perception that they will not be adequately rewarded (Szulanski, 1996).

### **2.2.3.2 Cognitive Capital**

Nahapiet and Ghoshal (1998) defined cognitive capital as shared representation and systems of meaning among parties. Wasko and Faraj (2005) defined cognitive capital as “resources that make possible shared interpretations and meanings within a collective” (p.41). Inkpen and Tsang (2005) further elaborated the term as the shared goals or objectives of actors in a network. Cognitive capital embodies the collective goals and aspirations of the members of an organisation (Tsai and Ghoshal, 1998), which accrue from visions, goals, norms, narratives, or language (Nahapiet and Ghoshal, 1998). It also provides individuals with the same frame of reference, which in turn helps them to interact with one another by avoiding possible misunderstandings in their communications (Tsai and Ghoshal, 1998; Wasko and Faraj, 2005). Most importantly, the common goals or interests they share will assist the actors to have meaningful communication and will help them to see the potential value of their resources in exchange and combination (Nahapiet and Ghoshal, 1998; Tsai and Ghoshal, 1998).

In the development of cognitive capital, organisational culture is influential (e.g., Dyer and Singh, 1998; Inkpen and Tsang, 2005; Li, 2005), since it helps to convey a sense of identity among organisational members and may create commitment toward the organisation and its goals (Li, 2005). This shared culture which refers to the rules and norms that have evolved and are understood within the network (Inkpen and Tsang, 2005), needs to be compatible in order to facilitate co-ordinated actions (Li, 2005). According to Dyer and Singh (1998), the identification and combination of resources are less likely to occur if the individuals have a different culture (e.g.,

subsidiaries and headquarters). For example, team members of an organisational project might have distinct cultures, especially if they are from subsidiaries. The distinct culture may cause conflict, especially if actors do not accommodate each others' culture (Inkpen and Tsang, 2005).

Obviously, given the same situational context, cognitive capital develops when individuals interact with each other over time, have the same background, share the same practices, learn the same skills, and have the same norms (Wasko and Faraj, 2005). Therefore, in a project context, since members are temporally, spatially, and culturally-differentiated (Bresnen *et al.*, 2003), it is important to develop shared meaning and understanding. This is because the diverse backgrounds of individuals, such as in education, politics, or culture, can impair the effectiveness of communication between actors (Dhir, 2005; Koruna, 2004). If the team members have a common understanding of the situation (for example, they are clear about their roles in the project and speak the same language), they can interact successfully and effectively. This in turn will help the team members to build a personal relationship.

Dyer and Nobeoka (2000) have emphasised how important it is for organisational members to share the same codes and vision in sharing the know-how or tacit knowledge. In line with this argument, Dhir (2005) suggests that managing language is very important because of the increasing diversity of the workforce. Tsai and Ghoshal (1998) have suggested that frequent social interaction is required to enrich actors' understanding of the language, and also because it functions as an important conduit for effective knowledge transfer. In addition, those who work in a team must interact with each other so that they can enrich the use of language and symbols to incorporate deeper understanding (Mitchell and Nicholas, 2006). Furthermore, misinterpretation is less likely to occur when there is frequent interaction because ambiguities can be easily and quickly clarified. Mitchell and Nicholas (2006) confirmed the importance of effective interaction in fostering shared understanding with regard to the process of knowledge creation.

Another important element in the development of cognitive capital is shared vision, since if the individuals concerned have this, knowledge sharing and transfer between them is facilitated. Thus, there is a need for management to promote the organisational vision. In their study entitled “The role of communication in achieving shared vision of an organisation undergoing leadership change”, Farmer, Slater, and Wright (1998) found a significant relationship between shared vision and communication from the leader to the public relations staff.

Another empirical study on the effect of trust and shared vision on knowledge transfer between headquarters and subsidiaries, demonstrates that shared vision is a strong influencing factor for knowledge transfer, especially in intra-organisation relationships (Li, 2005). As a result, organisational members who have cognitive capital, such as a shared vision and shared language, will be more likely to become partners in sharing or exchanging their tacit knowledge (Tsai and Ghoshal, 1998). Interestingly, Tsai and Ghoshal (1998) also suggested that common values and shared vision might encourage the development of relational capital.

### **2.2.3.3 Relational Capital**

Relational capital refers to the nature of the personal relationship that develops between specific people (Nahapiet and Ghoshal, 1998), and in line with this definition Tsai and Ghoshal (1998) described it as assets that are rooted in this relationship. These embedded assets, which entail norms, values, trust, and obligations, generate potential opportunities for the members (Yli-Renko *et al.*, 2001). Thus, a dense relationship or network closure, which is a feature of social relationship, is conducive to the development of relational capital (Baker, 1990; Bourdieu, 1986; Coleman, 1990, 1988).

The most important element of relational capital has been identified as trust (Beugelsdijk, 2006; Fukuyama, 1995; Zak and Knack, 2001). Scholars have widely acknowledged that trust can lead to co-operative behaviour among individuals,

groups and organisations (e.g., Gambetta, 1988; Levin and Cross, 2003) and the free exchange of information (Larson, 1992). Fukuyama (1995, p. 26) defines trust as “the expectation that arises with a community of regular, honest, and cooperative behaviour, based on commonly shared norms.” Coleman (1988) suggested three mechanisms by which trust is generated, namely “direct interpersonal contact, by reputation through a network of other trusted parties, or by our understanding of the way institutions shape the other actor’s values and behaviours” (p.27). These mechanisms are complementary to each other.

Cummings and Bromiley (1996) suggested that trust is a multi-dimensional concept that includes three dimensions, these being: “(a) belief that an individual or group makes good-faith efforts to behave in accordance with any commitments both explicit and implicit; (b) belief that an individual or group is honest in whatever negotiations (more generally, any interactions) proceeded such commitments; and (c) belief that an individual or group does not take excessive advantage of another even when the opportunity is available” (p. 304).

As research on trust has broadened, the trust attributes become further refined. For example, Rousseau *et al.* (1998) suggest that since trust has been associated with many disciplines, and is a multi-dimensional construct, various forms of trust exist, i.e. institutional-based, calculus-based, and relational-based. The first type of trust enables parties to co-operate and expect reciprocation; the second concerns fear of the result of not doing what one promised or agreed to do; and the last is the product of repeated interactions that foster reciprocity, reliability, and dependability. On the other hand, Jones and George (1998) divide trust into conditional and unconditional trust. The first is the willingness to transact as long as each behaves appropriately, whilst the latter is the willingness to transact as the relationship become significant. This often involves a sense of mutual identification (Shapiro, Sheppard, and Cheraski, 1992). Another form of trust is identification-based trust, which is based on group membership (Adobor, 2006). It suggests that an actor will only trust his group members and will be more willing to share knowledge within the group as he

identifies himself as part of the group (Hinds and Pfeffer, 2003; van der Hooff, Elving, Meeuwssen, and Dumoulin, 2003).

Interestingly, trust is not stagnant and instead it may be mobilised from one entity to another provided that connections in a network are solidified (Doney *et al.*, 1998). Doney *et al.* (1998) argued that a trustor bestows trust on a target based on the trustworthiness of individuals or institutions closely associated with that target. For example, when a trustor and target share the same norms and values, there is a greater chance that a trusting relationship will form, because the direction the target takes to earn trust is the same as the one the trustor follows to establish whether the target is trustworthy. Tsai (2000) is of the view that trustworthiness not only allows actors to exchange distinctive resources and fine-grained information but it also shapes the network linkages. Furthermore, Abrams, Cross, Lesser, and Levin (2003) found that “those who are seen as trustworthy sources of knowledge tend to act with discretion, be consistent between word and deed, ensure frequent and rich communication, engage in collaborative communication, and ensure that decisions are fair and transparent” (p.65).

The significance of the effect of trust on knowledge sharing has been mostly debated in the social capital and knowledge management literature (e.g., Coleman, 1990; Inkpen and Tsang, 2005; Nahapiet and Ghoshal, 1998; Putnam, 1995). For instance, the importance of trustworthiness in social capital has been articulated by many scholars (e.g., Coleman, 1990; Fukuyama, 1995; Putnam, 1995). Larsson *et al.* (1998) extended this discussion with respect to inter-organisational trust to the learning field by proposing that the commonly-understood benefits of trust are particularly important in the creation and exchange of proprietary knowledge. Furthermore, in ensuring effective knowledge sharing and knowledge creation, trust is considered not only as an enabler to increase co-operation, which results in improved flexibility, a lower cost of co-ordinating activities, and an increased level of knowledge transfer (Inkpen, 1997; Mat Isa and Ameer, 2007).

Secondly, another important element of relational capital is collaboration. Collaboration is accomplished only after integration has been achieved and it can be further enhanced through communication, particularly face-to-face interaction. Trust is required to generate effective collaboration among the team members (DeFillipi, 2002), but it must first be developed between every member of the team before there is improved collaboration, and hence knowledge sharing (Chowdhury, 2005; Cohen and Prusak, 2001a). Collaboration can be divided into two types: friendship-based and task-based. Collaboration that is based on friendship generates trust founded on good will and not reciprocity (Coleman, 1990; Putnam, 1993). On the other hand, trust in the context of formal collaboration or based on task, such as when a few colleagues collaborate on a project, is difficult to materialise. This is because the relationships are governed by formal agreement and structural protocol instead of friendship (Coleman, 1990; Putnam, 1993).

A third component of relational capital is co-operation. Contrary to collaboration, co-operation lies beyond the job roles of actors and it will either benefit them personally or not (Milton and Westphal, 2005). It refers to the social behaviour of an actor and his or her willingness to exchange information, ideas, or other resources, give assistance, discuss problems, and support or encourage the other party (Argyle, 1991; Milton and Westphal, 2005). One of the important conditions for co-operation is having a shared identity, for example when a team member recognises that he/she shares an identity with others in the same team, he/she will be more willing to co-operate (Wagner, 1995). In addition, there is a need to support co-operation among team members by overcoming negative attitudes and behaviour that result from differentiation and specialisation (Hauptman and Hirji, 1999). This is significant especially when people from different units and disciplines have to co-operate as it helps make it easier to get things done in the future.

A fourth element of relational capital is the concept of reciprocity. This implies that an actor has an obligation to help others (Nahapiet and Ghoshal, 1998), and according to Coleman (1990) and Putnam (1993), reciprocity can be divided into two types: specific reciprocity and diffuse reciprocity. Specific reciprocity refers to



an immediate exchange of items. It requires that a favour must be repaid by an actor simultaneously and the value must be at least equivalent to what has been received. On the other hand, diffuse reciprocity refers to an exchange of items that does not have to be synchronous, and where a favour can be repaid and balanced any time, and this tends to be seen more among actors with good relationships.

Fifthly, obligation is perceived as another element of relational capital. Obligation is a commitment to engage in future action (Coleman, 1990) and in order for this to be realised, frequent interaction is essential. However, in a project context, it can be argued that obligation to help others (for example tacit knowledge sharing) is not based on friendship or trust, but is instead governed by the roles that the team members must perform as their duty to accomplish the project's goals (Mayerson *et al.*, 1996). This means that the team members can gain the resources derived from the structural network of relationships instead of from interpersonal relationships (Inkpen and Tsang, 2005; Kostova and Roth, 2003). The consideration with relational capital is that trust and friendship require time, emotion, intensity, intimacy, and reciprocity to develop (Granovetter, 1985). Thus, due to the nature of organisational projects that are usually short term and one-off, it is a challenge for team members to develop relational capital.

A summary of the elements of the social capital dimensions discussed in section 2.2.3 is presented in Table 2-3.

**Table 2-3: Categories of Social Capital Dimensions**

<b>Dimensions</b>	<b>Category</b>	<b>Indicators</b>
Structural	Relationship or network such as business, information or research network.	Meeting and frequency of meeting Interaction such as discussions and brainstorming Meet members outside working hours
	Interaction	
	Position	
	Place/proximity	
Relational	Reciprocal trust	Reciprocity, emotional intensity, intimacy, commitment, and not taking advantage of others. Gratitude, reciprocity, respect, friendship, and willingness to be vulnerable
	Trustworthiness	
	Obligation	
	Reciprocity	
	Identification	
	Collaboration	
Cognitive	Shared visions	Understand the objective and mission
	Shared objectives	Avoid possible misunderstanding
	Shared norms	Common goal
	Shared language	Common understanding
	Shared narrative	Shared interest
	Shared culture	Story telling
		Jargons Codes

[Source: Compiled by author]

## 2.2.4 Benefits of Social Capital

The benefits of social capital in an organisation, as indicated by Cohen and Prusak (2001b, p.10) are outlined as follows:

- better knowledge sharing, as actors understand and share the same frames of reference and share the same objectives;
- lower transaction costs, as actors in the network trust each other and are willing to co-operate;
- lower turnover rates; and
- greater coherence of action, as actors in a stable network have the same understanding of the work.

## 2.3 KNOWLEDGE MANAGEMENT

The theory of knowledge management has been evolving over the last ten years and has passed through several phases (Earl, 2001), in which respect, Nicolas (2006) has delineated four as follows:

- Philosophical phase – this distinguishes between tacit and explicit types of knowledge;
- Technological phase – this codifies knowledge into systems and databases using advancements in information technology;
- Network phase - this relates trust in knowledge sharing; and
- Strategic-learning phase – this focuses on the impact of knowledge management on decision-making.

Nicolas (2006) argues that the new approach to knowledge management leverages knowledge through strategy and operations. The challenge in this new phase is how to capture and share critical knowledge, such as the skills and experience of organisational members, to fulfil the mission of the organisation (Fitchett, 1998). By capturing and sharing this newly-found knowledge, an organisation is able to leverage expertise and deploy it widely and economically (Nicolas, 2006). Thus,

organisations need employees who can learn, innovate, contribute, and increase benefits in the future in order to be competitive (Mayo, 1999). These employees are the main resource or capital because they have brainpower to create value. However, given the dynamic nature of knowledge and human beings, extracting these values is not as simple as it may sound, and the process must be strongly supported by the organisation (Brachos *et al.*, 2007; Cohen and Prusak, 2002; Smith, 2001) that should provide all the mechanisms necessary to encourage employees to work towards this specific goal.

### **2.3.1 Knowledge Management Process**

Knowledge is dynamic as it is created in social interaction among individuals, groups, and organisations (Nahapiet and Ghoshal, 1998; Nonaka *et al.*, 2000). Knowledge-based theory regards the firm as a dynamic entity and the human as a dynamic being who actively interacts with others and with the environment (Nonaka *et al.*, 2000). Additionally, it views the firm as a knowledge-creating entity and it also proposes that those organisations that are capable of creating and utilising knowledge, provide for themselves important sources of competitive advantage (Kogut and Zander, 1996; Nonaka *et al.*, 2000; Prahalad and Hamel, 1990; Winter, 1987). Nahapiet and Ghoshal (1998) contend that the exchange and combination of ideas among organisational members are important in creating new knowledge or intellectual capital. For instance, two individuals who have different knowledge may need to exchange their ideas and further combine them in performing their tasks, especially new tasks. Therefore, organisations must learn how to identify, manage, utilise, and leverage their knowledge assets to the fullest potential. The definition of knowledge management is presented in Table 2-4, and a description of knowledge and its dimensions follows.

**Table 2-4: Definition of Knowledge Management**

<b>Author</b>	<b>Definition</b>
Quintas <i>et al.</i> (1996)	Knowledge management is defined very broadly as encompassing any processes and practices concerned with the creation, acquisition, capture, sharing and use of knowledge, skills and expertise.
Wiig (1995)	Knowledge management is systematic, explicit, and purposely developing, renewing and applying knowledge to maximise an enterprise's knowledge-related effectiveness and its returns from its knowledge assets.
Alavi (2000)	Knowledge management refers to the harnessing of intellectual capital within an organisation.
Liebowitz and Megbolughe (2003)	Knowledge management refers to the process of creating values from an organisation's intangible assets.
Nicolas (2006)	Knowledge management is a "systematic process for creating, acquiring, disseminating, leveraging and using knowledge to retain competitive advantage and to achieve organisational objectives."

[Source: Compiled by author]

### **2.3.2 Defining Knowledge**

Many researchers have argued that it is difficult to distinguish between information, and knowledge (e.g., Alavi and Leidner, 2001; Bartol and Srivastava, 2002; Sternmark, 2002). Sternmark (2002) suggests that the difference between information and knowledge is based on its attributes. Information can be made tangible and represented as an object, whilst knowledge is intangible and resides in the human mind (Szulanski, 1996). Although great efforts have been made to distinguish information from knowledge, the distinction is still unclear (Alavi and Leidner, 1999), and the lack of consensus on precise definitions of these terms causes knowledge and information to be used interchangeably (Bartol and Srivastava, 2002; Sternmark, 2002). Although, the discussion will focus more on knowledge, a better understanding of the major differences between the concepts of data, information, and knowledge can be gained from Table 2-5.

**Table 2-5: Definition of Data, Information, and Knowledge**

Author(s)	Data	Information	Knowledge
Wiig (1993)	-	Facts organised to describe a situation or condition	Truths and beliefs, perspectives and concepts, judgements and expectations, methodologies and know-how
Nonaka and Takeuchi (1995)	-	A flow of meaningful messages	Commitments and beliefs created from these messages
Spek and Spijkervet (1997)	Not yet interpreted symbols	Data with meaning	The ability to assign meaning
Davenport (1997)	Simple observations	Data with relevance and purpose	Valuable information from the human mind
Davenport and Prusak (1998)	A set of discrete facts	A message meant to change the receiver's perception	Experiences, values, insights, and contextual information
Quigley and Debons (1999)	Text that does not answer questions to a particular problems	Text that answers the questions who, when, what, or where	Text that answers the questions why and how
Choo et al. (2000)	Facts and messages	Data vested with meanings	Justified, true beliefs

Source: Adapted from Sternmark (2002)

Knowledge is an asset for an organisation and comprises markets, products, processes and technologies (Natarajan and Shekhar, 2001). According to Senge *et al.* (1999, p.421), knowledge refers to "the capacity for effective action". It is closely related to human skills, aspirations, hopes, intention and emotion (von Krogh *et al.*, 2000). Davenport and Prusak (1998) defined knowledge as a dynamic mix of experiences, expert insights, unique know-how, important values, and situational information regarding organisational processes. It originates, and is applied, in the minds of knowers. They further added that in organisations, it often becomes

embedded not only in documents or repositories but also in organisational routines, processes, practices, and norms. Tsoukas (1996) and Blackler (1995) defined organisational knowledge as socially constructed, contextualised, and dynamic.

However, many researchers have come to the view that collective knowledge emerges from the interaction and dialogue among the members of a community or an organisation (Wenger and Snyder, 2000). In addition, Nonaka (1994) suggests that knowledge is created when individuals interact among themselves or with the environment. Therefore, it requires a specific context and depends on a particular time and space (Cohen and Prusak, 2001b; Fahey and Prusak, 1998; Nonaka *et al.*, 2000). Nonaka *et al.* (2001) stated that shared time and space, which they termed as 'Ba', are pertinent for the development of relationships among individuals and groups to create knowledge. This is supported by Cohen and Prusak (2001b) who contend that place and time are two important elements that must be provided by the organisation to nurture the relationship or social capital among the organisational members. Raza, Kausar, and Paul (2007) further elaborated space as physical (e.g. office), virtual (email and teleconferencing), mental (shared experience and ideas) or any combination of these, for example employees working on a particular organisational project.

### **2.3.2.1 Dimensions of Knowledge**

Organisations need to understand the dimensions of knowledge before they can fully utilise these assets in order to be at the forefront of the business. However, the establishment of the distinctions in organisational knowledge is still debateable. Researchers have extended organisational theory to a taxonomic distinction of organisational knowledge according to how well it can be articulated (e.g., Kogut and Zander, 1992; Nonaka and Takeuchi, 1995; Szulanski, 1996). The two dimensions are "degree of articulation and degree of aggregation" (Blackler, 1995; Lam, 2000; Nonaka and Takeuchi, 1995; Spender, 1996), or in other words, tacit and explicit.

## *Explicit Knowledge and Tacit Knowledge*

Explicit knowledge refers to knowledge that can be codified (Nonaka and Takeuchi, 1995; Zack, 1999a), re-used (Markus, 2001), and can be readily shared for example through e-mail or internet. Such knowledge takes the form of documents, reports, white papers, catalogues, presentations, patents, formulas, Standard Operating Procedures (SOP), blueprints, etc. Hence, it lends itself to easy transmission across individuals, formally and systematically.

On the other hand, tacit knowledge differs from explicit knowledge in terms of its “know-how” and its difficulty to be documented or codified (Kogut and Zander, 1992; Nonaka, 1991; Nonaka and Takeuchi, 1995). Polanyi (1967, p. 336) describes tacit knowledge as “we can know more than we can tell” or “power to know more than we can tell”. Tacit knowledge also includes intuitions, perspectives, beliefs, and values that people form because of their experience (Saint-Onge, 1996). It is also embedded in people, organisations, and their networks (Charminade and Roberts, 2002).

Other researchers have further elaborated the work of the pioneers of knowledge. Boiral (2002), for instance, characterised tacit knowledge as personal and informal in practice and therefore, it is not only difficult to codify and communicate, but requires action, commitment and involvement for it to be operationalised. It is experienced-based and embedded in a reciprocal task structure (Hsiao *et al.*, 2002). In addition, it also requires the transmission of a network of relationships between actors (O’Dell and Grayson, 1998). Rosenberg (1982, p. 143) limited the definition of tacit knowledge to technology companies as “the knowledge of techniques, methods and design that work in certain ways and with certain consequences, even when one cannot explain exactly why.”



It has been widely discussed and debated that companies can create superior knowledge management capabilities by internally spreading tacit knowledge and thereby fostering ongoing innovation (Lubit, 2001). However, due to its stickiness in nature (Szulanski, 1996), tacit knowledge is harder to acquire; individuals can only obtain it from direct experience (Polanyi, 1966). In addition, since tacit knowledge is personal and context-specific, it cannot easily be articulated; hence it is difficult to acquire or transfer in explicit forms (Badaracco, 1991; Prahalad and Hamel, 1990; Swan *et al.*, 1999, p. 270). Thus, those who are in the same context or have similar experience, such as people working together on a project, will have an advantage in understanding the tacit knowledge shared.

Although Nonaka (1994) has warned management scholars that measuring tacit knowledge is a 'risky proposition', there are still attempts to operationalise it (Castillo, 2002). According to Swan *et al.* (1999), it is useless and ineffective to codify tacit knowledge to explicit knowledge as this will create redundant knowledge, irrelevant to some people, or inaccurate. Despite these warnings, researchers have used different views in an attempt to quantify tacit knowledge. For example, Ambrosini and Bowman (2001) try to operationalise tacit knowledge by redefining it as objective knowledge or tacit skills through a resource-based view. They argue that knowledge is objective and, therefore, it can be communicable, written down, encoded, explained, and understood. Interestingly, the psychological school of thought sees the concept of tacit knowledge as something that is unambiguous and relatively well-defined (Castillo, 2002). According to Castillo (2002), among psychologists, tacit knowledge is a concept that has been successfully and repeatedly quantified. For example, Sternberg (1997) has designed a Practical Intelligence questionnaire and uses a Likert Scale for a sequence of scenarios in which respondents are asked to pick a rank to measure tacit knowledge.

However, what is more important is the advantage of tacit knowledge compared to explicit knowledge. It is widely accepted that tacit knowledge has been very important since it can form the basis for inimitable competitive advantage whenever

it can be spread within a firm but still be very difficult for other firms to copy (Amit and Schoemaker, 1993; Barney, 1991; Grant, 1996).

### 2.3.2.2 Knowledge Sharing

The literature suggests that it is tacit knowledge that will determine to what extent companies will be competitive in a turbulent or global market (Nonaka and Takeuchi, 1995; Spender and Grant, 1996). Anand *et al.* (1998) concluded that one of the least understood aspects of knowledge management systems is tacit knowledge and how it can be meaningfully shared and reapplied. According to Linde (2001), in knowledge management, tacit knowledge is frequently used to describe any form of non-quantifiable knowledge, particularly knowledge about social interactions, social practices and more generally how a group or institution gets things done. Thus, Smith (2001) argued that management must support efforts to gather, sort, transform, record and share this priceless knowledge because tacit knowledge will be lost if it is not shared.

Following this, knowledge sharing has become pivotal in organisational activity involving creating, extracting and sharing knowledge. Companies have been inventing many ways to make knowledge sharing happen so that teams and individuals are allowed to more quickly develop solutions to difficult problems, reduce duplication of effort and create new, innovative solutions through collaboration (Dixon 2002). Firms have also increasingly relied on building and creating shared knowledge among individuals in order to solve problems and find innovative solutions (Davenport *et al.*, 1996; Kogut and Zander, 1992; Winter, 1987). There is no doubt that knowledge sharing plays an important role in sustaining advantages. However, many organisations have relied too much on information technology to drive knowledge sharing amongst employees (Li and Ye, 1999), despite the fact that research consistently demonstrates that this approach is less effective (McDermont, 1999). Technical applications are usually not very effective tools for supporting knowledge sharing especially tacit knowledge.

### *Definition of Knowledge Sharing*

After nearly a decade, the definition of knowledge sharing has evolved from mere sharing of explicit knowledge to sharing of tacit knowledge with the involvement of human and social capital. Natarajan and Shekhar (2001, p. 29-30) defined knowledge sharing as knowledge acquisition which entails the process of acquiring knowledge in existing documents and human repositories, and identifying external sources such as technology expertise or market intelligence. Dyer and Nobeoka (2000) further refined this definition by involving the human factor as one of the elements. They defined knowledge sharing as the activities of helping communities of people work together, facilitating the exchange of their knowledge, enabling a learning orientation, and increasing the ability to achieve individual and organisational goals. Storey (2001) defined knowledge sharing as the exchange of ideas and information among people who share a common purpose and experience similar problems. Van den Hooff and de Ridder (2004) further elaborated that knowledge sharing is a process where individuals mutually exchange their knowledge and jointly create new knowledge. Recently, De Vries *et al.* (2006) have further articulated the definition of knowledge sharing by differentiating it as knowledge donating (i.e., communicating one's personal intellectual capital to others) and knowledge collecting (i.e., consulting others to get them to share their intellectual capital). Following Storey (2001), knowledge sharing is defined in this study as a process of acquiring and disseminating knowledge that requires participation and consultation of the team members to achieve common goals.

The sharing of tacit knowledge among employees is one of several processes within organisations that is a key to leveraging its most valuable asset (Jarvenpaa and Staple, 2000; Nahapiet and Ghoshal, 1998; Wasko and Faraj, 2000). There are two distinct ways to share knowledge across organisations: through direct contact such as those working for a specific task by phone, e-mail, or meetings; and through written documents, which may be available in paper or electric format (Haas and Hansen, 2007; Hansen and Haas, 2001; Hansen, 2003; Tsai, 2001).

Previous studies (e.g., Bock and Kim, 2002; Connelly and Kelloway, 2003) have identified factors affecting knowledge sharing ranging from 'social' issues to employee characteristics. Since tacit knowledge is embedded in the human mind and is context specific, it can be shared when employees work together, for example, in an organisational project. As sharing tacit knowledge requires direct experience (Polanyi, 1966), the actors must have frequent interaction, since through discussion and brainstorming, for instance, they can disseminate and acquire tacit knowledge. In addition, Scarbrough and Swan (2001) suggest that other important elements in the facilitation of knowledge sharing among the community, are norms, reciprocity and trust. However, although the benefits of knowledge sharing for competitive advantage are obvious, Winter (1987) has expressed his concern that once the knowledge is codified and articulated, the organisation risks the knowledge being imitated outside the organisation, and thereby potentially damaging its competitive advantage.

## **2.4 CRITICISM OF SOCIAL CAPITAL LITERATURE**

The literature perceives tacit knowledge as an activity, which is associated with the need to manage knowledge, yet has also been shown that social capital is an important element of knowledge sharing. Therefore, it is expected that social capital is a mechanism for approaching tacit knowledge sharing. Interestingly, as tacit knowledge is a direct outcome of social capital, both need time and place, to develop and nurture. Based on the review presented in the above section, the main criticisms are:

1. Despite the abundance of research on social capital, the dimensions of social capital are still difficult to distinguish as these are overlapping (Inkpen and Tsang, 2005; Nahapiet and Ghoshal, 1998). When discussing network structure, especially the closure and strengths of the network, there is a tendency to include elements of relational capital such as trust, obligation, and reciprocity. One of the reasons might be due to relational capital being embedded in structural capital (Tsai and Ghoshal, 1998), thus, any unclear

distinction on the dimensions of social capital may lead to confusion and perhaps misunderstanding of its effects.

2. Leana and van Buren (1999) argue that in order to find useful constructs for social capital, it must be operationalised, meaning that it must be empirically researched so as to achieve the indicators. It must begin with refining the components and developing specific measures and indicators.
3. Although recently, researchers have argued that the dimensions of social capital are integrated (Inkpen and Tsang, 2005; Nahapiet and Ghoshal, 1998), none of the researchers has either theoretically or empirically shown a firm linkage between these dimensions. Cognitive capital does not always require personal relationship or relational capital to develop (Inkpen and Tsang, 2005). Therefore, it is argued that cognitive capital could be developed when the actors have common goals to achieve. For example, when organisational members work in a team, they must understand the goals of the projects, have collective thinking, and pursue shared objectives in their attempts to accomplish project success. Additionally, through interaction in meetings, they may also develop shared language and shared understanding.

A summary of the research gaps and the research objectives formulated to address these is presented in Table 2-6.

**Table 2-6: Research Gaps and Objectives**

Research gaps	Research Objectives
Need to empirically refine the dimensions of social capital and develop specific indicators for social capital (Leana and van Buren, 1999).	To further define social capital dimensions and identify categories and items under each of the dimensions.
Failed to provide adequate empirical evidence on how the interaction of social capital dimensions affects the network actors (project members) in sharing tacit knowledge.	To determine significant categories and items of social capital for tacit knowledge sharing.  To determine fostering and hindering factors of social capital for tacit knowledge sharing.
Need for future research to examine the interrelationship amongst social capital dimensions (Chiu, Hsu, and Wang, 2006).	To identify the most influential dimension of social capital in fostering the sharing of tacit knowledge.
<p>Researchers have argued that the dimensions of social capital are integrated (Inkpen and Tsang, 2005; Nahapiet and Ghoshal, 1998), but none of the researchers has either theoretically or empirically shown a firm linkage between these dimensions.</p>	

The next section will discuss the effect of social capital and knowledge sharing in a project environment.

## 2.5 SOCIAL CAPITAL AND TACIT KNOWLEDGE SHARING IN A PROJECT CONTEXT

According to von Krogh *et al.* (2000), tacit knowledge cannot be easily passed to others because it is bound to the senses, personal experience, and gesture. Thus, the use of information technology is seen as a poor vehicle for tacit knowledge dissemination (Nonaka and Takeuchi, 1995). It is evident that the transfer of tacit knowledge requires sharing through socialisation, physical proximity, and good relationships (von Krogh *et al.*, 2000, p.93). Since knowledge creation and sharing involve human capital, these activities are very much social in nature. Hence, an

understanding of the social relationships among the individuals in the partnership, as well as trust and effective communication, are required (Parise and Sasson, 2002). It is also necessary for there to be shared meanings among a network so that members feel comfortable about sharing resources and knowledge (Inkpen and Tsang, 2005). This conceptualisation seems to map onto the three dimensions of social capital indicated earlier.

Athanassiou and Maznevski (2002) found that social networks provide the vehicle for the indirect transfer of tacit knowledge, in their study on multinational firms. Social networks seem to be well suited to knowledge sharing (Boland and Tenkasi, 1995; Leonard, 1998; Prusak, 1997; von Krogh, 1998). Davenport (1995, p. 32) emphasised the relevance of social interaction in the creation of new knowledge. He further emphasised that for knowledge sharing to be successful, it must not involve computers or documents, but rather should be based on interaction between people. This hidden knowledge, which is not available in explicit forms, is embedded in the firm's routines, human skills, and relationships (Nelson and Winter, 1982; Zander and Kogut, 1995) and thus, is hard for competitors to imitate (Amit and Shoemaker, 1993; Barney, 1991; Szulanski, 1996).

However, tacit knowledge can also be absorbed by others through the time-honoured social relationships of apprenticeship and collaboration (Mascitelli, 2000). Hall and Andriani (2003) describe socialisation as a process of communicating and enhancing tacit knowledge through imitation and observation; the transmission of tacit knowledge usually requires frequent physical proximity, and then the development of trust. A lack of trust among peers is often highlighted as an obstacle to knowledge sharing (Davenport and Prusak, 1998; Dixon, 1999). However, the effect of trust is impulsive as it is able not only to encourage and reward knowledge sharing but also to discourage and penalise knowledge hoarding (Clarke and Rollo, 2001).

For social capital and knowledge sharing to take place, an organisation should encourage activities that emphasise interactions such as discussions, frequent meetings, developing personal networks, work groups, developing more routines, and dealing with the defensive mechanisms that impede communication, and making knowledge sharing more explicit (Lubit, 2001; Mascitelli, 2000). Organisations must also create a culture that emphasises the importance of knowledge management in stimulating knowledge sharing. Moreover, in solving complex unstructured problems, knowledge sharing requires the emergence and maintenance of contexts with many similarities, such as people working in a group; otherwise, problem solvers cannot obtain verification of similarities in understanding (Augier *et al.*, 2001). For instance, when working in a group, not only is tacit knowledge shared, but the mixing of tacit knowledge also often leads to new insights and innovations (Lubit, 2001).

Working in a group such as a project team requires the project managers to develop appropriate methods of knowledge sharing (Ferne *et al.*, 2003). Project teams are structured networks in which roles are clearly defined and common goals are clearly stated with deadlines (Inkpen and Tsang, 2005; Koskinen *et al.*, 2003). Moreover, projects themselves are usually temporary and unique in nature (Yu, Flett, and Bowers, 2005), and the team members are often brought together from diverse areas of expertise and different departments or subsidiaries (Koskinen *et al.*, 2003). Thus, the development and nurturing of social capital within a project team is crucial (Love *et al.*, 2003).

Newell *et al.* (2004) found that social capital plays a key role in shaping the level of co-ordination that influences efficiency and the knowledge integration in cross-functional project implementation. Social capital theory suggests that co-ordination and co-operation happen when the project members gain an advantage from their prior involvement with certain specialists; when the members meet informally frequently; when they have in-depth knowledge about the project; when they have high positions in the hierarchy; when they are physically in proximity; when organisational members trust each other; and when project members understand the objective and ultimate aim of the project (Nahapiet and Ghoshal, 1998; Tsai and



Ghoshal, 1998). Consequently, social capital is more likely to develop in a collective characterised by a history of frequent interactions, shared history, and closed structures (Nahapiet and Ghoshal, 1998; Nohria and Eccles, 1992). Importantly, interaction and communication among the team members contributes to the possibility of sharing knowledge and enhances the dissemination and acquisition of knowledge internally and externally to the project (Hislop *et al.*, 2000; Koskinen *et al.*, 2003; Scarbrough *et al.*, 2004).

Researchers (e.g., Inkpen and Tsang, 2005; Kostova and Roth, 2003) have argued that team members of a project can gain the resources derived from the structural network of relationships without having to develop their own personal relationships. However, those who have previous interpersonal relationships will benefit in the future relationship (Inkpen and Tsang, 2005; Nahapiet and Ghoshal, 1998). Inkpen and Tsang (2005) further argued that if the network is highly unstable (such as in a project context), the opportunity for the development of social capital may be limited since, upon completion of a project, ties might disappear.

## 2.6 CONCLUSION

In summary, the literature reviewed underlines the importance of social capital for organisations in a constantly challenging world. The literature suggests it is important to recognise that social capital is a priceless asset to the organisation. Thus, it should be manipulated with the aim of achieving benefits. Firstly, in order to establish and fully utilise the benefits of social capital, the dimensions of social capital need to be recognised as well as distinguished. Social capital entails three dimensions, structural, cognitive, and relational, each of which has different consequences even though it is intertwined with the other two. Secondly, it is important to understand the different forms and levels of social interactions embedded in the relationship between individuals: some are formal and some are informal. The form helps to identify the level and strength of the social capital someone possesses. It should also be noted that social capital is not a one-person

entity; it is shared between individuals, and thus although it is an asset, it cannot be transferred or sold.

The second part of this review emphasises the importance of knowledge management in an organisation, with particular attention to tacit knowledge sharing. The literature on knowledge management highlights the importance of distinguishing between explicit and tacit knowledge, especially concerning knowledge sharing. Overall, the chapter serves as a foundation for the empirical work of this study. Having identified the complexity of social capital and tacit knowledge sharing, grounded theory will be utilised to analyse the data because the approach provides rich and meaningful data as well as contributing to a wider understanding of the processes of social capital and tacit knowledge sharing (Strauss and Corbin, 1990). In the next chapter, the methodology adopted for the present study will be discussed.

## CHAPTER 3

### RESEARCH METHODOLOGY

#### 3.0 INTRODUCTION

This chapter discusses the methodology and approach adopted in this thesis. The discussions encompass the design of the research, and provide a justification for the selection of a grounded theory approach for the study. The process of data collection, coding and analysis, is also presented, and the interpretation of the findings is discussed.

#### 3.1 RESEARCH PARADIGM

The research paradigm chosen for a particular study, enables a researcher to select a research design and decide the methods of inquiry in conducting the research. This business of selecting the methodology is not only influenced by the objective(s) of the study, nature of the research problems, and theoretical framework, but also by the ontology and epistemology that inform the study (Zalan and Lewis, 2004). In order to choose the paradigm, the objective of the researcher and the nature of the research need to be clearly identified. Specifically, the present study intends to understand *how social capital is developed and how it fosters tacit knowledge sharing among team members in organisational projects*, through discovering the reality of social capital and the knowledge sharing process in Malaysian ICT companies. The research focuses on exploring and explaining how social capital develops, identifying the categories and items under social capital dimensions that affect knowledge sharing among the team members, identifying significant factors that foster or hinder tacit knowledge sharing among team members in an organisational project, and identifying the most influential dimensions of social capital in knowledge sharing in the Malaysian context. The effort

is made because, although social capital and knowledge sharing models have been applied in the West, they cannot fully explain the phenomena in different cultural settings, and Malaysia has certain practices, values, beliefs, and politics that differ from Western environments (Othman, *et al.*, 2006). The intention of the study is to investigate social capital and knowledge sharing within five project teams that worked in three ICT companies in Malaysia.

It should be noted that the researcher's selected paradigm should be appropriate for the nature of the research problem. In this respect, Strauss and Corbin (1998) considered the nature of the research topic to underpin the choice of a particular paradigm, stating that:

*“Qualitative methods can be used to explore substantive areas about which little is known or about which much is known to gain novel understandings (Stern, 1980). In addition, qualitative methods can be used to obtain the intricate details about phenomena such as feelings, thought processes, and emotions that are difficult to extract or learn about through more conventional research methods.”*

(Strauss and Corbin, 1998, p. 11)

The assumptions about methodology, as well as the nature of the study, require the researcher to explain and understand what is unique and particular about social capital and knowledge sharing among the team members of organisational projects. Hence, the research will be based on the presumption that knowledge is something personal and unique in nature and must be personally experienced. As social capital and knowledge sharing, particularly tacit knowledge sharing, are intangible, it is necessary for the researcher to be involved contextually in order to understand them. The aim is to understand and explain team members' behaviour and their activities (Denzin and Lincoln, 2005, p. 24), and in turn come to appreciate their feelings, attitudes, meanings, values, and beliefs (Cavana *et al.*, 2001).

In addition, the need for in-depth knowledge about the actual practices and interactions between organisational processes is essential in order to provide rich explanations and hence, enable the production of an effective and informative study. Lye *et al.* (1997) suggest that in order to provide rich explanations, the research method must not attempt to ignore or simplify the complexities of the context that control the phenomena under investigation, but should instead, clarify them. Thus, qualitative data collected in close proximity to a specific context are more suitable because they can be a source of well grounded explanations of processes occurring in their local context (Miles and Huberman, 1994). Since, the findings will be drawn upon the participants' experience and interpretation, the paradigm that is most suitable for this study is that of interpretivism (Orlikowski and Boroudi, 1991).

The interpretive paradigm works from the assumption that "the world is socially constructed and subjective" (Ticehurst and Veal, 2000, p. 20). This approach argues that it is not adequate to rely solely on objective measures and describe phenomena by quantifiable observation such as theory testing using deductive logic to reason (Cavana *et al.*, 2001; Easterby-Smith *et al.*, 2002; Ticehurst and Veal, 2000). Instead "the subjective meanings and social context of an individual's words or deeds must be examined more deeply" (Rubin and Babbie, 2001, p.35). The rationale is to understand the structure of the phenomena in detail and thus, any observation from the setting can be used to inform other settings (Cooper and Schindler, 2001). As this study intends to induce ideas for theory building, qualitative research methods like field work, are most suited (Orlikowski and Boroudi, 1991).

### **3.1.1 Selecting a Research Design**

A researcher needs to have a research design to follow in the collection and analysis of the data obtained from empirical work (Denzin and Lincoln, 2005, p. 25). This research design is basically a plan, a framework, or specifically a blueprint to be used as a

guideline in collecting and analysing the data (Churchill, 1979). Based on the justification in the previous section, the qualitative approach is the most suited methodology for the present study.

### **Qualitative Methodology**

Qualitative methodology provides powerful tools for research in management and business administration; however, it is only used to a limited degree. The methods derive from multiple disciplines and from diverse traditions. Those traditions are ethnography, case study, and grounded theory, and they utilise particular methods such as focus groups, observations, and in-depth interviews (Crabtree and Miller, 1999, p. 340).

According to Ezzy (2001, p.294), qualitative research involves methods which “focus on the interpretation” and it allows a researcher “to examine the way people think and act”. Ezzy also suggests that an interpretation of the interview is subjective because it may be affected by the place, time, people, and circumstances of the interview. For example, when the interview is conducted by someone else in a different setting, the response might be different. However, he further added that what is more important and makes research more rigorous is not what is said, but rather how the interpretation is generated, and how the research findings reflect the particular social context.

Qualitative research seeks the meaning and motivation behind behaviour as well as a thorough account of behavioural facts and implications, via the researcher’s encounter with people’s own actions, words, and ideas (Mariampolski, 2001, p. 1). According to Dey (1993, p. 14), it is often presented as ‘richer’ and ‘more valid’ than quantitative data and is frequently dismissed as ‘too subjective’ because assessments are not made in terms of established standards. Besides its data richness, the strength of qualitative research is that it is known as the ‘best strategy for discovery, exploring a new area,

developing hypotheses' (Miles and Huberman, 1994, p.10). However, the goal of qualitative research is not to produce generalisations, but rather in-depth understandings and knowledge of particular phenomena (Leininger, 1994).

In the areas of knowledge management and social capital, researchers have used various approaches in conducting their research. Most authors have preferred to use qualitative study such as interviews (e.g., Bresnen *et al.*, 2003; Edelman *et al.*, 2004; Li, 2005) in conducting knowledge management research, especially when the study deals with human beings and processes. Hammersley (1992, p.125) argues that qualitative research is the most appropriate to study processes such as social capital and knowledge sharing. However, a thorough analysis of this particular process will require the researchers to use personal observation that results from the presence, participation, or even intervention in the process being examined.

As mentioned earlier, the principal aim of this study is to explore how members of a project team develop social capital and their experience in knowledge sharing. Hence, a methodology that allows that aim to be achieved is required. Consequently, an in-depth study using a qualitative approach is employed as the means to tap team members' personal and subjective meanings regarding social capital and knowledge sharing.

### **3.1.2 Selecting a Research Methodology**

In qualitative research, there are several research strategy for data collection such as case studies, phenomenology, ethnomethodology, biography, and autoethnography, as well as historical, action, clinical, and grounded theory methods (Denzin and Lincoln, 2005, p. 25). This study employs grounded theory and the next section introduces this approach.

### 3.1.2.1 Grounded Theory

The grounded theory approach has been justified by reference to the research objectives. It is important to understand that this approach not only facilitates an in-depth investigation of the phenomena being studied, but also allows for theory-building based on real data, which is its main purpose. This is particularly important since as already mentioned, models that have been formulated and applied in Western work environments cannot fully explain the phenomena in different cultural settings (Othman *et al.*, 2006). Strauss and Corbin also emphasised that:

*“... if a foreign student is studying here but wishes to collect data in his or her own country, then most certainly he or she can use this method or other qualitative methods. It is important that other countries not borrow theories but instead develop their own, ones that reflect their societies’ or citizens’ cultures and behaviours.”*

(Strauss and Corbin, 1998, p.287)

It is hoped that by adopting the grounded theory approach, the analysis can offer better insights as well as new explanatory constructs or themes for social capital (Edelman *et al.*, 2004) in knowledge sharing, particularly in Malaysian ICT companies. This is in line with Tesch (1990) who suggests that for identification of elements or dimensions, and exploration of their connection, grounded theory can be utilised. The grounded theory approach can help a researcher to explore social capital development among the team members because it focuses on the context and process of the phenomena as well as the action of the subjects under study (Orlikowski and Baroudi, 1991).

Grounded theory has several important advantages for this study over other qualitative methods. For example, it utilises a systematic method of analysis whereas other qualitative methods often rely upon the application of general principles (Dey, 1999). Thus, their application and interpretation are more difficult to make. Strauss and Corbin



(1990) argue that apart from being well documented, grounded theory has been used systematically in studies since the 1960s. Another advantage of grounded theory is that the data determine the theory and the findings, which being based on real data, are detailed and specific or particular to the phenomena studied (Eisenhardt, 1989). Thus, the adoption of this approach may contribute to a wider understanding of the process of social capital development in a project context and the role of team members in the knowledge sharing process. In addition, the only research method that was declared qualitative but that developed by using both qualitative and quantitative perspectives, was grounded theory (Glaser and Strauss, 1967; Leininger, 1994).

Most importantly, several features or techniques of the grounded theory approach that are distinctive from other qualitative methods are theoretical sampling, theoretical sensitivity, constant comparative analysis, and theoretical saturation (Strauss and Corbin, 1998, 1990; Glaser and Strauss, 1967). Theoretical sampling is different from traditional sampling since it is not planned before the actual data collection, and instead requires the researcher's judgment following the analysis of the most recent set of data, which dictates what data to collect next and where. Theoretical sensitivity is a capability of researchers to think about the data in theoretical terms (gained through knowledge of the literature related to the phenomena, experience of the phenomena, assumptions that everyone's experience is different) and their interaction with the data on a continual basis during the research process. Meanwhile, constant comparative analysis is a process of constantly asking questions, generating propositions, and making comparisons between incidents and with literature reviews during the analysis of data so that the data are grouped into categories for the emergence of a new theory (Strauss and Corbin, 1998). The data collection will only be ceased when saturation occurs - the most recent interviews and field notes do not seem to make any substantial contribution to the model generated on the basis of earlier data (Glaser, 1978).

### 3.1.2.2 Strengths of Grounded Theory Methodology

In general, the greatest strength of the grounded theory method is its relevance for studying areas in which little research or theory has been done or developed (Stern, 1987). According to Wells (1995), grounded theory has great appeal because it is based on an acceptance of the complexity of social life. In the context of the present study, the benefit of a grounded theory approach is that it provides an opportunity for a different perspective about the process of social capital and knowledge sharing. It also increases the chances for the people working in the field (e.g., project managers) to understand and apply the outcomes of the resulting theory in their working life.

In grounded theory, the researcher can see as much diversity as possible in response to the interviewees during data collection and analysis. One of the reasons is that interviewees in grounded theory studies are selected in natural sequence and context without a pre-established sample size. This is contrary to quantitative study, which is designed for a pre-planned boundary of sample size. Although, the research interviewees are not pre-selected, they should have experience of the same circumstances, events, and social process under investigation (LoBiondo-Wood and Harber, 1998). Following this suggestion, the present study chooses only members of teams that worked on the same organisational projects, as its interviewees. Hence, the utilisation of the grounded theory approach in the study will contribute to a wider understanding of the process of social capital and knowledge sharing, particularly in ICT companies in Malaysia.

Another important feature in grounded theory is the theoretical sampling process which aims at discovering variations among concepts and categories in terms of their properties and dimensions. This procedure requires the present study to look for different settings, people, incidents or events, in order to achieve saturation and increase the diversity of data. Upon comparing the data from the interviews, observation, field

notes, and literatures (social capital, knowledge sharing, and project management), the researcher decided to collect data from a small company in order to increase the so-called external validity (generalisation) of the phenomena under study (Chenitz and Swanson, 1986).

The rigorous procedures in the process and the logic of the grounded theory method are aimed at theory development. A number of authors agree that grounded theory research has its strength in reporting sufficient details to the readers (e.g., Dey, 1999; LoBiondo-Wood and Harber, 1998; Strauss and Corbin, 1994). As Glaser and Strauss (1967) put it, any theory so developed has to be clear and the interviewees' social world must be so vivid that the readers can almost literally see and hear its people.

### **3.1.2.3 Criticisms of Grounded Theory Methodology**

Theoretical sampling aims to discover variations among concepts and to enrich the categories in terms of their properties and dimensions. However, in using grounded theory methodology, certain matters related to the number of interviewees, incidents, or events are not entirely known prior to the study (Stern, 1985). Thus, this study could be time-consuming and labour-intensive.

Another problem is how to cope with a large amount of data. Unfortunately, neither of the grounded theory pioneers, Glaser or Strauss, illustrates how to cope with a large amount of data or how to start the analysis. Although, computer-based support can help when working with a large amount of data, software packages such as NVivo and Nu*Dist can only constitute the management and organisation of data, and do not provide any analysis (Dreher, 1994, p. 287). In addition, the researcher cannot fully immerse himself or herself in the data if it is computerised and this might result in a loss of creativity (Glaser, 1998).

It is still debatable whether to undertake a comprehensive literature review prior to data collection, as this may increase the chance of researcher bias which may cause a premature closure of ideas, and may lead to phenomena being interpreted inadequately (Stern, 1985). In addition, "preordained theoretical perspectives or propositions may bias and limit the findings" (Eisenhardt, 1989, p.536). In response to this, Goldkuhl and Cronholm (2003) have stressed their concern about the reluctance of grounded theory researchers to bring in established theories. They were of the opinion that this implies a loss of knowledge. They justify that the use of pre-existing theories in certain stages of theory development is necessary as it may give inspiration and perhaps also challenge some of the distinctions made. Hence, the obvious risk of knowledge violation cannot be avoided.

#### **3.1.2.4 Criteria for Judging Grounded Theory**

Four criteria are provided by Glaser and Strauss (1967) and Glaser (1978) when judging grounded theory research: fit, relevance, workability, and modifiability. The theory should explain what has happened, predict what will happen, and interpret what will happen. That is, it should fit the reality of the area under study. As the theory represents reality, it should be understandable (have relevance) to the people who were studied. The theory should be general enough to make it applicable (workability) to all contexts related to the concept. Lastly, the theory should achieve modifiability so that emerging categories can be modified according to the data as the research continues.

### **3.2 DATA COLLECTION**

Following the discussion in the previous section about the methodological issues, and strengths and weaknesses of grounded theory, the process of data collection, coding and analysis associated with the present study will now be described. For data gathering, the study uses unstructured and semi-structured interviews, observation of project teams in

their meetings and at work-sites, and a review of documentation concerning the projects. The main analysis uses a systematic grounded theory approach which emphasises the coding process and the iterative nature of grounded theory research, as the emergent theory develops. Subsequently, the frequencies count based on the selective coding is discussed.

### **3.2.1 Prior to Data Collection**

The ICT industry is chosen because due to technological advancement, it is the fastest growing and changing industry in the world. Firms in this industry are constantly changing and need innovative personnel (Eisenhardt, 1989). Hence, knowledge is considered the most important asset in ensuring the success of these companies. In addition, these firms are project-based. Before the actual data collection, the researcher went to Malaysia in September 2003 for a month to discover the current issues in Malaysia, and at the same time to build relationships with the companies. On-site observations were made in 6 ICT companies. These initial on-site visits had a threefold purpose, that being, to become familiar with the social settings, to build a network with them, and to better understand the organisational culture, structure, and technology.

Four out of six companies that were approached had verbally given their consent and recommended the researcher to come after they had finalised their annual reports preparation which was in February 2004. Two companies suggested that March would be a better time because January and February are busy months in Malaysia due to school starting times, and a large number of festivals, meaning that many people would be on leave and thus unavailable to participate.

In early February 2004, therefore, two letters were sent to the companies: one a letter of support from the researcher's supervisor, and the other from the researcher explaining the research objective, proposed method of data collection, and the contribution of this study to them (see Appendices A and B). Two of the companies rejected the invitation

to participate on the grounds of being too busy. Through a friend, the researcher tried to contact the CEO of one large ICT company herself, but whilst the CEO was willing for the organisation to be involved, the Head of Human Resources refused to participate because he felt that the staff were too busy. From this event, the researcher came to appreciate two important aspects of the research process, those being firstly, that it is not necessarily the most senior person in the organisation who provides the research opportunity, but rather the 'gate keeper'; and secondly, that networking is important in order to gain access.

### **3.2.2 Process of Actual Data Collection**

#### **3.2.2.1 Setting of the Study**

Abdulai (2001) has stated that the influence of a knowledge-based economy can be seen in the way Malaysia produces goods and services and in the utilisation of labour and capital. He further added that knowledge workers' ideas and new discoveries are the most valuable assets for organisations to acquire through experience and formal learning. Within the context of this research, knowledge workers are defined as people who create and disseminate knowledge and information in the organisation. These people make their living by accessing, creating and using information in ways that add value to an enterprise and its stakeholders (Tymon and Stumpf, 2003). As all projects included in the study involved creating new solutions for internal and external purposes, the group of people chosen to be the team members must possess necessary knowledge, mostly tacit, in completing the projects. Thus, they are knowledge workers.

Additionally, it is essential that if projects are to reach a successful completion, there must be a combination and exchange of knowledge amongst the group members, which in turn requires them to have the most tacit knowledge in comparison to those who are excluded from the projects (e.g., Bresnen *et al.*, 2003; Koskinen *et al.*, 2003; Nahapiet and Ghoshal, 1998; Newell *et al.*, 2004). This was the reason why projects were chosen as the level of analysis and why the project team members involved were selected as respondents.

Apart from the above criteria, this study adopted the advice given by Leana and van Buren (1999) regarding the selection of interviewees. In the present study, the interviewees are knowledge workers involved in current projects and who are members of the organisation. They are individuals who have an employment relationship with the firm in the sense of being full-time, permanent staff as well as individuals who have an employment relationship with the firm, either as temporary, contingent, or core workers. There is no involvement of individuals from outside the organisation.

### 3.2.2.2 Entry into the Field

The difficulty of access is often claimed as a management problem in academic research. In this respect, Whitley and Warneryd argued that:

*“The practical constraint that research access is often controlled by gatekeepers who have a direct interest in the outcome, results in practically oriented management research having rather less social and intellectual autonomy...”*

(As cited in Gummesson, 1991, p. 24)

Hamzah (2007, p. 96) stresses that academic research in Malaysia is not popular and thus, researchers, and especially those with students status, are not always welcomed by organisations. She further added that organisations usually prefer to have research conducted by consultants and are reluctant to permit outsiders to study in their organisation as they are concerned about corporate confidentiality.

Following approval from the companies, the researcher went to Company 3 and liaised with the ‘gatekeeper’, whom she briefed about the nature of the study and the type of projects that she was interested in. Initially, the conversation was uncomfortable, probably because the idea of having a researcher in the company was irritating. The gatekeeper introduced the researcher to the manager of a particular project (3A) that was current, thereby meaning that the researcher had no control in choosing the projects.

Permission was granted to the researcher for her to be in the company from time to time to conduct interviews and to observe project meetings. The head of human resources assigned the researcher to the second project (3B).

Gaining access to Company 2 was a different experience. After contacting the company, the senior management gave permission to the researcher to conduct the study, and she was introduced to the vice president who was the champion of the project, and subsequently he introduced her to the senior project manager. Through her, the researcher obtained the names of other team members and began to establish contacts with them.

After nearly two months of collecting and analysing the project-related data in a large and a medium sized company, there was a need to gather data from a small-sized company. Glaser and Strauss (1967, p 47) stressed that the collection of data is not always pre-plannable, stating that "*Beyond the decisions concerning initial collection of data, further collection cannot be planned in advance of the emerging theory*". The findings indicated differences and similarities in the way people from large and medium-sized companies shared knowledge, and whilst these were extremely helpful in the generation of the social capital categories and items, it was accepted that additional data that would give a perspective on the processes of social capital and knowledge sharing among project team members in a small company, was desirable. This, it was believed, would help to build internal validity into the social capital categories and items, thereby enabling the development of a set of robust propositions. Dyer and Nobeoka (2000) found that knowledge, especially tacit knowledge, is likely to be transferred in a small group at a specific location better than in a larger group with disperse locations. Thus, it is presumed that as with size of the group, and in the case of the present study, the size of the company does affect how knowledge is being shared by the organisational members.



### 3.2.2.3 Company Summaries

Company 1 is a subsidiary of a small ICT company employing around 33 people. It has been in operation for the last 10 years. So far, its projects have been local, and specialised in biometric security algorithm and encryption technology. Both projects were carried out by the subsidiary. Project A involved 25 people from the company and its parent company. This project developed human resource information systems for internal use. Project B, which was a biometric system development for an external government client, involved 23 employees of the company as well as the client's employees.

Company 2 is a medium-sized ICT company employing around 800 employees, and is wholly Malaysian-owned, having been in operation for 30 years. It is an independent business integration software company that has been involved in both local and international projects. Its core business activities are in the information communication technology sector specifically in the areas of networking, software development, and software integration. Project A, which was an E-portal project developed for internal purposes, involved 25 people from the company and its subsidiary.

Company 3 is a large ICT company employing around 35,000 employees, and which has been in operation for the last 40 years. Being the number one provider of ICT, it serves many companies in Malaysia, and has now expanded its business overseas, so its projects are both local and international. Its main activities are establishing and providing telecom and related services. Project A involved 46 people both from the company and its subsidiaries. This was a corporate culture transformation project for the whole company. Project B involved 59 people from the company and its subsidiaries. This project developed a knowledge management portal for one of the subsidiaries. The mission was to establish knowledge management practice and

procedure utilising the KM portal. The objective was to leverage knowledge management for the effective deployment of a learning organisation.

The company profiles appear in Table 3-1, while Table 3-2 provides information relating to the nature of the project. Internal projects refer to projects completed for internal use and external projects refer to projects completed for external parties. The companies are identified as company 1, 2, and 3; projects are identified as A and B, and the interviewees are identified as 1 to 15. Hence, the coding 1A3 relates to an interviewee from company 1, who was involved in project A, and was identified as respondent number 3.

**Table 3-1: Profile of Companies**

Company	Size	Industry
1	Small	ICT
2	Medium	ICT
3	Large	ICT

Note: The categorisation of size is based on the number of employees.

**Table 3-2: Profile of Projects**

Company	Project	Types of projects examined	Nature of projects
1	A	Systems Development	Internal
	B	Systems Development	External
2	A	Systems Development	Internal
3	A	Administrative Innovation	Internal
	B	Systems Development	Internal

### 3.2.2.4 Number of Interviewees and Interviews Conducted

Since the study adopted the strategy of theoretical sampling consistent with a grounded theory approach (Glaser and Strauss, 1967; Strauss and Corbin, 1998, 1990), it was not possible to make an exact prediction about the number of people who would be interviewed in this study, as data collection ceases only at saturation point (Glaser and Strauss, 1967; Strauss and Corbin, 1998, 1990). However, it was a condition that each interviewee would be a project team member involved in project implementation.

Data were collected by conducting interviews and through participant observation. Interviewees from Company 2 and 3 were interviewed respectively at an agreed time after they had provided consent to participate in the study. Company 3 provided two lists of names of the people involved in the projects, thus making it easy for the researcher to personally contact them and arrange interviews at a mutually convenient time and place. Some people wanted to be interviewed outside office hours, for instance during lunch at a restaurant or cafe or after 5 pm for high tea.

In Company 2, the gatekeeper was very busy and told the researcher that she could not help her, but during the second week, she did help by contacting the team members and allowing the researcher to join their meetings. Fortunately, all the while, the VP allowed her to observe their meetings and introduced her to the team members. This meant the researcher's presence was made known to the participants.

Company 1 was contacted and interviews were conducted with the team members from the subsidiary. At this stage, the researcher disregarded issues concerning data saturation as the company was small and only few members from the subsidiary were involved in the projects.¹ The choice of cases was based on theoretical sampling but as there were only ten people concerned, and each was involved in both projects, it was appreciated that all of these people would have useful insights and hence, they were all

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¹ Interviewees for projects A and B were the same. For example 1A1 was the same person as 1B1. The codes are differentiated because they were involved in different projects and were interviewed twice.

interviewed. This is in line with the process of theoretical sampling which captures the essence of the experiences of interviewees, which in turn are useful in the development of a particular type of theory.

Overall, 55 interviews were held with people from five projects in three ICT companies, during a three-month period of intensive data collection in Malaysia (see Tables 3-3 to 3-6 for interviewee profiles).

**Table 3-3: Interviewee Profiles for Projects 1A and 1B**

No	Interviewee Project A	Interviewee Project B	Domain	Designation
1	1A1	1B1	Sub	Chief Executive Officer
2	1A2	1B2	Sub	Fingerprint Specialist
3	1A3	1B3	Sub	Senior Software Developer
4	1A4	1B4	Sub	Software Developer
5	1A5	1B5	Sub	Software Developer
6	1A6	1B6	Sub	Software Developer
7	1A7	1B7	Sub	Head Solution Architect
8	1A8	1B8	Sub	Software Engineer
9	1A9	1B9	Sub	R & D Manager
10	1A10	1B10	Sub	Dept. Head Enterprise Solution

**Table 3-4: Interviewee Profiles for Project 2A**

No	Interviewee	Domain	Designation
1	2A1	Sub	Head Marketing and Business Development
2	2A2	HQ	Senior Software Engineer
3	2A3	HQ	Project Manager
4	2A4	HQ	Manager
5	2A5	HQ	Senior Project Management Human Capital
6	2A6	HQ	Marketing Executive
7	2A7	Sub	Bus. Dev. Manager Mobility Business
8	2A8	HQ	Account And Payroll Officer
9	2A9	HQ	Account Officer
10	2A10	HQ	Software Developer
11	2A11	Sub	Account Officer
12	2A12	Sub	Software Engineer
13	2A13	HQ	VP Technology Management
14	2A14	HQ	Software Developer
15	2A15	Sub	General Manager

**Table 3-5: Interviewee Profiles for Project 3A**

No	Interviewee	Domain	Designation
1	3A1	HQ	Assistant General Manager
2	3A2	HQ	Assistant General Manager
3	3A3	HQ	IT Specialist
4	3A4	HQ	General Manager Group HRM
5	3A5	HQ	Ass. General Manager
6	3A6	HQ	Manager Change Mgt. Office (CMO)
7	3A7	HQ	Assistant Manager
8	3A8	HQ	Assistant General Manager CMO
9	3A9	HQ	General Manager
10	3A10	HQ	Manager

**Table 3-6: Interviewee Profiles for Project 3B**

No	Interviewee	Domain	Designation
1	3B1	Sub	Assistant General Manager Project
2	3B2	Sub	Manager KM
3	3B3	Sub	Assistant Manager KM
4	3B4	Sub	Manager
5	3B5	Sub	Project Manager
6	3B6	Sub	Manager
7	3B7	Sub	Assistant Manager
8	3B8	Sub	Manager HRM
9	3B9	Sub	Assistant Manager Marketing
10	3B10	Sub	Assistant Manager Resource Centre

### **3.2.3 Data Collection Methods**

The techniques for collecting data included interviews, observations, and documentation review (Cooper and Schindler, 2001). This is in line with the suggestion made by Dey (1999, p.6) who noted that primary data collection for grounded theory is through a combination of fieldwork methods, which include observations, interviews, and documentary materials.

#### **3.2.3.1 Interviews**

The study employed unstructured and semi-structured interviews as the major source of data collection. This approach enabled the researcher to gain insights into interviewees' perceptions, opinions, and views of the social capital, knowledge sharing and its day-to-day practices. Interviews allow the researcher to understand the experiences, actions, and meanings from the perspective of the actors involved in the phenomena being studied as well as their rich thoughts and emotions (Bogdon and Biklen, 1992). And, the interviewer can improve the quality of information received by using probes extensively (Neuman, 2006, p. 301). Furthermore, researchers can also pre-screen to ensure that the correct person is involved, and can set up and control the interview situation, being able to adjust the physical environment and the language of the interview if and when they observe problems or negative effects upon the interviewee by the process (Cooper and Schindler, 2001, p. 299).

Project team members were selected because they could shed light on the phenomenon under investigation. It is believed that in order to explore the development of social capital and its outcome on knowledge sharing, it is better to examine a situation where a group of people work closely together over a certain period of time in order to achieve a specific goal. This enables the researcher to acquire information from all the team members, observe them in their daily activities including the meetings, and obtain the

documents relevant to the meeting. Being together with them for a longer time allowed the researcher to become closer to them, understand the real situation better, and secure more data.

This is one of the reasons why face-to-face interviews were used with all the interviewees throughout the data collection process. The greater flexibility in presenting information to respondents and the opportunity to improve the quality of information received, were key considerations. Although all the interviewees were able to select the location, dates, and times for their interviews, most of them preferred this to happen at their work place, in their rooms, meeting room, and/or lounge. Twenty out of fifty five interviewees, preferred to be interviewed outside the workplace. The important thing learned from this situation was that the choice of interview location does affect the interview conducted.

Charmaz (1989) found out in her study of chronic illness that interviewees' responses are shaped by particular social processes such as the setting of the interview. For instance, at the workplace, some of the interviewees were not comfortable and tried to be more polite. In addition, even though they had been told earlier (through e-mail and telephone calls prior to the interview) that the interview was more like informal chatting, some of them, especially the young interviewees were quite reluctant, shy, and more conscious about what they had to say. However, when the interviews were conducted outside the workplace, their attitudes and responses were different, it being noticeable that they were more willing to discuss and share their opinions and experiences. The fact that people want to be interviewed outside work may suggest they want more control of the situation, are a bit apprehensive about the process, and/or want to protect themselves. All interviews lasted for between two to two and half hours with prior consent from the interviewees.



Interview protocols were prepared according to previous studies on social capital, knowledge management, and project management (e.g. Bontis, 1996; Bresnen *et al.*, 2003; Inkpen and Tsang, 2005; Nahapiet and Ghoshal, 1998; Newell *et al.*, 2004), and although English is the second language of Malaysia, the majority of private companies use English as the medium of instruction, and therefore all interviews were conducted in English. The first instrument consisted of open-ended questions related to structural, relational, cognitive capitals, projects, and knowledge sharing. Initially, five interviews were conducted to further develop and refine the interview questions. Below are the initial interview protocols with the five key people from Company 2 and Company 3.

1. Describe how the project started and proceeded up to this point.
  - Who and what initiated the project?
  - When did the project start and expect to be completed?
2. Please elaborate about the project.
3. Who was involved in this project?
4. Why and how were the team members chosen?
5. What is the vision of the project and how is it communicated to the team members?
6. What are the objectives of the project and how is it communicated to the team members?
  - Are communication of vision and objective important?
7. Why do you think it is important for the team members to understand the vision and objectives of the project?
8. How is the project conducted?
9. Describe the involvement of top management in the project.

At the beginning, pilot categorising, which involved trying out categories in five transcripts, developing new categories and refining existing ones in the light of these trials as well as swapping ideas and assumptions with other researchers who were in the same field, were conducted. After about two weeks of data collection, one category was found to emerge with a high frequency, and to show connections to many of the other emerging categories. When it is clear that one category is mentioned with a high frequency and is well connected to other categories, it is safe to adopt this as the core

category. The categories were then matched to the social capital dimensions derived from the three categories of social capital delineated by Nahapiet and Ghoshal (1998). Based on the five initial interviews conducted, 45 sub-categories of social capital were developed. The following table shows the themes generated from the initial interviews.

**Table 3-7: List of Initial Coding**

1. Meeting	24. Telephone call
2. Relationship	25. Understanding
3. Communication	26. E-mail
4. Top management	27. Language problem-technical and jargon
5. Authority	28. Motivation
6. Proof	29. Skills/ability
7. Senior	30. Clarity
8. Culture	31. Feedback
9. HQ and subsidiaries-distance	32. Solve problem
10. Team working	33. Brainstorming
11. Similar expertise	34. Discussion
12. Identification	35. Informal meeting
13. Give input	36. Place
14. Share knowledge	37. Office environment
15. Provide help	38. Privacy
16. Trust	39. Willingness
17. Reciprocate	40. Expectation
18. Group	41. Committed
19. Workshop	42. Support
20. Visit to HQ	43. Urgency
21. Familiar	44. Involvement
22. Duty/task	45. Participate
23. Responsibility	

Based on the particular dimensions identified in response to emerging patterns and themes from the initial interviews and literature, the subsequent interview protocols were more focused, as follows:

1. Who initiated the project?
2. Who are the project members?
  - a. How is the team formed?
  - b. How do you get to know each other?
  - c. When the team was formed, how did you get to know each other in the beginning?

3. What are the activities involved in this project?
4. Who decides on the tasks and responsibilities for project completion?
5. What is the nature of your job in this project?
  - a. How do you describe your involvement in this project?
  - b. Why do you think you were chosen to participate in this project?
6. How would you describe the involvement of top management in this project?
  - a. What kind of support do you receive from the management in assisting you and your team members to complete the project?
7. Do you think that the team members understand about the vision and objectives of the project? Why?
  - a. Why do you think that team members must have same vision and objectives?
8. How are meetings usually held?
  - a. How frequently are meetings usually held?
  - b. Can you describe you experience in participating in meetings?
  - c. How do you describe your level of understanding about the topic of discussion in meetings? (explore also the language used)
  - d. What do you do if you do not understand certain topics of discussion during meetings?
  - e. How far do you think meetings can help you in completing your task?
  - f. What are the approaches used to encourage team members' participation (question for project manager)?
  - g. How do the team members/management deal with team members' feedback/suggestions/ideas?
9. Describe the most frequent medium of communication used for this project.
  - a. Is communication among the group members important?
  - b. Why do you think communication is important in this project?
  - c. How good is the communication between the staff and managers? (Among group members, explore also overall organisation group members).
  - d. How good is the communication between you and the project members from the subsidiaries/HQ/external?
10. How well do you know your team members?  
(to explore how well team members know others' background, expertise, attitudes, experience)
  - a. How would you describe your relationship with them?  
(Explore reasons for having relationships - job or task related, other reasons)
  - b. How often do you meet with other team members?  
(Explore also how often they contact each other).
  - c. How do you manage your relationships with them?

- (Explore also the medium that they use to interact with each other).
- d. How would you describe proximity with your team members in completing the project?
  - e. How close are you with the team members?  
(Job wise or emotionally).
    - i. Does the project task require you to be close with all the group members?  
(Explore also job-related, similar experience or expertise, personal).
    - ii. How good is the relationship between junior and senior staff within the group? (Explore also within the organisation).
11. How do your previous experiences help you in completing the tasks required by this project?
  12. How does your previous involvement with other team members help you in completing your tasks required by this project?
  13. Can you describe any mechanism that is conducted by the company to assist the team members in completing the task necessary for the project? (e.g. training, workshop, short course)
  14. Can you describe any mechanism used to improve knowledge sharing among the project members? Among employees in the organisation?
  15. How would you describe the team work among the members?
    - a. What are the processes involved in obtaining information from other team members about the project?
    - b. Have you found any difficulties in accessing information related to the project from the team members? Why?
    - c. How would you describe the activities in solving problems related to the project?
    - d. How is information shared among the team members?
    - e. Why do you think that your team members share their knowledge with you?
    - f. Are you willing to share information related to the completion of the project with all group members?  
(to explore issues of trust, reciprocity, and toleration).
    - g. Do you perceive that other group members are also willing?
    - h. When you need help from other team members in completing tasks, is it easy to get help? Are they willing to help you?
    - i. When you receive help from your group members, do you help them in a similar manner?
    - j. How often do you refer to your team members in completing the project task?

As mentioned earlier, the number of interviewees depends on the theoretical sampling strategy as Travers (2001, p. 37) said that "there is no fixed rule on how many interviews you need to conduct, other than that you will need enough data to explore and document a range of themes". Altogether, five initial interviews and 55 subsequent interviews were conducted and tape-recorded with the permission of the interviewees, and notes were also taken by the researcher during the course of the interviews. Although Glaser (1998) recommended that interviews be neither taped nor transcribed, the researcher nonetheless did tape-record and transcribe the interviews because this was her first experience of using the grounded theory method and she was afraid that she might not manage to capture the important themes and might get lost in the middle of the conversation. Glaser (1998) commented that taping is a waste of time, and that instead one could spend this conducting twice as many interviews, memoing and generating concepts.

However, appreciating the advantage of tape recording, the researcher felt this strategy was more suitable and safer, since it does offer several known advantages. Firstly, tape-recording does provide a public record meaning that it can be made available to the scientific community whereas field notes cannot; secondly tapes can be replayed and transcripts improved; and tapes preserve the sequence of discussion, meaning that it is possible to inspect sequence of utterances (Sack, 1992, as cited by Silverman, 2001, p.162). Furthermore, the greatest value of taped interviews lies in the depth of information and detail that can be secured compared to telephone, mail survey or computer survey.

### 3.2.3.2 Observation of Interviewees' Activities in Project Completion

*“Observation is one of the earliest and most basic forms of research ... As members of society; we make observations of the everyday world. These guide us in forging paths of action and interpreting the actions and reactions of others.”*

(Adler and Adler, 1994, p. 377-392)

This method requires observations to be made around the processes, contextual, and environment factors in which they are operating. Observation can range from being totally participatory to mainly observational, and it can be carried out in one or more periods (Blaikie, 2000, p. 234). According to Marshall and Rossman (1995), a researcher can observe situations that interviewees have described and look for inaccuracies or distortions in actual events; the researcher can also observe events that interviewees may be unable or unwilling to share because it would be insensitive, impolite, or impolitic to do so. In addition, DeWalt and DeWalt (2002) suggest observing interviewees' behaviours and actions, helps the researcher to answer descriptive research questions, to build theory, or to generate or test hypotheses.

In the present study, observation was made whenever possible, for example during interaction at lunch time, going out together, during tea breaks, of the action and interaction among the interviewees and between the interviewees and the researcher. The researcher observed the interviewees in their meetings, which is to say that she was not hidden; her presence was known to everyone involved, the team members from the headquarters and the subsidiary, as well as to outsiders. During the meeting, the activities and interaction that had occurred during the meeting were recorded. Subtle factors such as informal, unplanned activities, changes of attitudes of the team members, for instance when the leaders were present or otherwise, symbolic meaning, non-verbal communication and other elements such as who speaks to whom, who listens, who is

silent, were also observed (Merriam, 1998). Following is the table showing the number of times observations were made during formal meetings in each project.

**Table 3-8: Observation in Formal Meetings**

<b>Project</b>	<b>No of Times Observed</b>
1A	3
1B	2
2A	5
3A	2
3B	3

The level of participation as observer in this study was moderate (Spradley, 1980) in that a balance was maintained between being an observer and ensuring natural interaction with the interviewees to encourage their spontaneous behaviour, especially during informal interaction. To participate actively (Spradley, 1980), by making a direct contribution to meetings in order to obtain an insider view of the team members' experience was considered improper and, therefore, avoided.

### **3.2.3.3 Review of Relevant Project Documents**

Documents are written data sources which include published and unpublished documents, company reports, memos, letters, reports, e-mail messages, faxes, and newspaper articles, and they can be used both in quantitative and qualitative approaches to research (Cooper and Schindler, 2001). One of the advantages of documents is that they can be coded into categories that are assigned numbers, counted and manipulated statistically (Blaikie, 2000, p. 235), for example by using the content analysis method. Documents such as minutes of meetings, PowerPoint presentations about the projects,

and activities involved in the projects, were furnished by the interviewees, thereby helping the researcher to further understand about the nature of the projects and the companies.

### **3.3 DATA ANALYSIS**

The present study employs two techniques of analysis. Firstly, a systematic approach based on grounded theory was utilised to identify the categories and items of social capital for knowledge sharing. Secondly, frequency counts based on intelligent coding - a coding approach based on the number of occurrences of categories and items in the selective coding, was utilised to identify the significant factors of social capital on knowledge sharing, and factors that hinder or foster knowledge sharing (refer to section 5.1 which provided detail information on this procedure). The data analysis will now be discussed.

#### **3.3.1 Approach Taken in Data analysis**

##### **Creating and Managing Data**

The dilemma that a researcher faces after collecting data is how to interpret meaning from it (Silverman, 1993), or primarily, how to start analysing and interpreting the data. The first of these techniques was to search the data set for themes, to develop analytical categories, and to index the data accordingly (Miles and Huberman, 1994; Strauss, 1987; Glaser and Strauss, 1967), and this is a good way to begin to manage qualitative data systematically (Bryman and Burgess, 1994). The analysis was carried out manually, subsequently as more interviews were conducted, considering whether to use software.



### Software or by Hand

Although many people use software for coding and memoing and arrive at decent theories, it does cost much more time and energy, and results in a loss of creativity (Glaser, 1978). For that reason, software packages such as Nu*Dist, Nvivo, or HyperResearch were not used, since the researcher wishes to avoid a mechanistic approach to analysis, and instead she proceeded to code by hand, retaining the creative process, and hence being assisted in the conceptualisation of themes. Moreover, as already indicated, software packages are only useful for the management and organisation of data, and have no capability in its analysis (Coffey and Atkinson, 1996; Dreher, 1994), so the use of these alternatives would only be of partial assistance.

Writing twenty years after his original work, Glaser (1998) maintained his criticism of the use of software since it stales the research and organises the data in a too-structured way. He further emphasised that by using software, a preconceived structure would eventually force itself onto the data, because software is programmed in a certain way while the brain is much more flexible. Grounded theory emphasises the researcher's 'own personal recipe' for arriving at an emergent theory. Glaser (1998) also condemns the use of too much technology in grounded theory (such as computers and tape recorders), referring to this as a trap. However, doing this job entirely by hand was also going to be difficult, so the researcher established a system for organising and coding the data, simply using a normal word processor.

Weitzman and Miles (1995, p. 11) say of word processors:

*These are basically designed for the production and revision of text and are thus helpful for taking, transcribing, writing up or editing field notes, for transcribing interviews, for memoing, for preparing files, for coding analysis, and for writing report text.*

However, they said it is necessary to go on to more specialised programs in order to explore those files in more productive ways since the potential of word processors for

analytic purposes is restricted. On the other hand, Stanley and Temple (1996) reached the conclusion that some researchers have come to an informed decision that the facilities and functions of the most advanced contemporary word processors can carry out most of the analytic tasks that the practical researcher needs, arguing that:

*“Having used both Word for Windows and the five dedicated packages, our conclusion is that qualitative researchers should consider using a good word processing package as their basic analytic aid, and that only if they want to do something that this package cannot do should they then consider using a dedicated package. That is, for many researchers, the facilities provided in a good word processing package will be sufficient to the analysis required, or, if not the researcher would be best advised to use a dedicated package for specific research tasks. The seduction of the dedicated packages is that because they have capacities, they are then used to the limits possible.”*

By utilising a word processor, this study has developed an application that can copy all incidents with specified codes into a separate document to make it easier to compare incidents. For example, if all incidents coded as "proximity" or "meeting" are needed, they can be pulled out into a separate document. The common functions in a word processor such as "find", "copy" and "paste" are very valuable at this stage, making the search for certain words, phrases, and occurrences for frequency count analysis, possible. In a sense, this is equivalent to doing the process by hand, but using software to extract certain things instead of skim reading. This technique does make it a little more mechanical than is perhaps ideal. Subsequently, Excel was used to perform the quantitative analysis and then the results were transferred to SPSS for statistical analysis.

The main coding process which is developed from open, axial, and selective coding as suggested by Strauss and Corbin (1990) is explained in the next section, and followed by a discussion of how the frequency counts were generated based on selective coding for statistical evidence.

### 3.3.2 Grounded Theory Analysis

The analysis of data collection in research is often referred to as 'coding'. Coding is a "process through which data is fractured, conceptualised, and integrated to form theory" (Strauss and Corbin, 1998, p.3). The three stages of data analysis involved in grounded theory are open, axial, and selective coding (Strauss and Corbin, 1998), which together represent a systematic method applied to a research problem. The systematic nature of the method is helpful, especially in judging, generalising, and comparing the results of grounded theory research. Nevertheless, Strauss (1987, p. 55) warned that "coding is the most difficult operation for inexperienced researchers to understand and to master".

Coffey and Atkinson (1996, p. 10) say that:

*"Analysis is not about adhering to any one correct approach or set of right techniques; it is imaginative, artful, flexible and reflexive. It should also be methodical, scholarly and intellectually rigorous."*

In grounded theory, coding is an essential analytical process which involves capturing insights and generates theoretical themes, with the intention to generate theory from the data (Dey, 1999). The data can be in the form of incidents, events, and happenings, which are then taken and analysed as potential indicators of phenomena. These data are conceptualised and compared in order to accumulate the basic units for theory (Corbin and Strauss, 1990). In grounded theory, data are coded three times using: open, axial and selective coding. These coding procedures comprise the process of analysing qualitative data by deduction and induction (Strauss and Corbin, 1998).

#### ***Open coding***

Grounded theory begins with open coding - the process of deduction. It is conceptualised on the first level of abstraction. Written data from transcripts or field notes are conceptualised line by line (Glaser, 1978). Strauss and Corbin (1990, p. 62), describe open coding as "the process of breaking down, examining, comparing,

conceptualising, and categorising data” by assigning labels to the incidents found in the interviews, observations and field notes.

In the present study, this analysis started after the initial five interviews were conducted. The interviews were transcribed and analysis was done line by line to find categories and items that fit for theory generation. Although the present study has no framework, the dimensions of social capital proposed by Nahapiet and Ghoshal (1998) were adopted to assist the data analysis. The study compares the incidents with categories and dimensions of social capital. Strauss and Corbin (1998) suggest that when examining the data, researchers are allowed to turn to the literature in order to get rid of the intervention of bias into interpretations and to stimulate thinking about the dimensions. As more interviews and observations were carried out, new categories emerged and more items were found to fit the categories (Glaser, 1978).

### *Axial coding*

Axial coding was the next step of analysis to reconstruct the open codes that carried different underlying items, categories, and dimensions. In the axial coding, a process through which connections and relationships among the working categories from open coding was developed for further investigation. Strauss and Corbin (1990, p. 116) define axial coding as:

*“... a set of procedures whereby data are put back together in new ways after open coding, by making connections between categories. This is done by utilising a coding paradigm involving conditions, context, action/interactional strategies and consequences.”*

According to Strauss and Corbin (1998), the initial and progressive relationships of these coding structures and working categories are useful if they are put in diagrams for sorting out the various relationships. In the present study, the open codes were put back

together in new ways by making logical connections and proposing relationships, and making comparisons between projects to find similarities and differences in the cases.

### ***Selective coding***

Selective coding aims to discover the core category; this is an essential step in the theorisation of the phenomena being studied. Strauss and Corbin (1990, p.116) define selective coding as:

*“the process of selecting the core category, systematically relating it to other categories, validating those relationships, and filling categories that need further refinement and development”.*

Although the coding procedures appear to be in order, this is actually an iterative process for comparison. The three coding procedures interplay to develop new codes and working categories for further analysis through ‘proposition’ testing (Strauss and Corbin, 1998). Originally, ‘proposition’ was termed ‘hypothesis’ by Glaser and Strauss (1967), and denoted an emerging idea or abstraction derived from data. It is felt that the term ‘proposition’ is more appropriate in this study because the term ‘hypothesis’ requires a measured relationship (Whetten, 1989, p. 492).

The ‘proposition’ is tested by newly-collected data. In grounded theory it is not tested through statistical processes but rather through constant comparative analysis by means of asking new questions, and comparing events and incidents from the data. If the new data contradict the proposition, this does not mean that the proposition is wrong, but that the researcher needs to question the data further to determine what is going on. If the researcher discovers variations in the new data, this discovery extends the dimensional range of a category and provides better explanatory power (Strauss and Corbin, 1998, p. 135). The example of the coding analysis is presented in Table 3-9.

Upon completing this process, the frequency counts analysis was conducted. This process is meant to see which items and categories are mostly mentioned by the interviewees. This could not only indicate the important dimension of social capital but also the significant categories under each dimension of social capital. In the next section, the process of counting the items is discussed.

Table 3-9: Coding analysis

Interview	Open	Axial	Selective	Theme
1B2- I would prefer <u>face-to-face</u> whenever I interact with somebody. For me, maybe I am an old version, I don't prefer email. Through <u>direct communication (face-to-face)</u> you can explain the problem or what you want in a clear way ... if they answer and you don't understand, you just ask back for clarification."	Face-to-face direct communication	Face-to face	Interaction	STRUCTURAL
3A2- "I like to talk <u>personally</u> because I find it comfortable and easier to discuss and solve the problems together."	Talk personally	Face-to-face		
2A7- "Working in a project is different because you are not working with your colleagues in the same department, some of them are from the subsidiaries. I only know them now. It's very difficult to work together at first but after a few <u>face-to-face meetings and workshops</u> we get to know each other better."	Face-to-face meeting and workshop	Face-to-face		
2A1- "Sometimes, when I was with my clients and they asked me of things that I was not sure of, I just called or text my colleagues"	Call or text	Telephone		
3B3- "I prefer to use <u>text messages</u> . I don't know ... everybody use text messages... I find it convenient."	Text	Telephone		
2A7- "I would rather text them, for <u>fast response</u> , it is easier...."	Text	Telephone		
1A5- Nowadays, you can see everybody has mobile phone. People will always look for the latest and sophisticated one. I prefer <u>mobile phone</u> because when I am on the move, I can <u>text, e-mail, listen to music, and many things</u> .	Mobile phone	Telephone		
2A6- "I could not imagine those without <u>mobile phone</u> . I am doing marketing, <u>mobile phone helps me a lot when I need to call my boss or make appointment with the clients</u> ."	Mobile phone	Telephone		

### 3.3.3 Frequency Counts Analysis

Once all items under each sub category have been identified - after selective coding was completed, frequency counts were carried out in order to provide an indication of how often each observation occurred in the sample (Witte and Witte, 2004). Frequencies based on how many interviewees referred to each item were then observed. This process converts textual data into quantitative data, which can be manipulated statistically and even used to test hypotheses (Krippendorff, 1980). The purpose of adopting this technique is to find the significant items and categories under each dimension of social capital and knowledge sharing; and to find factors that foster or hinder knowledge sharing in organisational projects. Categorising and indexing the whole of the qualitative data set for coding in Excel was done systematically and later transformed in the Statistical Package for the Social Science (SPSS®). This was done through counting the item and category occurrences using the word processor feature "Find". Each item in the coding scheme was represented by a 5-point scale. If the item occurred once, it was recorded as 1, and if the item occurred twice, it was recorded as 2, and so on.

It should be noted that although frequency counts are valuable, one must not misunderstand them. These frequencies represent a summary of qualitative data and not an attribute shift from qualitative data to quantitative data (Witte and Witte, 2004). According to Krippendorff (1980), there are two generally accepted methods of obtaining quantitative results from qualitative data: counting repetitive occurrences and magnitude estimation. For the first one, assessment is made based on how many times the item has emerged, and for the second one, assessment is made based on how many times the text contains a certain theme. In the present study, the latter technique was utilised. The counting was not done merely on the interview transcript, but rather after selective coding was completed, and hence, measures were taken care of during the grounded theory coding analysis (see section 3.4.2). This means, that more judgement is required from the researcher during the grounded theory coding. It should be noted that this frequency count analysis was not based on the words mentioned but rather on the number of times certain activities or events were occurring. Therefore, the biases on the perceived meaning were not a concern.



Dey (1993, p. 27) suggested that “we can adopt appropriate procedures to use statistical procedures to test for associations between variables or generalise from a random sample to a larger population”. He suggests that if these assumptions cannot be satisfied, quantitative aspects of the data can still be used to bring more rigour to the process of recognising or creating classification schemes. He added that some simple statistical procedures for analysing frequencies and cross-tabulations may prove useful in analysing even the most idiosyncratic and unstructured data. However, some authors argue that the use of statistical formulae not only obscures the purposes and goals of qualitative studies, but also limits a researcher’s arrival at a full understanding of the meanings, expressions, interpretations, and explanations of qualitative phenomena (Guba, 1990; Lincoln and Guba, 1985).

### *Methods of Data Analysis*

The data were analysed by univariate and bivariate tests, which are explained in detail in Chapter 5, but in general, the analyses were conducted to examine:

- The significant items and categories of social capital and knowledge sharing dimensions through descriptive statistics;
- The most influential dimensions of social capital.
- The factors that hinder or foster knowledge sharing; and
- The difference in the mean of responses to compare the sub-groups within the sample using the non-parametric Kruskal-Wallis test.

The summary of research objectives, research design and data collection method and analysis is presented in Table 3-10.

**Table 3-10: Summary of Research Design and Methods**

Research Objectives	Data Collection Methods	Data Analysis-Theory building procedure
<p>1. To further define social capital dimensions and identify categories and items under each of the dimensions.</p>	<p>Grounded theory utilised unstructured and semi structured interviews and participant observations during meetings (Strauss and Corbin, 1998).</p> <p>Duration: 3 months from March-May 2004 Context: 3 Malaysian ICT companies. Level of Analysis: Project</p> <p><b>Research Activities:</b></p> <p><b>Phase I</b></p> <ul style="list-style-type: none"> <li>• Find companies</li> <li>• Initial interviews 5 key people in Company 2 and 3.</li> <li>• Find themes and categories.</li> <li>• Match with existing literature to refine questionnaire.</li> </ul> <p><b>Phase II</b></p> <ul style="list-style-type: none"> <li>• Interviews-35 interviews from company 2 and 3).</li> <li>• Develop more properties of categories.</li> <li>• Generate propositions to identify patterns.</li> </ul> <p><b>Phase III</b></p> <ul style="list-style-type: none"> <li>• Include another case—small company</li> <li>• Interview-20 interviews.</li> <li>• E-mailing and phone calls for confirmation.</li> <li>• Affirm pattern and propositions.</li> <li>• Refine items and categories under social capital dimensions.</li> <li>• E-mailing and phone calls for confirmation.</li> <li>• Generate list of themes of social capital.</li> <li>• Aware of the needs to refine themes and decide to use quantitative analysis.</li> </ul>	<p><b>Identification of themes</b></p> <p><i>Qualitative analysis:</i></p> <ul style="list-style-type: none"> <li>• Utilise coding suggested by Strauss and Corbin (1998): open, axial, and selective coding.</li> <li>• Generate a list of themes of social capital (see Table 4-1).</li> <li>• Generate propositions.</li> </ul>
<p>2. To determine significant categories and items of social capital for knowledge sharing. Variables that foster or hinder social capital development for tacit knowledge sharing will also be identified.</p>	<p><b>Research Activities:</b></p> <ul style="list-style-type: none"> <li>• Conduct frequency counts for quantitative analysis.</li> <li>• Rating frequency based on the themes identified in the selective coding.</li> <li>• Data entry using SPSS.</li> <li>• Determine degree of importance for each item and category under social capital dimension by using frequency counts.</li> <li>• Refine themes of social capital based on frequency of occurrence events.</li> </ul>	<p><i>Quantitative Analysis:</i></p> <ul style="list-style-type: none"> <li>• Utilise intelligent coding to do frequency counts (Krippendorff (1980) after selective coding complete. Analysis of univariate.</li> <li>• Generate a new list of themes of social capital (see Table 5-14).</li> <li>• Generate propositions.</li> </ul>
<p>3. To identify the most influential dimension of social capital in fostering the sharing of tacit knowledge.</p>	<p><b>Research Activities:</b></p> <ul style="list-style-type: none"> <li>• Rating frequency based on the themes developed.</li> <li>• Data entry using SPSS.</li> <li>• Find mean scores.</li> </ul>	<p><i>Quantitative Analysis:</i></p> <ul style="list-style-type: none"> <li>• Analysis of univariate.</li> <li>• Generate propositions.</li> </ul>

### **3.4 OTHER ISSUES CONCERNING THIS STUDY**

#### **3.4.1 Establishing Trust**

Easterby-Smith *et al.*, (2002) argue that once a researcher gains access to an organisation, the personality of the researcher is essential in obtaining the cooperation and trust of the interviewees, and in establishing a level of intimacy. Agar (1980) suggested that the researcher must enter the setting as a 'stranger' in order for the interviewees to be willing to share information freely with him or her. This is significant as from such a relationship, the researcher can view the experience from the interviewees' perspective and this is the key to good qualitative research (Morse, 1994). Moreover, the use of the 'friending' tactic - an affiliative process aimed at developing and demonstrating trust (Guthrie and Lowe, 2003), makes the researcher feel more welcomed by the interviewees.

#### **3.4.2 Addressing Reliability and Validity Issues**

Time was allocated after each interview for the researcher to clarify what had emerged before moving on to the next interviewee. The key notes that were taken during the interviews were reviewed and then converted into themes. The analysis began when the researcher started to refine and modify the interview questions during the initial data collection period. Many probes for clarification were made during the interviews. The researcher developed a good rapport with the interviewees and found this to be valuable since it allowed her to continue to get information regarding the projects after the fieldwork. For example, during writing the thesis, the researcher contacted one interviewee from Company 1, three interviewees from Company 2, and 5 interviewees from Company 3 by e-mail to gain further clarification of certain issues.

Field notes are very important as they allow the researcher to document concerns, important 'puzzles', surprise findings and thoughts on the observations. When doing

field research, a note book is the researcher's best friend, as it can be used to express one's concerns and anxiety, budget, planning and more. In this study, the researcher used her note book to record observation of the interviewees in both their work environments, and outside in places such as cafés and restaurants.

Validity of the study was achieved through:

1. triangulating of data sources: interviews, observations, and documents;
2. utilising initial interviews with five key people from Companies 2 and 3 to provide initial data from which to form the basis for subsequent interview protocols. This process is believed to make data gathered later in the fieldwork 'stronger' (Miles and Huberman, 1994, p. 268);
3. utilising unstructured questions as they provided more flexibility to the interviewees to share their experience;
4. using probes for further clarification and understanding of specific issues; and
5. obtaining feedback and evaluation from three lecturers from the University Kebangsaan Malaysia and from fellow researchers. They were asked to evaluate and comment on the interview protocols, coding scheme, and findings.

### **3.4.3 Ethical Considerations of the Study**

A clash between personal and professional interest always raises ethical issues particularly among qualitative researchers. According to May (1991), the utilisation of qualitative methods such as open interviews and participant observation could cause embarrassment, anger, misunderstanding, and conflicts which arise from human interactions, and such outcomes fall in the realm of ethical consideration. In this respect, Cooper and Schindler (2001, p.112) stress that the researcher has to ensure that respondents do not suffer as a result of their participation in research activities, and that he/she must observe respondents' confidentiality, must not misrepresent what they say, must not deceive them by forgetting to inform them of their rights to refuse to answer any questions, and must obtain permission to

interview them. As noted by Easterby-Smith *et al.* (2002, p, 65) researchers must be “sympathetic and sensitive to human feelings and responsibilities”.

In conducting this study, the researcher experienced an unwelcoming atmosphere in some instances; at one time the participants seemed friendly but at other times her presence was ignored. It was later found that some of the team members had been affected by the voluntary separation scheme due to the company’s downsizing. A compromise between the goals of the research study and the needs of the interviewee was decided, and there was a need to be open, honest, as well as having mutual trust (Easterby-Smith *et al.*, 2002; May’s (1991). Thus, interviewees’ needs were always considered before the needs of the study. Other than that, interviews were held with the complete approval of the company and the interviewees themselves. Moreover, the participants were fully informed of the nature of the questions they would be asked before any interview was conducted.

### **3.5 CONCLUSION**

This chapter has described the research philosophy and paradigm adopted for the study, and proceeded to explain the methodology chosen, and its strengths and weaknesses. As the study aims to explore the development of social capital among project team members, and how this fosters their tacit knowledge sharing, a grounded theory approach was employed. Having considered this approach and the consequence of this decision, the chapter then introduced the design of the study and the procedures of the grounded theory method, which were indicated as simultaneous data collection and analysis, which helps to refine the emerging themes during analysis. The methods and techniques for data collection, and data analysis were also be discussed. Data were collected principally through the use of interviews with project team members. These data were then analysed using grounded theory techniques, which were indicated as being: grounded theory coding (open, axial, and selective coding) and frequency analysis. Lastly, issues related to the present study such as gaining trust, reliability and validity of the study, were addressed, and ethical considerations were covered.

The findings of the research are presented in the subsequent two chapters. Specifically, in the next chapter (Chapter 4), the qualitative data analysis will be reported and clarified. This will be followed by the quantitative analysis based on the frequency counts in Chapter 5.

## CHAPTER 4

### QUALITATIVE FINDINGS

#### 4.0 INTRODUCTION

Having discussed the methodology employed in the study, this chapter presents the results of the qualitative analysis using grounded theory techniques. These results are the main findings of the study. The analysis involved using open, axial, and selective coding to the interview (Strauss and Corbin, 1998), to arrive at themes and categories as classifications of the data. The categories are derived inductively from the data during the process of coding and analysis. These categories were also compared to the theoretical considerations drawn from the literature to further refine them for better understanding. Thus, the emergence and development of the dimensions of social capital as categories is explored in this section. This analysis was conducted to achieve the first objective of the study, that being to further define social capital dimensions and identify categories and items under each of the dimensions. At the end of this analysis, a comprehensive list of social capital dimensions is generated.

It is important to note that throughout this chapter and the thesis, knowledge sharing is presented as an outcome of the activities and processes associated with teams working on organisational projects. In order to support the research question of "*How is social capital developed and how does it foster tacit knowledge sharing among team members of an organisational project?*" the discussion is narrowed from social capital dimensions namely structural, cognitive, and relational (Nahapiet and Ghoshal, 1998), and incorporated with knowledge sharing. Some quotes from the interviewees are provided to illustrate the meaning of all the relevant categories. On some occasions, quotations used to illustrate social capital (as these were discussed by the participants in the study) are used more than once, since they provide examples of more than one

important issue, condition, and/or sub-category which emerged from the process of data analysis.

For all three dimensions of social capital, a frequency count of each category and the respective items generated by the qualitative analysis presented here will be tested across all the interviewees to further explain their importance. However, for the purpose of clarity in presenting the findings of this study, this frequency count analysis is presented in the following chapter. An explanation of the study sample and the comparisons of the sub-groups within it will also be included.

The following section discusses in detail each of the social capital dimensions.

## **4.1 STRUCTURAL CAPITAL**

In this study, structural capital entails the network structure or connections between actors (Nahapiet and Ghoshal, 1998). The organisational members involved in the study had been brought together because of their expertise to achieve the objectives of the projects to which they were attached. Some of them had not worked together previously, and most of them came from different departments and subsidiaries. Through the networks developed, they were able to build direct or indirect ties which are important for acquiring the knowledge required for project completion. The categories to be discussed in this section are meeting, relationship, interaction, position, and proximity.

### **4.1.1 Meeting**

*Meeting* is found in this study to be one of the categories which describes structural capital. In project management, meetings are important communication and co-ordination instruments (Garcia *et. al*, 2005). Working in a project causes the team members to meet regularly either formally or informally in order to successfully complete tasks. The findings from this study indicate that team members of all projects



meet together to explore and brainstorm ideas, solve problems or take decisions, allocate resources, and/or share information. This is similar to the definition of *meeting* adopted by Cook *et al.* (1987) in their study on meeting augmentation and analysis of a software technology program of MCC. One of the ways to solve or deal with these issues is to have essential and appropriate knowledge, and since not everybody has all the knowledge required for the project, other team members' knowledge is vital. Discussions, interactions, arguments, and actions are mechanisms for the team members to gain the required knowledge when they meet. The items to be discussed under this category are formal meeting, informal meeting, frequency of contacts, place, and time.

#### **4.1.1.1 Formal meeting**

*Formal meeting* as a concept was present in all projects investigated in this study. All the team members were notified in advance of such meetings that represent a structured communication activity in which all participants are physically and simultaneously present. For example, in one project the meeting involved the chairman, a minute secretary, and all the team members. The minutes of the meetings summarised the main points of discussion, decisions taken, action agreed, the person in charge, and timescale (Hartley and Bruckmann, 2002, p. 293). However, these meetings were not held frequently. Usually they lasted more than an hour depending upon the issues discussed, and were held in a proper meeting room. The code 'formal meeting' was derived from the interview with 3A5 (the code of the informant). Many of the interviewees perceived formal meetings as a must in any organisational project, as became apparent when asked why formal meetings were important. In this respect, one participant said

3A5- "*Everything has to be official and formal because you need commitment to get things done. In addition, the success of this project depends on this meeting because it involves many things ... like policy ... budget .....*"

The following quotes further elaborate the term formal meeting.

1A1- *"I don't really interrupt what my staffs are doing. However, formal meeting is important to keep me updated and during that time I am able to share my knowledge as well as their knowledge. But the most important thing is a decision has to be made during the meeting."*

3A4- *"Here things usually get done when formal meetings are involved ... because they are documented and somebody has to be accountable and responsible for it."*

From the above quotes, it is clear that formal meetings are required in any organisational project. Additionally, the interviewees indicate that the first meeting at the beginning of the project serves as a 'threshold', which is symbolic in signalling that the team members have entered a new world, and in marking a starting point for the team members to meet one another and identify themselves as a group. During that initial meeting, the top management, for example, the CEO or the champion of the project briefs the team about the project, the vision, and the goals to be accomplished. Introductions to the project manager and the key people involved in the project are also made, as confirmed in the following quotes:

2A1- *"I took this opportunity to get to know people. You must know with whom you work, whether you already know them is second thing, but at least you must know their names, positions, and their responsibilities so that you will know who to turn to when the needs come."*

2A7- *"I didn't know any of the team members at the beginning of the project. That was the first time I was introduced to them. I found it interesting as I saw people started going around talking and introducing themselves. I think it is important to build rapport and start developing your network."*

3A3- *"No matter whether you have been working together before or not ... because each project has its own characteristics and ... maybe I just know one or two but not everyone. You have to attend the formal meeting especially the first meeting. From there you can start building your network."*

3A8 - *"I started to make friends with them from the first meeting. And from there, we become friendly especially when we have to participate in*

*brainstorming activities. I think discussions are also important activities where you will realise who you can work with ... and who you cannot."*

3B2 – *"In the first meeting, we are being introduced to the champion of the project ... the project manager and other key people. We are also being assigned jobs but normally in this meeting, it is just like an introduction.*

Participants from all the three companies held the same views on why this type of meeting is essential. The interviews revealed that the 'kick-off meeting' is absolutely important as during that meeting not only those who are involved are present, but also, the team members can start building their network, as they are given information relating to who else is assigned to the project, and what to expect from the project experience. After the first introductory meeting, more meetings are arranged to accomplish the project goals. For example, a meeting is arranged to discuss issues on how, when, and who will implement the project. From the analysis it appears that formal meetings are preferred, especially when the team members come from different departments or subsidiaries.

3B10- *There are too many of us where we rarely meet because we are from different departments or we are too busy, so formal meeting works best."*

1B4- *"I find it hard to meet these people due to geographic reason, ... a formal meeting which is held at most once a month does work for me."*

2A7 – *"I don't want to be left out from the meeting. You know... I am not from the HQ, so ... this meeting is very important for me because this is the chance for me to meet them and discuss what to do."*

3A5- *When it involves people from other departments, I prefer to have formal meetings because I am not familiar with them and find it difficult to get in touch with them.*

In addition, the following quotes indicate that this type of meeting is important to make sure that all future potential difficulties are considered, since it is difficult to make

changes later because people are often dispersed. In this respect, one of the participants said:

3A4- "When people from the subsidiaries are involved, we must make sure that everything is discussed in detail. Otherwise, if everything is vague ... it is very difficult. Everybody must attend the meeting and understand what we need to achieve and be committed to this project."

2A5 – "I make sure we have formal meetings as often as possible. Especially ... you know at this stage ... things have to be clear and justified. It is not good to make the decision after the meeting. Everything has to be discussed in detail and let everybody agree with it."

Interviewees also indicated that if all members attend the meetings understand what is happening, they will be fully aware of each other's responsibilities. Additionally, they commented that having no previous relationships made it difficult to communicate with members, and the benefits of understanding each person's areas of responsibility were given as follows:

3A6- "This project involves many people from other departments, and I don't know some of them. I discovered that this meeting is useful for me as I know who is responsible for what ... it is not easy as we are not close and there is no relationship before. So if I know their responsibility, I can ask the person concerned if problems occur."

2A3- "Sometimes if you do not know each other well, it is difficult to work with them ... not all, what I mean is that... you will never know whether these people usually take for granted and often think that you will do the job for them ... this is not right. ... if you are not close ... you know ... you cannot just tell them ... you know it is not our culture to do so ... thus, I would prefer formal meeting because there is authority. You have been assigned for certain job ... so by hook or by crook you must do it yourself."

The code 'authority' emerged from the conversation with 2A3. Interviews revealed that in order to ensure that everybody performs their given tasks, authority endorsement is necessary. From observation of a meeting at Company 2, it became apparent that the chairman assigns the project manager to allocate the task for each team member and

these responsibilities are documented in the minutes of the meeting. Based on the researcher's understanding, the code 'authority' is important to describe this type of meeting. To further clarify her understanding, the following questions were asked

I *Why do you think that formal meetings are necessary?*

3A1 *Because informal meetings usually do not work, you need authority to endorse things and to make sure things get done at the right time.*

I *What do you mean by authority?*

3A1 *Management must be involved, it must be documented or in black and white.*

It was evident from the conversation above that the interviewees take matters seriously when there is a clear directive or instruction from the highest authority in the management team. Interviewees also suggest that when the team comprises people from diverse background, the members feel insecure, and are keen for clarification and endorsement of those who are made responsible for any action. The following quotes also explained the importance of authority.

3A7 – *“In the meeting, each person is assigned a task that he or she must perform. It is always documented and endorsed by the authority.”*

3B6 – *“Here things work by law. Authority is necessary ... you see ... jobs need to be approved by the authority.”*

3A4- *“Here things usually get done when formal meetings are involved ... because they are documented and somebody has to be accountable and responsible for it.”*

Another reason for the preference of authority involvement in formal meetings is the management has the power to endorse the work and that each decision made during the formal meeting is documented. This was evident in Companies 2 and 3. As for Company 1, the preference for the involvement of authority was apparent in project B in which outsiders participated. Due to there being no previous relationships with these people, and a lack of trust, the team members felt insecure, as evidenced in their response to the questions posed as seen in the quotes below.

1B1 – *“Everything has to be formal ... informal does not have black and white and ... and you know ... it is not documented. It is dangerous especially when it involves a million dollars project .... This is an international project, we were given the trust by the government to fulfil their mission ... so we must make sure everything is being discussed in the meeting.”*

2A15- *“When we deal with the HQ, we must make sure we do our best. The involvement of the authority is important as these people (refer to HQ) always look down on us ... that’s why you know ... the implication is quite big if we cannot perform.”*

The involvement of authority is also important to ensure that each person is held accountable for his or her job, and is not able to rely on others or try to be free riders, as indicated by one particular interviewee:

3A4 – *“Some people like to be free riders, so you must be very careful. I would rather have a formal meeting and make sure everyone is assigned a job, so ... there will be no way of cheating ... whatever problem you have, you must complete your job. It is not wrong to ask for help but do your own job.”*

In formal meetings it seemed that much discussion and brainstorming took place, and when asked what kinds of issues were usually discussed during these meeting, the interviewees replied

2A3- Usually, we discuss things that are specific to the project. For example ... my colleagues and I will discuss about the content of the websites, what we should or should not include in the system. We look from every angle and decide what to be included in the websites ... so when we present in the next meeting, at least we know what to answer."

1A6- It is all about programming ... we want to produce a system that everybody will like and no complaint later on. So we make sure that every feature that is required by the HR for instance is discussed in detail.

Usually, in their meetings, the team members discuss task specific detail relating to the project. For example, they consider the content of the systems, what to include, how to solve problems, and the due dates.

The interviews also revealed that frequent interaction, argument, and actions that occur during discussion and brainstorming, generate the sharing of tacit knowledge. In addition, the interviewees indicated that through discussion, team members, especially from Company 1, learn much from the seniors as well as the experienced team members. Over time, these interactions helped to develop shared understanding and shared language among them, and as noted by Zanger and Lawrence (1989), similarities in attitudes develop from continual listening, observing, and arguing help the development of personal relationships. However, it was noted that discussion could create both positive and negative impacts, depending upon individual experience. For example, when someone received negative feedback from other members, this was seen to hamper that person's future participation.

3A6- "I feel the more discussion we had, the more I learnt about each person's character. You can either be closer to them or avoid interacting with them."

2A1 - "No ... not really, for example myself .... I had worked with Mrs. B in the previous project, but ... it was a bad experience ... She will never accept my ideas ... I just didn't know why."

In addition, all of the participants believed that not attending meetings regularly created a lack of understanding among them, and a feeling of dissatisfaction at not being able to communicate meaningfully with each other. For example, one of the participants complained that his boss was unable to attend the meeting and instead sent him.

3B3 – “A few times I had to represent my boss in the meeting (formal meeting), I had no choice and felt bored and ... most of the time I didn't know what they were talking about. I just sat there, keep quiet and yawned (sigh). I felt bad you know.”

When asked whether he could gain something from the meeting, he further added

3B3 – “Unfortunately, I didn't ... might be because I did not attend the previous meeting, so most of the time as far as I am concerned ... , they talked rubbish. To be honest, it is just wasting my time ... for all you know ... I didn't get any benefits.”

Even though team members may have been involved in project working previously, it was recognised as still being important to attend meetings on a new project in order to be effective in the team, and it was understood that an inability to attend meetings regularly would hinder the knowledge sharing process, and hence the progress of the project. Indeed, participants acknowledged that attending formal meetings was important not only to update themselves with the issues discussed in the meetings, but also for them to acquire knowledge from senior personnel.

3A7 – “I discovered that when top management was involved, many issues are raised. From this meeting, I learn a lot. I consider this information as tips for myself.”

2A6 – “I am still young and quite new in this field. By attending the meeting, I have acquired a lot of knowledge from the seniors.”



3B4 – “This is where you can see the seniors show their talents. Sometimes they argue, sometimes they laugh, but ... I don't bother, the most important thing is I could share their knowledge.”

3A6 – “Probably because we work like public sector ... too much bureaucracy. You won't get what you want in person ... but in the meeting ... just ask. It seems that everybody wants to show they know everything. But ... why bother? As long as you get their knowledge ... that's it.”

However, in Companies 2 and 3, project team members often met obstacles in knowledge sharing due to their different work locations and the fact that they were unlikely to know each other. This particular problem was only encountered in Company 1, when outsiders were involved. Hence, formal meetings were also preferred when the team members found difficulty in interacting with some people, especially outsiders, i.e. people from other departments, or HQ and subsidiaries. This issue of difficulty in interacting with other team members was raised by interviewees, as follows:

3A8- “I think informal meetings work better for me but sometimes you cannot penetrate some people who are just tied up with their systems and what not. They are not open, very formal and very difficult to deal with. For this type of people, I would prefer formal meetings”

3B10- There are too many of us where we rarely meet because of different departments or we are too busy, so formal meetings work best.”

1B4- “I find it hard to meet these people due to geographic reasons, therefore formal meetings which are held at least once a month do work for me.”

Other participants with experience of working with the government, mentioned that some team members, especially juniors, relied on him to interact with government officials, saying

1B2- “I had been working with the government before, so I think I know better how to tackle them. Usually my colleagues find it difficult to interact with them ... but to get things done with them, a formal meeting is important.”

Difficulties exist when the team members are not close to one another, and the level of seniority, which causes distance, also contributes to this problem. However, as they interact more often, a form of relationship develops and a better understanding between members who are naturally distanced, is built, and as this gains strength over time, the initial barriers are broken down.

*2A1-“Sometimes you just cannot simply go and ask them because ... you also have to maintain your reputation. It happened to me many times, I found it quite difficult to work with the HQ people. I guess they think that they have some sort of high standard compared to us ... people from the subsidiaries. But ... once you know them well, they can be very friendly. You could ask their favours to help you if you are facing any problem regarding the project. After all ... you know, you are part of them.”*

*3B6-“It is very difficult to get help from someone you don’t know. But after sometimes ... I manage to become close. Now, I find it easier to just send message or meet up outside to get any info regarding the project.”*

#### **4.1.1.2 Informal meeting**

*Informal meeting* is another means of communication, highlighted by the interviewees. Meeting informally happens when two or more team members meet each other without formal instruction to do so, and in such circumstances, the interaction is not governed by formal contractual agreement or institutional structure. Indeed, informal meetings may or may not be business related, and can occur at social gatherings, conferences, seminars, workshops, and in other situations, for example, meeting in the hallway, on the street, or in a cafe by chance. Hence, informal meetings do not occur in designated meeting places. Moreover, as they may happen by chance, the time spent in them is also flexible. When asked what he meant by meeting other team members informally, one interviewee said:

3A8- "I would prefer to settle things informally ... I mean not in the meeting (formal meeting) whenever we have the chance to meet each other during lunch or go out together for tea at the café."

The code 'informally' was developed from open coding of this statement. From this statement, it is clear that this participant described an informal meeting as one where he met other team members informally for organisational project purposes or for other matters, and that this type of interaction usually occurs outside office hours and premises. Although many of the interviewees from all three companies preferred to have informal rather than formal meetings to discuss project matters, participants from Companies 2 and 3 particularly, expressed their concern about the lack of opportunity for them to do this, mentioning problems such as the absence of time, and friendship with other members, and no informal meeting places.

2A8- "I would prefer to have informal meetings because you are free to talk and give your opinion. Unfortunately ... there is no opportunity because I just come here for the formal meeting. We have no proper place to wait for the meeting."

3A1- "Sometimes, a member from the subsidiary came here to see me; we went outside to discuss. I found it quite difficult to interact with him at the early stage. However, after a few occasions, we are quite 'OK' now."

The interviews also revealed that sometimes members met for purely social reasons, and it was apparent that men, especially the young team members, felt comfortable in spending time with each other outside working hours. For 3A8, for instance, said that from his experience, men like to discuss their jobs outside the workplace, and that often this discussion is part of normal conversation and has no purpose.

3A8- "I think men like to discuss their job in the restaurant or cafe, as you can see ... (Refer to place of the interview), 90% are men. You see they are chatting and laughing and it seems like they don't do their work ... but through my experience mingling with them means that you will get something new ... something special

*that you can only know from them. Even though most of the time there is just a non-serious conversation, the more we interact with each other the more we share. Nothing is a secret. It's like trust ... you know... you know who I am and I know who you are. And it is also a matter of respect and friendship. You know why we have **roti canai** and **teh tarik** (Malaysian delicacies) here ... almost every day? We gossip and you know that this **kedai mamak** (Indian restaurant) is the favourite place to gossip and to get info ...”*

Most of the time, informal meetings were held between team members when they had problems that could not be settled in their formal meetings. The interviewees felt that informal meetings were useful for clarification of matters but not when it came to fundamental concepts relating to the project. They also mentioned that informal meetings did not generate much information sharing, and that the formal meeting is seen as the best place to share knowledge.

*3A6- “I am too busy with other projects as well. I like informal meetings because they are fast and have no rule. The rule is to get it done ... but you cannot make decision, it is only to settle small problems. Others would need to be formal meeting.”*

*1A3- “In our office, we always have informal meetings to solve our problems regarding the system. I guess ... the preference for informal meetings is dependable upon the type of problem you want to solve. As for the system, informal meetings are important.”*

*2A7- “I think formal meetings would be appropriate if you try to get updates on what is going on ... but you don't get so much ... the kind of informal meeting is ... a lot easier to share but the information shared is more subjective whereas in the formal meeting ... everything is according to the agenda ...”*

The findings from the interviews and observations indicated that the more frequently team members met each other, the closer they became, and their stronger relationship enhanced their understanding. The open code for ‘closer’ was developed from the conversation with 1A5. His reaction indicated his genuine feeling about being close to

other members of the team by frequently meeting them informally. When asked about his relationship with them, he replied

1A5 *Oh, I often go out together with my colleagues especially during lunch and outing on Saturdays. This made me closer to them (referring to 1A4 and 1A6)*

I *How close are you with them?*

1A5 *So close until I feel comfortable to talk to them as there is no barrier between us.*

However, factors such as the nature of a project and the proximity problem may hinder members in attempts to achieve this closeness. Thus, they look for alternative ways to meet other members. One of them claimed:

3A7 - *"It is difficult to get close to each other because we just meet during meetings or workshops. So, I make sure I take the opportunity to talk to them during the tea break or lunch."*

Even though they were brought together structurally to work on one project, it is apparent from the analysis that the team members, especially those from Companies 2 and 3, faced obstacles in developing a close relationship, but that they tried to remove these to become closer. The experience of 3A6 with other team members underscores the importance of removing barriers.

3A6-*"You know there is a barrier ... or fence between us, it needs effort to remove it. To be in this group ... you must be open, no hard feeling. If you like it, you accept it ... if you don't ... just glue you ear and ignore. For example, myself, when I got stuck with this project a few months ago, I tried to solve it myself ... but I failed. One day while we were having coffee, one of them asked me 'hey ... what's up? ... and there and then I got the answer. I guess I cannot work alone, simply because I have limited knowledge and job experience ... and these guys are true blessing. They are matured and have lots of knowledge. I really benefit from them ..."*

Other interviewees also mentioned these problems:

2A12- *"I feel like I am not welcomed in this project. Very difficult to get close to them ... I'll try my best to work with them."*

3A7- *"It is all dependent on how you bring yourself. I always find a problem in getting to know the team members because we do not know each other. Furthermore, we have no chance to meet regularly."*

While the benefits of informal meetings are clear, it takes time for someone to be able to be part of the informal group and hence, gain these benefit. It also needs effort and sacrifices on the part of the receiving party, and interviews indicated that they must be open and receptive to comments and criticisms. Very few of the team members from Companies 2 and 3 knew each other, and thus, the process of building the structural capital such as network closure, represented quite a problem in the project context.

#### ***4.1.1.3 Frequency of Contact***

Findings from the interview also indicate that meeting frequently enabled team members to become close to each other, be able to understand each other better, and hence, facilitate the development of structural capital. In addition to the open code 'informal', words like 'every day', 'almost every week', 'regularly' and 'often' were mentioned by interviewees to connote frequency of meeting. These codes appeared to comprise the essential conditions for 'frequency'. As with informal meetings, *frequency of contact* functioned as the means by which the team members maintained a sense of being constantly together, as one stated:

1A3- *"For the formal one usually once a month, but ... for the informal one ... almost every week. Sometimes, we just call for an informal meeting if we have problems or ... if the boss needs any info regarding the project."*

The quote from 1A5 also illustrates the frequency of informal meetings:

1A5 – “*We always go out together for lunch ... almost every day. Sometimes we try to avoid ... or rather not to discuss about our work ... we just want to enjoy our food. However ... when we talk and talk and talk ... we don't realise that most of the time we talk about problems at work ... things that are still not settled ... things that give us headache. Probably because we are not married and still young and nothing to tell about our family problems (laugh) ...*”

Interviews revealed that in Company 1, most of the team members had no problems attending informal meetings, and only experienced these when they had to interact with team members from the HQ or with their clients. On the other hand, interviewees from Company 3 (project 3B) had problems because it was only at the beginning of their project that they had frequent contact with other team members from the HQ, and thereafter, their contact became much less frequent, with everybody seeming to work on their own individual part of the project in isolation, as the following quotes illustrate:

3B4- “*I only see them often during the early phase of the project. After that it is so difficult even to see their shadows.*”

3B9- “*We only meet regularly if we have problems, otherwise everybody just do his own work.*”

The same problems were evident in Company 2. The team members found it difficult to interact informally especially with those from the HQ.

2A8- “*We never had a chance to meet informally. All meetings were carried out in formal ways.*”

#### **4.1.1.4 Place**

The term *place* refers to places within and outside the organisation. Nonaka *et al.*, (2000, p.8) elaborate the concept of place or ‘Ba’ in Japanese language:

*“‘Ba’ (which roughly means ‘place’) is defined as a shared context in which knowledge is shared, created and utilised. ‘Ba’ is a place where information is given meaning through interpretation to become knowledge ... In other words, ‘ba’ is a shared context in cognition and action.”*

From the open coding process, this code appeared to be essential when the team members talked about informal meetings. Restaurants and café were the most mentioned, as can be seen from the following quotes:

*3A8- “I think men like to discuss their job in the restaurant or cafe, as you can see ... (Refer to place of the interview), 90% are men ~~~~.”*

*2A1 – “Before I go for the meeting, I always like to have a cup of coffee here (in the café). You see ... I am from the subs ... I don’t have an office here. So, I just sit here while waiting for the meeting and sometimes other team members from the HQ join me. Sometimes, we just chit chat or discuss about our project ...”*

*2A7- “My colleagues and I like to meet at the café for peace of mind and ... and settle any problem regarding the project that we are involved in.”*

*3B4- “You need to network with other, the more you build your network ... the more you will get assistance if you have problems. Yes ... you need to informally communicate with the team members ... but my problem is that first, it needs time for me to get to know them personally and second thing is there is no place for me to have informal meeting with them because this is not my office. I would suggest the young members to make themselves known by participating in the discussion and attending workshops to start building this network.”*

Informal meetings can also be held in people’s offices, as one of the participants who enjoys having other colleagues in his room, mentioned. He claimed that his room has a comfortable atmosphere:



1A7 – “My room is not just an office per se. During lunch time, it is converted to a singing room. I enjoy singing. That is my guitar ... the most important musical instrument in my life. After eating, we play guitar and sing ... it is enjoyable. Sometimes we buy a packed lunch and eat here. We always meet here informally, sometimes we discuss about the project while having our lunch here.”

The absence of a suitable meeting place for informal interaction was especially a problem for team members from the subsidiaries, who stressed the need for such a facility, since without it, the communication among the team members is hampered. From observations at Company 2 and Company 3, it seemed that the team members from subsidiaries always had problems interacting with the team members from the HQs. Indeed, on one occasion the researcher waited with one of the team members in a café before the meeting started because there was no proper waiting place provided, and this explains why most visiting team members arrive just before the meeting and leave immediately after it is finished.

#### **4.1.1.5 Urgency**

Having identified the importance of *place* and *frequency* in respect of meetings, it remained to be seen whether the analysis of other interviews would further establish the coding of ‘meeting’. In fact, from the axial coding process, additional codes emerged as important in this regard, one of these being ‘urgency’. One consequence of such urgency was that members were forced to solve a problem that arose immediately, as mentioned by one participant as follows:

3A1- “Sometimes my boss wants some input from us because he has an urgent meeting the next day. We have no choice ... leave our work and ... prepare some paper work for him. Sometimes, we have to stay back until late at night (Sigh).”

The urgency could also be a result of a problem that has just arisen and that needs immediate attention. The following quotes describe:

2A9 - *"Sometimes we just sit together in the coffee room to solve the problem that one of us is facing. We had discussion and tried to come up with a solution or ... at least with something to help him."*

3A5 - *"Three or four of us sometimes discuss until late at night because of the problems that we are facing ... especially when we have meeting the next day with the top management."*

The problem with urgent meetings is that team members from the subsidiary may not be able to attend, given the distance and other commitments. An urgent meeting causes great difficulty to these team members, and if notification is very late, they may have no possibility of reaching the meeting in time, with the result the structural capital is weakened because not all project members are able to participate. As it is likely that the urgency stems from a problem, and may require everyone's input, this is especially damaging, because when someone's input is required and not available, it creates a negative feeling, as indicated by interviewees:

3B7- *"He is always not available when we need him. Sometimes, it is urgent, the boss wants it the next day ... yet we could not even see his shadow."*

2A1- *"How am I going to attend it? ... she just call me this morning, I was in the city, you know... KL right ... the traffic this morning was horrible."*

3A4- *"No way ... tell me early, I will come, if you want to have urgent meeting, you have to wait for me until tomorrow."*

#### **4.1.1.6 Time**

Interestingly, interviews revealed that younger team members with technical backgrounds preferred informal meetings to formal meetings, one reason being because

they believed decision-making was faster in informal settings. On many occasions, it was obvious from the interviews that some of the young people were impatient and did not like to waste *time*, as indicated in the following quotes:

3A10- *"For younger generation, I think ... we prefer to have informal meeting. I hate meeting actually ... I mean ... formal meeting because I think it is just wasting my time ... it drags sometimes until half a day. Sometimes, it continues to the other day."*

3B4- *"The meeting took too long. I can't bear with it. Why can't they just discuss the important things and leave the minor things to the ad hoc committees."*

Analysis of the interviews also revealed that the dominance of certain people prolonged meetings unnecessarily.

3A8- *"Sometimes the chairman will talk about everything ... including politics, about his village and what not. It is just wasting our time."*

3A5- *"He talks too much in the meeting, it has nothing to do with the project ... I feel bored. The time should be spent on something else."*

It was also evident from interviewees from all three companies, those with technical backgrounds preferred to discuss informally in small groups, especially with people with similar expertise. In preferring informal meetings, 3B2 expressed a sense of comfort and speed in achieving the objective, saying:

3B2- *"I and 3B3 prefer to have informal meetings. Maybe because we are IT people, we don't usually deal with people ... hard to manage people. I found out that informal meeting is much comfortable and faster to achieve the goal."*

Another participant who also has IT background stressed her fondness for discussing with other colleagues informally, saying

1B3- "*In my case ..., I think because of the nature of my work, I like to discuss among my colleagues informally here. It is a lot easier as we can at the same time use computer to point to the problems clearly from the monitor and try to solve them whenever possible."*

Interviews revealed that *time* is one of the important factors that influences people's opinions about meetings, and feelings of their time being wasted due to someone's action or inadequate records of previous meetings, cause a negative predisposition to the whole business. It was evident that due to not wanting to waste time, team members and especially those with technical backgrounds prefer to meet with colleagues informally.

### ***Summary of Findings on the Meeting Category***

The evidence from this study revealed that formal meetings were preferred to informal meetings when a project involves people from other departments or subsidiaries, since this method of communication is believed to minimise problems such as authority, difficulty, lack of place, time, and frequency of meeting. This study found that those factors influenced the outcome of the meetings. However, from the study outcomes, it is suggested that if the network is still in its infancy, team members find it difficult to become close to one another. That said, according to the interviewees (e.g. Company 2 and Company 3), after a few meetings, the tendency for the team members to work closer increases, because by that time they have started to develop a working relationship among them.

This study found that formal meetings were the best way for team members to share knowledge through discussions and brainstorming. Additionally, as the evidence from

the study indicates that most informal meetings occur by chance, it is necessary to plan for formal meetings, since informal interaction may not actually take place, and as confirmed by the interviewees, in informal meetings it is usually relatively unimportant issues that are discussed, and certainly very little can be settled, so whilst they are useful from a social viewpoint, from a task achievement perspective, they are less valuable. Hence, formal meetings are preferred in a project context, and especially when team members are drawn from different work sites. Moreover, this study suggests that meetings that are conducted formally contribute in developing social capital. Therefore, companies must ensure that formal meetings have a definite place in order that people from diverse backgrounds and with differing expertise can come together. Nonetheless, the lack of frequency was cited as a limitation of formal meetings.

Interestingly, according to the interviewees, informal meetings also play an important role in developing social capital. This finding is consistent with Cohen and Prusak (2001a) who note that frequent informal meetings strengthen network ties which have been developed during formal meetings. Indirectly, frequent informal meetings help the team members to build and strengthen the network, which is one of the significant elements in structural capital. On the other hand, companies do not provide the much-needed facilities, such as lounge and staff common room for informal meetings to take place, and especially this is a problem for team members from subsidiaries because they just arrive for formal meetings and go when they are finished, so there is no opportunity for them to communicate informally and thus enhance their relationships with other team members.

#### **4.1.2 Relationship**

*Relationship* is found to be one of the categories which described structural capital, and appears as a vital aspect of social capital development. In the present study, relationship is divided into two types: long-established relationship, and newly-developed

relationship. Long-established relationships could be the result of either formal or informal interaction occurring through job rotation, working together on a previous project, having a similar background, working in the same department, or having studied in the same university. Newly-developed relationships are responsive to the current conditions, such as being involved in the project activities. Activities like visiting the HQ or other departments and attending workshops helped to connect the team members. The items to be discussed under this category are job rotation, same department, short visit, previous involvement, training and workshop, and similarity.

#### ***4.1.2.1 Job Rotation and Same Department***

The relationship between team members could develop if they work together outside of the project, either through job rotation or by being in the same department. However, the interviews revealed that very few participants mentioned that they had worked together before.

*3B2-“I only know some of the team members by names ... never have any acquaintance with them before ... either working in the same department or in the same project.”*

*1A3-“I have been employed to work at the subsidiary. I don't think they will transfer me to HQ. I will be like ... working in another company if they transfer me there. I think since our company is small, there is no opportunity for job rotation.”*

*3B1-“I just move to the HQ due to promotion. It is quite different at the beginning although I always come here for meetings. But ... I only know them during the meetings, never get close.”*

Although most of the team members of all the five projects had never gone through the process of job rotation, a few did mention the benefit of working in the same department. However, only a few have this experience, especially from Company 3. For the vast

majority of participants, their relationships with their fellow team members only began when they started working on their projects, and this was because they were either new to the companies, or from other departments or subsidiaries. For instance, according to 3A10, the support and motivation that she received from other team members stemmed from the fact that she had known them well for quite some time, in which respect, she explained

3A10- "I have been working with some of the team members in other projects. So, I know them quite well. In fact, some of them are in the same department, which is why ... you see ... we are like brothers and sisters. We have no problem in working together. I don't need to ask for help because they will help, guide and try to motivate me if I have problems with my job."

3B3- "3B2 and I work in the same department, ... though, I am new here, he helps me a lot. This is my first time job after graduation and ... my first project."

#### **4.1.2.2 Short Visit**

Apart from job rotation, the *short visit* is another mechanism that has the potential to foster the relationship among team members. Interviews revealed that team members from the subsidiaries of all the three companies like to have a short visit to the HQ, since this gives them the opportunity to make the acquaintance of people from there. They felt this was important because they were not familiar with the HQ culture, despite being part of the same company.

1A7- "I think a short visit to HQ is important. It is not only make you familiarise with the place but you can get to know other things like the people there, their culture, and politics."

A short visit helps to build the relationship among the team members, especially from the subsidiary, and this is crucial, since the interviewees were well aware that problems always arise when a team member from a subsidiary has no relationship with any of the

members from HQ. These team members expressed their concern about having to introduce themselves to the people from the HQ.

2A6- "I have no relationship before. I have never been to the HQs. Horrible ... you know ... I don't know what to do and how to react. I have to introduce myself, otherwise they would have just thought that I am another salesman coming. I think our company should have brought us here for a short visit."

#### **4.1.2.3 Previous Involvement**

This study found that the relationship of team members is also influenced by their *previous involvement* in organisational activities. Previous experience of working on the same project is said to provide members with the chance to develop a relationship, and this type of experience is seen as a way to learn about other team members' expertise and knowledge. However, the study found that only a few team members knew one another because they had worked together previously on another project.

1A6 - "After working in the previous project, I think I know what my colleagues are good at and this makes it easier for me."

1A9- "I think for internal project, whether you have been working together before ... or not does not really matter, but for the external project it does make a difference. I find our boss has no problem in dealing with the people from HQ ... he had worked there before."

It is clear from the interviews that team members, especially those from the subsidiaries in all three companies realised the importance of developing relationships before embarking on a project. Their perceptions were that it was of obvious benefit to be in a position where they had first had experience of other team members' areas of expertise and the quality of work they were capable of delivering. The quotes below indicate their concerns.



2A6- "Yes, I find it easier to interact with the team members if we have been working together on a previous project. Furthermore, I will know better about their expertise. You know ... if this is your first time working together, it is hard to build relationship with them. They are quite cool, but once you know them, it is easier to co-operate."

2A5- "The project team like me and 2A2,... we have been working together before in a previous project, so I find it easier to get help from her, but 2A3 for example, she is a new member, so she needs to find her way ... I mean ... in terms of getting help or info."

3A3- "Yes, but this company is big. Sometimes, we always work with different people. In this project ... I have never worked with any of them before. I find it difficult to interact if we do not have any relationship before."

The interviewees revealed that experience of working on previous projects, is helpful when working on future projects. However, some of them mentioned that although previous experience does help, the fact that they are working on a different project with new and different team members, provides new experiences, and they also commented that even if the people were the same, they might still relate differently to others because the situation was different.

3B7- "Everybody seems to be on his or her own ... probably because he is busy with other work. It seems that ... even though I have been working with them before ... this time they act differently."

1B6 -"I would say that it is much easier to work with somebody that you know or have been working together with before ... rather than a total stranger... because you don't know what to expect. But, though you know them, sometimes ... people can act unexpectedly"

3A3-"Doesn't matter whether you have been working together before or not ... because each project has its own characteristics and ... maybe I just know one or two but not others."

#### 4.1.2.4 Training and Workshops

Another item noted as being valuable for the development of relationships is *training and workshops*. In this respect, the interviews revealed that the more training and workshops they attended, the more opportunities they saw available to them to mingle with other organisational members. They also believed it was a helpful to a team when members came from both the HQ and the subsidiaries, as they could bring different perspectives to the tasks involved in the project. Meeting during training and in workshop situations was considered to help people in forging relationships with others, especially when they knew they were going to be working on the same project. Indeed, some interviewees did mention that they knew their team members because they had attended training or workshops together.

3A1- "*It is good if you have attended any workshop or training. I think training is even better. Training usually lasts for a few days and sometimes months. I get quite close with some of them. Unfortunately, none of them are in this project.*"

3B8- "*We were staying in the same room in a two weeks training. I guess ... I know her much better than before. I am quite 'OK' with her compared to others.*"

However, interviews also revealed that having attended workshops together does not always make members close. For example, if workshops are short events, there is little time available for people to establish relationships with each other.

2A8- "*I had attended ... I think three workshops with him before. But, we just said 'hi', ... smile but didn't talk to each other. I just knew him by face and the funny thing was that ... I only knew his name when we worked together in this project. They were half-day workshops, too short ... no time for interactions.*"

3B5- "*The seminar or workshop that I have attended was too short. I didn't have the opportunity to get to know each one of the participants. Only managed to talk to one or two during lunch.*"

#### 4.1.2.5 Similarity

The code *similarity* also appeared to be important under this category. Interviewees indicated that similarity was one criterion that helps the team members to feel comfortable when working together. They also confirmed that in a situation where an individual did not know anybody in the team, he would approach someone whom he believed had a similar background, since that would form a basis for some common understanding.

1B2 -*"I find it is easier to work with them. Once ... I was a government servant. I have no problem interacting with them ... but other colleagues will always depend on me whenever they have to communicate with them."*

1A3- *"Although I am the only female in this group ... I find it easier to deal with people with the same background. Easier to understand each other. In this project, it does not require me to interact with other people often ... only with the software engineers."*

3A3-*"I prefer to discuss with him ... because it is easy to understand each other. We have IT backgrounds ... so we always talked about the same things."*

Interviews also revealed that gender was important in establishing similarity. Female interviewees indicated that they usually face problems when interacting with males.

2A5- *"I think it depends on the situation ... I personally do not prefer face-to-face communication especially with the opposite sex ... other medium such as e-mail or telephone will do for me."*

3A10- *These projects involve more males than female staff. I found men usually do not have problem mingling with others. But for us ... it is different you know ... I don't want to be considered overacting."*

3A7-*"Probably, I am a quiet type of person. The men are always loud ... I could not go along with them. If there is no other lady, I will just eat after meeting and leave immediately."*

From the observation at Company 2, it was clear that if the team members were from an engineering background, the tendency for them to talk to each other and understand their viewpoints, was greater. Their engineering culture brought them together as a group (Koruna, 2004), despite the fact that they did not know each other prior to working on the project. Koruna's finding that engineers tend to interact only with each other, whether in formal or informal meetings, was borne out in this study.

### ***Summary of Findings on the Relationship Category***

The evidence from the study revealed that *relationship* is one of the categories that support the development of social capital among the team members of an organisational project. The study found that those team members, who have the opportunity to build a relationship before the commencement of a project, find that their future interaction is facilitated, and more productive. For example, having a relationship through working in the same department either previously or at the time of the project, helps the team members to easily get assistance in completing their work. This study also found that company activities such as short visits to the HQs, are considered important to enhance team members' familiarity with the people and environment.

This study found that the involvement of human resources activities such as job rotation, training, and workshops, helped the organisational members to become closer to each other, as did having similarity in expertise, gender or background. It was apparent that these activities and circumstances all helped to build and strengthen the ties among the team members, thereby enhancing the development of the structural capital of the company.

### 4.1.3 Interaction

*Interaction* was one of the categories found to describe structural capital. It is crucial to have this among the members of project teams because it is the means through which most knowledge is shared and transferred. In order to be effective as a team, the team members have to have frequent interaction and communication, as has already been indicated in the discussions relating to formal and informal meetings. The interviewees noted that interaction was achieved through face-to-face conversation, telephone, e-mail, yahoo messenger, video conferencing, or written notes/documentation. Since some of the participants, particularly in Companies 2 and 3, were distanced from one another, the medium of communication used was either telephone or other electronic devices. Without doubt, from the interviewee's perspective, and from the researcher's observations, interaction through communication is a significant requirement in the development of structural capital. The items to be discussed under this category are face to face, telephone, e-mail, black and white, and written formal.

#### 4.1.3.1 Face-to-face

Interviewees revealed that when interacting among themselves, most preferred the face-to-face conversation rather than any other medium, and described this need in words such as 'see personally', 'talk personally', 'direct communication', or 'interact personally'. This type of communication is preferred for clarification and certainty reasons.

3A2- "I like to talk personally because I find it comfortable and easier to discuss and solve the problems together."

2A7- "Working in a project is different ... because you are not working with your colleagues in the same department ... some of them are from the subsidiaries. I only know them now. It's very difficult to work together at first but ... after few face-to-face meetings and workshops we get to know each other better."

Through observing the team members at the site, the researcher noticed that they liked to see each other, and mentioned that working in the same place made it easier to communicate face-to-face. In Company 1 for instance, most interviewees claimed there was no need for them to use any other medium to communicate because they were working in the same subsidiary, and met one another every day. E-mail and telephone means were confined to communication with outsiders. On the other hand, team members in Companies 2 and 3 did use other methods such as telephone and e-mail in addition to face-to-face communication, because they were from other departments, subsidiaries, or HQ. Nevertheless, the majority of interviewees did express a preference for face-to-face communication, as indicated in the following quotes:

3A7- *"I prefer to see them personally because from there I can dig and get the whole idea. Only after meeting them, I will use telephone or e-mail for confirmation or feedback."*

2A1- *"Although I am an IT person, I prefer to interact face-to-face. Even though it is not convenient for me to travel (to HQ) often, I still prefer face-to-face because of fast feedback and definite answer."*

The benefits of face-to-face interactions are numerous according to the interviewees who mentioned their ability to see body language such as facial expressions, gestures, posture, and the like, from which they felt they could learn much more than other types of interaction. The quotes from 1A3 demonstrated the emergence of the code *body language*. The face-to-face interview was preferred because body language could be observed and interpreted, and some people considered this important because they felt it conveyed the sincerity or otherwise of the other party.

1A3- *"I prefer face-to-face, it is easier and fast to get feedback. Furthermore you can see their body language."*

1A5- *"I would prefer face-to-face because you can see their gesture ... you can see their expression ... whether they like it or not."*

2A4- "I prefer direct communication because I can see their expression ... you know, sometimes seeing personally and hearing the voice can make you understand much better."

From the interview questions on face-to-face interaction, it is clear that among the other benefits identified was the ability to clarify the information being exchanged. From the following quotes, the code *clarify* was derived.

1B2- "I would prefer face-to-face whenever I interact with somebody. For me ... maybe I am an old version, I don't prefer e-mail. Through direct communication you can explain the problem or ... what you want in a clear way ... if they answer and you don't understand, you just ask back for clarification."

2A2- "You can clarify things if you communicate directly because you don't have to wait longer for answer if you don't understand. However, if other teams are not from the HQ, I prefer telephone."

Face-to-face interaction provides clearer answers because questions can be asked specifically regarding any problem which the other party can then address. Hence, it allows for a more meaningful and comprehensive dialogue between team members. One interviewee commented on its advantages, and potential disadvantages as follows:

3B6- "It is more personalised. When they come and see me ... I can tailor to their request what they actually want but the constraint is that I might not be around all the time."

To be able to communicate face-to-face without any restriction or barrier is not an easy task. However, once a person is able to communicate and expresses him/herself well, the benefits of face-to-face interaction/communication are obvious. Interviewee 2A1 found it hard to communicate during the first few months of interaction with other team members from the HQ because these members seemed unapproachable. It was only after

a few meetings and attempts via e-mail and telephone that the interviewee was able to achieve successful face-to-face communication with them.

2A1- *"Sometimes you just cannot simply go and ask them because ... you also have to maintain your reputation. It happened to me many times ... I found it quite difficult to work with the HQ people. I guess ... they think that they have some sort of high standard compared to us ... people from the subsidiaries. But ... once you know them well, they can be very friendly. You could ask their favours to help you if you are facing any problem regarding the project. After all ... you know, you are part of them."*

On the other hand, a team member from Company 2 described her disappointment when her staff did not turn to her personally when they met problems. According to her, more things could be learned if they consulted her personally, as was evident from her response:

2A2- *"Face-to-face communication solves a lot of problems. I prefer my staff to come to me personally and ask about any problem that they are facing in this project. It is easier for me to teach them until they really understand. I am not satisfied with those who ... who do not want to ask me personally if they have problems."*

It was evident that in-depth knowledge is one of the outcomes of face-to-face interaction. For instance, when 1B3 was asked to describe the benefits of interacting face-to-face, she explained:

1B3- *"Compared to other mediums, I think I can get more information in the sense that I can get the whole idea how to solve my problems."*

When asked whether she could just use telephone or e-mail, she replied:



1B3- *"It actually depends on what type of info that I look for. If it is regarding the programming, e-mail would do. But for other info, especially regarding the decision about the content, I would prefer face-to-face."*

Although face-to-face interaction is rarely questioned as a powerful mechanism for knowledge sharing, due to physical, temporal and departmental constraints, it is not always feasible (Mohamed *et al.*, 2004). In this study, team members, especially those from Companies 2 and 3, were found to use other media to communicate such as using e-mail or telephone.

#### **4.1.3.2 Telephone**

Another widely-used communication medium was the telephone, since this overcomes to some extent, the problem of people not actually being on hand in the same environment, and the findings indicated that this was a favourite way of interacting among team members. However, the use of telephone and or direct observation was rarely reported by those in Company 1. It was noticed that telephones were not allocated to each of the team members, and there were only four telephones in the department concerned. However, it was clear from the interviews with participants from Company 1 that for both projects, there was no necessity to use telephone to communicate with other team members, and that it was only when dealing with the HQ and clients that this was needed. This situation contrasted to that found in Companies 2 and 3, where each team member was provided with a telephone. From her observations, the researcher noticed that although Companies 2 and 3 team members preferred face-to-face communication, they were only able to interact in this way (apart from in meetings) if they worked in the same department, and otherwise, telephone and e-mail were the two most frequently-used communication media. In this respect, interviewees said:

3A7- "I am from the human resource department. I rarely seen them if there is no meeting. So, I will just call them if I need information or updates."

3B5- "We have no choice because our location is far from the HQ. I will call or e-mail them. But ... if I want fast feedback, telephone will do."

2A12- "My office is quite far from the HQ, if I need any information ... I'll just call them."

However, certain participants, especially females, were reluctant to meet their male counterparts personally except in formal meetings and in the presence of other members. The observed behaviour of *reluctance* and the interview analysis indicated that female participants were hesitant to become involved in face-to-face interaction because of the feeling of discomfort in being with a person of the opposite sex, as illustrated in the following quote:

2A5- "I think it depends on the situation, I personally do not prefer face-to-face communication especially with the opposite sex ... other medium such as e-mail or telephone will do for me."

Another female participant expressed a similar opinion, although with less concern, saying:

3A10- "I don't see the male member personally ... or meet informally ... because I think formal meeting is enough. If I need something to be clarified, I will do that in a formal meeting. When it is so urgent, I just e-mail or call them. But if they are in the same department, I just talk to them directly."

It is evident from the above quotes that for a female team member to meet with a male counterpart are rare, especially, when they come from different departments, the HQ, or a subsidiary. From observation, the researcher also found that in Companies 2 and 3,

female members are comfortable to meet and discuss among themselves, confirming the cultural attitudes to mixed sex relationships. However, it was also apparent from another female that her working situation had placed her in the position where she felt comfortable with her male colleagues, as the following quote indicates:

1A3- "You see ... I am the only lady in this department. I always have to work with men since I started my job in other company. Probably, because there are few females in my field. I often discuss with them regarding our project but ... sometimes when they go out together for tea, I will join them."

With the emergence of new technology, the mobile phone is perceived as a must for everybody. From the observations, the researcher discovered that all of the participants had mobile phones for personal use. Company 3 provided mobile phones to some of the team members, and some even had more than one mobile phone. Apart from that, they were also carrying personal digital assistant devices (PDAs) with them. When one of the participants was asked why she needed more than one mobile phone, she explained:

3A6- "One is for personal and ... the other one is strictly for business. So, whenever this phone rings, I know it must be from one of the team members of the project. I can respond promptly. It is easy you know ... for example whenever I have problem or puzzle regarding the project, I can just call them."

Although most of the participants were provided with fixed telephones, the researcher noticed that some of them, especially the younger generation, preferred to use mobile phones, and it was assumed that this preference was associated with the text message facility.

2A1- "Sometimes, when I was with my clients and they asked me about things that I was not sure of, I just called or sent a text to my colleagues"

3B3- "I prefer to use text messages ... I don't know... everybody use text messages ... I find it convenient."

2A7- "I would rather text them, for fast response, it is easier....."

1A5- *Nowadays, you can see everybody has mobile phone. People will always look for the latest and sophisticated one. I prefer mobile phone because ... when I am on the move, I can text, e-mail, listen to music, and many things.*

2A6- "*I could not imagine those without mobile phone. I am doing marketing ... mobile phone helps me a lot when I need to call my boss or make appointment with the clients.*"

Interestingly, interviews revealed that the young team members from all companies prefer to use mobile phones and e-mails in their conversations because they offer a fast, convenient, easy and stylish, means of communication.

#### **4.1.3.3 E-mail, and Black and White**

Another form of interaction among the team members was found to be e-mail, which has rapidly and widely become "the medium of choice for managers and employees in most sectors of economy" (Harvard Business Essentials, 2003, p.77). E-mail was particularly preferred when the team members were apart from each other, and was cited as being necessary because of their hectic life styles. Other written communications within the companies were memos and business letters. However, in this study, black and white refers to evidence as documented in the minutes of meetings, as well as evidence of informal communication as seen in e-mails.

From the interview analysis, it was apparent that top managers preferred to use e-mail because their other commitments meant they could not deal with the team members face-to-face except in formal meetings, as demonstrated in the following quotes.

2A13- "I am always busy ... and not around, but I attend to e-mail every day. You will get very fast respond if you e-mail me."

3A2- *"It depends on the situation ... I read my e-mail every day, I am quite busy, I cannot entertain people, e-mail is faster and straight to the point."*

A particular interviewee, who was one of the champions of the knowledge management (KM) portal project, encouraged his staff to use the portal because of its potential benefits such as knowledge sharing. In this respect, he said:

3B1-*"... That is the purpose of the KM Portal. You don't need to see each other face-to-face. Now we are in the millennium time ... the KM Portal is a platform for us to share and discuss things."*

However, the use of e-mail as a medium of communication also depends on the situation, for instance, being distanced from other team members, and not being able to communicate instantly were among the reasons why this method was chosen.

1B5- *"It depends on where I am at the time ... if I am here, I would prefer e-mail, if I go there ... I would prefer direct communication or telephone."*

3B2-*"It is very hard for me to go to his place. I would prefer e-mail because sometimes when I called him, he was in the meeting or busy with something else. So ... e-mail is the best medium. It also helps me to be notified when he reads the message."*

Other participants mentioned that they used e-mail to set up meetings, as shown below:

1A7- *"I prefer face-to-face meeting, I just use e-mail to set up time and date for meeting."*

3A1- *"E-mail is used whenever I want to know about the project updates ... but if I need details, I prefer face-to-face meeting."*

In addition, an e-mail also served as a proof of communication. In this respect, some participants wanted their communication to serve as an official record, as a precaution against some other team member not fulfilling his or her obligation, while others preferred e-mails for reference purposes, especially regarding technical problems. The evidence from the quotes below revealed the need to have black and white proof of what they had done, as a reason for using e-mails.

1B6- *"It actually depends ... , sometimes if working with people from outside especially with the government, I would prefer to have black and white proof and an e-mail would be the method that I preferred."*

1B5- *"Sometimes, e-mail is preferred ... especially if I need info regarding the software programming ... because I can just read and then do or explore it myself. For me ..., e-mail is not only the fastest medium ... but it also creates the proof of what has been agreed informally ... especially regarding the technical problem."*

3A2- *"I prefer e-mail. You can get the messages in written form and you can always retrieve them whenever needed. It is easy for me ... I am always in front of the computer. I switch on e-mail alert, so, I can give fast response."*

The quality and practicality of these interactions also matters. The interviews revealed that team members with technical backgrounds are more likely to seek out information through e-mail.

3A2- *"Sharing does not only take place face-to-face but you need networking ... I mean internetworking .... that means you must share ... We are technical people and find it easier to share the knowledge through e-mail."*

1A8- *"For us (software engineers) e-mail is more convenient because we have no problem in understanding each other. For example, I would rather communicate with the programmer from France through e-mail rather than telephone call because I could not understand his accent."*

The findings indicate that individuals with higher levels of expertise are more likely to provide useful advice over a computer network. It was also found that team members

with technical backgrounds from all the companies, such as computer software engineers, preferred to exchange knowledge with their counterparts via a computer network.

With regard to Computer Mediated Communication (CMC) other than e-mail, such as company intranet, interviews revealed that Companies 2 and 3 have these facilities. Participants also indicated that in Company 2, there was a separate intranet in the subsidiary company, but that employees from the subsidiary had no access to the corporate intranet. As for Company 3, although the subsidiaries had access to the corporate intranet, it was only top management (from HQs as well as subsidiaries) personnel who had the authorisation to do so. Additionally, the subsidiary from Company 3 has its own network (KM portal).

3A4- "*Unfortunately, this database is for managers only. They have to keep updating the projects in the database. This is important for performance assessment.*"

3A9- "*In this company, we have our own intranet. The key people from the project can co-operate and share info and knowledge. Everything about the project is there. However, you have to use the database selectively.*"

3B10- "*We have our own KM portal, but I have only used it once, there is not much information. People still prefer to call or e-mail.*"

2A1- "*The HQ has their own corporate intranet but we cannot access although we are their subsidiary. They treat us like a separate entity.*"

Although CMC is widely used in Companies 2 and 3, it did not serve as a medium of interaction regarding the project for all the team members. Interviews indicated that only those from HQ in Company 2 had access to corporate intranets. In Company 3, specialised programmes were used by the key people in the project to upload and share information regarding the project. For other members, only company e-mail was used. Also in Company 3, there was less use of e-mails except when communicating with HQ and the team members from their clients.

#### **4.1.3.4 Written Form**

Another form of interaction involved in project implementation is a written form. This form was used internally to provide a written record. Some organisations use a standard form on which employees can make complaints or offer suggestions. However, the observation, field notes, and analysis of interviews did not suggest that such communication techniques were used for any of the projects at any of the three companies. During a visit to HQ at Company 3, it was discovered that memos were used as part of the written documentation, especially to remind other team members of the deadlines they were to work to. From the analysis, team members from all of the companies showed an aversion to using written communication, and one in particular said this would be his last choice. It was evident that face-to-face, telephone, and e-mail communications were considered to be more convenient and effective.

*3A8- I will only use the written form if it is necessary; I have never had any problem in communicating with other team members. I did use memos a few times, either posted it on my door or left a message to the team member if she or he was not there.*

#### **Summary of Findings on the Interaction Category**

This study found that *interaction* was considered to be vital in developing structural capital among the team members of a project, the evidence indicating that face-to-face encounters were the most preferred medium. However, it was also clear that other media such as CMC, e-mail and telephone, were utilised dependent upon factors such as distance, time, how busy team members were, and whether they needed to keep evidence of communication they had had with other members. The mobile phone was extremely prominent in interactions between the team members, as a means of both verbal and written communication, the text messaging facility being particularly popular with young team members. Clearly, there was a strong need for frequent interaction between project participants, and hence the findings suggest that a company must



provide a platform for this both physically or virtually to encourage closer communication among team members and the resultant knowledge sharing.

#### **4.1.4 Position**

*Position* was one of the prominent categories that emerged in describing structural capital. Position or organisational hierarchy describes the formal reporting structure of regular positions at organisational level. Usually, each position formally reports to exactly one other position above. Hence, the position of team members in an organisation is a key factor in them knowing whom to consult for assistance. It is evident from the analysis of the interviews that junior members sought advice from their seniors if they met any problem regarding the project. In addition to interview transcripts, field notes, and observation of the team members in their meetings and at the sites, were also made, from which various items belonging to the category of position arose, these being status, experience, familiarity, culture, and obligation.

##### ***4.1.4.1 Status and Seniors' Experience***

These two items were strongly associated when discussing the category of position, and hence, they will be discussed simultaneously. Factors such as power and hierarchy which relate to the status of the team members in the organisation may influence the way in which the team members communicate with each other and share their knowledge (Leornard and Sensiper, 1998). Indeed, the interviews revealed that status differences, and the team members' actual roles in the project or in the workplace generally, did affect their interaction, as one indicated:

3B4- *"I find it difficult to penetrate the management as if there is a curtain before me. No opportunity to tell what you know but just to accept and receive ... in a way ... it is not fair."*

The team members from Companies 2 and 3 faced more problems of this kind. Company 3 was more bureaucratic than the other two companies, and Company 1 was much more decentralised with power being devolved to lower level employees, as was observed in the decision-making process that showed decisions had always been made based on consensus.

1A1 – *“I will not make a decision myself, we have long discussions if we want to make a decision. I don't want to make wrong decision ... I listen to my subordinates. We decide based on consensus.”*

Team members also expressed their concern about not following the organisational norms, perceiving this to be a challenge to authority that might ultimately be harmful to them.

2A1- *“No, always the project leader, which is 2A5. It is very important that you observe the hierarchy. So that everybody is happy. If you try to step ahead of them, you know the consequence ... you know ... that kind of stuff.”*

3A7- *“We just follow what they say. Now it is so unstable due to company downsizing. At any time you can get fired. Those who are not the favour of the authority will easily be asked to opt for VSS (Voluntary Separation Scheme). I don't want to be one of them.”*

3B10- *“I do whatever, as long as I can do my work, that's it ... I don't really care what they gonna say. My advice is... just follow them.”*

2A10- *“You know ... this company is a family business. Just make sure you don't make any mistake by complaining about the authority to whom you don't really know. It might end up talking to one of them (laugh).”*

Working in different locations also affected the team members' willingness to participate in the project activities such as meetings and brainstorming. Interviews revealed that employees from the subsidiaries considered themselves as inferior to the team members from the HQ, and that they were not welcomed into the team by the HQ members, who would look down on their capabilities.

2A15 – “*When we deal with the HQ, we must make sure we do all the best. They always look down on us ... probably because we are from the subsidiary ... that's why you know ... the implication is quite big if we cannot perform.”*

It was also apparent from the interviews that team members from subsidiaries felt uncomfortable during meetings and discussions, and were reluctant to participate. The observation during meetings at Company 2 showed that when members from the subsidiary were present, both parties seemed to be uncomfortable, and the researcher also noticed that when one of the members from the subsidiary started to talk, the team members from the HQ interrupted her many times with questions. The researcher felt that they were not only looking for answers, but also challenging her knowledge.

Similarly, the young team members, whether from the HQ or subsidiary, felt vulnerable and therefore, unwilling to contribute in the meetings, believing they lack experience and were consequently not at the same standard as their seniors. This gave them little confidence in their ideas, as they considered they were inadequate or irrelevant. It was clear from the interviews with young team members that they preferred to take a safer approach by just listening during meetings and discussions.

3B2- “*Sometimes, I feel afraid to talk ... because you know if I give suggestions, and it turns out to be unconstructive, people will put the blame on me.”*

3B3- “*It is very difficult ... you know. I am new here, and ... I would rather keep quiet than say something. These people are just there to point finger on you if anything goes wrong.”*

2A6- “*The seniors always dominate the meeting. These people have a lot of experience in the previous projects. So ... I just keep quiet and listen. If you want to talk, you must make sure you are prepared. Sometimes, you feel they are just there to test you. (sigh)”*

Undoubtedly, the experience of the team members was always associated with seniority, and many interviewees expressed the belief that the senior staff were more experienced and knowledgeable than they were. Consequently, the code *senior experience* was developed from open coding of a quote like the following one:

1B3- *“Usually, I will discuss with my colleagues first, if we can't ... then we go to see our boss, he has lots of experience.”*

Nonetheless, despite differences in status/hierarchy, the young team members did tend to consult their seniors for help. As mentioned previously, they were reluctant to participate in the formal meeting, but for knowledge purposes, they preferred to approach the seniors, whom they found to be more approachable and open, in a more private situation outside the formal meeting.

3B3 – *“I will consult my boss first if I have problem with the programming. He is so approachable but the most important thing is that he has more experience than me.”*

1B7- *“My subordinates will turn to me if they have problems, but most of the time they discuss among themselves first.”*

2A4 – *“I'll definitely turn to my senior if I have problem. I always try to solve the problem myself first, but after 2 or 3 days, if I still got stuck, I'll ask her for help.”*

3A6- *“I am new here, I am shy if I have to ask my colleagues often, I will do my best but if it does not work I have no choice ... I will seek help from my boss because he is more open. Besides he has knowledge in this area.”*

In addition, when asked who usually dominated the meetings, the interviewees remarked:

1A5- *Everybody will talk ... but of course those seniors because they know more ... because of their experiences ... I guess.*

3B2- *I notice that my senior will do most of the talking. I think he has a lot to say. He has been working in many projects.*

3A7- *The seniors always dominate the meeting. These people have lots of experience in their involvement with the previous projects ... So, they know more ... you see when we are facing a problem ... they usually become rescuers ..."*

Interviews also revealed that not only did the seniors do most of the talking, but those with expertise would also make an important impact.

1A5- *Whoever has the solution to the problem will come with new ideas. I guess because they have experienced it before or they have come across from the internet.*

1B3- *Mr. Y has done a lot of programming before. He is knowledgeable in this field. So, ... no question ... we will turn to him.*

#### **4.1.4.2 Familiarity**

The code *familiarity* emerged through interviewees discussions on the subject of team members' positions, and refers to a considerable acquaintance with another party which is based on established friendship or intimacy. In the project context, familiarity refers to the acquaintance resulting from the structural network. For example, a team member of a project becomes familiar with another through previous interactions. The interviews also revealed that because of not being familiar with other team members, young team members prefer to seek assistance from their seniors, especially when dealings involved outsiders.

1B2- *"My experience dealing with the people from the government make my colleagues rely on me in most occasions if they have problems. I guess ... because I am more familiar with the government."*

3A7 - *"The team especially the juniors will come to see me if they have problems, probably because I am more familiar to them compared to others...maybe ... because I have been working at the HR department before."*

3B6- *"He always comes here. Although we just know by face and names, compared to others (never met before), I prefer to ask him for assistance."*

3B10- *"When I first worked in this project, everybody seemed to acknowledge me although I didn't know them. For instance one of them asked me whether the new book that she ordered has arrived. Then, I realised, I am familiar to them because whenever they go to the library where I work, they always see me in my room. (laugh)"*

From the interviews, familiarity is also associated with people who know about a particular thing such as policy, culture, or place.

1B7- *"We try to solve a problem among our colleagues at this level first, usually we manage ... but there is occasion when it involves marketing and government policy, our CEO has to get involved as well because he is more familiar with the policy."*

2A8- *"If I have to go to the HQ, I prefer to go with my colleagues. I am not familiar to them ... because I rarely go there. It is kind of going to another world"*

3A2- *"The atmosphere in the meeting is the same ... I know what to expect. Always long hour meeting without conclusion. So, the least thing you can do is be patient, just bear with it."*

#### **4.1.4.3 Culture**

*Culture* is one of the features associated with position. An open organisational culture encourages staff to seek help from their superiors, and likewise enhances the process of knowledge sharing and acquisition. Moreover, research has concluded that subordinates

who have open relationships with their bosses are more satisfied (Fisher, 1993, p.276). In the project context, the environment is different especially when the team members are apart from one another, and possibly are used to operating in different cultural contexts within the overall organisation. The effect of cultural differences was observed in the team members' day-to-day interaction, in meetings, during discussions, and when brainstorming, from which it was clear that Companies 2 and 3 practised a less open culture than Company 1. The following quotes indicate the existence of barriers to communication among the subordinates and their bosses, as a result of cultural norms within the organisations.

2A5- "*Everyone must work hard and do his own work. He cannot always come to see the boss to ask things.*"

3A6- "*In terms of knowledge sharing, I would say some of the bosses usually won't give directly what their subordinates ask for. They will usually say "You must find yourself, I myself did not get things easily, I had worked hard to be up here."*

However, interviews in Company 1 demonstrated a different culture.

1A2- "*I don't know about others. For me, I'll share with my staff ... I am more than willing to help them if they come to see me personally. My experience is for everybody to share"*

It is interesting to find that although the teams were comprised of people from different ethnic backgrounds (Malay, Chinese, and Indians), they all shared collectivist values, and would thus, be expected to share their knowledge with other members in the same group (Triandis, 1995).

3A8 - "*I won't keep the knowledge for myself. We work in a group, so everybody is entitled to know.*"

However, total obedience to the senior members of the team and the feeling of inferiority, could impede knowledge sharing. Due to power distance, not only are the seniors dominant but the young team members are always on the side of receiving knowledge without challenging what they are told, or making a contribution. Findings also indicate that team members perceive power distance is predominant in the organisation.

3A9 – *“The team especially the juniors will come to see me if they have problems, probably because they think that I knew more than them. But they will just listen without asking more. What ever I say they will just listen.”*

3B3- *“How am I going to talk in the meeting, it seemed that I had no chance to interrupt. They won’t listen (sigh).”*

2A7- *“They always think that our ideas are not suggestive just because we are young.”*

#### **4.1.4.4 Obligation**

Findings indicated that the obligation to share knowledge in a project context arises from the contractual duty to the organisation. In this respect, team members said they help other or share their knowledge not because they want something in return, or they trust the person concerned, but rather because they perceive it as their responsibility to ensure success of the project. The open codings *perform, role, duty, and responsibility* all signify the code *obligation*. It was apparent from the interviewees that they believed they had a responsibility to perform any activities that were necessary for the success of the project to which they were appointed.

3A8- *“Yes, we have to share because we are working in a team ... it is our obligation to make sure the project is successful. After all, it is your responsibility and surely you will feel shy if it is not successful because you are one of them.”*



2A7- "I think everybody must share. The management has appointed us because they know that we can do the job. So, we must do our best. It is our duty to perform and share with other team members."

1A3- "Well, you like it or not, it is your responsibility. Your role is to ensure the project achieve the target. So, you can't keep the knowledge for yourself."

3B2- "There is no problem to share knowledge. Each one of us has our own responsibility. We must fulfil our duty."

Interestingly, when asked whether they expect other members to reciprocate in the knowledge sharing activity, all the team members from the three companies responded by saying:

3A3- "When we work together, we must share, but how much one shares is dependent on the situation. Some people just share whatever is necessary for the project as part of his duty. But once you know them better, I believe people will share more willingly."

1A2- "It is part of my obligation, I think the more you share, the more you get. There is no question of getting something in return. I just don't understand people who like to keep what he knows just for himself. This kind of people cannot survive longer in the company."

For further clarification, some of the interviewees were asked whether they shared their knowledge because they felt duty-bound to do so and hence contribute purely to ensure the team's success in achieving the project. In answer, most confirmed that the main reason for sharing whatever information and knowledge was available, was to ensure the project's success, and hence, that of the organisation as a whole.

2A3- "You must perform your duty as you have been appointed to work in this project. I would expect everybody to share what ever resources they have for the sake of this project. After all, it is your duty."

### ***Summary of Findings on the Position Category***

The evidence from this study demonstrates that *position* is an important category in structural capital, since team members' networks were very much influenced by their position in the network, and their willingness to share knowledge was determined by their status and experience. Status difference as seen between bosses and subordinates, and seniors and juniors, emerged as a potential obstacle to knowledge sharing, since power distance was substantial. On the other hand, the team members' collectivist values did promote a willingness to share for the good of the project. They perceived it was their obligation to share resources and knowledge to achieve the common goal. In this situation, team members tended to overcome their fear of authority in order to seek help or assistance from a superior who was familiar to them, and whom they believed would be prepared to give advice. They stressed that their obligations are based on the role that they played in the project rather than reciprocity. The younger team members would just accept the knowledge from their seniors without challenge or questions, because that again is tied up with power distance and collectivism and the fact that senior members have more experience thus the receptive of younger members are high.

#### **4.1.5 Proximity**

Hinds and Mortensen (2005) argue that *proximity* is an important category in structural capital, pointing out that when team members are near to each other, they develop a similar work culture as they share the same space, have the same access to tools, and follow the same work processes. This argument is borne out by the findings of this study, and hence the study adopts the definition of proximity introduced by them, which refers to office environment, design and equipment provided to ensure comfort and a place that is conducive for knowledge sharing and interaction.

#### ***4.1.5.1 Office Environment, Shared Equipment, Partition, Privacy, Comfortable, Conducive, and Distance***

As proximity refers to the physical environment of the office and its effects are almost the same on team members, the researcher decided to discuss all of the items under this category whenever appropriate. From the interviews it was apparent that proximity, entailing physical structure, office environment and layout, shared equipment, privacy and comfort all allow for increased interaction and thus, have a positive effect on knowledge sharing. All of the team members from Company 1 interviewed in this study were from the subsidiary, and when asked how they felt about not being proximate with other team members from the headquarters, the responses were as follows.¹

1B5- "I don't like this kind of arrangement, I prefer to have my own room, more privacy ... but this kind of environment does encourage interaction and it's easier to communicate. But being far from the HQ make it difficult to interact with them. Sometimes when I called them, nobody picked up the phone. It has been two or three times like that. It's boring~~~~~"

1B3 - "You see your colleagues every day, and ... you know what they are doing. We are only separated by partition. And we share most of the equipment here. You don't have to find them if you need some info, just turn your head and ask. It is not so with the people from the HQ. Being apart make it difficult to interact and what more to share knowledge. I think we only share among ourselves here."

1A6 - "My boss is just next door, I know when he is in or not, and it is also easy for him to see us. Even though, sometimes it is irritating ... but in terms of interaction, I can just go to his room to ask something, no hassle to write e-mail or make a call."

The team members at Company 2 who worked at the subsidiary also believed their office environment was conducive to both work and relaxation, as seen in the following comments:

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¹ Only team members who are from subsidiaries were interviewed for this study because the researcher could not access the team members from the HQ.

2A9- "Our office at the subsidiary has open areas like the pantry and rooms for recreational purposes to unwind. Our office has open space ... we can see each other, it is comfortable and conducive for knowledge sharing."

2A7- "I think my working environment ... is a very conducive one to interact. My colleagues and I will always have the chance to discuss things informally."

Similarly, team members from Company 2 who worked at the HQs also mentioned that they were happy with their office environment.

2A3- "Only the top management have their own room but you still can see them. We just being separated by the glass wall. As for us ... we have an open space which is comfortable. We share the printer, photocopy machine ... fax machine but fortunately we don't share telephone and computer (laugh)."

2A5- "My place is just here, whoever come they will see me straight, I cannot hide myself (laugh). Anybody can come and discuss with me."

In Company 3, those who worked at the subsidiary mentioned that they were separated from one another because they each had their own rooms which were situated in different buildings. From the researcher's observations, they rarely met each other because of this situation.

3B6 – I prefer to have my own room because sometimes I need to see my customers and I don't want any disturbance from the environment."

3B8 – "I think most of us here prefer to have our own private room, probably the nature of our job requires so."

3B2- "I like the open environment probably because it makes me easy to discuss with my colleagues especially when we are dealing with the systems. Unfortunately, only 3B3 and I are near to each other ... Other team members are quite distanced from us."

On the contrary, interviewees for project 3A who worked at the HQ were from different departments, each of which was situated on a different floor. Indeed, some team members were even located in different buildings. In each department, the desks were separated by the partition except for the top management (e.g. general manager) who had their own rooms. Since the team members came from different departments, they did experience problems with proximity.

3A8 – “Previously, the bosses have their own office and even now, I have my own office but I make sure it is always open to encourage my subordinates to see me.”

3A10- “I work at level 23. I never see any of the team members even during lunch at the canteen. I have met 3A6 few times but never had a chance to talk.”

3A2 – “The departments are situated at different levels ... I never see other team members except during meetings. Only once in a while I bump into one of them.”

However, the interview data reveals that regardless of company size, whenever the team involves people from the HQs and subsidiaries, lack of proximity features posed as an obstacle to effective team interaction.

1B7- “I also have my office there, sometimes I need to be there quite often and I find that I get closer to them as well.”

2A8- “My office is not here (HQs), it always difficult when I have to come here, I don't know where to wait, that is why I only come when the meeting is about to start.”

1B10 - “You know in Kuala Lumpur it is always a traffic jam, you don't know what to expect, it is easier if our office and our clients office is nearer ... but it is impossible.”

3B2- “It has always a problem if I have to go to the HQ, is just like crossing another country. During morning the traffic is so heavy. So, I have to go straight from my home.”

1A7-“*When we have to go to the meeting at the HQ, we make sure we arrived just before the meeting. But when we go together with our boss, we go there early. He used to work there, so, we have a place to transit.*”

### ***Summary of Findings on the Proximity Category***

Proximity was seen to definitely affect the way that team members interacted with one another. The findings also suggested that by being physically close in the work environment they had opportunities to develop strong personal relationships which promoted the knowledge sharing process. However, since all of the projects involved people from subsidiaries and HQ, problems of proximity emerged for all companies, since there was never enough interaction between the team members from the two different sites. Hence, the use of communication media such as telephone and e-mail is essential in order to keep them connected.

#### **4.1.6 Conclusion of the Findings on Structural Capital**

The evidence from this study indicates that *meeting, relationship, interaction, position, and proximity* are important categories for the development of structural capital. The study found that in order to strengthen the networking among team members in a project context, the dimension of structural capital must be properly addressed, since team members are dependent on each other for the successful completion of the project.

This study also found that meetings and interaction play important roles in developing structural capital among a project's team members, and that in circumstances where they are distanced (for instance, HQ and subsidiaries), and come from different professional backgrounds, it is even more crucial that efforts are taken to improve opportunities for interaction, especially at the face-to-face level.

Evidence also emerged in the study that previous relationships and the position of the team members are influential in fostering or hampering the development of structural capital. Existing relationships such as had developed through job rotation, attending workshops and training, and short visits to the HQ, were helpful in the development of structural capital. It was also found that the relative organisational status of team members was influential in knowledge sharing behaviour, since junior employees tended to receive rather than contribute knowledge. This study, therefore suggests that previous relationships and positions are very influential in contributing to the development of structural capital among the team members of an organisational project.

In respect of proximity, the evidence revealed that it is vital to be physically close to other team members if knowledge sharing is to be promoted. In this respect, team members were definite that physical distance between them hindered the development of relationships, and hence the opportunities to share knowledge and expertise.

In short, the evidence gained from this study suggests that meetings, relationships, interactions, position, and proximity are important requirements for the development of structural capital, and it suggests that structural capital is one of the determining factors for social capital development.

#### **4.2 COGNITIVE CAPITAL**

The cognitive dimension of social capital is embodied in attributes like shared vision, goals, and language that together facilitate a common understanding of collective goals and proper ways of acting in a social system (Nahapiet and Ghoshal, 1998). For example, when the organisational members have the same perceptions about how to interact with one another, they can avoid possible misunderstandings in their communications. The common goals or interests provide more opportunity for them to share potential resources and ideas (Tsai and Ghoshal, 1998). Team members convert input to outcomes through cognitive capital, which direct them to achieve the project

goals (Marks *et al.*, 2001). Thus, they need to have a similar situation in order to share a frame of reference to better understand interactions, clues, or behaviours of others. The categories to be discussed in this section are shared vision, shared objectives, and shared language.

#### 4.2.1 Shared Vision

Shared vision was found to be one of the categories that described cognitive capital. It is important for team members to understand clearly the vision of the project. According to West (1994, p.19), team members need to understand the vision of the project to make it easier for them to determine its objectives, goals and actions, and thus ensure its success. When asked about shared vision, interviewees used the words 'obvious' or 'clarity' about the vision of the company and the project. Many interviewees had mentioned that, in the 'kick-off' meeting, they were briefed about the vision of the project. However, some of them were not sure whether their visions of the project were similar to the company's vision. The items to be discussed under shared vision are obvious/clarity, motivating value, attributes/skills, shared identity, norms, and collective thinking.

##### 4.2.1.1 Obvious/Clarity

The emergence and the development of the code *obvious/clarity*, as one of the open codings for *shared vision* is explored in this section. The code *clear* was derived from the interview with 2A5. During the interview process, one project manager stressed the importance of a shared vision and its relationship to knowledge sharing and project success. In speaking of her team members she stated

2A5- "In order to ensure the project success, all the team members must develop the same vision ... which I don't think all of us have. The VP seems to



*have a different vision from us. What he wants is not clear to us. I am afraid if we cannot achieve his target."*

The following quotes further support the term obvious or clarity.

3A4- *"In the first meeting, the champion of the projects had given a presentation and manifested the project vision to the core team members of the project. Unfortunately, vision is just left as a vision. It was clear at that time but once it is not repeated and reminded, it will be forgotten easily."*

1B6 -*"Prior to the project, the project manager does a power point presentation about the project and makes sure the visions are obvious and everybody understands what to achieve in the project."*

Many researchers have agreed on the importance of shared vision in relation to tacit knowledge sharing (e.g. Tsai and Ghoshal, 1998), but it was suggested by interviewees that this is not always achievable, and the following quotes illustrate the point.

3B2- *I think it is difficult to get everybody to share or have same vision because the management seems always change their target.*

2A1- *"I don't think all of us understand the same vision ... every time we have a meeting, it seems the vision keeps on changing all the time. What she wants is not clear to us. I can't tolerate it anymore ... I would rather talk to the VP personally."*

It is also evident that the involvement of top management is paramount to ensure the team understand the vision. Top managers must be directly involved in the process of working, and must continuously remind the team members of the ultimate aim and vision of the organisation.

3A6- "This project is monitored by the change management office. Our leader has always reminded us about our vision. He is so worried if this project is not successful ... It is about the change of the organisation culture."

1B7- Our CEO is so .... He will make sure the vision is not only manifested but also clear to every team member. I guess different projects need different action. This is an international project. Its success is our success, it is so important, we are responsible to the whole nation."

In a situation where team members do not understand the vision, they felt difficulty in carrying out their tasks. They also mentioned that they did not know exactly what to do. Therefore, there were often conflicts of interest in the discussions, thus hampering the process of knowledge sharing.

2A1- "Can you imagine how I am going to work in this situation. We always have conflict and things never resolve. Everybody has his or her own idea."

Findings indicate that for company 1 (both projects) and company 3 (project A), the top management was fully involved in manifesting the vision of the project and ensuring that this was understood by the team members.

#### **4.2.1.2 Motivating Values**

Interviews also revealed that team members expressed their concern that if the project vision was not understood or not relayed to them constantly, this might be a cause of demotivation.

3A4- "When people from the subsidiaries are involved, we must make sure that everything is discussed in detail. Otherwise, if everything is vague ... it is very difficult. Everybody must attend the meeting and understand what we need to achieve to keep us motivated to work for this project."

2A12- "How are you going to work if the vision is not clear. I feel demotivation to work in this project."

3B6- *"Oh ... tell me, we only met for few times to discuss about the project, the visions were only clear during the presentation but it had never been discussed ever since, I don't feel like doing my job."*

However, when asked about their perceptions of the benefit of having a shared vision, participants gave answers such as those quoted below.

2A9-*"We are working towards a common goal and it is very important that we see the same end in our minds before pursuing it and most importantly ... it is vital for our motivation to work together."*

3A8-*"Once you know the vision and goals clearly, you will feel motivated to work and make sure the project is successful."*

1A3-*"Our project manager always updates us with what's happening after he had meeting with our client. He makes the vision very clear and it motivates me to learn more from him."*

For the team members to work well together the project manager must not only inculcate loyalty, unified effort, and commitment, but he or she must also ensure consistent quality. The interviews revealed that the managers' role was very important throughout the project, and that should not fail to encourage the employees to achieve the target. However, findings also indicated that team members, particularly those in Company 3 (project B), felt less motivated to do their jobs due to the lack of involvement and encouragement from the management. In addition, management must assure team members that they were brought together as a team because of their combined skills and expertise.

#### **4.2.1.3 Attributes/Skills**

Skills or attributes are the capabilities possessed by the team members, and the interviews confirmed that the team members believed they had been selected to work on the project because of their skills.

3A1- "I believe that we have the skill to perform the task. That was why we were chosen amongst others. I believe sometimes, you were chosen not only because of your skills but also other attributes such as ... your personality and performance. Perhaps, they like you more than others (laugh)."

2A10- "At first they do not want us to involve. Then they decide to call me. The reason was obvious. They do not have the knowledge about computer networks ... the one that we are doing."

2A5- "The management must have made careful consideration before they appointed us to work for this project. I believe all of the team members must fulfil the selection criteria."

2A3- "I think everybody will have his or her own vision in terms of his or her personal goals ... in terms of project goals, everybody should be working towards that ... we have the skills to accomplish it."

Interviews indicated that to achieve or be able to perform the task, the skills of the team members are required, as well as other resources such as money and support from the management. Unattainable goals due to shortfalls in respect of any of these, may be demotivating. Some interviewees expressed the opinion that adequate skills and resources are important to achieve the vision.

3B4- "We can achieve the goal if we were supported by the top management. Give us resources, we have the skills, we can do it. You know what ... skills alone are not sufficient for project success, money is the most important."

3B7- "I think this project is not successful because we were not supported by the management ... skills alone are not enough. He was so interested in the project at the beginning, but when he moved to the HQ, this project is just waiting to be put into the grave."

3B2- "I know that people from the HQ talked about this project. Well, it was not our fault, we have the skills and capability. But we don't get enough support from them. We cannot make any decision, because we are not the top management."

#### 4.2.1.4 Shared Identity

Identification or shared identity is a property of people working in a team. Social identity theory suggests that individuals who share the same identity find themselves to be similar to each other (Hinds and Mortenson, 2005). Hinds and Mortenson (2005) argue that individuals with shared identity are more willing to share resources and ideas, reduce conflicts and ambiguities, whereas in the absence of shared identity, they conceive others as competitors rather than companions, especially when they have problems or when there are miscommunications among themselves. Findings from this study support the above argument and also found that team members who confirmed that they had the same identities with their colleagues, also believe themselves to be similar to one another.

In the interviews, participants mentioned that 'kick off' meetings were very important for them as a way to start to know every member of the project, delegate tasks, and confirm the project objectives. Through these initial meetings, team members were able to learn and identify their project colleagues, and make decisions regarding those with whom they have things in common. The interview findings demonstrated that when team members shared the same identity, there was more likelihood that they would be able to co-operate and collaborate with each other, thereby fostering knowledge sharing.

The open code for *identity* or *identification* was developed from the conversation with 3A4, whose reaction indicated his genuine feeling about being close to other team members by frequently meeting them informally. When asked about his relationship with them, he replied

3A4- "*I believe we need to identify ourselves as a group. We must develop our own identity. From there we can have the feeling of self belonging which is very important for us to be able to work harmoniously in this project.*"

Having identified themselves as similar, team members found it relatively easy to develop a common frame of reference that helped them to understand other members'

communications, tasks, and expertise. Ultimately, this generates the feeling of willingness to co-operate to accomplish the goals. This outcome indicates that cognitive capital is important for the development of relational capital. Interviewees commented that they felt a sense of belonging by being part of a team, mentioning that they had something in common. First, they were pulled together because of their expertise, and secondly, they had common goals to accomplish.

3A5- "*How are you going to work if you don't feel you belong to the group? I think during the first meeting, the champion has always reminded us that we are not only a group but we are a big family with equal opportunities, rights, and responsibilities.*"

1B1- "*We are working to achieve the same goals, so ... I think we should not distance ourselves. We belong to a team ... the same team that must work to make sure the project is successful.*"

3A5- "*Once we received the appointment letter to work in this project, it creates a feeling of recognition. You let yourself know that now you have to work with others as a team to achieve a common goal.*"

2A1- "*I took this opportunity to get to know people. You must know with whom you work, whether you already know them is second thing, but at least you must know their names, positions and their duties so that you will know who to turn to and where you are standing.*"

However, interviews revealed that it was difficult for team members in Companies 2 and 3 to develop a sense of shared identity when the subsidiaries were involved. And unfortunately, the absence of shared identity may create negative feelings and possible misunderstandings among members.

2A1- "*They always look down on us. They always think that we are a separate entity. I just don't understand why. We work for the same company ... working in HQ does not mean they are superior to us.*"

3B8- "*When I have a meeting with people from the HQ, I can really feel that I am not belong to the group.*"

From interviews and observations of the team members' actions, the researcher understood the atmosphere of inferiority and superiority among the team members from the subsidiaries and HQ.

#### **4.2.1.5 Collective Thinking**

*Collective thinking* is one of the items found used in this study to describe *shared vision*. Interviewees indicated that collective thinking was very important because this enhanced co-operation. Team members indicated that if they appreciated that they needed to work together for the purpose of the project, they would do so collectively instead of as individuals.

3A4- "*If all of us think our tasks as well as others are important for the project, no one will take for granted. Everybody will work together to achieve the target. And everyone will be willing to share whatever they know about the project.*"

Collective thinking and shared beliefs were considered to be important among the team members, who believed that if there were different perceptions from the top management or from the team members, it would be difficult to build co-operation.

1B1- "*Yes, definitely ... we must know what we should do, what to achieve and when, it is vital to work together because our clients are our priority. We must meet their target.*"

1B3 - "*The project manager always updates me with what's going on and keeps on reminding us the deadline.*"

2A9- "*How are you going to co-operate with them? I don't think he has worked for the project. He always has his own thinking, always want to be different from others.*"

It is also apparent from the interviews that due to collective thinking, the team members have prioritised the goal of the project above those of their own.

1A5 - *"I think majority of us understand it, but different people might have their own way on how to achieve it. Like myself ... I will always try to finish my task before the deadline ... but always we have to follow and accomplish what the group has targeted. If I have a problem with the program, I am sure they will help me. We have in mind that we need to solve the problems together to achieve the target."*

#### 4.2.1.6 Shared Norms

*Norms* are habits that people display without calculation (Lyon, 2000), and they play an important part of social capital that is used by an actor when making decisions on whether or not to trust an individual. Norms define what actions are considered acceptable or unacceptable. For example, a team member will assume that the presence of a shared vision (and norms of behaviour) by the group will mean that each person will perform according to the expectations and not violate what has been agreed.

1A3- *"Each of us has been assigned tasks. If one of us have problems and not being able to complete the task, we will work together to help him. Others will do the same to me as well."*

2A2- *"Everybody knows his or her own duty. Although we work in a group, as individuals ... we have to work hard, ... in fact ... all of us work very hard to accomplish the goal."*

2A5- *"I must make sure I do what has been assigned to me as I always expect others to do the same. I also expect everybody to contribute their knowledge for this project. Otherwise it will drag the work and we cannot complete by the deadline."*

However, in certain circumstances, having shared norms may create inappropriate expectations of obligatory behaviour when really such behaviours (free-riding for



example) should not be left unchallenged just because they have become the norm (Inkpen and Tsang, 2005).

3A8- *“Usually, everybody will do their own task ... but working with too many people for many years make me understand that some people like to take things for granted. They like to be free riders especially when they work with the junior staff.”*

### ***Summary of Findings on the Shared Vision Category***

It is evident from the study that team spirit and the feeling of togetherness are important elements in achieving success. More importantly, this study found that a clear understanding of the project vision is vital. If the team members are sure about the vision, they will be more focussed and be properly directed to complete the project. In this respect, it is necessary for all of the members to co-operate with one another and constantly remind each other of the ultimate objective.

Sharing a vision motivates team members to work together and share their knowledge for the project's success. In addition, it also increases their sense of belonging and pride in being part of the team. Evidence from the study shows that this can be achieved when contribution and presence are recognised and appreciated, especially by the top management.

This study also found that a shared vision among team members precipitated a shared identity because it encourages attempts to build togetherness and collective responsibility, both of which are manifested through positive attitudes, such as being more willing to co-operate and tolerate other team members in order to ensure the project's success. In consequence, collective thinking, which is very important in a project context, can be achieved, and will eventually become a norm in the organisation.

The qualities and attitudes that can be developed as a result of a shared vision among team members will contribute to the development of cognitive capital among them.

#### **4.2.2 Shared Objectives**

*Shared objective* was one of the categories found to describe cognitive capital. Working in a project requires the key people to create a clear and compelling objective which the team members must work towards in order to satisfy customers and facilitate actions. The effectiveness of a team is dependable on the objectives and vision that are clearly manifested and agreed upon by all the team members. Meanwhile, the team leader should be able to stimulate members to work together and co-operate in their work. Interviewees indicated that team members who understood the project objectives were more willing to work hard and put effort into successfully completing their project. However, understanding the project objectives was considered to require a clear definition of goals, expectations, and delivery of tasks and that this information had to be conveyed to every one of the group members. The items to be discussed under shared objectives are: shared understanding, exchanged knowledge and shared input, hard work and support.

##### **4.2.2.1 Shared Understanding**

In order to develop shared understanding of the project goals, the team members must appreciate the vision, as this will motivate them to work towards the accomplishment of the goals. Shared objectives require the team members to have a common understanding and approach to the achievement of the goals (Inkpen and Tsang, 2005; Tsai and Ghoshal, 1998). In this study, shared understanding was seen to develop when the team members attended frequent meetings, became involved in discussions, or took part in any activities with regard to the project, since all this interaction allowed for the growth of a common frame of reference. An analysis of the interview data revealed that members were more likely to prepare before meetings in order to gain

more understanding and be able to participate more effectively in it for the good of the project.

3A8 – *“I’ll make sure, before the meeting I prepare myself so that I won’t be left out from the meeting. I read the minutes and also the project plans from our intranet. By doing this, I feel that I can better understand the meeting and would be able to participate.”*

Having a shared understanding also helps to avoid misunderstandings during interactions and thus opens the door to knowledge sharing.

1A10- *“It is not easy to understand the discussion if you do not really put yourself into it. Working in a project needs skills and effort to be able to interact and ... understand the other party. The more you interact with other members, the more you will be able to understand each other better.”*

3A5- *“In order to ensure the project success, all the team members must have the same objectives ... we have discussed what we should do and also discussed our responsibilities. I think the team members should understand that to achieve the goal they must be willing to co-operate and share their knowledge.”*

1A3- *“We have lots of meetings and discussions at the early stage of the project. Together we decided the objectives and deadlines that we have to achieve. From this, you will know and understand what is expected from you. I don’t think you find a problem as everybody knows his or her responsibility in this project”.*

2A5 – *“I make sure we have formal meetings as often as possible. Especially ... you know at this stage ... things have to be clear and justified.”*

The importance of having shared understanding was also observed in the way the team members performed their duties, and during participation in meetings. From the observation, it was noticed that when the team members were unclear of the objective, they felt demotivation, and moreover experienced a sense of distrust. In support of this, some of the team members, especially from Company 2 and Company 3 (project B) said

they were not satisfied and felt demotivation because they lacked an understanding of the objectives and visions of the projects.

3B9- *"Every time we have a meeting, he always ask something different. He never stick to his words, it is difficult to work in this kind of environment."*

3B4- *"I got fed up. Sometimes, they never invited me for the meeting. I don't know what happen. They kept on having different agenda."*

#### **4.2.2.2 Exchanged Knowledge and Shared Inputs**

From the coding process, when analysing shared objectives, other codes such as *exchange knowledge* and *shared inputs* appeared to be essential to explain this category. In Company 1, project team members were always encouraged to share their knowledge. Some of the team members were still young and new to the company, thereby lacking experience and needing close supervision, which required them to seek help from the seniors. One of the interviewees expressed his satisfaction about getting assistance from the seniors.

1A4- *"I had just joined this company and had just graduated. It is so different being a student and an employee. Before this, I just read the books or ... search the internet to find some information. But now, I cannot get everything from books and internet, I have got to ask the seniors because I don't have the experience. They always respond to my needs and always provide me with lots of info."*

During observation of a meeting at Company 1, the researcher noticed that some of the team members were well prepared and proactive, with the discussion being very lively and all members participating. In contrast, a meeting at Company 2 was dull and little more than a one-way conversation, in which the chairman dominated the discussion and others seemed reluctant to get involved. It was later found that the main reason for this lack of participation was team members' uncertainty about the project's objective.

2A4- "I have just been appointed to join this team. I didn't know what it is actually all about. I could not contribute anything ... I just listen.

#### 4.2.2.3 *Hard Work and Support*

Managers must support and encourage teamwork (Sundstrom, De Meuse, and Futrell, 1990) for example by providing material and other resources that are required to support and mobilise teamwork (Shea and Guzzo, 1987). The interviewees confirmed that when they clearly understood the goals and actions, they were eager to work hard in fulfil their duties. Team members at Company 1 mentioned that they had to search for some of the required materials for project A, whilst others were provided by the HQ.

1A3- "I have to search from the internet to see what features are suitable for the content of the systems. Sometimes, I have got to ask the HQ to provide me with what they want in the systems, for example, regarding the human resource thingy. They are fast in providing us materials."

Top management support will also encourage the team members to work hard. In Company 3 (project A) for example, the top management gave full support for the project.

3A6- "This project is for the entire organisation. It is so important because it is going to affect not only the HQ but also all the subsidiaries throughout the country. Top management will always ask for updates and you just say what you need, they will surely approve."

3A9- "We have lots of training for this project given by the internal consultants as well as from overseas. This project is about the change of organisational culture, we need to really understand what the outcome is because it is intangible."

It was evident from the data that when management was directly involved and gave full commitment, team members felt encouraged to work harder, and with this increased motivation, their initiative and commitment improved.

1A8- "*We always discussed and searched the information from the internet or other material. We want to make sure that this system provides all the features required. Our CEO always asks what we needs. He will make sure we got everything we need for the project.*"

On the other hand, interviewees revealed that if the management failed to provide support, they were demotivation. Hence, constant support and monitoring from the top management are important to ensure successful project completion.

3B2 "*I don't know what to say ... at the beginning this project was so grand. Everybody was talking about it. We have lots of awareness programs, trainings and seminars. But now, it seems that everybody is doing his or her own work. This project is still at the testing stage ... it just left to me and 3B3 to make sure the systems is running and the end user will like it.*"

### ***Summary of Findings on the Shared Objectives Category***

This study indicates that team effectiveness is fostered by having shared objectives, since these create full and common understanding and a willingness to achieve the target. It was seen that the management must be able to articulate the objective clearly and gain the commitment of the other members of the team. In addition, the study found that direct supervision, management support, frequent meetings, and close contact are necessary to create shared understanding, which is vital because this encourages team members to work their best. In this atmosphere, knowledge sharing, and the development of cognitive capital among the team members, is facilitated, hence promoting social capital development.

### 4.2.3 Shared Language

This study found that shared language was one of the categories that described cognitive capital. The importance of shared language reflects similarities in how the team members understand, interpret, and respond to information (Zenger and Lawrence, 1989). When the team members talked to one another, they tended to use different languages. Although all the team members in all projects in this study communicated in the same language (English or Bahasa Malaysia), these words occasionally meant different things to different people, and this was especially true if the team was comprised of people from different backgrounds. It was found that educational background, age, and work site, were variables that influenced peoples' ability to share the language. Moreover, since language needs cues and context to be fully understood, the amount of interaction occurring between team members was also an important variable and in this respect, it was apparent that frequent interaction was essential to increase understanding, since team activities helped to develop shared language. Over time, when two actors communicate, they develop a form of language that is unique to them, and the more conversation they have, the more they will understand each other and subsequently develop similarities in attitudes. The items to be discussed under shared objectives are: jargon, technical words, vocabulary, codes, stories, and interpretation.

Team members from all the companies agreed that it was important to understand the intended meaning of the conversation in order to appreciate the project better.

*1A3- "It is very important to make sure other people understand what you are communicating to them ... to avoid ambiguity."*

*1B7 - "When I have a meeting with the government people, I'll make sure I understand what they say and also will try my best to convince them and explain to them in a layman's terms so that they catch what I mean."*

#### **4.2.3.1 Jargon, Technical Words, Vocabulary, and Codes**

Several attributes were mentioned by the team members to illustrate shared language, such as jargon, technical words, vocabulary, and codes.

3A10- "Sometimes ... the codes that the software engineers used are not familiar to me ... It is hard to understand what they are talking about."

1A6 -" So far, I just get the full meaning of what they say for example the jargon that they used, not word by word but ... at least I can understand what they are trying to communicate."

1A5 -"I will always make sure I understand the terms that I don't understand especially all those marketing terms by asking either during the meeting or after the meeting."

1B2 -"Every team member has his responsibility. For example the software people will present about their work which I don't understand. I only know one or two technical words."

3B2- "We are technical people ... we understand each other vocabulary well. I don't find any problem understanding them ... and I find comfortable to discuss and collaborate with them."

Findings indicate that in Companies 1 and 3 (project B), some of the team members struggled to understand some of the jargons or technical phrases used. However, in Company 2, since the team members from the HQ and the subsidiary were mostly IT specialists, there was less problem in this respect.

#### **4.2.3.2 Stories**

Team members also indicated that sharing stories can help them to develop a shared language. On many occasions, the senior managers told stories about their previous experience, especially about their success in earlier projects. From the interview data it



was clear that sharing the experience of the seniors could increase the level of shared language of other team members.

1B8- *"1B2 has a lot of experience working with the government. He is so knowledgeable about fingerprint. He always tells me what he did at the crime scene. Whenever we build the systems for this project, I always incorporate what I have learned from him.*

3A8- *"Our boss likes to tell stories at the beginning of the meeting. It is interesting and some are inspiring as well. The more he tells us his stories ..., the more I am able to pick up some vocabulary from him."*

It was found that the project in Company 2 involved many young people, and through observation of the meetings, the researcher concluded that no stories were told. The meetings were generally conducted in a rather direct manner and usually lasted a shorter time than those in Company 3, where stories were told, and where on many occasions, the meetings dragged on for much longer. In Company 1, the stories told by the seniors usually took place in informal meetings.

#### **4.2.3.3 Interpretation**

From observation of one of the meetings at Company 2, the researcher saw that face-to-face encounters helped to develop shared language, since the team members were prepared to ask for definitions of whatever terms that they did not understand. The extent to which people are able to share the same language depends on the team members' initiative to be able to listen, observe, and ask if they need further clarification. As indicated, some team members did make the effort to ensure they understood the language.

2A5- *"I think if you don't understand anything ... just ask but you don't need to know everything ... you have a meeting ... so ask them until you get feedback. Otherwise, you will be on the loser part if you are unable to get their knowledge."*

2A7- *"I think that is very prevalent to many people ... you can't expect them to understand everything ... but you can ask either during meeting or after a meeting to get a better picture."*

In many ways, being able to understand the same language connected the team members better. This resulted in not only understanding, but also in helping to build interpersonal relationships. Moreover, not understanding the language creates difficulties in conveying ideas, and hampers knowledge sharing, leading to mistrust in the future.

3B3 – *"Few times I have to represent my boss in the meeting (formal meeting), I have no choice and felt bored and ... most of the time I don't know what they are talking about. I just sit there, quiet and yawning. I feel bad you know."*

2A2- *"Yes, many of them don't understand my jargon ... it's a bigger failure ... I don't know how to overcome it ... I know it is very important for them to understand me and vice versa ... otherwise they don't know what to expect or ask from me."*

2A1- *"I find that most of the time, some of the team members do not understand what I have said ... and they always misunderstood me ... unfortunately, this made them reluctant to accept my ideas ... they think it something hard to achieve ... whereas for technical people like me ... it is actually nothing ... it is just about network ..."*

2A8- *"I got fed up with him whenever he presents in the group meeting. I don't understand him and he seems proud of using all those marketing jargons. If I were given a choice, I would not want to work in the same team."*

However, frequent interaction can clarify any misunderstanding as it allows the opportunity for discussion, and question and answer sessions. The people interviewed repeatedly indicated that it was through interactions that they learned more about the jargon and technical words. One participant mentioned that through a series of meetings, he was able to pick up codes that were not familiar to him before, and no longer had problems in understanding the terms and jargons, or indeed the language

cues. The study also revealed that learning to share a language took time as well as frequent interaction, as indicated by 3B2.

3B2- *"I will always ask if I don't understand what they are talking about especially about marketing. Sometimes you don't have a chance to ask them. But don't worry gradually ... after few meetings you will be able to understand what they say. On the other hand, 3B3 and I don't have problems to understand the technical jargons on programming, but ... other members will have problem in understanding us."*

This study found that over time, when two actors communicated, they developed a form of language unique to them, and the more conversation they had, the more they understood each other and came to develop similar attitudes.

#### ***Summary of Findings on the Shared Language Category***

This study found that shared understanding is vital for team members working to achieve a common goal, since they must interact successfully and this requires a common language. In this study, the heterogeneity of the team members was seen to be a potential problem in this respect. Given these observations, it is important that each team member take steps to ensure that his or her understanding of the project equates with that of all other team members, and this can be achieved through frequent interaction, and asking questions for further clarification, using the same language that is common among the team members. The findings indicate that over time, frequent interaction between two or more people, fosters a common language, and hence, a common understanding of matters being discussed. As a result, similarities in attitudes will eventually be developed among the team members, and this may foster the knowledge sharing process among them. In addition, this study also suggests that a shared understanding may facilitate the effective performance of tasks, and hence project success.

#### **4.2.4 Conclusions of the Findings on Cognitive Capital**

This study found that shared vision, shared objectives, and shared language are important determinants for the cognitive dimension, and that their presence facilitates the achievement of common goals. A shared vision was seen to provide a platform on which to build a shared identity that would motivate team members to contribute their knowledge and expertise towards the project's goal. Moreover, this enhances the process of collective thinking that is important in the progress of the project. All of this will eventually become a group norm for team members working on future projects.

From a shared vision, shared objectives are manifested in the implementation of a project. By having a shared understanding of the ultimate goal, team members will work hard and be willing to share and exchange their knowledge and skills for the success of the project. The absence of shared objectives will distort the team members from having the same perspectives and, therefore, limit the knowledge sharing process. In order to ensure the existence of shared vision and objectives prior to project implementation, top management must be involved by giving full support for the project. They must always encourage, support, and guide team members to accomplish the goals and constantly remind them of the project vision and objectives.

The implementation of a project is enhanced by having shared language, which helps the team members to communicate effectively in project discussions. Furthermore, shared language increases understanding of the matters being discussed and enables each team member to interpret what is being said properly and in the same way, thereby reducing the opportunities for ambiguity and miscommunication that can lead to conflict. In order for this to materialise, the team members must have the initiative to learn and prepare to work together with others in a unified body.

### 4.3 RELATIONAL CAPITAL

While structural capital determines the extent and range of resources that are within the reach of the team members, and cognitive capital determines the shared frame of reference among the team members of the projects, relational capital establishes how much of this potential will be realised. Although the team members may have access to several people who are potentially critical sources of information, personal experience and the quality of past interactions will often influence who team members are likely to approach and engage with (Moran, 2005). According to Granovetter (1992), relational capital is a relationship that is personal and that people have developed with each other through a history of interactions. Given the specific nature of organisational projects, this relationship is developed the moment they meet during the first introductory meeting about the project. Apart from that, some of the team members had been working in the same department or had known each other through working on previous projects, job rotations, or attending workshops, seminars, and or training together, or because they met each other in different circumstances long before the project began. The findings from the interviews relate specifically to project work execution and activities that support knowledge sharing in the project teams. The categories to be discussed in this section are collaboration, co-operation, toleration, reciprocity, and sincerity.

#### 4.3.1 Collaboration

*Collaboration* is one of the categories used to describe relational capital. A collaborative relationship refers to direct participation by two or more actors in producing products (Polenske, 2004). This relationship is often pre-arranged between the team members of a project. The importance of collaboration is manifested when a team member reacts and responds to a request, or speaks to other team members through discussions, brainstorming, and meetings. Interaction between team members, especially between juniors and seniors, can provide an opportunity for collaboration and

co-operation which forms the integral part of the relational capital process. The process of interaction will result in appropriate knowledge sharing behaviour. Team members' willingness to share their knowledge, experience and opinions, as well as their predisposition to be reliable, is dependent upon the decisions made when interacting with other team members. The items to be discussed under this category are: shared expertise, shared knowledge, feedback, commitment, level of support, favourite, active participation, and assistance.

#### ***4.3.1.1 Shared Expertise and Shared Knowledge***

The team members in all projects were highly educated and had diverse backgrounds, all being chosen for their differing expertise, and from what emerged in the interviews, it was clear that they all knew they would need to share knowledge with one another to achieve their individual tasks, since project working requires a blend of expertise. When analysing how the team members acquired and disseminated their knowledge, it appeared that most collaborated. However, this requires continual interaction, and in many cases, unavoidable factors such as being geographically distant, or being busy with other projects, prevented meetings, thereby hampering knowledge sharing.

The findings from the interviews suggested that these problems could be avoided when the participants have a history of interaction, since they may be predisposed to allocate more of their time to the process of sharing their ideas and listening to others. However, most of the team members' relationships were in their infancy and the sense of partnership was yet to be properly developed. That said, some of the interviewees at Company 1 had known each other for quite some time through previous projects, and not surprisingly, they said they had no problems in collaborating to share their knowledge with other members.

*1A5- "I had been working with 1A3 before, she is OK. She is more experienced than me. Whenever I have problem in the programming, I can just ask her without any problem."*

1A7- "I know most of my staff members quite well. We have lots of discussions and I can tell you ... each one's strengths and weaknesses. But most of them are still young and inexperienced. Some of them always consult me but few don't. Well ... it's up to them ... you know, I am always willing to share my knowledge at any time."

On the other hand, team members from Company 2 were reluctant to seek help especially if they came from different work sites, and from observations, the researcher was able to confirm that they would only ask colleagues from the same work sites or departments, for guidance.

2A9- "I won't ask them. We have our own experts as well. I can always ask my colleagues here. So far, I am alright, no big deal."

2A3- All the while we have no problem because they will do their parts and we will do ours. In the meeting if problems arise, we will try to settle it there and then. No time to consult or discuss with anybody later ... especially with people from the subsidiary.

In Company 3, it was evident from the interviews that knowledge sharing was greatly impeded due to the highly bureaucratic structure, and interviewees often said that team members were more likely to remain silent during the meetings with the management, in which only senior members of the team actively participated. Thus, only the senior members were involved in the process of transferring knowledge, the juniors simply receiving the information without bothering to get involved in the discussion. Hence, no meaningful interchange of ideas occurs. On the other hand, the researcher's observation of an ad-hoc committee meeting revealed a completely different scenario, in which, without the presence of the management, team members were free to discuss and criticise other opinions and suggestions, and this was an enlightening discussion.

3A6- We feel comfortable to discuss among us. Free to give ideas and reject other people's ideas.

3A10- *We are close this way. Sometimes, if you noticed, they just ask rubbish, I don't think they really know their stuff. But it doesn't matter, maybe they do not know what they do not know (laugh)."*

Furthermore, it was also found that in Company 3, only technical team members were required to have frequent collaborations. They dealt with the systems and had to interact more often to ensure the smooth running of the system.

3B3- *"I got help from 3B2, he was willing to help me at any time. Sometimes, I don't have a specific problem to ask but what I know is that I cannot complete the task. So we figure out together and managed to solve the problems. I don't need to waste my time thinking how to get the things work."*

Getting help from others was quite a problem. The conversation with interviewee 3B2 revealed that he spent quite a lot of time running after other team members for assistance.

3B2- *I need to upgrade the system quickly. I have to call them to ask their opinions or suggestions regarding the content. I had e-mail them but no response. It is very hard you know ... it seems that I have to make appointment to see the prime minister. I know that they are busy with other projects as well, but they need to contribute for this project. Very hard to get their assistance."*

#### **4.3.1.2 Feedback**

The benefits of collaboration, such as the provision of feedback, are illustrated in the following quotes. The code *feedback* was mentioned by many participants especially when they were asked questions like what do they expect from the collaborating partners, as the following quotes show:

2A2- *"We always discussed together. I want my staff to come and see me often. They can ask whatever they want regarding the systems. It is so frustrating you know when they do not consult you. We need to collaborate often to make the*



*system perfect. I need feedback from them. But if they just keep quiet ... how do I know."*

*2A7- "Definitely I want fast feedback. Sometimes you cannot do the task on your own without collaborating with other partners. We can get things done quickly if we work together."*

However, interviewees also complained that geographical barriers hamper the possibility for collaboration among team members, since these cause difficulties in getting in touch with one another. One said that on one occasion she had to travel to the HQ to clarify some matters regarding the content of the systems, and that when she arrived, after making a lot of effort, the other partner was not available for assistance, despite her having made a specific appointment to see this person some time beforehand.

*3B8- I got fed up you know ... I had travelled this far and he was not there. I had made appointment with him a week ago, he should have noted it in his diary. I need to get his feedback and input about the content of the systems, it cannot be delayed."*

On another occasion, a different interviewee had to cancel her appointment with another team member from the subsidiary because she had some urgent meeting to attend on a different project.

*2A5- "I felt sorry for him because I had to cancel the meeting last minute. I had another meeting to attend. Working in many projects at the same time makes it difficult for me to keep my promise because there are always uncertainties. I need to prioritise my work to the important project."*

#### 4.3.1.3 Active Participation and Commitment

Effective collaboration requires full commitment and active participation from the team members. Interviewees indicated that frequent interaction helped them to lay down good relationships for the future, but if the interaction between themselves and other team members was infrequent, it was difficult to expect good collaboration.

The interview data showed that team members were more likely to seek knowledge from those who were committed to the work and actively participating in the discussions. In most cases, members seeking information or advice from these people expressed satisfaction in obtaining the assistance they wanted. These people were also seen as the source of knowledge in the project.

3B3- *"Some of the team members are not committed to their jobs. I know that some of them have other projects at the same time. But I think they need to commit for this project as well. We need to participate and give our inputs. I always look for someone who is committed and likes to participate to collaborate with."*

Commitment does not necessarily involve psychological commitment, that is to say, the interviewees highlighted that most of the time they gave their commitment because they felt obligated to perform their assigned roles, as opposed to being committed because of implicitly believing in what the project was aiming to achieve. Thus, the words 'get things done' appeared often and were used as an open code. Conversations with 3B8 and 2A3 further illustrated the relationship between commitment and this code:

2A2 – *"Actually I will discuss with my team members besides the formal meeting ... but the informal one, you won't get ... what you need ... the formal one is much preferred because you will get the commitment and you can ensure things get done."*

3B8- *“Everything has to be formal because you need commitment to get things done.”*

On the contrary, when team roles are not specifically defined, the possibility for members to be free-riders cannot be avoided, and the data revealed that management was concerned about people who operated in this fashion, usually older team members preying on the weaknesses of younger ones. In this respect, all team members must be aware of others who are prone to operating in this manner, against the best interests of the team as whole.

3A1- *“When working in a project, you must be very careful especially if you are new, some people like to be free riders but often these people will not survive because we have evaluation system after the project has completed where your peers will evaluate you.”*

3A8- *“Usually, everybody will do their own tasks ... but working with too many people for many years make me understand that some people like to take things for granted. They like to be free riders especially when they work with the junior staffs.”*

This phenomenon is likely to happen when the team consists of too many people. Lack of understanding of the vision of the project as well as ambiguity about job roles, increase the potential for it to occur. Hence, it is important to assign a specific task to each member and have a proper system of accountability.

3A4 – *“Some people like to be free riders, so you must be very careful. I would rather have formal meeting and make sure everyone is assigned with a job, so ... there will be no way of cheating ... whatever problem you have, you must finish your job. There is not wrong to ask for help but do your own job.”*

The situation where team roles are not properly elaborated was also cited by interviewees as a reason for them not being able to gain the commitment of other members, because ambiguities and confusions caused misunderstandings and influenced participation.

3B4- I am not really sure what is my duty. I had been appointed, but so far I only attended few meetings. It is not clear how I am going to put myself into it. You know ... you cannot commit yourself for the ambiguous things."

2A4- "I don't know what to do. In the meeting, I just sit and listen ... don't know what to do. They have not assigned me a task yet."

It was clear from the data that there was a need to increase participation and commitment of team members generally, and that this objective was not only realisable by meetings and discussions, but could be promoted by increasing the use of e-mail and telephone interactions.

Interviewees mentioned that some of the team members will always make the effort to contact other members to ask about their progress, especially when the team were from the subsidiary.

2A3- "I will e-mail my partner at the subsidiary just to make sure she has no problem with her work. I need to keep in touch with her because I don't want to create problem later on."

3A6- "We always e-mail or call each other just to make sure everything is OK. I realised that we need to keep in touch often otherwise, it is very difficult to collaborate with them when you really need it. Our boss also always sends e-mail to check whether we are on the schedule."

1B5- "Sometimes, e-mail is preferred especially if I need info regarding the software programming ... because I can just read and then do or explore it myself. For me, e-mail is the fastest medium and easy to share especially regarding the technical problem."

#### **4.3.1.4 Assistance and Level of Support**

The items *assistance* and *level of support* were found used to explain collaboration. The code *assistance* derived from an interview with 3B2, from whose statement, it is evident

that without friendship, it was not easy to get people to collaborate. Lack of assistance and support from the team members may undermine collaboration.

3B3 – *“I think if someone does not understand the needs of this project, he or she will just take things for granted. It is very difficult to get support from this kind of people.”*

1B3 - *“I know him before in the previous project, we had worked together quite a few times. He is OK. He will make sure he will spend time to discuss with me.”*

Interviews also revealed that people were not willing to render assistance or support if they were not previously acquainted, and 3A10 indicated that a history of interaction is highly important in this respect.

3A10- *“I have been working with some of the team members in other projects for many times. So, I know them quite well. In fact, some of them are in the same department, which is why ... you see ... we are like brothers and sisters. We have no problem in working together. I don't need to ask for help because they will help, guide and try to motivate me if I have problems with my job.”*

#### **4.3.1.5 Teamwork**

From the open coding process, when analysing collaboration, *teamwork* appeared to be an important element in describing collaboration. Team members felt that since most of them had no previous history of interaction, they needed to develop a teamwork spirit in order to be able to collaborate freely and willingly, and that this was particularly true when the team members come from different disciplines and work sites.

3B4 - *“Unfortunately, we don't have teamwork spirit. Everybody seems to have their own work. Probably they have other project as well. But you know ... though you have to work in other project, you cannot neglect this project, it is irritating you know dealing with this irresponsible person.”*

1A4 - "Oh ... I believe we have developed a strong team. Everybody is busy with his or her own work but I get full support from them at any time I need them. I am new here, but I can feel that we are like family."

3B2 - "At the beginning of the project, I saw the team were willing to sacrifice their time and energy for discussions especially when the management always want feedback from us. But now, we were no more like that ... I think they behave like that because there is no force anymore."

Many interviewees suggested that team spirit is likely to develop among those from similar disciplines. For example, by sharing the same language and identity, software engineers develop team spirit quicker than other members. It was also strongly indicated that when the top management are willing to engage in the project, the team members become closer and more enthusiastic about their work.

1B5- "Four of us have similar background. We worked as a team, so far ... never had any misunderstanding. We worked along very well. All of us seem to accept ideas and criticism willingly."

#### **4.3.1.6 Favourite**

It is interesting to note that some interviewees mentioned *favourite* as a code for collaboration, explaining that some members become team favourites because they never refuse to help others and are genuinely committed to the project.

3B10- "Of course ... we have no problem in getting help from him. He is our favourite. Whenever, we need to collaborate with the HQ, we always send him. He is diligent; I had seen him put a lot of energy for this project."

However, by the same token, it was noted that there were other team members who had reputations for not being helpful, as the following comments show:

2A1 –“No ... not really, for example myself ... I had been working with Mrs. B in the previous project before, but ... it was a bad experience ... I know what to expect from her”

3B4 - “It is very difficult to work with somebody who does not favour you. I had this feeling of being rejected. I don’t see him anymore after that.”

Personal experience and the quality of past interactions affect the decision to decide which team members to approach and develop relationships with, and this occurs regardless of the type of knowledge these members may have to share. Team members do not want to work with unhelpful people, and as noted by Jones and George (1998) if someone is rejected when asking for help, that person’s attitude towards collaborating in the future can be severely damaged.

### ***Summary of Findings on the Collaboration Category***

The discussion above highlights the importance of collaboration in a project context. Project team members were found to face difficulty in their collaboration with others as their needs for collaboration were based on task-demands, instead of friendship. This may result in collaborative overtures receiving a lacklustre response, with the result that knowledge sharing is hindered not only at that time, but also in the future, as the team members who are known to reject requests for advice gain unfavourable reputations.

Also, the presence of physical distance may inhibit efforts to collaborate on the part of the team members, since this often places a barrier on their ability to interact more frequently. However, if team members have clear understanding of the vision of the organisation and the role they each play in a project, collaboration is certainly facilitated. In addition, those who actively participate in meetings, or frequently interact via e-mails or phone calls, are perceived as collaborative partners.

### 4.3.2 Co-operation

*Co-operation* is one of the categories found to describe relational capital. It refers to interaction of two or more actors through either formal or informal arrangements (Polenske, 2004). It is characterised as “dividing the work and delegating a portion to each individual” (Hanthorn and Ingram, 2002, p.33). In other words, co-operative work is a collection of individuals working together to achieve common goals. Spending more time together and being committed to the task given, will influence the level of trust among team members. In turn, this will affect the extent to which the team members engage in social behaviour, especially in respect of sharing tacit knowledge. Interviews revealed that the term *co-operation* was used when the interviewees referred to the process of a group working to accomplish a shared goal.

#### 4.3.2.1 Solving Problems and Discussions

In the interviews, *solve problem* and *discuss* were words that were emphasised by many team members in discussions on co-operation, and it was indicated that they felt duty-bound to co-operate with others to ensure they discussed and solved problems in order to accomplish the project goals. Interviewees also highlighted the importance of understanding the main goals before co-operation could be generated.

1B2 - *"It is important for the team members to understand the goals of the project. I believe if all of us understand and hold the same goals ... it will be easier for us to co-operate ... for example our project manager always reminds us of our goals and he always ask our opinions."*

3A4- *"All the team members had been reminded many times about the goals of the project, they were assigned tasks to perform and it is their responsibility to co-operate by preparing themselves before any discussion so that they can give constructive ideas to ensure the success of the project.*

1A1- *"I believe that all the team members know their duties and responsibilities. One of the goals is to co-operate in whatever circumstances in achieving the best*



*result for the project. For example, if we have problems, all of the team must work hard to solve the problems"*

A lack of understanding of the goals and job roles can diminish the predisposition to co-operate.

3B7- "*The goals are not clear, I know it is about the KM systems. But they never tell us what we are supposed to do. In the meeting they never asked our opinion or discuss with us. I just don't understand, what is my function in this group.*"

2A1- "*Sometimes, they asked me to do this and that. It cannot solve the problems. They need to discuss with me first, just don't delegate whatever they like without discussing with me first.*"

The importance of co-operation can also be demonstrated through the team members' attitude towards it, such as their willingness to solve problems together and their openness to share and listen to each other's thoughts and ideas (Abrams *et al.*, 2003). Interviews indicated that their willingness to co-operate to one another was intensified when the other party was an open-minded, flexible, or good listener.

3A7- "*I find out most of the time if the seniors are flexible and easy to co-operate with the team members, it is much easier to talk and give opinions especially in the aspect of decision-making and planning.*"

3A4- "*In my case, since I am the boss, they co-operate and share knowledge with me because of other reasons. But I think since we are quite close to one another, probably they are more willing than not to share any information regarding the project with me or other team members.*"

1A1- "*I will always give the opportunity to my staff to express whatever concern they might have. If they are not happy with anything or do not agree with any decision, they can bring it up in the meeting, so that all of us can discuss and we can solve it together.*"

However, many of the team members, particularly from Company 3, felt dissatisfied with their involvement in decision-making, and this was heightened when the senior managers were involved. Team members complained that often that their voices and suggestions were not valued, and that they never received any positive feedback from them as they would have expected. In short, this situation demoralised them and worked against the good of the team as a whole.

3B4 - "Our project manager is not an open minded person, he rarely listen to opinions. I find it difficult to work ... no meaningful discussion with him."

3B7- "It is not always easy when the seniors involved, they already have their ideas and sometimes solutions in their mind. So meeting is just for the sake of gather together. The decisions are always in their hands."

3B3 - It is quite a problem when the discussion involved the seniors. It could drag for 3-4 hours. Just wasting our time. There is always no consensus. Sometimes I asked myself "why is it so difficult to make a decision". I think it is not that complicated, but everybody wants to show his or her talent."

Interviews also revealed that young team members lack the spirit of co-operation, preferring to solve the problems by themselves before getting help from others. The observations also confirmed this, showing the young team members to be more self-contained, either not caring about others or being reluctant to ask for advice from others.

1A8 - "If I have problems with the project, I'll try to solve it by myself first. Internet is a best solution. You can get much information regarding the system from there. Only if matters regarding clients or something else that I can't solve, I'll talk to my boss."

1A5 - "I'll try my best to solve the problem first because I find it good for me because I'll know more rather than ask people. But if I can't solve it, I'll discuss it with my senior."

The interview findings suggest that the quality of co-operation is enhanced by a common understanding of the goals of the project and of every person's responsibility with it, since from such understanding, the team members feel more secure and can more easily develop trust among them, which is the key factor for knowledge sharing. This process, however, takes time and the history of interactions among the members is also relevant to create co-operation.

1A3 - "After working here for quite some time, I know each and everyone's attitudes, you can see the difference if they have problem, so my advice is not to approach them at that particular time. When you see them smiling in the afternoon, you can approach them to discuss any matter ... surely you won't be rejected."

2A3 - "It depends on what sort of relationship that the team members have, if they are all strangers then it would be different ... but if you have established a good relationship with them ... then I don't see it difficult to co-operate with them, in fact they will feel obligated to help you."

1A3 - "My colleagues and I are quite close and we are very committed to each other in terms of providing help with regards to our job, I don't see any difficulties in sharing or working together."

1B7 - "Sometimes when we have a project with them, I spend more than two weeks and sometimes a month just to build the relationship with them. Once they trust you and know your capability, it is easier to work with them."

Some interviewees mentioned that they were not comfortable talking in meetings because they had the feeling that their ideas would not be appreciated by the senior members present.

3A7 - "I find out most of the time if the seniors are flexible and easy to co-operate with the team members, it is much easier to talk and give opinions especially in making decisions and planning."

3B4 - "Our project manager is not an open person, he always not listen to opinions. I find it difficult to work ... no discussion with him."

#### **4.3.2.2 Unity, Partner, Group**

It is evident from the interviews that the period of acquaintance among members is relevant in building personal relationships. The longer they had known each other, the easier it was for members to understand one another. It is also interesting to note that interviewees mentioned the words *partner*, *unity*, and *group* in their discussions on the issue of co-operation. Team members were willing to spend their time in discussion especially about their problems or other sensitivities with those whom they felt comfortable. In most cases these members had known one another for quite some time or had worked together in a group before. From the observations, it was found that team members from the same work site tended to sit and chat more among themselves during meetings than they would with others from different work sites. For this reason, the evidence from the quotes below illustrate the problem that may occur for people who are not familiar with other team members.

3A8 - *"It is very difficult to become close to these people. They have their own group. It needs time and patience to deal with them. But they do need our help as well, so I don't think this idea could work in this project."*

3A4 - *"I have seen some of them having their own partners to do the job. I think because they are comfortable with one another. But in a project, we cannot work like that, our work is inter-related, so we need to unite and be willing to co-operate with one another."*

#### ***Summary of Findings on the Co-operation Category***

Co-operation requires the team members to be able to work together and help one another in completing the task in hand. Since the tasks are inter-related, it is necessary that they are able to have constructive discussions and possess the skill of problem-solving. The senior members of the team play a very important role in educating and maturing the rest, especially the juniors, and they can spark the spirit of togetherness and co-operation among the team members. The elements of partnership and grouping

are also dominant on the question of co-operation and unity in the team. It is also clear that intense interpersonal co-operation and relationships that have been developed previously help to promote tacit knowledge sharing. In addition, co-operation, such as better understanding among the team members will have a positive effect on this process.

### 4.3.3 Toleration

*Toleration* is one of the categories found to describe relational capital. The willingness of the team members to accept criticisms and to tolerate others is another important quality that will guarantee success in the team. Many interviewees were of the opinion that willingness to help others, especially when assistance was very much needed, is related to the level of tolerance displayed by a person, and it was argued that this must be possessed by every single member of the team. Furthermore, as it was normally the junior members who need advice and guidance more than others, it was clear that the more honest and genuine the junior members were in expressing their need for guidance, the more the senior members were willing to tolerate their questions and co-operate. However, previous negative experience was found to impede someone's intention to tolerate others. The items to be discussed under this category are: comfort and ease, effort and willingness, expectation, and reliable.

#### 4.3.3.1 *Comfort and Ease*

In discussing the issue of toleration, the team members mentioned the words *comfort* and *ease*, and it was emphasised that such feelings required frequent interaction and time to develop. Team members stated that when they build relationships with others, this generates tolerant behaviour among them.

2A14 - "You need to understand and know your team members ... this is important so that you know how to deal with them and also know how to get information from them. Some people are not approachable especially if they don't really know you.

1B3 - *"I am a senior to them. The approach is a bit different when you deal with the new member, you have to be subtle, humble and you must be willing to guide them."*

1B10 - *"We purposely go out together for lunch or tea especially after a formal meeting and I find it helpful to get to know them better. From our conversation, I get to know what they like and what they don't like. Now we feel comfortable to deal with each other.*

However, in a situation where a team member has a negative experience with someone in the team, the tendency to be intolerant of that person in future can occur, and indeed it may extend towards others. Interviews revealed that it was important for the team members to demonstrate their effort and willingness to tolerate others in the same team.

1B8 - *"Sometimes I feel I don't want to deal with them, I don't feel comfortable. I don't know them. 1B2 had known them before. So, I asked him to act on my behalf.*

#### **4.3.3.2 Effort and Willingness**

*Effort and willingness* on the part of team members towards others were found to refer to the toleration category, with people being more likely to seek help or to acquire knowledge from a partner who allows discussion and feedback during meetings. In many instances, members seeking information or advice were not sure whether they were asking the right questions. Hence, it is important for the person who holds the answer (knowledge giver) to be willing to tolerate this kind of uncertainty in order for knowledge sharing to occur again in the future. A good team member will always be ready to contribute positively no matter who the members are. This attitude will definitely create a sense of respect and confidence, especially among the new members.

1A3 - *"When we had discussions with him, he always put a lot of effort to make sure we understand everything he said. He is just like a teacher to us. He knows*

*that we are new and always find difficulty in doing this project. I would rather ask him again if I encounter any problem later on.*

*2A15 - I am willing to help my colleagues if they have problems. I don't mind if they do not know exactly what to do. We can always discuss and find the solution together.*

On the other hand, the results of the interviews also disclose that some of the team members could not tolerate others, for various reasons. It is possible that some of the team members are a little arrogant and selfish in their approach towards the job, and believe that others should conduct their own investigations on matters which they do not understand, as a means of providing them with more experience and making them better workers. It is also possible that such people consider those asking for help not to be putting enough effort into their work, and that by being strict with them is a way to teach them to be more self-reliant and efficient. And yet another possible explanation is the fact that such people are meticulous in their time management and do not want to be disturbed when official working time is over.

*3A2 - "Everybody must do his or her own job. I don't think they need to ask around. Try it yourself first. You need to put more effort in your job. We have lots of other project to attend as well."*

*3A10 - "It is not a matter of not willing to help them, but I could not tolerate who called me after the office hours. Everything must be settled during office hours."*

*2A3 - "Everybody is busy; they could not take things for granted. Each one of us has been assigned for a task. So, do it, don't just rely on others."*

#### **4.3.3.3 Expectation**

The team members' *expectation* indicates their feeling of toleration towards each other in the group. In certain circumstances, team members' expectations towards others are

too high. When a member is not capable of performing as expected, a feeling of distrust and frustration is created among others who rely on that person's input, and this could lead to the point where the degree of tolerance will be very much reduced. This will become more serious if there is urgency for a matter to be solved. From the interviews, it appeared that people from either work site always expected the other partner to fulfil their expectations, and if they failed to do so, the feeling of intolerance was high. High expectations from a partner may also hamper the knowledge sharing behaviour among the team members.

2A8 - *"I came this far just to discuss on this. They should make a proper plan before calling us for a meeting. Today we cannot solve anything."*

3B4 - *"I felt that these people expect us to do all the difficult jobs. It is not fair. We should have been given equal work load."*

2A1 - *How could they expect me to make presentation about the networking today. They just informed me last night. I had slept for few hours just to prepare some slides for the presentation. It is so unfortunate, I did not have much to share."*

#### **4.3.3.4 Reliable**

In the interviews, the word *reliable* was emphasised in connection with toleration, and it was evident that the closer the members were, the more confidence they had in each other, and were willing to rely on each other even in decision-making situations. The sense of reliability comes naturally as they build up their working relationship. In most cases, the degree of reliability depends almost entirely on the quality of the relationship, and it is clear that new partners could not be considered as reliable as members who had been known for a long time. There are also cases where a team member would have to rely on someone other than his or her immediate partner to complete a job.



3A8 - *"I have to rely on him in many occasions. I have known him for quite some time. I know he is a responsible person. I am sure he will not disappoint me."*

3B1 - *"We appoint him because we know he is a reliable person. He is quiet but smart. I always rely on him to lead this project when I am not around."*

3B2 - *"I can ask him to cover me when I have something else to do. We have shared a lot of things together. We have the same technical background. I found it easy to rely on him. One more thing I prefer him is that he can understand my job."*

### ***Summary of Findings on the Toleration Category***

The understanding among the members of a team is the most essential ingredient for their knowledge sharing success. The working experience of every individual, the length of time they were together, and their attitudes played a major role in realising toleration. However, the sense of reliability has to be developed, because it can not be immediately present in new relationships, and it is necessary to enhance the quality of teamwork attained. It is also evident that on some occasions members may face difficulties, and in such instances other members need to be tolerant and sensible in their dealings with them so as not to damage their self-image and predisposition to share knowledge in future. In short, all members must acknowledge the importance of toleration in performing team-based tasks.

#### **4.3.4 Reciprocity**

*Reciprocity* is one of the categories found in this study which describes relational capital. Reciprocity is concerned with the favours given to or received by a person (Wasko and Faraj, 2000), and relates to the norms associated with the obligation to help others (Nahapiet and Ghoshal, 1998). The interviews revealed that team members may assist others without necessarily expecting something in return. This attitude could have arisen from a sense of professionalism which makes one feel it is his/her

moral duty to guide and assist others when requested, or be a result of not wanting to see a fellow colleague become disappointed with the job in hand, as this would not be good for the team as a whole. The codes *return*, *help*, *benefits*, and *tips* on how to complete project-related tasks, appeared to be suitable in explaining reciprocity.

#### **4.3.4.1 Return, Help, Benefits, and Tips**

Helping behaviour, particularly in a work context, is often associated with getting something in return, but the interviewees indicated that the importance of reciprocity in the project context was not predominant. The team members were willing to spend their time and energy in sharing their knowledge and expertise for the accomplishment of the project goals. Indeed, many interviewees mentioned that reciprocity was not at all important in their work, and very few expected anything in exchange from the party whom they had helped.

3B2 - "*Always when we help, one day, other people will help us in return.*"

1A3 - "*He is new here, I will help him whenever he faces any problem. Other people also help me when I first joined this company.*"

3A8 - "*I will help them if they need help. How could you disappoint one who needs your help?*"

However, the interviewees did indicate that a willingness to share knowledge with another person often led that person to want to give something in return. For example when 3A5 was asked about the reaction of the party with whom he had shared with, he said:

3A5 - "*It is interesting to see how people behave when you help them. Some will always respect you and make you feel self satisfied. Some will try to return*

*whatever you have done to them, and the funny thing is that some will just ignore you after they got what they wanted."*

### ***Summary of Findings of the Reciprocity Category***

Based on the interviews, it is apparent that the main factor for the members of a team to share their knowledge was to maintain good relationship. In addition, interviewees also mentioned that in a situation like a project context, people are connected to one another for a short period of time. Hence, it is not possible for them to get back what they had given to others. It must be noted here that help is extended to another team member out of the individuals' sense of responsibility towards the completion of a project at hand and without expecting a reward. However, as they work for the same organisation it is highly possible that they may work together again, and thus need to help one another in the future.

#### **4.3.5 Sincerity**

*Sincerity* is another category found in this study to describe relational capital. The items *respect*, *trust*, and *give and take* indicate the team members' sincerity towards one another. Many interviewees admitted that their perception towards others was formed in response to the attitudes and characters of the other parties, which greatly influenced their approach towards them. The more they perceived the other party to be sincere, the more willing they were in sharing their knowledge.

##### **4.3.5.1 Give and Take**

The willingness of the team members to *give and take*, makes it possible for them to develop and proceed in their undertakings smoothly. In their interviews, the members clearly indicated that relationships among them could be created informally through leisure activities, such as having lunch or tea together, and this helped to boost the *esprit*

*de corps* which they saw as essential for them as a team. The closer they felt to one another, the better they understood each other and thus, the fewer problems they experienced amongst themselves.

1B2 - *"You need to understand their attitudes and must be willing to give and take with them in whatever situation if you want their help."*

1B10 - *"We purposely go out together for lunch or tea especially after a formal meeting with them and I find out it is helpful to get to know them better. From our conversation, I get to know what they like and what they don't, so it is easy to tackle them by avoiding what they don't like ... it is how things work when you deal with your clients."*

2A9 - *"I know some of the team members pretty well and I would describe my relationship with them as 'close and informal' ... so, there is no problem for me to share things with them and vice versa."*

3B10 - *"I found out going out together, have fun, make me better understand my colleagues. But whatever it is, you must be willing to give and take, not all people are perfect."*

#### **4.3.5.2 Respect**

The interviews disclosed that when a team member, especially those who are senior, expressed concern and respect for the others in the team, it demonstrated a high degree of sincerity.

1A8 - *"Our boss is always concerned about us. He always come down and asks how the project is going on. He always listens to us."*

However, in some instances, particularly when team members came from different work sites, the member misunderstood the intended meaning of the words spoken by their colleagues. This was known to create misunderstandings and subsequently creating the impression that the other party was not sincere.

2A9 - *"I just don't understand what he wants. It is always not clear. He should know that I have other things to do as well. At least he should be considerate."*

3B7 - *"Last time, when I met him, he said the plan is 'bolehla'². So, I thought it is OK, but now he said it is not enough, I have to add more things, he drives me crazy."*

In addition, if a member is seen to be temperamental, blatant and disrespectful, he or she will be perceived as insincere and thus, others will try to avoid him or her in future interactions.

2A1 - *"She will always reject my ideas or ask me lots of questions ... as if ... I do not know how to do my job. I am the expert in this area ... I know my job."*

This reaction may increase anger and disrespect towards each other and may jeopardise the relationship. The interviews also revealed that negative feelings or disrespect may influence the team members' attitude towards knowledge sharing.

2A1 - *"She always did that to me ... not considerate at all. I will not have any relationship with her anymore."*

1A7 - *"I will respond to any query if someone shows respect to the colleagues or at least respect me as his or her senior. If not just forget to even talk to me."*

#### **4.3.5.3 Trust**

Analysis of the interviews found that trust amongst team members is dependent on their sincerity, as well as the situation they are faced with. De Vries *et al.* (2006) contended

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² '*bolehla*' can bring two connotations; one is 'OK' and the other one is "so- so". It needs a language cue to be able to understand what it really means.

that when someone trusts another party, he/she will be willing to disseminate knowledge without expecting anything in return.

2A6 - *"I didn't know most of the team members prior to this project. I don't think they help me because they trust me to help them in return."*

2A14 - *"You need to understand their language and know your team members well ... this is important so that you know who you can trust and also how to get info from them ... Some people are very hard to approach if they don't really know you."*

The result of analysis also highlighted the importance of strong networking as a significant way in which trust begins to develop.

3A10 - *"I know him for quite some time, I believe he will help me when I need him. Surely he will never reject it."*

1A10 - *"It is very difficult to trust someone, but having work for quite some times, I began to understand them and manage to become close."*

### ***Summary of Findings on the Sincerity Category***

In line with the extant literature, this study found that a sense of sincerity is not easy to develop as it requires time and frequent interaction. In addition, it must also be highlighted here that any display of disrespect or unwillingness to make compromises may impede the development of sincerity. As a social relationship is a contributing factor in the development of trust, it is necessary to build close personal ties with other team members, particularly with those from different backgrounds or work sites.

### **4.3.6 Conclusions of the Findings on Relational Capital**

Relational capital is about the relationships which are rewarded by repeated transactions due to collaboration, co-operation, toleration, reciprocity, and sincerity. The findings of this study indicate that due to the lack of frequent interaction or at least a history of non-

or minimal interaction among the team members, especially in Companies 2 and 3, the relational capital is not fully developed (Cohen and Prusak, 2001; Nahapiet and Ghoshal, 1998). Nonetheless, despite this lack of interaction, the team members still share and disseminate knowledge when they are structurally embedded in a network. But, the level and amount of knowledge shared are only for the purpose of accomplishing the goals of a project.

The findings of this study also suggest that the relationships built among team members are based on formal collaborations as required by the task in hand rather than being due to friendship. This is because the relationships are governed by formal agreement and structural protocol instead of friendship (Coleman, 1990; Putnam, 1993). Hence, frequent interactions are required for the development of a personal relationship. Working for some time on a project, e.g., from its inception to completion, fosters interaction on which feelings co-operation, toleration, and sincerity, deepens. The sharing of tacit knowledge is then facilitated as the relationships grow stronger. By working for the same organisation, team members have a higher possibility of working together in the future, and hence realise the need to maintain healthy relationships with one another.

#### 4.4 CONCLUSIONS

The major findings of this study are summarised in Table 4-1. To conclude, the study found that structural capital is one of the important determinants in the development of social capital among project team members, since it fosters the relationship among them. Categories such as *meeting*, *relationship*, *interaction*, *position*, and *proximity* are pertinent in developing structural capital, which then becomes the basis for the creation of cognitive capital within a team. The *shared vision*, *goals*, and *language* used to facilitate the achievement of a common frame of reference are the attributes of the cognitive dimension of social capital.

Both structural and cognitive dimensions are important for the development of the relational dimension of social capital because this dimension requires time and a history of interaction in order to flourish. The categories for relational dimensions are *collaboration*, *co-operation*, *toleration*, *reciprocity* and *sincerity*. However, within a project context, this study found collaboration and co-operation to be more important than others. Nevertheless, all dimensions are generally important in knowledge sharing amongst project team members.



**Table 4-1: Comprehensive List of Categories and Items of Social Capital Dimensions  
(Structural, Cognitive, and Relational Capitals)**

Category	Structural		Cognitive		Relational	
	Items	Category	Items	Category	Items	Category
Meeting	Formal Informal Frequency Place Urgency Time	Shared vision	Obvious/clarity Motivation value Attributes/skills Shared Identity/Identification Norms Collective thinking		Shared Expertise Shared Knowledge Feedback Commitment Active Participation Assistance Level of support Teamwork Favourite	Collaboration
Relationship	Job rotation Same department Short visit Previous involvement Training /workshop Similarity Face-to-face Telephone E-mail Black and White Written Formal Status Senior Experience Familiarity Culture Obligation Office environment Share equipment Distance Privacy Conducive Partition Comfortable	Shared Objectives	Shared Understanding Shared Input Exchanged knowledge Hard Work		Solving problem Discussions Unity Partner Group	Cooperation
Interaction		Shared Language	Jargon Vocabulary Codes Technical Word Stories Interpretation		Comfort Ease Effort Willingness Expectation Reliable	Toleration
Position						
Proximity					Return Help Benefits Tips	Reciprocity
					Give and take Respect Trust	Sincerity

## CHAPTER 5

### QUANTITATIVE FINDINGS

#### 5.0 INTRODUCTION

The main aim of this chapter is to report on the quantitative analysis conducted on the data. Quantitative analysis is required to meet the study requirement *to identify the importance of categories and items of social capital dimensions* within the context of a project. This will strengthen the study propositions, and in this process, both univariate and bivariate analyses were performed. The univariate analysis was conducted to achieve two goals. Firstly, the aim was to determine significant categories and items of social capital for tacit knowledge sharing, and a univariate analysis enables the generation of a refined list of the most important categories and items of social capital for tacit knowledge sharing. Secondly, the intention was to identify the *most* influential dimension of social capital in fostering the sharing of tacit knowledge. The bivariate analysis was performed *to explore relationships between the demographic background of the respondents* (age, gender, work-site, size of the company) and the social capital dimensions: structural, cognitive, and relational. Such a bi-variate analysis generates information about the degree of significance of demographic variables versus social capital variables. Thus, the quantitative results provide more robustness to the qualitative analysis, and enable the results of the study to be interpreted with more confidence.

The univariate analysis is reported in Section 5.1, the bivariate analysis in Section 5.2, and a conclusion is provided in Section 5.3.

## 5.1 UNIVARIATE ANALYSIS

### 5.1.1 Procedures for Determining Frequency of Occurrence of Social Capital Categories and Items

The univariate analysis that aimed to determine the significant categories and items of social capital for tacit knowledge sharing and the most influential variables amongst them, involved counting the number of times of occurrence of the specific social capital categories and items based on the comprehensive list generated from the qualitative analysis (see Table 4-1). This analysis was carried out after the selective coding was completed (when each and every interview transcript was reviewed carefully). This substantially increased the validity of the counting procedure.

The number of times an item such as *informal meeting* occurred was assigned a digit on a 5-point scale (S1-S5). For instance, if it was mentioned once in the interview, it was recorded as S1, if it occurred twice it was recorded as S2, and so on. It must be noted that the category for the number of items occurring ended at S5 because the analysis showed that there were no more than five occurrences in any one interview. The counts were first entered into Microsoft Excel® application and then transferred to SPSS® for univariate and bivariate analysis.

Through selective coding, a series of scores for each category and item was obtained. Using the SPSS, frequency distributions of these scores were constructed for all items under each of the three dimensions - the structural, cognitive, and relational capitals. These frequencies were then converted into percentages for each item in a category. The total number of valid interviewees was fifty five (N=55). The following are the steps involved in deriving the frequency counts percentage (see e.g., Table 5.1).

Step 1: Category i.e. meeting and its items (formal, informal, frequency of contacts, time, place, urgency) was generated from the qualitative analysis.

Step 2: Determining the importance of each of the items:

- i) the number of interviewees who mentioned the item was counted (N=xx)
- ii) the number of interviewees who mentioned the item once (S1), twice (S2), three times (S3), four times (S4), and five times (S5).

Step 3: Counting the Percentage of items that occurred once:

$$\text{Percentage of frequency } (f1) = \frac{S1}{N} \times 100$$

Step 4: Evaluating the importance of the items under each category. The set criteria are:

- i) to fulfil the requirement  $N \geq 27$  for an item to be considered as an important item (which is 50% of the total number of interviewees (N=55))

**And/Or**

- ii) to fulfil the requirement where the total percentage value ( $f2-f5$ ) must be more than 50% for an item occurring more than once.

To illustrate how the scores are rated (see Table 5-1 that shows the frequency distribution of category i.e. meeting) for *informal meeting*, the number of interviewees who mentioned this item once (S1) was 21. Therefore, the percentage for this item will be:

$$\text{Percentage of frequency } (f1) = \frac{21}{44} \times 100 = 48\%$$

Thus, the total percentage of interviewees rating the item more than once ( $f2-f5$ ) is 52% which is more than the set criteria ( $f2-f5 > 50\%$ ). This suggests that under the category of *meeting*, 'informal meeting' is one of the most important items for knowledge sharing in an organisational project.

### 5.1.1.1 Structural Capital

Categories under the structural capital dimension: *meeting, relationship, interaction, proximity, and position.*

#### 5.1.1.1.1 Meetings

This study found that *Meetings* form an important part of all organisational projects included in the study. The purpose of a meeting is to explore ideas and solve problems in order to achieve the project objectives. This is consistent with the findings of Cook *et al.*, (1987) who found similar reasons for conducting a meeting. In the present study, *meeting* is defined as a structured or unstructured communication activity that must involve at least two co-operating persons, specifically project team members. Most of the interviewees talked about formal meetings (N= 50) and informal meetings (N=44) when they were asked which type of *meeting* they prefer. The frequency of meetings, times and place, are also important in determining the nature or types of *meetings*.

**Table 5-1: Frequency Occurrence for Meeting**

No of Occurrences (scores 1-5)	Formal	Informal	Frequency	Place	Urgency	Time
S1	60%	48%	75%	75%	89%	37%
S2	28%	23%	16%	9%	11%	30%
S3	8%	18%	6%	13%	0%	23%
S4	4%	9%	3%	3%	0%	3%
S5	0%	2%	0%	0%	0%	7%
	N=50	N=44	N=32	N=32	N=18	N=30

Table 5-1 shows that the total percentage for the item occurring more than once was Time ( $f2-f5 = 63\%$ , N=30) and Informal Meeting ( $f2-f5 = 52\%$ , N=44). Although the total percentages for the item occurring more than once for Formal Meeting, Frequency and Place were less than 50%, the number of N for these items was more than the set criteria. Therefore, the most important items for this category were Formal Meeting, Informal Meeting, Frequency, Place, and Time because they satisfied at least one of the set criteria.

#### 5.1.1.1.2 Relationship

This study found that *relationships* are developed when the team members work together in a project or in the same department, or participate in activities organised by the company. For instance, interviewees mentioned various sources of relationship such as job rotation, participation in other organisational projects, and workshops or training. Other sources of relationship indicated by the team members were similarity - any kind of similar characteristics that they shared, for example the same sex, experience, background, and expertise. Although this kind of relationship is formal, the interviewees nonetheless regard it as important for the development of structural capital.

**Table 5-2: Frequency Occurrence for Relationship**

No of Occurrences (scores 1-5)	Job Rotation	Same Department	Short visit	Previous Involvement	Training/ Workshop	Similarity
S1	57%	67%	48%	86%	100%	38%
S2	25%	24%	33%	14%	0%	29%
S3	18%	9%	7%	0%	0%	29%
S4	0%	0%	0%	0%	0%	4%
S5	0%	0%	11%	0%	0%	0%
	N=28	N=33	N=27	N=21	N=13	N=24

The total percentages of items occurring more than once for Short Visit ( $f_2-f_5 = 52\%$ ,  $N=27$ ) and Similarity ( $f_2-f_5 = 62\%$ ,  $N=24$ ) as a source of *relationship* among team members were higher compared to other items in this category. However, for Similarity, the number of N is lower ( $N=24$ ) than the set criteria. On the other hand, the number of N for Job Rotation and Same Department were higher although the total percentages for these items were lower than the set criteria. Thus, these suggest that Short Visits, Similarity, Job Rotation, and Same Department were the most important items for this category.

#### 5.1.1.1.3 Interaction

Interaction was one of the variables found to be important in the development of structural capital. Items mentioned by the interviewees for this category were Face-to-face meetings, Telephone calls, E-mail, Written formal, and Black and White evidence. These items indicated the way the team members interacted or communicated with one another either formally or informally. For instance, face-to-face formal meetings were structured communication activities in which all team members were physically and simultaneously present (Cook *et al.*, 1987). Using e-mail and mobile phone technology, parties involved could communicate with each other without having to be physically present.

Table 5-3 shows that the total percentages for items occurring more than once were Face-to-face ( $f2-f5 = 69\%$ ,  $N = 48$ ), Telephone ( $f2-f5 = 75\%$ ,  $N=40$ ), and E-mail ( $f2-f5 = 76\%$ ,  $N=42$ ). Both Written formal and Black and White under this category do not meet any of the set criteria ( $f2-f5 > 50\%$  and/or  $N \geq 27$ ). Therefore, the most important items for this category were Face-to face, Telephone, and E-mail.

**Table 5-3: Frequency Occurrence for Interaction**

No of Occurrences (scores 1-5)	Face-to-face	Telephone	E-mail	Black and White	Written formal
S1	31%	25%	24%	93%	100%
S2	21%	48%	24%	0%	0%
S3	27%	22%	29%	7%	0%
S4	13%	5%	14%	0%	0%
S5	8%	0%	9%	0%	0%
	N=48	N=40	N=42	N=14	N=22

#### 5.1.1.1.4 Position

*Position* of the team members was found to be an essential element of the structural capital among team members in this study. This is consistent with Burt's (1997) findings that *position* is an important asset for team members. For example, this study found that having a high *position* within the organisational hierarchy is associated with receiving more

information than one would in a lower *position*. Items for *position* were mentioned by interviewees as being Status, Experience of the team members, Familiarity, Obligation, and Managerial culture. Wasko and Faraj (2005) found that a person's individual position in the network influences his or her willingness to contribute knowledge. Lubit (2001) emphasised the need to develop a knowledge sharing culture by encouraging junior members to participate in discussions and meetings, acknowledging their contribution, and avoiding negative elements that may impede communication.

**Table 5-4: Frequency Occurrence for Position**

No of Occurrences (scores 1-5)	Status	Experience	Familiarity	Culture	Obligation
S1	10%	0%	43%	31%	67%
S2	12%	20%	31%	22%	29%
S3	29%	39%	14%	31%	4%
S4	22%	22%	5%	16%	0%
S5	27%	18%	7%	0%	0%
	N=49	N=49	N=42	N=32	N=45

Many interviewees seemed interested and enthusiastic when asked about *position*. This was seen when all Ns for all items were more than the set criteria ( $N \geq 27$ ). The results suggest that all the items under this category were important, but in regard to the total percentage of items that occurred more than once, all items except obligation had more than 50% ( $f_2-f_5 > 50\%$ ). Table 5-4 also shows that the highest percentage of items that scored five times was for status ( $f_5 = 27\%$ ).

#### 5.1.1.1.5 Proximity

*Proximity* of team members in the project context was found to be one of the important categories of social capital, consistent with the findings of several other researchers (Kahn and McGaughey, 1977; Monge and Kirste, 1980; Priest and Sawyer, 1967; Tesch, Huston and Indenbaum, 1973 as cited in Monge *et al.*, 1985). Interviewees mentioned items such as Office environment, Distance, Comfortable, and Conducive for indicating the organisational *proximity*. All these are variables associated with the work context. The



importance of the work context in promoting knowledge sharing was also proposed by Nahapiet and Ghoshal (1998). This may include designing the office in a specific way, for example having an open plan arrangement providing appropriate rooms for the project team to work together (Koskinen *et al.*, 2003).

**Table 5-5: Frequency Occurrence for Proximity**

No of Occurrences (scores 1-5)	Office Environment	Share Equipment	Distance	Privacy	Conductive	Partition	Comfortable
S1	56%	88%	58%	82%	48%	92%	81%
S2	23%	13%	27%	6%	41%	0%	17%
S3	15%	0%	15%	12%	11%	8%	3%
S4	3%	0%	0%	0%	0%	0%	0%
S5	3%	0%	0%	0%	0%	0%	0%
	N=39	N=24	N=33	N=17	N=27	N=13	N=36

While N for Conductive is only 27 ( $f2-f5 = 52\%$ ), it scored the highest total percentage for items mentioned more than once in comparison to Distance ( $f2-f5 = 42\%$ , N=33), Office Environment ( $f2-f5 = 44\%$ , N=39) and Comfortable ( $f2-f5 = 19\%$ , N=36). However, the number of N for these items was more than the set criteria, thus suggesting that Office Environment, Distance, Conductive, and Comfortable were the most important items for this *proximity*.

### 5.1.1.2 Cognitive Capital

Categories under cognitive capital were: *shared vision*, *shared objective*, and *shared language*.

#### 5.1.1.2.1 Shared Vision

This category is important since team members must share the same vision for the project.¹ Hence, interviewees were asked whether they understand the project vision, whether they

¹ The objective and the vision of the projects were obtained prior to the interviews. This was important in order to see whether the interviewees understood what they were aiming to achieve.

were motivated by it, and whether they believed they had the necessary attributes or skills to accomplish it. Additionally, their perception of whether they had a shared identity and collective thinking was also investigated.

**Table 5-6: Frequency Occurrence for Shared Vision**

No of Occurrences (scores 1-5)	Obvious/ Clarity	Motivation Value	Attributes/ skills	Shared Identity	Norms	Collective Thinking
S1	68%	57%	86%	95%	90%	91%
S2	30%	38%	14%	5%	10%	9%
S3	2%	5%	0%	0%	0%	0%
S4	0%	0%	0%	0%	0%	0%
S5	0%	0%	0%	0%	0%	0%
	N=47	N=21	N=14	N=38	N=10	N=22

An analysis of the frequencies shows that all the items that occurred more than once under *shared vision* received low percentages ( $f_2-f_5 < 50\%$ ). However, the number of N for Obvious/Clarity and Shared Identity were more than the set criteria ( $N \geq 27$ ), thereby suggesting that these two items were most important for this category.

#### 5.1.1.2.2 Shared Objective

The literature emphasised that successful project implementation requires a clear definition of the objectives (e.g. Inkpen and Tsang, 2005; Tsai and Ghoshal, 1998), and the results from this study bore that out. All projects required that all team members understood and adhered to the work plan, resource plan, and schedule. Generally, the project manager would inform the team members and together they would plan what had to be accomplished and foresee the obstacles that may occur. Questions were posed to the interviewees to establish whether they had shared understanding and shared input, and also to discover their perceptions towards other team members.

**Table 5-7: Frequency Occurrence for Shared Objectives**

No of Occurrences (scores 1-5)	Shared Understanding	Shared Input	Exchange	Hard Work
S1	85%	94%	79%	77%
S2	12%	6%	17%	23%
S3	3%	0%	4%	0%
S4	0%	0%	0%	0%
S5	0%	0%	0%	0%
	N=47	N=33	N=24	N=31

Table 5-7 shows that the total percentages for items that occurred more than once for all items were less than the set criteria ( $f_2-f_5 > 50\%$ ). However, the number of N for Shared Understanding, Shared Input, and Hard Work were higher than the set criteria ( $N \geq 27$ ), thereby suggesting that Shared Understanding, Shared Input, and Hard Work were most important items under this category.

#### 5.1.1.2.3 Shared Language

The study found that sharing the same language could foster the interaction of the team members. Most importantly, if team members used the same jargon, or interpreted information in the same way, personal knowledge could be effectively transmitted (Katz & Kahn, 1966; Berger and Luckman, 1967). Questions were asked about interviewees' understanding of certain words and whether they foresaw problems if they did not understand them.² In response, team members mentioned items such as technical word, codes, jargon, stories, vocabulary, and interpretation when speaking about shared language. Additionally, interviewees mentioned that if they didn't fully understand such terminologies, they had difficulty in contributing to meetings, discussions, and brainstorming. Therefore, in order for them to make sure they understood the conversation, they chose to either interpret it themselves or asked the particular person using the unfamiliar vocabulary to explain.

² Questions in this category were also formulated while the researcher was observing meetings.

**Table 5-8: Frequency Occurrence for Shared Language**

No of Occurrences (scores 1-5)	Jargon	Vocabulary	Codes	Technical	Stories	Interpretation
S1	29%	88%	100%	100%	67%	49%
S2	60%	6%	0%	0%	22%	36%
S3	9%	6%	0%	0%	11%	15%
S4	2%	0%	0%	0%	0%	0%
S5	0%	0%	0%	0%	0%	0%
	N=45	N=16	N=9	N=13	N=18	N=41

An analysis of the frequencies shows that only Jargon ( $f2-f5 = 71\%$ ,  $N=45$ ) and Interpretation ( $f2-f5 = 51\%$ ,  $N= 41$ ) were important items under this category as they fulfil both the criteria.

### 5.1.1.3 Relational Capital

Categories under relational capital were: *collaboration, co-operation, toleration, reciprocity, and sincerity.*

#### 5.1.1.3.1 Collaboration

*Collaboration* was found to be one of the categories indicating relational capital. Questions related to *collaboration* included the team members' willingness to share their expertise, their ability and willingness to assist others, give feedback, and be committed to the project. Other items for instance, the interviewees' attitudes toward team work, active participation in the discussion, and giving support to other team members were also investigated. All these items were able to signify the level of *collaboration* among the team members. If the level is high, it could indicate that the team members could benefit by increased trust amongst them (Walker *et al.*, 1997), and trust is important as it can lead to collaborative behaviour among individuals, groups, and organisations (Gambetta, 1988, McAllister, 1995).

**Table 5-9: Frequency Occurrence for Collaboration**

No of Occurrences (scores 1-5)	Shared Expertise	Shared Knowledge	Feedback	Commitment	Active Participation
S1	62%	38%	78%	44%	57%
S2	21%	29%	16%	34%	22%
S3	8%	20%	6%	22%	22%
S4	8%	9%	0%	0%	0%
S5	3%	4%	0%	0%	0%
	N=39	N=45	N=32	N=32	N=23

Level of Support	Assistance	Teamwork	Favourite
49%	69%	41%	75%
37%	17%	33%	25%
14%	10%	21%	0%
0%	3%	5%	0%
0%	0%	0%	0%
N=35	N=29	N=39	N=16

Table 5-9 indicates that the total percentages for items occurring more than once were Shared Knowledge ( $f2-f5 = 62\%$ ,  $N=45$ ), Commitment ( $f2-f5 = 56\%$ ,  $N=32$ ), Level of Support ( $f2-f5 = 51\%$ ,  $N=35$ ), and Teamwork ( $f2-f5 = 59\%$ ,  $N=39$ ). Although the total percentages for Shared Expertise ( $f2-f5 = 38\%$ ,  $N=39$ ), Feedback ( $f2-f5 = 22\%$ ,  $N=32$ ), and Assistance ( $f2-f5 = 31\%$ ,  $N=29$ ) were less than the set criteria ( $f2-f5 > 50\%$ ), the number of N for these items were more than the set criteria ( $N \geq 27$ ). The results suggest that the most important items for this category were Shared Expertise, Shared Knowledge, Feedback, Commitment, Level of Support, Assistance, and Teamwork.

#### 5.1.1.3.2 Co-operation

Another important category for relational capital was found to be *co-operation*. The items related to this category included the interviewees' willingness to co-operate with other team members, as evidenced by their attitudes and behaviour in solving problems, discussing issues related to the project, and being somebody's partner in doing the work.

**Table 5-10: Frequency Occurrence for Co-operation**

No of Occurrences (scores 1-5)	Solve Problem	Discuss	Unity	Partner	Group
S1	64%	55%	100%	44%	33%
S2	22%	26%	0%	50%	67%
S3	6%	14%	0%	6%	0%
S4	6%	2%	0%	0%	0%
S5	3%	2%	0%	0%	0%
	N=36	N=42	N=9	N=16	N=3

The total percentages of items that occurred more than once under this category for Partner ( $f2-f5 = 56\%$ ,  $N=16$ ) and Group ( $f2-f5 = 67\%$ ,  $N= 3$ ) as part of *co-operation* among team members were higher compared to other items under this category. However, Partner and Group were mentioned by only a few interviewees, and thus, seem not to be of importance for this category. On the contrary, although the total percentages for Solving Problem ( $f2-f5 = 36\%$ ,  $N=36$ ) and Discuss ( $f2-f5= 45\%$ ,  $N=42$ ) were lower, the number of N for these items were higher than the set criteria. Interestingly, items for this category vary in their criteria for importance. These items either have lower total frequency or a lower number of interviewees. The analysis indicates that items such as Solving Problem and Discuss were the most important items under this category.

#### 5.1.1.3.3 Toleration

Toleration was one of the categories found to be associated with relational capital in a project context. In this category, employees were assessed on their attitudes towards tolerating other team members.

**Table 5-11: Frequency Occurrence for Toleration**

No of Occurrences (scores 1-5)	Comfort	Easy	Effort	Willingness	Expectation	Reliable
S1	78%	85%	81%	59%	67%	68%
S2	11%	10%	13%	31%	22%	32%
S3	11%	5%	6%	9%	6%	0%
S4	0%	0%	0%	0%	6%	0%
S5	0%	0%	0%	0%	0%	0%
	N=18	N=20	N=32	N=32	N=18	N=25

Table 5-11 shows that none of the items scored more than 50% for items occurring more than once. However, the number of N for Effort (N=32) and Willingness (N=32) were more than the set criteria. Thus, these items indicate that they are the most important items under this category.

#### 5.1.1.3.4 Reciprocity

*Reciprocity* can be divided into two types: specific and diffuse (Putnam, 1993; Coleman, 1990). Specific reciprocity refers to the simultaneous exchange of items between actors, and implies that is exchanged has the same value. Diffuse reciprocity, on the other hand, refers to an exchange of items that has not to be repaid simultaneously but can be repaid and balanced any time by virtue of the fact that a good relationship exists between the actors and there is trust. This category evaluates team members' understanding of reciprocity and willingness to exchange. Items mentioned by them indicated that exchanges were happening among them. Those who mentioned 'return' associated it with being repaid in some way for giving help to others.

It is clear that not many interviewees mentioned this category (all have  $N < 27$ ). Table 5-12 indicates that the total percentages for items occurring more than once were lower for all items except for Tips ( $f_{2-f5} = 56\%$ ,  $N=9$ ). However, the N for Tips was too low ( $N=9$ ). All the other items - Help, Benefits, and Returns did not meet either of the set criteria, and hence, none of the items in this category appeared as most important for tacit knowledge sharing in a project context.

**Table 5-12: Frequency Occurrence for Reciprocity**

No of Occurrences (scores 1-5)	Return	Help	Benefits	Tips
S1	91%	59%	75%	44%
S2	9%	23%	25%	56%
S3	0%	14%	0%	0%
S4	0%	0%	0%	0%
S5	0%	5%	0%	0%
	N=11	N=22	N=8	N=9

#### 5.1.1.3.5 Sincerity

Working in a group, especially when there is a mission to be accomplished, requires those involved to perform their duties, understand other members, respect them, and most of all trust them. These words were all mentioned by the interviewees to indicate *sincerity* in their relationship with others.

**Table 5-13: Frequency Occurrence for Sincerity**

No of Occurrences (scores 1-5)	Give and Take	Respect	Trust
S1	75%	54%	86%
S2	20%	38%	14%
S3	5%	8%	0%
S4	0%	0%	0%
S5	0%	0%	0%
	N=20	N=26	N=14

Surprisingly, the results from Table 5-13 indicate that none of the items satisfied both the set criteria. Thus, no item was considered as most important for this category. This may suggest that in a project context, it is difficult to build trust as it takes time to accumulate and maintain. In line with this, Koskinen *et al.* (2003) found that trust in a project context is not a result of being part of the collective process. Thus, when the team members share the knowledge, they do it because of other factors, for example, being obligated to share and being accountable in terms of their task performance (Ruuska and Vartiainen, 2005). Trusting the other party does not seem to feature.



#### 5.1.1.4 Summary of the Frequency Count Analysis

In summary, the quantitative analysis enabled *the comprehensive list* generated through the qualitative analysis (refer Table 4-1) to be further refined into a list of *the most important items* under each category of social capital dimensions. Knowing these important variables for knowledge sharing in a project context, makes a significant contribution to the existing literature concerning social capital, since this lacks specific definitions of social capital and guidance on how knowledge could be shared among group members within a project context.

**Table 5-14: Refined List of the Most Important Categories and Items of Social Capital Dimensions (Structural, Cognitive, and Relational)**

Dimensions					
Structural		Cognitive		Relational	
Category	Items	Category	Items	Category	Items
<i>Meeting</i>	Formal Informal Frequency Time Place	<i>Shared Vision</i>	Obvious/clarity Shared Identity/ Identification	<i>Collaboration</i>	Shared expertise Shared knowledge Feedback Commitment Level of support Assistance Teamwork
<i>Relationship</i>	Job rotation Same department Short visit Similarity	<i>Shared Objectives</i>	Shared Understanding Shared input Hard Work	<i>Co-operation</i>	Solving problems Discussions
<i>Interaction</i>	Face-to-face Telephone E-mail	<i>Shared Language</i>	Jargon Interpretation	<i>Toleration</i>	Effort Willingness
<i>Position</i>	Status/seniority Experience Familiarity Culture Obligation				
<i>Proximity</i>	Off Environment Distance Conducive Comfortable				

### 5.1.2 Procedures for Determining Mean Scores of Social Capital Categories

This analysis aimed at determining the importance of the categories under the dimension of social capital: structural, cognitive, and relational capitals. The mean score for each category was calculated by adding all Ns for each item under a category, and dividing this by the total number of interviews conducted (N=55).³ Thus, the number of items and the number of interviewees responding to each item under a category may affect the mean scores for that particular category. The next sub-section discusses the mean scores for all the categories of social capital dimensions.

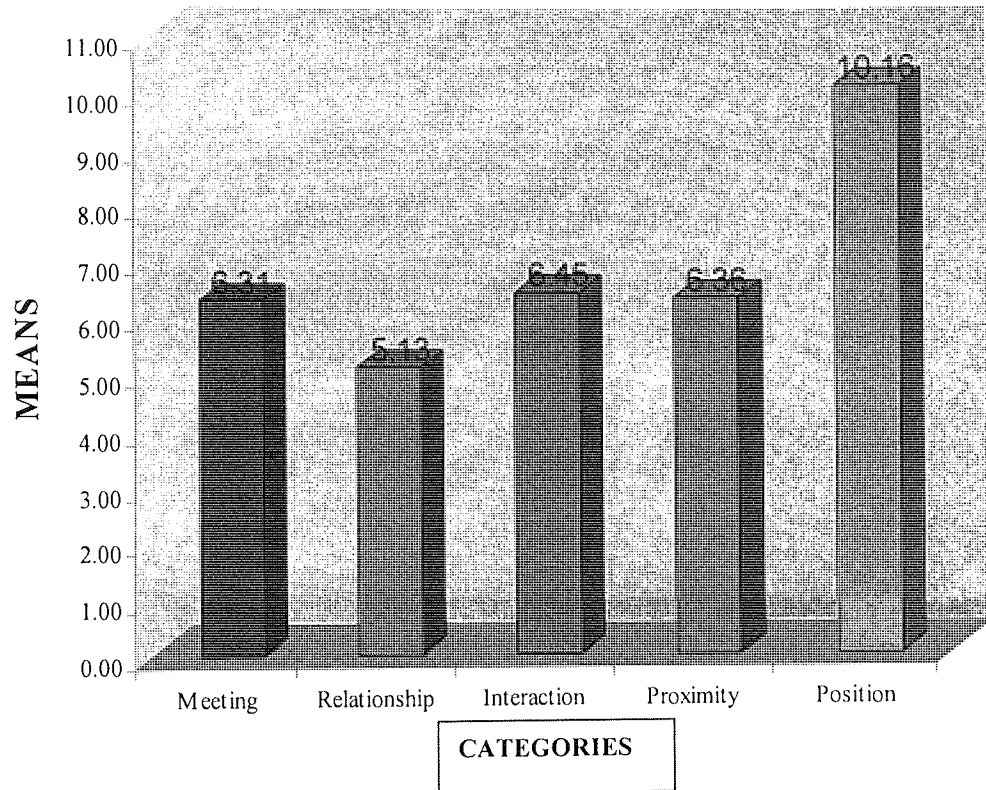
#### 5.1.2.1 Mean Scores for Structural Capital

Figure 5-1 shows that the highest mean score is 10.16 for *position* and the lowest score is 5.13 for *relationship*. This finding seems to suggest that compared to other categories, *position* is a very important determinant of structural capital because its items occurred many times. The mean scores for *interaction*, *meeting*, and *proximity* with means above 6 indicate that these categories are also essential as they were mentioned many times by the team members. Overall, scores for all these categories are high which seems to suggest their value in the development of tacit knowledge sharing among the project team members.

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³ Note that not all items were mentioned by each interviewee because questions were unstructured and open ended.

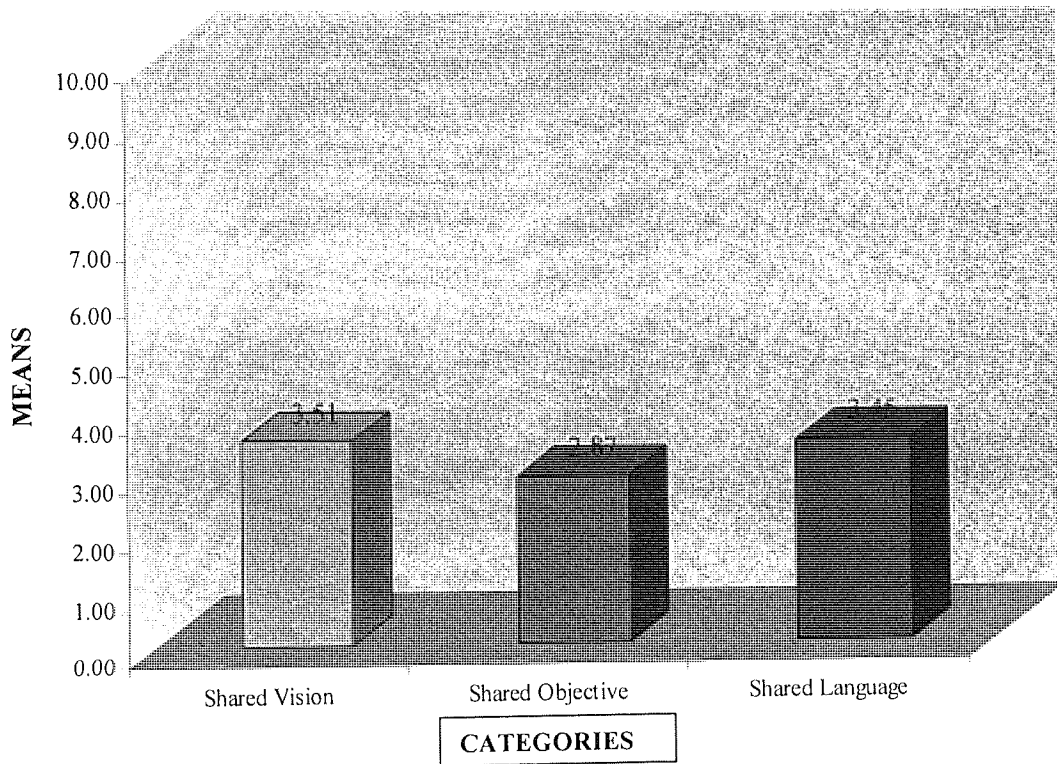
Figure 5-1: Means for Structural Capital Categories



#### 5.1.2.2 Mean Scores for Cognitive Capital Categories

Figure 5-2 shows that the differences in the mean scores for each of the categories are small. For instance, the highest mean score is 3.51 for *shared vision* and 3.45 for *shared language*. In addition, the low mean scores could be because the items under these categories were less than in categories under other dimensions. Nonetheless, despite the lower score, the importance of these categories for knowledge sharing among project team members should not be under-estimated.

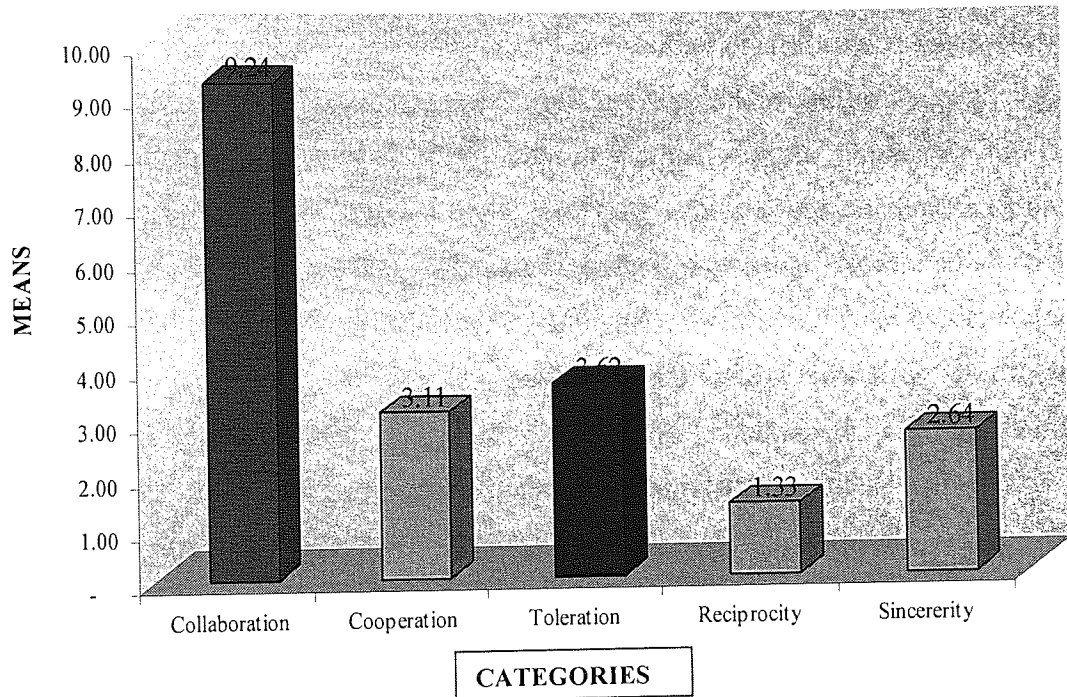
Figure 5-2: Means for Cognitive Capital Categories



### 5.1.2.3 Mean Scores for Relational Capital Categories

In contrast to other items under this dimension, *collaboration* had the highest mean score of 9.24 which is almost three times higher than the mean score for *co-operation* (3.11) and *toleration* (3.62). This indicates that *collaboration* was an important category to the team members in sharing knowledge. Although the mean score for *sincerity* (2.64) is slightly higher than the mean score for *reciprocity* (1.33), both categories received low scores, from which it can be inferred that these two categories were less important for knowledge sharing in a project context.

Figure 5-3: Means for Relational Capital Categories



#### 5.1.2.4 Summary of the Mean Scores

In summary, the mean scores across the categories under each dimension vary in their patterns. For structural capital, the highest mean score is for *position*, whereas the mean scores of other categories are almost equal. The only category with a high mean score under relational capital is *collaboration*. There is nothing interesting to report about cognitive capital as all categories have low mean scores. However, for further understanding about these categories in relation to demographic and organisational characteristics such as size, the bivariate analysis is useful, and this is reported in the next section.

## 5.2 BIVARIATE ANALYSIS

Obviously, the issue of whether factors such as size of the company, sex and age of the interviewees, worksite (such as working in HQ or subsidiaries) influenced the development of team members' social capital and their attitude towards knowledge sharing. Again, it was not considered satisfactory to solely consult qualitative data. Although this finding was not the objective of the present study, bivariate analysis was conducted in order to more accurately establish whether difference between groups exist. Before conducting any bivariate analysis, assumptions about the normality of a distribution were made, and a one-sample Kolgomogorov-Smirnov test was carried out for testing normality. In this test, if the significance level is greater than 0.05, then normality is assumed. The results indicate that all the categories under social capital were non-normally distributed.

In addition, two assumptions were made before adopting appropriate tests. Firstly, the data consists of ranks (Rowntree, 1981, p.125), but the rank test will lose potential valuable information present in the data (Sokal and Rohlf, 1995; Rowntree, 1981, p.126), and thus increase the risk of Type II error (Rowntree, 1981, p.126).⁴ Secondly, the size of the expected frequencies was small due to the small sample size. Thus, non-parametric tests were chosen because they do not rely on parameter estimation or assumptions about parameters or the shape of distribution (Coakes and Steed, 2003, p. 208). In the next section, the results of the Kruskal-Wallis K Independent T test are reported and discussed.

### 5.2.1 Non-Parametric K Independent Test

The non-parametric K independent test was used to examine whether there was any difference in the means of the structural, cognitive, and relational capitals according to participants' demographic characteristics. Differences were tested on the basis of age, sex, worksite, and size of the company. It should be noted here that the testing of differences in

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⁴ This test is carried out for the purpose of establishing differences between the groups. It should be noted that the bivariate is not intended to test hypotheses as qualitative data cannot test hypotheses (King, 1994; Symon and Cassel, 1998).

this study used an alpha level of 0.10. Although the use of alpha level at 0.05 is a convention, other significance levels have been used as noted in many references on statistics (e.g. Sheskin, 2000; Siegel and Castellan, 1988). Sheskin (2000) argues that the level of  $\alpha$  is actually subjective. It is a matter for the researcher to choose the alpha level, but in doing so he or she must ensure that the same significant level is used throughout the testing (Draper and Smith, 1998). Thus, the decision to use an alpha level at 0.10 to test the means of this study is acceptable.

#### 5.2.1.1 Kruskal-Wallis – Non-parametric K Independent T- Test.

The results obtained from Kruskal-Wallis are reported in Table 5-15 to Table 5-17. The values shown in the tables are mean rank score under each category by demographic variable: sex, age, work site, and company characteristics: small, medium, and large. A chi-square ( $\chi^2$ ) statistic shown is used to evaluate differences in mean ranks to assess the null hypothesis that the medians are equal across groups (Green and Salkind, 2003, p. 368).

**Table 5-15: Structural Capital  
(Non-Parametric K Independent Test)**

Demographic characteristics	Meeting	Relationship	Interaction	Position	Proximity
<b>Sex:</b>					
Male	29.97	28.29	28.66	28.63	26.57
Female	24.55	27.50	26.85	27.64	30.50
Chi-square	1.478	0.031	0.168	0.048	0.773
<b>Age:</b>					
Less than 30	25.38	23.50	27.38	30.13	27.38
More than 30 to 40	29.38	26.98	23.79	26.60	28.35
More than 40 to 50	27.58	32.76	33.66	29.11	28.53
More than 50 years	24.50	14.00	31.50	27.25	21.00
Chi-square	0.525	4.019	4.438	0.440	0.431
<b>Work Site</b>					
Subs	29.89	24.19	30.54	24.71	28.90
HQ	24.42	35.21	23.18	34.24	26.29
Chi-square	1.469	5.993*	2.724	4.454**	0.334
<b>Size of Company</b>					
Large	29.58	37.05	34.48	38.95	33.53
Medium	19.57	27.80	19.47	26.57	27.73
Small	32.75	19.10	27.93	18.13	22.68
Chi-square	6.195*	12.798*	7.812*	17.275***	4.641*

* Significant at  $p < .10$  ** Significant at  $p < .05$  ***Significant at  $p < .001$

Notes: Large means company 3, medium means company 2, and small means company 1.

As shown in Table 5-15, the Kruskal-Wallis mean rank test indicates that, for most of the categories, there is no significant difference in the mean rank scores of structural capital (Meeting, Relationship, Interaction, Position, and Proximity) according to interviewees' demographic characteristics. The results indicate that the HQ has a statistically higher level of Relationship ( $\chi^2 = 5.993$ ,  $p = 0.10$ ) and Position ( $\chi^2 = 4.454$ ,  $p = 0.05$ ) than the subsidiary company. It is interesting to see that there are significant differences in the means of all categories under structural capital according to company size. There were statistically significant differences between the three companies with respect to Meeting ( $\chi^2 = 6.195$ ,  $p = .10$ ); Relationship ( $\chi^2 = 12.798$ ,  $p = .10$ ); Interaction ( $\chi^2 = 7.812$ ,  $p = .10$ ); position ( $\chi^2 = 17.275$ ,  $p = .001$ ); and proximity ( $\chi^2 = 4.461$ ,  $p = .10$ ). Therefore, based on the test of the five categories of structural capital, it seems that there are significant differences between the company size, worksite, and the interviewees' structural capital. *In this respect, structural capital can be seen as being related to the company characteristics.*

**Table 5-16: Cognitive Capital  
(Non-Parametric K Independent Test)**

Demographic characteristics	Shared Vision	Shared Objective	Shared Language
<b>Sex:</b>			
Male	29.11	28.37	30.24
Female	26.05	27.35	24.08
Chi-square	0.483	0.055	1.925
<b>Age:</b>			
Less than 30 years	22.19	26.31	35.63
More than 30 to 40 years	24.52	27.25	25.17
More than 40 to 50 years	33.21	27.92	26.37
More than 50 years	47.00	45.25	49.75
Chi-square	7.362*	2.603	6.637*
<b>Work Site</b>			
Subs	30.54	28.24	31.49
HQ	23.18	27.55	21.39
Chi-square	2.719	0.024	5.034**
<b>Size</b>			
Large	24.10	16.65	25.85
Medium	30.83	36.07	20.10
Small	29.78	33.30	36.08
Chi-square	1.969	19.929***	9.272**

* Significant at  $p < .10$  ** Significant at  $p < .05$  *** Significant at  $p < .001$

Notes: Large means company 3, medium means company 2, and small means company 1.



The results in Table 5-16 show that there are only a few significant differences in the mean of cognitive capital (Shared Vision, Shared Objective, and Shared Language) according to interviewees' demographic characteristics. There is a statistically significant difference in the mean between different age groups according to the level of Shared Vision ( $\chi^2 = 7.362$   $p = 0.10$ ) and Shared Language ( $\chi^2 = 6.637$ ,  $p = 0.10$ ). Table 5-16 also shows that the subsidiary company has a statistically higher level of Shared Language than the HQ ( $\chi^2 = 5.034$ ,  $p = 0.05$ ). In line with this, the small company has the statistically highest level of Shared Language (36.08), followed by the large company (25.85) and the medium-sized company (20.10). There is a statistically significant difference between the size of the three companies with respect to the level of Shared Objectives among the team members ( $\chi^2 = 19.929$ ,  $p = 0.01$ ). Therefore, based on the test on the three categories of cognitive capital, it appears that there are few significant or systematic differences between the interviewees' cognitive capital according to their demographic characteristics, particularly in terms of company characteristics. Hence, cognitive capital can be seen as being related to company characteristics and the age of the interviewees.

**Table 5-17: Relational Capital  
(Non-Parametric K Independent Test)**

Demographic characteristics	Collaboration	Co-operation	Toleration	Reciprocity	Sincerity
<b>Sex:</b>					
Male	31.66	30.51	30.13	27.01	29.71
Female	21.60	23.60	24.28	29.73	25.00
Chi-square	5.036**	2.433	1.742	0.402	1.163
<b>Age:</b>					
Less than 30	22.25	34.25	31.94	27.44	25.13
More than 30 to 40	25.98	24.46	26.06	28.27	28.67
More than 40 to 50	30.74	30.74	28.79	26.74	26.79
More than 50	51.25	23.00	30.00	38.75	42.25
Chi-square	6.236	3.321	0.966	1.142	2.105
<b>Work Site</b>					
Subs	30.28	29.97	30.04	26.51	29.39
HQ	23.68	24.26	24.13	30.82	25.37
Chi-square	2.115	1.621	1.735	0.988	0.827
<b>Size</b>					
Large	24.45	23.88	26.90	35.28	25.78
Medium	25.73	29.90	26.80	22.80	33.27
Small	33.25	30.76	30.00	24.63	26.28
Chi-square	3.444	2.161	0.502	7.266**	2.363

* Significant at  $p < .10$  ** Significant at  $p < .05$  ***Significant at  $p < .001$

Notes: Large means company 3, medium means company 2, and small means company 1.

Overall, for most of the categories, Table 5-17 shows that there is no significant difference in the means of relational capital (Collaboration, Co-operation, Toleration, Reciprocity, and Sincerity) according to interviewees' demographic characteristics. The only statistically significant differences are found in respect of sex and level of Collaboration ( $\chi^2 = 5.036$ ,  $p = 0.05$ ), and between size of the company and the level of Reciprocity ( $\chi^2 = 7.266$ ,  $p = 0.05$ ). The results show that male interviewees have a statistically higher Co-operation level than female interviewees. The large company has the statistically highest Reciprocity level (35.28), while the small company has a Reciprocity level of 24.63 and the medium-sized company has a score of 22.80. Thus, based on the test on the five categories of relational capital, it seems that there is no significant or systematic difference between the interviewees' relational capital according to their demographic characteristics. *Hence, relational capital can be seen as being independent of other demographic controls.*

#### 5.2.1.2 Summary of the Bivariate Analysis

In sum, the purpose of this section has been to explain any significant difference between groups that might be caused by variables such as sex, age, work site, and size of the company. With regard to sex, a statistically significant difference was found to exist in the team members' level of Collaboration ( $\chi^2 = 5.036$ ,  $p = 0.05$ ). In respect of age, there are statistically significant differences in the level of Shared Vision ( $\chi^2 = 7.362$ ,  $p = 0.10$ ), and Shared Language ( $\chi^2 = 6.637$ ,  $p = 0.10$ ). Interestingly, the results of the mean rank test on the work site indicate that the HQ has a statistically higher Relationship level than the subsidiary company ( $\chi^2 = 5.993$ ,  $p = 0.10$ ), although the subsidiary company has a statistically higher level of Position ( $\chi^2 = 4.454$ ,  $p = 0.001$ ) and Shared Language than the HQ ( $\chi^2 = 5.034$ ,  $p = 0.05$ ).

The development of social capital, particularly structural capital, is mostly affected by the size of the companies. In terms of the size of the company, there were statistically significant differences in Meeting ( $\chi^2 = 6.195$ ,  $p = 0.10$ ); Interaction ( $\chi^2 = 7.812$ ,  $p = 0.05$ );

=0.10); Relationship ( $\chi^2 = 12.798$ ,  $p=0.10$ ); Proximity ( $\chi^2 = 4.461$ ,  $p=0.10$ ); and Position ( $\chi^2 = 17.275$ ,  $p=0.001$ ). As for cognitive capital, there were statistically significant differences in level of Shared Objective ( $\chi^2 = 19.929$ ,  $p=.001$ ) and Shared Language ( $\chi^2 = 9.272$ ,  $p=0.05$ ). However, for relational capital, the only statistically significant difference is the level of Reciprocity among the team members ( $\chi^2 = 7.266$ ,  $p = 0.05$ ).

### 5.3 CONCLUSION

The chapter has presented the findings of the univariate and bivariate analysis. Firstly, the findings from the univariate analysis show that although all the items were mentioned by the interviewees, some of them appeared to be very important for the categories while others were not. Items such as formal meetings, informal meetings, face-to-face interaction, telephone calls, e-mail, status, experience, obligation, clarity, and collaboration, were found to be the most important for the development of social capital, in this study. Secondly, the mean scores for each category indicate different patterns. The highest mean score for each dimension shows the importance of the particular category. The highest mean score for structural capital was for position; for cognitive capital it was shared vision; and for relational capital it was collaboration. Lastly, the bivariate analysis shows that structural capital is related to the company size; cognitive capital appears to be related to company characteristics and age of the interviewees; and relational capital is independent of other demographic factors. The next chapter will discuss the findings from the overall analysis in detail.

## CHAPTER 6

### DISCUSSION

#### 6.0 INTRODUCTION

This chapter interprets and discusses the findings from the empirical study presented in the previous two chapters. The present study was motivated by a desire to extend the researcher's understanding of how team members in an organisational project develop and exploit social capital for tacit knowledge sharing in the completion of the project. This chapter expands the preceding chapter to review the main theoretical insights of the social capital, knowledge management, and project management literature. The data analysis indicates that social capital can be harnessed to enhance knowledge sharing. The chapter begins with the overview of the present study and then revisits Nahapiet and Ghoshal (1998) for a better understanding of the discussion in the following sections. The discussion is broken down into several sections according to the social capital dimensions delineated by Nahapiet and Ghoshal (1998) i.e. structural, cognitive, and relational capitals. Lastly, the sequence of the dimensions of social capital derived from the findings of the present study is discussed.

#### 6.1 THE PRESENT STUDY

The first purpose of the research was to identify categories and items under each of the dimensions of social capital among team members in organisational projects in three Malaysian ICT companies. From the 55 interviews, it was discovered that the development of social capital in a project context requires time. In the context of a project, social capital is the 'goodwill' available to the groups (Adler and Kwon, 2002); it is unique and resides in the structure or relationship among them (Edelman *et al.*, 2004). Although, researchers (e.g. Nahapiet and Ghoshal, 1998; Nohria and Eccles, 1992) contend that organisations as institutional settings are able to develop a high level of social capital, projects by their nature, which is short term, unique, and bring together

members from different departments, areas of expertise, experience and backgrounds, can have in-built impediments to the development of social capital among the team members.

The second purpose of this study was to determine the significant categories and items of social capital for tacit knowledge among the team members, while the third purpose was to identify the most influential dimension of social capital in fostering the sharing of tacit knowledge. Knowledge sharing within an organisation is increasingly important in today's fast-moving and knowledge-based economy. Therefore, understanding the development of social capital and its importance in knowledge sharing can help management, especially project managers and human resource managers, to create an environment that facilitates the development of social capital and thus promotes tacit knowledge sharing, especially among those who work in a project. The findings from the study are, therefore, intended to contribute to the existing literature by providing a better understanding of the development of social capital in a team and its capability in fostering tacit knowledge sharing among the team members.

In general, the present study which utilised the grounded theory approach, is intended to add to the existing literature on social capital, knowledge sharing, and project management in the following ways:

1. by exploring and explaining the development of social capital and the relationship between the dimensions of social capital in an organisational project context;
2. by identifying social capital categories and items that are most important in developing social capital among team members; and
3. by identifying the most influential dimensions of social capital providing clear insights into how social capital can foster the sharing of tacit knowledge among the team members involved in organisational project.

Achieving these three research objectives will produce accurate and useful results, given the complexities of organisational projects.

## 6.2 REVISITING NAHAPIET AND GHOSHAL (1998)

Nahapiet and Ghoshal in "Social Capital, Intellectual Capital, and the Organisational Advantage" prescribed a model of social capital that incorporates three dimensions of social capital, and the main mechanisms and processes necessary for the creation of intellectual capital in an organisation. They argued that an organisation is capable of creating and sharing knowledge. They further added that the way expertise is structured, co-ordinated and communicated through co-operation can facilitate knowledge creation and transfer within an organisation. Unlike several scholars including Baker (1990) and Burt (1992), who concerned themselves with the uni-dimensional concept of social capital, such as relationships as a resource for social action, Nahapiet and Ghoshal follow Putnam (1995) and Bourdieu (1993, 1986), who espoused that social capital is a multi-dimensional concept. They delineated a three dimensional concept of social capital i.e. structural, cognitive, and relational capitals. Interestingly, they further added that these dimensions overlap though not all the dimensions are mutually reinforcing.

Having identified the lack of consensus in defining social capital, Nahapiet and Ghoshal adopted the view of Bourdieu (1993, 1986) and Putnam (1995) and derived their own definition. They defined social capital as "*the sum of the actual and potential resources embedded within, available through and derived from the network of relationships possessed by an individual or social unit*" (p.243). In exploring the role of social capital, Nahapiet and Ghoshal suggest that the dimensions of social capital are beneficial in the creation of intellectual capital. To justify their arguments, they adopted the Moran and Ghoshal (1996) model of value creation to explain how exchange and combination attributes affect the dimensions of social capital.

Lastly, they also stressed that organisations have unique advantages for creating more open settings because they provide an institutional environment which is conducive to the development of social capital. They identified the limitation of their analysis by distinguishing internal organisations as institutional settings, which they argue can be a

special capability for the development of social capital. Nahapiet and Ghoshal have outlined four characteristics of internal organisations that alleviate the evolution of social relationships, these being, time, interaction, interdependence, and closure.

In the next section, the data presented in this study is addressed and harmonised with Nahapiet and Ghoshal (1998) and other existing literature. Each dimension under social capital and its categories and items is reviewed consecutively i.e. structural capital, cognitive capital, and relational capital. Lastly, the sequence of social capital as derived from the data is discussed.

### **6.3 SOCIAL CAPITAL**

This section discusses the three dimensions of social capital by incorporating them with tacit knowledge sharing. By adopting the social capital dimensions recommended by Nahapiet and Ghoshal, it was found that all the projects in the three companies were equally important in fostering tacit knowledge sharing. Nevertheless, the findings suggest that factors such as nature of the project and diversity of the members, hinder the capability of social capital in promoting tacit knowledge sharing. In pursuit of this objective, the project as a context for social capital development and knowledge sharing is highlighted. Thereafter, the factors and situations in a project in which tacit knowledge take place, are analysed.

#### **6.3.1 Structural Capital**

The findings are intended to draw attention to the need for more understanding of how structural capital can be developed among team members. Factors under structural capital that support and foster the sharing of tacit knowledge in a project context are examined. The quantitative results from this study show that structural capital can be seen as related to the *size of the company*. All the categories under structural capital namely *meeting* ( $\chi^2 = 6.195, p = .10$ ), *relationship* ( $\chi^2 = 12.798, p = .10$ ), *interaction*

( $\chi^2 = 7.812$ ,  $p = .10$ ), *position* ( $\chi^2 = 17.275$ ,  $p = .001$ ) and *proximity* ( $\chi^2 = 5.320$ ,  $p = .10$ ) are related to the *size of the company*.

### 6.3.1.1 Meetings

#### *Kick-off meeting*

*Meeting* is one of the categories that is most mentioned by the interviewees as 50 interviews indicated *formal meeting* and 44 interviews indicated *informal meeting*. The interviews revealed that all projects involved a *kick-off* meeting which was formal in nature. This was very important for focusing on the vision and mission of the project, deciding its objectives, introducing team members, and allocating tasks and responsibilities. The kick-off meeting is a formal and a serious procedure in the project and represents a ritual that is enacted by all the projects involved in this study. In Companies 2 and 3, the kick-off meeting is seen as the starting point for the team members to get to know each other and to start creating feelings of 'togetherness'. In Company 1, which involved an external project, the kick-off meeting was beneficial because of the involvement of the 'outsider' - the representatives from the client company. In addition, particularly in Companies 2 and 3, where some of the team members had not known each other prior to the project, this *induction process* was considered as very important.

Therefore, to summarise, the kick-off meeting is crucial as a mechanism to ensure that from the very start, the team members understand the goals and objectives of the projects, and know their responsibilities as well as other team members' responsibilities. It also facilitates the creation of 'initial identification' or shared identity, specifically among those team members who have network boundaries caused by dispersed locations (HQ as opposed to the subsidiaries), complexity (such as team diversity - differences in background and expertise), and project time limitation (project is one-off and short term). Thus, the kick-off meeting strengthened the network connection among the team members, which in turn enhanced the development of social capital. This finding extends the study by Rook (1985) who found that a kick off meeting not only



helps to regulate social interaction but also prescribes the 'right' way to do things, especially for large companies that have staff from headquarters and subsidiaries participating, are involved.

### *Formal meeting*

From the interviews, a *formal meeting* is seen as important because it creates the opportunity for the team members to share knowledge, as explained by the following interview response:

*2A7 – “I don't want to be left out from the meeting. You know ... I am not from the HQ, so ... this meeting is very important for me because this is the only chance for me to meet the team members and discuss what to do.”*

Another interviewee commented:

*3A6 – “This project involved many people from other departments; I don't know some of them. I discovered that this meeting is useful for me as I know who is responsible for what ... it make it easier for me to ask the person concerned if problems occur.”*

Formal meeting activities carried out when working in a project, for example presentations, briefings, discussions and brainstorming, cultivate the opportunity for knowledge sharing among team members. In all the three case companies, formal meetings were perceived as points connecting the team members in organisational projects for knowledge sharing. This is consistent with the finding of Bartol and Srivastava (2002) that through formal interaction such as periodic meetings in which the leader seeks the input of employees, knowledge can be shared.

Most importantly, for a long-term project, each time the team members interact, debate and dialogue in the meeting, their ties become stronger over the duration of the project phase which in turn progressively enhances the potential for cognitive and relational facets of social capital to develop and promote knowledge sharing. This finding is similar to that of Fernie *et al.* (2003). In addition, the findings suggest that in a project

context, close networking which is a result of frequent meeting, is important for the sharing of tacit knowledge. Subsequently, the structure of the relationship between team members, such as whether they have strong or weak ties, can enhance or impede the sharing of resources.

*2A1 - "Sometimes you just cannot simply go and ask them because ... you also have to maintain your reputation. It happen to me many times, I found it quite difficult to work with the HQ people. I guess they think that they have some sort of high standard compared to us ... people from the subsidiaries. But ... once you know them well, they can be very friendly. You could ask their favours to help you if you are facing any problem regarding the project. After all ... you know ... you are part of them."*

*3A6 - "It is very difficult to get help from someone you don't know. But after quite sometimes ... I manage to become close. Now, I find it easier to just text message or see them outside to get any info regarding the project."*

The results reported in the present study confirmed that in a project context closure or density of the group are in fact instrumental to the acquisition and dissemination of knowledge through strong teamwork ties. However, although some of the team members had met and knew each other prior to the projects, there was a lack of enabling mechanism for them to continue to maintain the social capital among them. To strengthen the ties, team members of a project need to spend more time and energy in frequent interactions and maintaining close contact. In this respect, the researcher would speculate that the lack of frequent interaction among the teams, particularly in Companies 2 and 3, has weakened the ties among members. This is due to the physical and cultural distances between the HQs and subsidiaries. These arguments are in line with the extant literature on strong ties that argues that network closure or strong ties resulting from frequent meetings are more likely to promote the sharing of resources particularly tacit knowledge (Bourdieu, 1986; Burt, 1992; Coleman, 1990; Hansen, 1999; Nahapiet and Ghoshal, 1998; Moran and Ghoshal, 1996; Uzzi, 1996).

Another mechanism affecting the preference for formal meeting is associated with the involvement of the management. Many interviewees emphasised the need for formal

meetings because such meetings have management endorsement and proper documentation, and this scenario is believed to be particularly useful when team members are unfamiliar with one another. As explained by one respondent:

*2A3 - "Sometimes if you do not know the team members well, it is difficult to work with them ... not all, what I mean is that ... you will never know whether these people usually take for granted and often think that you will do the job for them ... this is not right. ... if you are not close to them [not knowing them well] ... you know ... you cannot just tell them what to do ... you know it is not our culture to do so ... thus, I would prefer having a formal meeting because there is authority endorsement [company formal procedure]. Through the meeting, everybody will be assigned a specific task ... so by hook or by crook she or he must do it."*

#### *Informal meeting*

Another type of meeting mentioned by the interviewees was *informal meeting*. This type of meeting is informal in the sense that it has no agenda and in most cases is not carried out purposefully, nor are the decisions arrived at properly documented. The importance of informal meetings has been emphasised by many researchers as being crucial in knowledge sharing, particularly due to the tacit nature of the knowledge exchanged in those meetings that makes it difficult to be formalised and transferred (e.g. Cohen and Prusak, 2001). The interviewees frequently revealed that team members preferred to have informal meetings. However, in a project context, informal meetings do not provide opportunities for members to sustain interactions, conversation, and sociability because of logistical and other obstacles, such as lack of time and lack of place. Thus, in Companies 2 and 3 very few informal meetings could be organised. As a result, it was difficult for the team members to become close exclusively through informal meetings. This situation is explained by the following quotes:

*3B4 - "You need to network with others, the more you build your network ... the more you will get assistance if you have problems. Yes ... you need to informally communicate with the team members ... but my problem is that first, I need time to get to know them personally ... and second there is no place to socialise [within the office there is no lounge or common room for staffs] with other team members here. I would suggest the younger members to make*

*themselves known by participating in the discussion and attending workshops to start building this network."*

*3A1 - "If I have a problem [regarding the project task], I like to see the person personally. It is a lot easier to ask them outside the meeting. But, there is always no chance for us to meet except in the formal meeting. Sometimes, I went to a team member's office or we just met at the café [outside the company]. But the most important thing is you must build the relationship first through attending formal meeting."*

These indicate the importance of formal meetings as a precondition for initiating informal meetings, which are valuable for building and strengthening networks for sharing knowledge among the team members. This finding is in line with Granovetter's (1992) results, and the study on inter-unit communication in MNCs by Ghoshal and Bartlett (1988), who suggested the importance of ongoing networks of personal relationships for actors to act. They find that interpersonal relationships emanating from planned networking tools such as joint work teams, taskforces, and meetings were positively related to inter-unit communication. Thus, the development of social capital through personal interaction between the team members may be expected to facilitate their knowledge sharing.

This study also suggests that informal meetings require time, effort and opportunity to occur. The team members, and especially those from subsidiaries, must make an effort to build their interpersonal relationships for instance by making them known to other team members and by participating in the project activities such as formal meetings, discussion, brainstorming, and workshops. In Companies 2 and 3, informal meetings are necessary for team members who are from different departments or subsidiaries. However, due to the absence of places where informal interaction can take place in those companies, the development of social capital in an organisational project context is mitigated. Because the team members in Company 1 work at the same place, there is no difficulty in having frequent informal meetings. Findings from interviews and the observations also suggested that an open concept office environment could promote a

suitable atmosphere for frequent informal meetings in the form of small discussions. One possible reason why this type of meeting is favoured by the team members is that it entails less control over the range of topic, does not need to follow an agenda, and allows greater freedom because it is based on one-to-one interaction.

### 6.3.1.2 Relationship

#### *Formal relationship*

*Relationships* can be formal or informal (Hitt *et al.*, 2002). Formal relationships exist through interaction that is through purposeful interdependence among team members of a project. From the quantitative analysis results, 33 out of 55 interviewees indicated the importance of working in the same department.

*3A10 - "I have been working with some of the team members in other projects. So, I know them quite well. In fact, some of them are in the same department, which is why ... you see ... we are like brothers and sisters. We have no problem in working together. I don't need to ask for help because they will help, guide and try to motivate me if I have problems with my job."*

*3B3 - "3B2 and I work in the same department, ... though, I am new here, he helps me a lot. This is my first time job after graduation and ... my first project."*

There were 28 interviewees who indicated job rotation and 27 interviewees who indicated the making of a short visit as important elements for building relationships. Relationships in Company 1 are developed through working in the same unit or department, whereas in Company 3, they are developed from job rotation or working on previous projects. Consistent with the previous studies (Koskinen *et al.*, 2003; Newell *et al.*, 2004), the findings from this study indicate that in the case of Company 3, the team members can use existing social capital that has been built up over time through previous involvement in other projects, job rotation or other activities, such as short visits, to strengthen the relationship among them. These findings also suggest that barriers to knowledge sharing in organisational projects can be avoided when

friendships which are embedded from previous structural capital can be materialised before embarking on the project. It could be postulated that previous relationships created by the organisation for one purpose, could be factors for maintaining or strengthening the already established social capital. Nahapiet and Ghoshal (1998) also argued that network configuration such as connectivity or relationships that have been developed in one context, can be transferred to another setting. In contrast, developing a relationship with a new partner requires time and involves uncertainty due to lack of information and reliability of the team members (Tsai, 2000).

### *Similarity*

The findings also suggest that, having the same background or expertise may help to build the relationship among the team members. This is stated in the response below:

1A3 - *“Although I am the only female in this group ... I find it easier to deal with and become close to the team members who have the same background. It is easier to understand one another. In this project, it does not require me to interact with other people often ... only with the software engineers.”*

Surprisingly, findings from the interviews also suggest that area of expertise inhibits the ability of the engineers to communicate beyond their boundaries and discipline. Moreover, they are reluctant to accept other members' opinions and suggestions. This is in line with Koruna's (2004) study that found that engineers tend to reject ideas from outside (those who are not engineers).

### **6.3.1.3 Interaction**

#### *Face-to-face interaction*

The findings in this study indicate that 48 interviewees mentioned their preference for *face-to-face interaction* especially when dealing with a complex problem. This preference was higher for older team members. Out of 55 interviewees, 40 said they

used telephone to contact other members to ask for clarification, or arrange an appointment for a face-to-face meeting. As for the younger team members, they prefer to use telephone or e-mail. The interviews revealed that most of the tacit knowledge sharing entailed a significant amount of face-to-face or at least telephone interaction. Below is the response of one interviewee:

*1B2 - "I would prefer face-to-face whenever I interact with other members in the project. I don't prefer e-mail maybe I am an old fashion. Through direct communication [face-to-face] you can explain your problem or what you want in a clear way ... if they answer and you don't understand, you just ask back for clarification."*

The finding from this study confirms that complex information is transmitted in an office face-to-face (Allen, 2002). In addition, many researchers have confirmed that face-to-face meetings are the key driver for knowledge transfer and crystallisation of new ideas, and are the best method for the manifestation of alternative opinion (e.g., Bennet and Gabriel, 1999; Swan *et al.*, 1999). In line with the media richness theory, the findings from this study indicate that preference for face-to-face interaction is due to a need for clarity, understandability, facial expression and feedback. Media richness theory also argues that people use less CMC compared to face-to-face communication, especially if the required knowledge is complex.

#### *Telephone and E-mail*

The findings from this study suggest that apart from face-to-face interaction, the team members also prefer to use CMC such as *e-mail*. Interestingly, 42 out of 55 interviewees mentioned their preference to use e-mail.

*1B5 - "Sometimes, e-mail is preferred especially if I need info regarding the software programming... because I can just read and then do or explore it myself. For me, e-mail is the fastest medium and easy to share especially regarding the technical problem."*

Although the quantitative findings do not indicate any significant correlation between age and the use of CMC, from the qualitative data, it is speculated that most of the

younger team members (who were less than 35 years of age) prefer to use e-mail and mobile phone. One of the interviewees stated this:

*3B3 - "I prefer to use text messages when communicating with other team members. I don't know ... everybody use text messages ... I find it convenient."*

*2A7 - "I would rather text them, for fast response, it is easier ..."*

These findings indicate that there is no difference in communicating face-to-face and using CMC or mobile phone. Some of the reasons given are the younger members are impatient and crave instant answers. Alternatively, it may be due to the technology features that CMC offers, its practicality and the fact that it is considered fashionable to them. Thus, team members, especially the younger ones still share their knowledge regardless of whether they meet face-to-face or not. This is consistent with the finding of Maher *et al.* (2001) who reported no significant difference between face-to-face and CMC communication in the process of design communication. Interestingly, the younger team members perceive those who do not reply to their text messages as unreliable. As a consequence, the relationship can be detrimental when other team members do not perform. Similar to the finding by Taylor and Harper (2002), failure to reply to text messages can lead to a breakdown in mutual exchange.

The quality and practicality of these interactions also matters. The interviews revealed that team members who have technical background are more likely to seek out information through e-mail. The following response illustrates this point:

*3A2 - "Sharing of information does not only take place face-to-face but you need networking ... I mean internetworking... that means you must share ... We are technical people and find it easier to share the information through e-mail."*

This is similar to the findings of other researchers who found that individuals with higher levels of expertise are more likely to provide useful advice over a computer network (e.g., Constant *et al.*, 1996). The data also show that many of the interviewees



who have technical backgrounds, for example the computer software engineers, prefer to use a computer network to exchange knowledge. They value CMC media highly because it is easier for them to explain and show examples through e-mail. For instance, when long programming is involved and there is a need to use the computer for solving the problems, the team members prefer e-mail. This study shows that another possible reason for IT specialists' preference for CMC is that they lack communication skills (Loogma *et al.*, 2004). However, when sharing experience, these findings indicate that those experts still prefer to look at support from personal networks rather than from electronic networks to gain knowledge (Huysman and Wulf, 2006).

Furthermore, the use of mobile phones and e-mail has become widespread in all projects in the three companies. This enables the team members who are not in close proximity to one another to establish and maintain social relationships. It could be postulated that the younger generation are more individualistic and prefer not to work in a group (Ackerman *et al.*, 2004). On this theme, Merriam and Muhamad (2002) contend that since Malaysia is becoming a modern, post-industrial nation with multi-national and global interests, Malaysian society will be influenced by Western cultural values. Furthermore, it can be presumed that most of the interviewees were educated overseas¹, and the observations confirmed that most were open minded, extrovert, and modern in outlook. Although the preference regarding the medium of communication varies, the tenet for interaction is the level of interaction frequency. This study also supports the finding by Wasko and Faraj (2005) that social capital can develop and play an important role despite limitations in the richness of media available. This means that CMC and mobile phones can enhance social capital as long as the team members have frequent interaction.

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¹ 30 out of 45 interviewees were educated overseas either in the USA, UK or Australia.

#### 6.3.1.4 Position

##### *Status*

Besides frequent interaction, another factor in structural capital that is important for the team members to be aware of is the position of the team members in the organisation. Nahapiet and Ghoshal (1998) proposed that network structure properties such as hierarchy may impact upon the development of intellectual capital. Factors such as the role of each of the team members and the type of knowledge that the person has must be taken into consideration. In the case of Company 3, the highly bureaucratic structure creates status differences which restrict the potential for mobilising social capital and thus may hamper tacit knowledge sharing among the team members. This is because bureaucracy that emphasises “logic, order, uniformity, and consistency results in impersonality and strict adherence to rules” (Fisher, 1993, p. 65). In line with this, Leonard and Sensiper (1998) quite clearly affirmed that inequality in status among team members is a strong inhibitor to knowledge sharing especially when the status difference is exacerbated by an epistemic struggle.

*2A15 – “When we deal with the HQ, we must make sure we do all the best. They always look down on us ... probably because we are from the subsidiary ... that’s why you know ... the implication is quite big if we did not perform.”*

*3B4 - “I find it difficult to penetrate the management as if there is a curtain before me. We do not have the opportunity to tell what you know but just to accept and receive ... in a way ... it is not fair.”*

Findings indicated that the interviewees particularly from Companies 2 and 3 internalised a feeling of vulnerability from the status they held in the project, consistent with a suggestion by De Long and Fahey (2000) that status differentiation can lead to ‘silo mentality’ which encourages employees to spend time defending their unit’s perspective and to display an overall unwillingness to express ideas. Consequently, team members accepted the prevailing norms of behaviour which emphasised status differences such as senior and junior. Status difference among the team members can

also hamper the willingness of the team members to contribute their knowledge for the project. For example, they were suspicious of other team members who perceived them as not competent or who blamed them for failure that they had no chance of avoiding. The following response highlights this:

*3B2 - "Sometimes, I feel afraid to talk because if I give a suggestion, and it turns out to be unconstructive, people will put the blame on me."*

*2A4 - "The team members never asked me, so, I would just keep quiet. I don't know when the management would change and want to listen to us."*

These findings are similar to those of Wasko and Faraj (2000) who found that individuals are less likely to contribute when they feel their expertise to be inadequate. On the other hand, by asking for help, an individual may fear looking incompetent and thus suffer a blow to his or her image (Edmondson, 1999). Brown (1990) contends that asking for help, admitting errors, and seeking feedback illustrate the kinds of behaviour that could pose a threat to face. In addition, the unwillingness to express one's ideas and knowledge for fear of being criticised also characterises an environment in which diversity of opinions and perspective is devalued or altogether not valued.

*3B3 - "It is very difficult ... you know. I am new here, and ... I would rather keep quiet than say something. These people are just there to point fingers to you if anything goes wrong."*

Similar to Lichtenstein *et al.* (1997), this study found that the lower ranking team members or those who are young, were reluctant to participate or contribute in the meetings because they doubted that their contributions would be valued by others. In addition, this study also found that inequality in status inhibits knowledge sharing among the team members, similar to the findings of Leonard and Sensiper (1998). The team members' state of vulnerability predisposes them towards practices intended to protect themselves. These include limiting their participation in the meetings, avoiding giving ideas and suggestions, and maintaining a low profile. To reduce this

discontentment, senior managers must provide strong commitment and support; this has been identified in the literature as central to successful projects (Eby *et al.*, 2000).

### *Culture*

Szulanski (1996) suggested that one of the most important barriers to the transfer of best practice within an organisation is the existence of difficult relations between people (individualism vs. collectivism). Although the interviewees in this study were from different ethnic groups (Malay, Chinese, and Indians)², certain values such as hierarchy, collectivism, relationship-oriented, face, and the importance of religion, appear to be common to all of them (Abdullah, 1996).

*1A1 – “I will not make a decision myself; we have long discussions if we want to make decisions. I don’t want to make wrong decision. I listen to my subordinates. We decide based on consensus.”*

*3A8 – “I won’t keep the knowledge for myself. We work in a group, so everybody is entitled to know.”*

This is consistent with many researchers (e.g., Leanna and Van Buren, 1999; Chen *et al.*, 1998; Triandis, 1995) who have found that members are willing to help others even strangers, simply because everyone is part of the collective and all have a collective goal orientation. Collectivism implies that the group (whether it be a friend, a team, an organisation, and a family) is more important than the individual, so naturally there would be a predisposition to work co-operatively and harmoniously for the good of the group.

Thus, members of a more collectivist culture are expected to share their knowledge more fully according to the interests of the group over their own. Nahapiet and Ghoshal (1998) argued that organisations as institutional settings can affect the knowledge sharing activities, as social capital developed in one setting such as

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² Interviewees: 31 Malays, 11 Chinese, 2 Indians, and 1 other ethnic origins.

collective norms, can be transferred to another setting. However, this collectivist behaviour is mostly seen in Company 1, and less so in Companies 2 and 3. It could be postulated that organisational culture (such as bureaucracy and not being open to criticism) and not national culture, could be factors that impede the team members from practising collective behaviour, which in turn affect how knowledge is shared among them.

### *Obligation*

Despite differences in status and culture, interestingly, 45 interviewees indicated that they share their knowledge with their group members because they feel it is their obligation to do so.

*3A8 - "Yes, we have to share knowledge with other group members because we are working in a team ... it is our obligation to make sure the project is successful. After all, it is your responsibility and surely you will feel bad if it is not successful because you are one of them."*

*2A7 - "I think everybody must share his or her knowledge. The management has appointed us because they know that we can do the job. So, we must do our best. It is our duty to perform our job and share our knowledge with other team members."*

In the case of Companies 2 and 3, some interviewees said that they share their knowledge with team members because it was their responsibility and obligation to do so in order to make sure that the project was successful. Similar to the finding of Wasko and Faraj (2005), obligation and not trust, was a significant predictor for knowledge dissemination. However, this is contrary to the model proposed by Nahapiet and Ghoshal (1998) in which trust and obligation seem to support knowledge exchange. Obligation which represents duty to undertake some activity in the future based on underlying expectation of reciprocity (Coleman, 1990) does not seem to fit in the short-term project context. It could be presumed that obligation in a project context is not a result of collective behaviour but as a result of performing the roles (Koskinen *et al.*, 2003). Thus, in the project context, the team members share their knowledge when they

are structurally embedded in a network and not when they are relationally embedded (Wasko and Faraj, 2005).

A possible explanation of this behaviour is that since the team members have not developed trust among themselves, they shared knowledge because they perceived it as their duty or obligation to complete the project and to ensure its success. Koskinen *et al.* (2003) argued that trust in a project context is difficult to develop and maintain because this requires time, and thus, team members deal with each other more as a role that they play in the project than as individual. De Vries *et al.* (2006) were of the view that willingness to share is also related to organisational citizenship behaviour, such as altruism and compliance. According to organisational citizenship behaviour, employees will perform the job because they feel loyal or responsible to their organisation. Another possible reason is that they share the knowledge because they do not want to be poorly evaluated by their peers in the performance appraisal system. This study shows that in Company 3, team members are identified for their co-operative behaviour and support of team goals in the peer appraisal systems. Hence, this may be one of the reasons why team members are willing to help others even though they are not close.

Overall, the findings show that status difference, unwillingness to participate or offer ideas, fear of being perceived as incompetent and being criticised, are the result of norms that have been developed through previous experience working in the organisation and not during the project itself. However, most of the interviewees felt that despite the barriers to knowledge sharing, they were still obligated to do this for the sake of the project.

#### **6.3.1.5 Proximity**

Sharing tacit knowledge requires close proximity and the opportunity to observe and participate in activities of practice (Leonard and Sensiper, 1998; von Krogh *et al.*, 2000). A shared context exists when the team members have access to the same

information, tools, work processes, and work culture; which consequently can reduce the likelihood of misunderstanding (Hinds and Mortensen, 2005).

*1B7 - "I also have my office there, sometimes I need to be there quite often and I find that I get closer to the other team members as well."*

*2A8- "My office is not here (HQs), it always difficult when I have to come here, I don't know where to wait before the meeting, that is why I only come when the meeting is about to start."*

The quantitative analysis indicated that the number of interviewees who mentioned office environment were 39, and distance 33. This study found that geographical separation of sites, HQs, and subsidiaries had a detrimental effect on the sharing of knowledge. It was also evident from the interviews that Companies 2 and 3 were affected by the proximity factor. Many of the team members in these companies were either from different functional departments or subsidiaries. Therefore, they were physically distant from each other. It can be asserted that these factors make frequent interaction problematic, and thus thwart the development of personal relationships. This is in line with the findings of Cohen and Prusak (2001a) who suggest that close proximity is important in encouraging people in organisation to interact. Company 1 implements an open space office environment which encourages face-to-face interactions and thereby attempts to strengthen interpersonal relationships among team members, and hence knowledge sharing. Consistent with the finding of Currie and Kerrin (2003), the employees' willingness to share knowledge was facilitated by the physical arrangement of office space.

#### **6.3.1.6 Summary**

This study shows that structural capital provides the opportunity for the team members to develop a network or access to other team members. Firstly, working together in the project, serves as an intra-network which can be further prolonged in the future. The formal meetings and informal meetings that members have attended serve as a point for connecting them, and from there they can identify the potential members with relevant

knowledge. Secondly, project activities, specifically discussions and brainstorming sessions, enable the team members to evaluate the knowledge of other team members. Thirdly, solidarity of relationships or connections such as working together before or attending workshops and training can help to connect and strengthen the team ties. This function can be of help to those who are new to the team members. Fourthly, the position of an individual in the team is significant in the networking, since this allows for the dissemination or acquisition of resources and ideas with less effort. The sharing of tacit knowledge is facilitated when there are structural links or connections among the team members. Thus, a previous history of interactions could further encourage the social interaction of the team members and in turn reinforce the relational capital (Nahapiet and Ghoshal, 1998). Fifthly, structural capital can be solidified by frequent interaction and is a precondition for the development of social capital (Bourdieu, 1986).

Although organisations provide physical homes for projects, differences in the type of project, (Baker, 1992), and the proximity of the team members due to the size of the company, could impede the team members' integration. Organisations, therefore, should provide opportunities such as a space for the team members to interact, be it physical space or cyber space, as long as there is a means for them to communicate. For example, for the younger team members who prefer CMC, it is a good idea to provide better CMC for them to communicate. The findings also suggest that social capital requires time to develop (Bourdieu, 1986; Granovetter, 1992; Nahapiet and Ghoshal, 1998). If project duration is short and entails the involvement of team members from various backgrounds, managers must ensure they provide opportunities for the team members to communicate and interact frequently, which are based on structural rather than relational capital (Wasko and Faraj, 2005). To sum up, this study also suggests that structural capital is the most important dimension of social capital and is sufficient for tacit knowledge sharing to occur in an organisational project.



### 6.3.2 Cognitive Capital

The literature stresses the importance of everyone understanding and sharing goals and everyone moving towards a common understanding that enables the transfer of knowledge (Blackman and Henderson, 2001; Nahapiet and Ghoshal, 1998; Tsai and Ghoshal, 1998). Ouchi (1981) stressed that value sharing can improve the interaction and co-ordination between team members. As a consequence, when members are briefed about the goals that they have to achieve and about the aspirations of the members of an organisational project, they will have similar ideas regarding how they should interact with one another. On the other hand, if the language and codes are different, people will be apart and thus restrict their access to resources (Nahapiet and Ghoshal, 1998).

#### 6.3.2.1 Shared Vision

From the frequency count result on shared vision (see Section 5.1.1.2.1), the highest count under this category was clarity of the project goals. This indicates that having a clear vision is important for each project. There were 47 interviewees who mentioned the importance of having a clear vision of the project and 38 believed other members had the same vision as they did. The interviewees revealed that understanding the vision encouraged them to increase their performance in achieving targets.

##### *Clarity/obvious*

Interviewees stressed that when the vision is clear, it is easier for team members to work without any misunderstanding and resistance towards knowledge sharing.

*1B7- "Our CEO is a very cautious person .... He will make sure the vision is not only manifested but also clear to every team member. I believe every team member must be clear about the vision ... so it would not create any misunderstanding later on because different projects need different action. This is an international project. Its success is our success, it is so important; we are responsible to the whole nation. We must make sure we do what ever we can to ensure it success."*

This is consistent with the finding of White and Fortune (2002) on the current practice of project management, and the study of Lynn (1998) that showed that team members should have a clear shared vision as this helps motivate them to accomplish the goals. Tsai and Ghoshal (1998) also agreed that if the team members have the same perception about how to interact, misunderstandings can be avoided and hence, more opportunities arise to share resources and ideas. It could be posited that if the team members fail to understand the vision or have an inconsistent vision or values, it can create misunderstandings and cause difficulties working as a team (West, 1994, p. 20) and thus hamper tacit knowledge sharing.

### *Shared identity*

Shared identity is the awareness of group membership, sense of belonging i.e. now they (together) have a certain job to accomplish. Hinds and Mortensen (2005) argued that shared identity which is a dynamic property of a team, is significant as it may reduce ambiguity and conflict. They further added that in the absence of shared identity, team members may evaluate other team members' behaviour negatively, for instance by assuming others as competitive rather than co-operative. The following quotes support the needs for shared identity.

*1A10 - "We are working to achieve the same goals, so I think we should not distance ourselves from one another. We belong to a team ... the same team that must work to make sure the project is successful."*

*3A5 - "Once we received the appointment letter to work in this project, it creates a feeling of recognition. You let yourself know that now you have to work with others as a team to achieve a common goal."*

*2A1 - "I took this opportunity to get to know people. You must know with whom you work, whether you already know them is second thing, but at least you must know their names, positions and their duties so that you will know who to turn to and where you are standing."*

Nahapiet and Ghoshal (1998) argued that to develop social capital, identification or shared identity that is embedded in the membership, is one of the processes that make

the individuals see themselves as one with another person, group of people, or part of the group. Surprisingly, the findings from this study show that although identification is noteworthy in a project context, it is not what has been described by Nahapiet and Ghoshal (1998). They have described identification as a process which results from the group operations and thus, over time increases the chances of collective process and outcomes. On the other hand, this study indicates that identification is a result of the team members having a common purpose set for the project. This is in line with Kogut and Zander (1996) who found that a team member identifies himself as part of a larger group by recognising that he shares the same. Since this feeling does not emanate from group operation but as a result of having common purpose, it could be justified as 'initial identification'. However, it could be speculated that this 'initial identification' can die upon the completion of a project. Another explanation could be a contextual constraint such as the nature of a project created a situation in which team members did not have the time to build a distinct identity as a group. Thus, the possibility to develop identification that is embedded in long-term relationships is almost impossible.

Interestingly, the most unambiguous of the results reported in the quantitative findings is that there is a strong relationship between shared vision and the age of the team members (see Table 5-16 in Chapter 5). It seems that the older team members have a better understanding of the project's vision than the younger members. This suggests that experience in the company is important for predisposing members to company expectations. Clearly, the more the project team understands the vision, the greater the chances of the team being effective.

### **6.3.2.2 Shared Objectives**

Thirty six interviewees mentioned the need to understand the objectives of the project, and 31 interviewees stated that they would work hard to achieve the objective. The findings also suggest that the size of the company is significantly related to shared objectives ( $\chi^2=19.929$ ,  $p=.001$ ). Interviews revealed that the team members who

understood the objectives of the project were also willing to share knowledge. This is demonstrated by the following response:

*3A5 - "In order to ensure the project success, all the team members must have same objectives... we have discussed what we should do and also discussed our responsibilities. I think the team members should understand that to achieve the goal they must be willing to co-operate and share their knowledge."*

This is similar to the suggestion by Axelrod (2002) that for a team to be effective, the goals and roles of the team members must be clearly defined, agreed upon, and understood. A shared objective can serve as a bonding mechanism that can help diverse team members interact or combine resources. However, the interviews indicate that the team members at Company 2 had problems in understanding the objectives. It could be presumed that the objectives of the project were not clearly manifested to the team members. Interviews with them also revealed that the top management seems to have a different project vision from the team. One of the possible reasons was that this project was still at the conceptualisation stage. They were still negotiating and thus, some of the team members remained unclear about the objectives and their own responsibilities.

### **6.3.2.3 Shared Language**

In terms of shared language, when the team members talk to one another either in formal or informal situations, the words that they used occasionally meant different things to different people. Findings from the frequency analysis indicate that shared language is significantly related to *age* ( $\chi^2 = 6.637$ ,  $p = .10$ ), *work site* ( $\chi^2 = 5.034$ ,  $p = .05$ ), and *size of the company* ( $\chi^2 = 9.272$ ,  $p = .05$ ). For individuals to efficiently communicate and share highly specialised technical knowledge, they need to possess some knowledge in common (Cohen and Levinthal, 1990). These are manifested by the following responses:

1B7 - *"When I have a meeting with the government people, I'll make sure I understand what they say and also will try my best to convince them and explain to them in a layman term so that they fully understand what I mean."*

3B2 - *"I will always ask questions if I don't understand what the team members are talking about especially about marketing. Sometimes I don't have a chance to ask them. But gradually ... after a few meetings I will be able to understand what they say. On the other hand, 3B3 and I don't have problems to understand the technical jargons on programming, but ... other members will have problem in understanding us."*

3A6 - *"I will prepare myself before going to the meeting or discussion. I will read documents about the project and gather some information from the internet. I don't want to be there being confused ... don't understand anything and cannot contribute anything."*

Consistent with Nahapiet and Ghoshal (1998), this study found that shared language may provide a common tool for better understanding other team members and hence evaluating the possible benefits of exchange and combination of tacit knowledge. The study also reveals that when the team members are people from different departments, or involve subsidiaries, and/or have diverse backgrounds, it can limit their understanding of one another. In addition, since some of the team members are new to each other, it does not help to shape the actual terminology used by group members. This is consistent with Abrams *et al.* (2003) that misinterpretation can occur especially when the team members are from different functional, educational, or cultural backgrounds. However, to be able to fully understand the language, the team members must understand verbal as well as non-verbal cues (Brown and Duguid, 1998; Hedlund, 1994). Thus, to develop understanding or shared knowledge is quite a problem in the project context. It is believed that the more meetings, brainstorming sessions, and discussions that team members hold, the more they will be able to share the language and hence develop cognitive understanding among the team members. It is found from the interviews that technical people like software engineers, have their own jargons which enable them to understand one another better even though they may not have had any previous relationship.

#### **6.3.2.4 Summary**

As this study suggests, it may not be the cognitive capital that matters so much for knowledge sharing but how this capital is combined with structural capital to create value, is a matter of utmost importance. Indeed, it is intriguing that, at least in this study, cognitive capital seems to be a necessary condition for relational capital and that its effect is enhanced when combined with other types of capital such as structural capital and human capital. This study indicates that cognitive capital recognises that knowledge sharing occurs within the project context, and that this is both created and sustained through structural capital. As for the project, the cognitive dimension is more on the understanding of the vision and objectives of the project than the language.

Findings from the quantitative analysis (see Chapter 5) also show that cognitive capital can be seen as related to company characteristics. Overall, the qualitative results provide an indication that cognitive capital plays a vital role in underlying knowledge sharing. In line with Nahapiet and Ghoshal (1998) the sharing of tacit knowledge is facilitated when the team members have the ability to share the same vision, objectives, and language which equip them with the same frame of reference and shared context. In addition, it is universally accepted that it is the interaction between members that makes the maintenance and reproduction of cognitive capital possible (Lin, 1999), as it is in the hands of human beings to decide whether they want to share or not. To sum up, in a project context, cognitive capital is embedded in the structural capital instead of the social context based on ongoing relationships.

#### **6.3.3 Relational Capital**

This section is intended to draw attention to the need for better understanding of how relational capital can be developed and maintained among the team members in a project. According to Granovetter (1992), relational capital is a relationship that is personal that people have developed with each other through a history of interaction. As this relationship congeals over time, team members' action becomes more integrated

and mutually controlled through intertwined trust, respect, and friendship (Kuo, 2004). In other words, when the team members know each other well, the ties become stronger, implying a high degree of transparency within the network, and possibly trust (Burt, 2001; Coleman, 1988). Hence, the close connection between the actors facilitates the transfer of tacit knowledge (Nahapiet and Ghoshal, 1998).

### 6.3.3.1 Collaboration

Although collaboration is perceived as important to develop trust, the findings show that only 39 interviewees mentioned the need for team work while 35 interviewees mentioned the need for a level of support for them to collaborate. These two factors are lacking in the project context. One of the interviewees from Company 2 indicated that her past experience working with one of the team members from the HQs weakened her willingness to collaborate.

*2A1 –“No ... not really, for example myself ... I have been working with 2A4 in the previous project before, but ... it was a bad experience ... I know what to expect from her.”*

This is similar to Moran's (2005) findings that suggested personal experience and the quality of past interactions will often influence who a team member is likely to approach and engage, despite that person's knowledge. It could be speculated that relational capital is not easily developed especially when the team members have diverse backgrounds. It could also be posited that although a relationship has been developed prior to involvement in a project, past experience could influence collaboration at present and possibly in the future. For example, if someone experiences rejection when approaching a team member for help, that person's attitude to collaboration with that person in the future can be negatively affected.

On the other hand, relational capital can often be developed and enhanced when the team members have good experience through previous interaction. It could be posited

that frequent and informal meetings could also increase the development of relational capital and foster tacit knowledge sharing. For example, trust occurs because team members have experience of working together on another project or in the same department. Kuo (2004) contends that when the degree of informal interaction is higher, the opportunity to exchange knowledge among team members is also higher.

*1B7 - "Sometimes when we have a project with the government, I spend more than two weeks and sometimes a month just to build the relationship with them. Once they trust you and have confidence in you, it is easier to work with them."*

*3A10 - "I have been working with some of the team members in other projects for many times. So, I know them quite well. In fact, some of them are in the same department, which is why ... you see ... we are like brothers and sisters. We have no problem in working together. I don't need to ask for help because they will help, guide and try to motivate me if I have problems with my job."*

This is in line with Chowdhury (2005) who found that a relationship must be developed first amongst all team members in order to improve collaboration, and hence knowledge sharing. In support of this, the interviewees almost universally indicated that what mattered most was a personal relationship with the partner, since without that collaboration cannot be successful. These comments support the findings of Tsai (2000) who reported that collaborating with new partners and creating new relationships were necessary for acquiring critical resources. This study also found that the development of unconditional trust requires not only time and effort on the part of the team members but also a history of interaction (Granovetter, 1992; Krackhardt, 1992; Nahapiet and Ghoshal, 1998). However, this study also indicates that trust in the context of formal collaboration or based on task (e.g., a few colleagues collaborate on a project), rather than based on friendship, is difficult to materialise. This is because the relationships are governed by formal agreement and structural protocol instead of friendship (Coleman, 1990; Putnam, 1993).



### 6.3.3.2 Co-operation

The interviewees' attitudes toward co-operation was characterised by their willingness to solve problems together and their openness to share and listen to each other's thoughts and ideas (Abrams *et al.*, 2003), as a result of other team members' attitudes. Furthermore, recognition and positive feedback among team members, especially from the senior managers, can motivate people to co-operate with each other to generate more ideas and solve problems (Loogma *et al.*, 2004). When talking about co-operation, 42 interviewees mentioned the importance of discussions.

*3A7- "I find out most of the time if the seniors are flexible and easy to co-operate with the team members, it is much easier to talk and give opinions especially in making decisions and planning."*

*3B4 - "Our project manager is not an open person, I find it difficult to have a discussion with him. He always does not want to listen to others' opinions."*

Nahapiet and Ghoshal (1998) emphasised that norms of co-operation enable the establishment of a strong basis for the creation of intellectual capital. However, in the project situation, though the norms exist, they are not strong enough to support the co-operation among the team members. Thus, many of the interviewees particularly from Company 3, expressed dissatisfaction with their involvement in decision-making and communication, either within the team or within the company in general, especially when the senior managers retained a high degree of control over the running of the company. This is consistent with findings from the study by Swart *et al.*, (2004). Interviewees indicated that the willingness of the team members to co-operate with one another was intensified when the other party was an open-minded, flexible, or good listener. In addition, they also preferred joint problem-solving which is a critical mechanism facilitating the acquisition of capabilities because it promotes the transfer of tacit knowledge (Uzzi, 1997). One possible reason for the lack of co-operation in Company 2 and 3 is the diversity among the team members which engenders problems in understanding each other's roles and responsibilities.

### 6.3.3.3 Toleration

Norms of interaction include willingness to value and respond to diversity, openness to criticism and tolerance to failure (Nahapiet and Ghoshal, 1998). Under this category, 32 interviewees mentioned effort and willingness to help others when talking about toleration. This was explained by the following response:

*1B3 - "I am a senior compared to other team members. The approach is a bit different when you deal with the new member, you have to be subtle, humble and you must be willing to guide them."*

*3A10 - "I have been working here since I graduated from the university ... I had been through ups and downs ... and at one time ... I felt like leaving the company and joining another company. You know why I felt that ... It was because I cannot work with someone who has many faces ... cannot be reliable. I could not tolerate all these, I want to work in a comfortable atmosphere where everyone can be trusted and respect one another....."*

In a project situation, the norm of toleration can establish a strong foundation for knowledge sharing. However, from the interviews, there was a strong indication that if there is no history of interaction, toleration does not arise as a result of an established relational capital. This study found that older team members were willing to tolerate others, particularly the younger members who were new to the company, and/or were willing to learn. It could be speculated that tolerance of others is related to other factors such as the position of the actor. At the same time, a negative previous experience could impede a person's predisposition to be tolerant of others.

### 6.3.3.4 Reciprocity

Surprisingly, interviews indicated that very few expected the other party to reciprocate when they help, as seen from some of the responses given below:

*3B2 - "Always when we help, one day, other people will help us in return."*

1A3 - "He is new here, I will help him whenever he has problem. Other people also helped me when I first joined this Company."

3A8 - "I will help my team members if they need help. How could you disappoint those who need your help."

This is in line with the suggestion by Putnam (2000) that some people will help others "without expecting anything immediately in return and perhaps without even knowing you, confident that down the road you or someone else will return the favour." The interviews revealed that the team members helped others in the team not because they expect something in return from the same person, but because they don't want to disappoint others and would feel uncomfortable in that situation. In the Malaysian context, it is very common for people not to discuss sensitive issues with other, as a result of cultural predispositions (Merriam and Mohamad, 2002), which mean they are shy, introvert and do not want to hurt others' feelings. It could be postulated that their action is due to wanting to preserve the relationship among the team members and not wanting to run the risk of damaging it. Besides, when interpersonal relationships are still at the early stage, team members do not expect the other party to reciprocate. Perhaps also the projects are tied to the members' performance appraisal, and therefore it is in the interests of all team members that they succeed in their project tasks.

#### 6.3.3.5 Sincerity

Trust plays a key role in the willingness to share (Inkpen and Tsang, 2005). De Vries *et al.* (2006) contend when a person trusts the other party, he or she will be willing to disseminate knowledge without expecting anything in return, except perhaps a feeling of satisfaction.

2A6 - "I didn't know most of the team members prior to this project. I don't think they help me because they trust me to help them in return."

Unexpectedly, only 14 interviewees mentioned trust. From this it is clear that team members share knowledge among themselves for the sake of the project. This study also contradicts the findings of Bartol and Srivastava (2002), who suggested that trust is a major facilitator of social exchange transactions. It could be presumed that lack of interaction, time and opportunity to strengthen the relationship, hampers the development of trust among the team members. Additionally, since the team members' performance in completing the project is evaluated in the appraisal systems, they share the knowledge in order to be rated well.

#### **6.3.3.6 Summary**

Team members could generate relational capital based on the resources and capabilities housed within the organisation. However, this study indicates that due to a lack of frequent interaction or at least a history of interaction among the team members in Companies 2 and 3, the relational capital is not fully developed (Cohen and Prusak, 2001a; Nahapiet and Ghoshal, 1998). This finding seems to provide support for the argument that relationships may not be developed in the organisational project context due to short-term relationships, lack of shared history, infrequent interactions, lack of co-location, and lack of co-presence (Cohen and Prusak, 2001a; Nahapiet and Ghoshal, 1998; Nohria and Eccles, 1992). Despite the absence of frequent interaction, the team members still share and disseminate knowledge when they are structurally embedded in a network. Surprisingly, the team members do not expect others to contribute, nor do they expect help in return.

Nonetheless, although this study elucidates that relational capital is significant for a project, its development is dependent on other dimensions of social capital i.e. structural and cognitive capitals. The findings also suggest that structural capital together with cognitive capital helps to promote the development of interpersonal relationships among the team members. Having said that, both prior history of relationships (Krackhardt, 1992), and opportunity for frequent interactions are requirements for the development of

relational capital. Without these it is almost impossible for team members to build this kind of relationship. However, throughout the project phase and after having worked together for quite some time, interpersonal interactions which are necessary to build a sense of trust and obligations, are fostered and enhanced. Thus, the sharing of tacit knowledge is facilitated when relationships are stronger. However, Nahapiet and Ghoshal (1998) argued that while social relations can be strengthened through frequent interaction, they can also become extinct if not maintained. It is, therefore, a responsibility of management to provide appropriate opportunity, space, time, and technology for the team members to interact frequently with one another to strengthen their relationships, which in turn encourage tacit knowledge sharing.

Ultimately, relational capital is a property of the dyad or network that is jointly generated and owned by the team members. Although team members have the opportunity to develop their interpersonal relationships, they must nonetheless use their own initiative to establish and preserve it (Inkpen and Tsang, 2005). Moreover, these relationships are rewarded by repeated transactions due to commitment, obligation and reciprocity. However, the diversity of the team members and the nature of a project can hamper the development of relational capital.

In the next section, the causal sequence of social capital dimensions is presented and discussed in detail.

#### **6.4 SOCIAL CAPITAL AND CAUSAL SEQUENCE**

The findings from this research broaden and deepen our understanding of how team members develop their social capital in an organisational project. It also facilitates the understanding of how a team share tacit knowledge for the success of the project. While most studies have focused on the origins and capabilities of social capital, this study extended the work of Nahapiet and Ghoshal (1998) in terms of the causal sequence of these dimensions. It is also suggested by Inkpen and Tsang (2005) that

future research should examine the interaction effect among the social capital dimensions.

Analytically, as indicated by Nahapiet and Ghoshal (1998), this study recognised that the three dimensions are highly inter-related, that is why it is difficult to differentiate the three dimensions of social capital. By empirically investigating how social capital develops among the team members in a project, the research shows that in a project context, dimensions of social capital as delineated by Nahapiet's and Ghoshal's seminal paper actually occur in sequence, which to the researcher's understanding has not been identified in any of the literature on social capital.

The purpose of this section is to describe the causal sequence. The findings from this study show that the development of social capital occurs in a sequence in the project context. Firstly, there is the development of structural capital, which then leads to the development of cognitive capital, which in turn leads to the development of relational capital. Quotes from the interviewees are evaluated and discussed according to these sequences. The words that represent the particular dimension are underlined and given the abbreviated word: **(S)** or **(lack of S)** for structural capital, **(R)** or **(lack of R)** for relational capital, and **(C)** or **(lack of C)** for cognitive capital. For example:

Quotes: "*By doing this, I feel I can better understand the discussion of the meeting (C) and would be able to participate (R).*"

Next, the dimensions of social capital are discussed respectively: structural capital, structural capital to cognitive capital, cognitive capital, cognitive capital to relational capital, and lastly relational capital.

### **Structural Capital**

Obviously, without the structural capital, the other two types of capitals i.e. cognitive and relational capitals, could not be crystallised. The latter two dimensions are

embedded from the network of the actors. Thus, structural capital is a precondition for the other two dimensions. Liao and Welsh (2005) contend that structural capital is the most basic form of social capital and the origin for the emergence of relational and cognitive capitals. The findings of this study show that in a project context, social capital is developed through structural capital, especially through formal interaction such as meetings, brainstorming, discussions, and workshops that are embedded in the social structure. This study also shows that structural capital attributes such as network ties and network configurations as suggested by Nahapiet and Ghoshal (1998), are salient conduits in an organisational project that allow for the incongruent members to be linked together. This is particularly vital when the teams have diverse backgrounds, and/or come from other departments, or subsidiaries, and when members may not have known each other prior to being assigned to the project. In this situation, the relationship is structured by the organisation and members start to build their network from the moment they attend the kick-off meetings. These findings support Nahapiet and Ghoshal (1998) who argue that the organisation as an institutional setting is the best place for social capital development.

3A3 - *“No matter whether you have been working together before or not ... because each project has its own characteristics and ... may be I just know one or two but not others. You have to attend the formal meeting (S) especially the first meeting. From there you will start building your network (R).”*

Structural capital (have to attend the formal meeting) is of paramount importance, as it fosters the development of relational capital (start building your network).

3B2 - *“In the first meeting (S), we are being introduced to the champion (S) of the project, the project manager (S) and other key people(S). We are also being assigned jobs(S) but normally in this meeting, it is just like an introduction.*

As stated by the above interviewee, elements of structural capital (first meeting, champion, project manager, key people and assigned jobs) contained in the first meeting of the project are imperative for the building of a network.

2A1 - "I took this opportunity to get to know people in the team (S). You must know with whom you work (S), whether you already know them is second thing, but at least you must know their names, positions and their duties (S) so that you will know who to turn to (C)."

This response indicates that when the team members were introduced to one another, structural capital (get to know people, know with whom you work, know their names, positions and their duties) generates cognitive capital (know who to turn to), for example, it will help a person to know where to get assistance or to know the specific person to refer to in completing his or her project tasks.

3A8 - "I start to make friend with the other team members from the first meeting (S). And from there, we become friendly (R) especially when we have to participate in brainstorming activities. I think discussions (S) are also important activities where you will realise who you can work with and who you cannot (C)."

Project activities such as meetings and discussions are important attributes of structural capital (from the first meeting, discussions) that promotes cognitive capital (realise who you can work with and who you cannot). In turn, it generates relational capital (become friendly) that helps to build the relationship among the team members.

3A6 - "This project involved many people from various departments; I don't know some of them. I discovered that this meeting is useful for me as I know who is responsible (S) for what ... it makes it easier for me (C) to ask the person concerned if problems occur"

Teams which consist of people from various work sites find that the best way to get to know the roles of each member is through formal meetings. Structural capital (know who is responsible) cultivates the development of cognitive capital (make it easier for me), for instance, the team members will have a pre-conceived idea about whom they can rely on if they encounter a problem.



2A7 - "Working in a project is different because you are not working with your colleagues in the same department; some of them are from the subsidiaries. I only know them now (lack of S). It's very difficult to work together at first (lack of C) but after a few face-to-face meetings and workshops (S) we get to know each other better (R)."

Lack of social capital (only know them now) causes lack of cognitive capital (difficult to work together at first). However, structural capital (few face-to-face meetings and workshops) can help cultivate the development of relational capital (know each other better).

Overall, it has been argued that the structural dimension is mainly concerned with the impersonal linkage between people or units (Nahapiet and Ghoshal, 1998). Nevertheless, in the project situation, these linkages were developed when the team members were connected in a network i.e. the network was created for the purpose of the project.

### **Structural Capital and Cognitive Capital**

The connection between structural capital and cognitive capital can be seen in the social structure as well as the social interaction of the team members (Tsai and Ghoshal, 1998). This in turn influences both the shaping and sharing of common goals and values among them. The evidence reported here is consistent with the notion that structural capital is a pre-requisite for cognitive capital, particularly elements such as shared vision and shared objectives. In the project context, shared vision and shared objectives are purposefully developed for the project, being manifested by the project manager especially during the kick-off meeting.

3A8 - "I'll make sure that before the meeting I prepare (S) myself so that I won't be left out from the meeting. I read the meeting minutes (S) and also the project plans (S) from our intranet. By doing this, I feel that I can better understand the meeting (C) and would be able to participate better (R)."

When the team members prepare for a meeting, structural capital (prepare, minutes, project plans) encourages the development of cognitive capital (understand the

meeting). It helps to create shared understanding and hence, is manifested in members' action (able to participate better) which is relational capital that is embedded from the previous two capitals.

1A9 - "I never miss the meetings (S). It is very important because once I did not attend the meetings, I will be out of place (C). I'll make sure I will catch up with everything. It is important that I know, or otherwise it make my work difficult (C)."

The importance of attending meeting (never miss the meetings which is structural capital), helps increase the shared understanding (be out of place and my work difficult), which are cognitive capital.

2A5 - "I make sure we have formal meetings (S) as often as possible. Especially ... you know at the initial stage ... things have to be clear and justified (C)."

Having frequent formal meetings (formal meetings which is structural capital) helps develop shared understanding and shared goals among the team members (clear and justified) which is cognitive capital.

3A4 - "When people from the subsidiaries involved, we must make sure that everything is discussed in detail (S). Otherwise, if everything is vague ... it is very difficult (C). Everybody must attend the meeting (S) and understand (C) what we need to achieve and be committed (R) to this project."

When the team consists of people from various departments or subsidiaries, there is a need for the members to attend and participate (must attend the meeting, discussed in detail which are structural capital) in order to avoid any misunderstanding (understand which is cognitive capital), which will reinforce the drive to engage in a future obligation (committed which is relational capital). The above quote shows that structural capital encourages the development of cognitive capital, which in turn, promotes relational capital.

1A3 - "We have lots of meetings and discussions (S) at the early stage of the project. Together we decided the objectives (S) and deadlines (S) that we have to achieve. From this, you will know and understand (C) what is expected from you. I don't think you find a problem as everybody knows his or her responsibility in this project (C)".

The more project activities are held and decisions are made (meetings and discussions, objectives, datelines which are structural capital), the more the team members will have a perception of what to expect and what is expected from them (know and understand, knows his or her responsibility in this project which are cognitive capital). This quote shows that structural capital generates cognitive capital.

It is also evident from the interviews that some of the team members read documents or meeting minutes to make sure that they understand what is being discussed in the meeting. Over time, through formal interactions such as meetings and discussions, their relationship with one another became stronger and they were able to share the same language; for example, they managed to understand codes, language and systems of meaning without difficulty. Working in the same context also helps them to share the same frame of reference. Thus, the more interactions that team members have, the more the formation of cognitive capital is encouraged. For example, by attending the meetings, the team members develop attitudes and behaviour that are positive in respect of sharing the same goal and values.

3B3 - "Few times I had to represent my boss in the meeting (formal meeting), I had no choice (lack of S) and felt bored and ... most of the time I don't know what they are talking about. I just sit there, quiet and yawning. I feel bad you know (lack of C)."

Attending a meeting without your heart and mind (have no choice which is lack of structural capital) creates a feeling of disinterest (bad you know which is lack of cognitive capital) and this may discourage the formation of cognitive capital.

3A6 - "I wasn't involved from the beginning (lack of S), and I don't know what happened previously, so I find it difficult to understand the discussion (lack of C)."

When a team member does not share the same context (wasn't involved from the beginning which is a lack of structural capital), this creates misunderstanding (difficult to understand the discussion lack of cognitive capital).

The absence of network ties causes a team member to have a different frame of reference from other members. Evidence reported here shows that team members who had to participate in the meeting on behalf of their bosses found that they were at loss to understand the proceedings because they had nothing in common with others. They did not appreciate what the meetings were all about i.e. they had no cognitive capital. This creates difficulties in disseminating or acquiring tacit knowledge. It is also important to note that through frequent interactions either face-to-face or electronically, the team members may develop the same language, visions and objectives based on mutual understandings with other members. Team members may share a vision even if they do not have specific interpersonal relationships, since structural embeddedness may prompt them to embrace the same goals and values. Thus, it can be argued that structural capital works as a bonding mechanism that helps team members to be 'together' and strengthens their network, thus facilitating their shared understanding and promoting knowledge sharing.

### **Cognitive Capital**

This dimension includes those resources that provide shared representations, interpretations and systems of meaning among team members (Nahapiet and Ghoshal, 1998). The findings of this study suggest that the team members developed their cognitive capital upon having understood that they were working towards a common purpose. The shared understanding that they developed during the kick-off meeting was further enhanced when they had frequent interaction. When the team internalised the

vision and goals crafted by the management, they came to gain confidence and to care for the well being of the members (Fleming and Spicer, 2003).

*2A15 - "We are working (S) to achieve the same goals (C), so I think we should not distance ourselves from the other team members. We belong to a team (C) ... the same team that must work to make sure (C) the project is successful."*

When the team members understand the roles that they play in the team (We are working which is structural capital), they have the feeling of shared identity and are more willing to perform their tasks to accomplish the project goals (same goals, belong to a team, make sure which are cognitive capital).

*1A7 - Our CEO is a very cautious person .... He will make sure the vision (C) is not only manifested but also clear (C) to every team member (S). I believe every team member must be clear about the vision ... so it would not create any misunderstanding (C) later on because different projects need different action (R). This is an international project. Its success is our success, it is so important, we are responsible (R) to the whole nation. We must make sure we do whatever we can to ensure its success."*

The statement above indicates that when the project is important to the company, the involvement of top management encourages shared vision among the team members (vision, clear, misunderstanding which are cognitive capital), hence, encouraging positive future action (responsible which is relational capital).

*1B6 - "Before the project officially started, the project manager (S) do a power point presentation (S) about the project and make sure the project visions (C) are obvious (C) and everybody understands (C) what to achieve in the project."*

The above statement shows that introducing and explaining the project to the team members (project manager, presentation which are structural capital) helps develop a shared vision and mutual understanding among them (visions, obvious, understands which are cognitive capital).

In the project context, shared understanding is important not only to bring the team together but also to emphasise that the members have worked for a common purpose. Due to being in the same network, team members are able to develop shared language and shared understanding. This study also suggests that cognitive capital is embedded in structural capital.

### **Cognitive Capital to Relational Capital**

Tsai and Ghoshal (1998) argued that common values and shared vision may encourage the development of trust in the relationship. Similarly, findings of this study indicate that since a project has its own vision and objectives, trust could be developed via a shared appreciation of these. For example, once the team members have understood the vision and the objectives of the project, they trust one another in performing the various tasks and are more willing to co-operate. The findings from this study show that having a clear vision that is agreed by all team members was important in sharing knowledge successfully. This helps to motivate team members to co-operate with one another to accomplish the project goals.

*1B2 - "It is important for the team members to understand (C) the goals of the project. I believe if all of us understand (C) and hold the same goals (C), it will be easier for the team members to co-operate with one another (R) ... for example our project manager always reminds us of our goals and he always asks our opinions regarding the project during the meeting."*

Having strong cognitive capital (understand, understand, hold the same goals) helps generate possible action in the future (co-operate which is relational capital).

*2A3 - "I think if we are clear about the project objectives (C), each team member should know what other team members would expect (C) from him or her. So ... you must perform your responsibility (R)."*

When a team has developed cognitive capital (clear of the project objectives, other team members would expect), the members are encouraged to carry out their duties (responsibility which is relational capital).

Findings from Company 2 show that when the project vision is not clear, various group members interpreted the team mandate differently. The team later found that they had misunderstood the objectives and hence there were problems in performing the tasks, since members either thought that other members were not performing, or were pursuing a different agenda, as stated by a team member of that project:

*2A1 - "I don't think all of us understand the same project vision (lack of C) ... every time we have a meeting, it seems the vision keeps on changing (lack of C). What she [the project manager] wants is not clear to us (lack of C). I can't tolerate (lack of R) it anymore ... I would rather talk to the VP [the champion of the project] personally."*

When the vision is not clearly manifested and understood by the team members (don't think all of us understand the same vision, vision keep on changing, not clear to us which are lack of cognitive capital), this creates difficulty in getting things done in the future (can't tolerate which is lack of relational capital).

It is evident that this distrust arose from a lack of shared vision (Abrams *et al*, 2003). In addition, the absence of shared language could also create mistrust especially when the team members do not have any interpersonal relationships with one another. Misinterpretation may occur when people from diverse backgrounds come together, since those with educational, cultural, and functional experience, bring their own perspectives when interpreting words and phrases (Abrams *et al*, 2003).

*3B2 - "We are technical people ... we understand each other well (C). I don't find any problem understanding them [IT people] ... and I find it comfortable to discuss and collaborate (R) with them [IT people]."*

The team members who have the same background (understand each other well which is cognitive capital) have no difficulty in understanding each other because they share

the same language which helps to facilitate co-operative behaviour among them (comfortable to discuss and collaborate which is relational capital).

2A8- "I got fed up with him whenever he presents in the group meeting. I don't understand him (lack of C) and he seems proud of using all those marketing jargons. If I were given a choice, I would not want to work in the same team with him (lack of R)."

The above statement shows that lack of cognitive capital (don't understand him) due to not understanding the same language generates ill feelings among the team members which causes withdrawal and demotivation (would not want to work in the same team with him which is lack of relational).

However, distrust could be eliminated when team members understand that they have common goals to accomplish (Tsai and Ghoshal, 1998). Consequently, constructive history of interactions, for instance, frequent meetings together with shared language congealed the team members' relationship. In turn, they help establish interpersonal relationships such as friendship, trust and trustworthiness, obligation, and expectation which Nahapiet and Ghoshal (1998) term relational capital. Therefore, it may suggest that cognitive capital is a prerequisite of relational capital such as collaboration, cooperation, reciprocity, and sincerity to evolve.

In the project context, trust is more on the affiliation and norms that are generalised among the team members as a whole (Leana and van Buren, 1999). Leana and van Buren (1999) emphasised that individual may trust one another although they have no history of interactions but due to being in the same network for example in project context. Norms such as teamwork and shared objectives rather than interpersonal interactions can build and sustain social capital. This study also suggests that shared cognitive is a precondition for harnessing interpersonal relationship (relational capital).



## Relational Capital

Relational capital is build based on history of interactions. Two actors will know each other better and willing to share important information when they are close to each other (Nahapiet and Ghoshal, 1998; Tsai and Ghoshal, 1998). The interviews indicated that the relational capital does not fully build among the team members who do not know one another prior to joining the project. Those who have experienced working together in another project, attending workshops and trainings, or involving in job rotations will have history of interactions.

*2A6- "Yes, I find it easier to interact (R) with the team members if we have been working together in the previous project (S). Furthermore, I will know better (C) about their expertise. You know ...if this is your first time working together (lack of S), it is hard to build relationship (lack of R) with them. In the beginning... they are quite cool, but once you know them, it is easier to cooperate (R)."*

The above quote seems to bring home the importance of history of interactions (have been working together in the previous project is a structural capital) as main ingredients that blends the team members together which create shared understanding (will know better which is cognitive capital) which tend to vigourise the team spirit (easier to cooperate which is relational capital). On the contrary, absence of this vital ingredient (first time working together which is lack of structural capital) or delay in achieving this tends to weaken the team spirit (hard to build relationship which is lack of relational capital).

*2A5- "2A2 and I have been working together before (S) in a previous project, so I find it easier to get help from her (R), but 2A8 for example, she is a new member (lack of S), so she needs to find her way (lack of S)...I mean in terms of getting help or info from other team members (lack of R)."*

The above quotes shows that previous history of interactions (have been working together before which is structural capital) will reinforce possible cooperative behaviour (easier to get help from her which is relational capital). On the contrary, lack of history of interactions (new member, she needs to find her way which is lack of structural

capital) will impede someone to perform his or her tasks in the project (getting help or info which is lack of relational capital).

3B7- "We always have to clarify things with other team members and I feel the more workshops and training (S) we have together, the closer we are (C) and it makes it easier for me to just call or e-mail them if I need some information regarding the project (R).

The more the team is involved in project activities (workshops and training which is structural capital), the stronger the network ties (closer we are which is cognitive capital). It then creates possible cooperative behaviour (need some information regarding the project which is relational capital), which is accrued from their frequent interactions.

2A14 - "You need to understand their language(jargons) (C) and know your team members well ... this is important so that you know who you can trust (C) and also know how to get info (R) from them... Some people are very hard to approach if they don't really know you."

Sharing the same language for example among the software engineers can avoid the possible misunderstanding and distrust (understand their language and know who you can trust which are cognitive capital), which then leads to potential sharing of knowledge (know how to get info which is relational capital).

The findings suggest that relational capital is developed through previous interactions. The relationships that they created in the past can be strengthened when they work together in the present projects. This study also suggests that relational capital does not develop simultaneously with structural and/or cognitive capital. Instead, it needs time and energy from the team members to support its development. However, for the long-term project, frequent interactions and good experience in dealing with each other will lead to the development of relational capital among the team members.

In summary, Nahapiet and Ghoshal's (1998) model of social capital does not indicate the causal sequence of social capital in relation to intellectual capital. To harness social capital, they have suggested the importance of all the dimensions and highlighted that the dimensions are mutually reinforcing but failed to recognise that the dimensions actually occur in sequence. This study's findings are in line with Liao and Welsh (2005) that structural capital is a prerequisite for cognitive and relational capital. Most importantly, the study also reveals that in a project context, cognitive capital is a precondition for relational capital to evolve. In sum, the sequence is: structural capital leads to cognitive capital; and cognitive capital leads to relational capital. Next subsection will further elaborate the theoretical development of the causal sequence of social capital dimensions.

#### **6.4.1 Theoretical Development**

This study has developed a new perspective for understanding the sequence of social capital development in a project context. It enables the formulation of a series of propositions based on the causal sequence of social capital. Based on the discussion, the following propositions are forwarded.

##### ***P1: Structural capital leads to cognitive capital***

- P1a: The more meetings attended by the team members, the more they acquire shared understanding about the project goals.
- P1b: The higher the position of a team member in the organisation hierarchy, the more he/she is willing to provide inputs to the project.
- P1c: The more peripheral the person is in the network (e.g. the team members from subsidiaries as opposed to team members from HQ), the less they acquire shared understanding about the project goals.

***P2: Cognitive capital leads to relational capital.***

P2a: The more the team members understand the goals of the project, the more they will co-operate with other members (e.g. willing to assist the other team members in completing their tasks).

P2b: The stronger the shared identity that the team members have, the more they trust other members to reciprocate when they render help.

***P3: Structural capital without cognitive capital takes longer to contribute to the development of relational capital than structural and cognitive capital combined.***

P3a: Stronger ties among the team members with shared goals developed over time lead to the team members' relationship becoming highly reciprocal based on goodwill.

P3b: Lack of clarity about shared vision and shared objectives leads to team members becoming less co-operative with other team members.

***P4: Structural capital is a necessary condition for the development of cognitive and relational capital.***

P4a: Lack of frequent interactions among the team members, leads to having lack of shared language which in turns hampers the development of trust among them.

P4b: Weak ties among the team members leads to lack of shared understanding which in turns creates less toleration among them.

## **6.5 CONTRIBUTIONS AND IMPLICATIONS OF STUDY**

This study enables the expansion of a new perspective for understanding the development of social capital in a project context and how tacit knowledge is shared among the project team members. This new perspective constructed from the set of social capital and knowledge sharing activities in a myriad of project context, help in understanding the process that team members used to share tacit knowledge. This study made three general contributions:

1. Firstly, using a grounded theory approach, this study was able to distinguish the dimensions of social capital and their categories and items for the knowledge sharing in a project context;
2. Secondly, it was able to highlight the most important items, categories, and dimension of social capital for tacit knowledge sharing in a project context; and
3. Thirdly, the study's most important contribution is identifying causal sequence of social capital which to the researcher's best knowledge has not been identified in previous research.

### **6.5.1 Theoretical Contributions and Implications**

The specific theoretical contributions and implications of the study are now discussed. The first contribution of the present study concerns the issues of the insufficiency of knowledge to distinguish between the dimensions of social capital. In the introductory chapter, the researcher argued that due to the lack of consensus on the definition of social capital, the distinction of the dimensions is hard to realise. Theoretical and empirical researches do not sufficiently distinguish between the dimensions of social capital implication for the causal relation of social capital sequence. In view of the differences between these dimensions and their possible implications for sharing tacit knowledge and knowledge creation in general, it is important to ascertain whether those theories, models and prescriptions based on Nahapiet and Ghoshal's are transferable to other contextual settings. Although researchers have argued that these dimensions are overlapping (Edelman *et al.*, 2004; Inkpen and Tsang, 2005; Nahapiet and Ghoshal, 1998), the evidence from this study suggests that given the boundary of the study, these dimensions can be distinguished exclusively.

To address these issues, grounded theory method was used and coding process was performed to find the categories and items under social capital dimensions for knowledge sharing in a project context which later been counted using frequency analysis. The categories and items were compared to the existing literature on social capital and knowledge sharing. The findings are supportive of those of the literature;

the confirmation of the role of social capital is important in knowledge sharing particularly tacit knowledge sharing (Tsai and Ghoshal, 1998; Yli-Renko *et al.*, 2001). In this respect, the findings are consistent with earlier works on social capital and tacit knowledge sharing. However, it does not fully support some of the previous research on organisational socialisation that, relational dimension is the most important dimension of social capital (e.g., Dyer and Singh, 1998; Yli-Renko *et al.*, 2001) compared to the other two dimensions in terms of creating and sharing knowledge. The findings from this study indicate that the role of structural and cognitive capitals are more important than what social capital theories may suggest due to some of the factors associated in a context of a project (e.g., team members have different background such as different expertise, brought from different worksite— HQ as opposed to the subsidiaries, and the nature of the project that is a one-off and a short term), the development of each of the dimensions of social capital among them may be affected by these factors .

Secondly, the present study has highlighted that it is important to distinguish the three dimensions of social capital: structural, cognitive, and relational capitals. One of the advantages is that a precise definition of social capital dimensions enables the determination of the most significant dimensions and their function in assisting the development of social capital. Thirdly, the next important point highlighted in this study is the difference between identification in cognitive and relational capitals. The findings provide support for the distinction between *identification* in cognitive capital and *identification* in relational capital.

#### **(Identification based on cognitive capital)**

*1A10- "We (team members) are working to achieve the same goals, so I think we (team members) should not distant ourselves from one another. We belong to a team...the same team that must work to make sure the project is successful."*

Structural capital (*working to achieve the same goals*) creates the feeling of self belonging (*We belong to a team*) which is cognitive capital due to having to accomplish a common purpose that is project goal.

### (Identification based on relational capital)

2A1-“Sometimes you just cannot simply go and ask them (the team members for assistance) because...you also have to maintain your reputation. It happen to me many times, I found it quite difficult to work with the HQ people. I guess they think that they have some sort of high standard (superior) compared to us...people from the subsidiaries. But...once you know them [HQ people] well, they can be very friendly. You could ask their favours to help you if you are facing any problem regarding the project. After all... you know, you are part of them (the same company).”

Having strong structural capital (once you know them well) creates friendship based on collective values (could ask their favours and you are part of them) which are relational capital that is embedded from personal relationship. This requires time and history of interactions.

Nahapiet and Ghoshal (1998) indicated that *identification* is a result of actors having relational capital. Whereas it is evident from the present study, *identification* is a result of having cognitive capital. Having understood shared objectives and visions, the team members of a project feel that they have shared identity with other team members because they have similar goals to accomplish. The findings of this study indicate that *identification* has a direct effect on the team to indicate that they are part of the group who work together to achieve the common objectives set by the project. Due to this, they feel that it is their responsibility to share knowledge with other team members. Thus, *identification* is a result of actors having shared vision, goals and understanding with other members. This finding has also contributed to the social psychological process based on shared identity.

In addition to identification category, the present study also highlighted the importance of other social capital categories, that being *obligation*. The implication of this finding is that *obligation* played an important role in influencing the team members to share knowledge. More than that, this evidence indicates that *obligation* is one of the significant roles of structural capital in tacit knowledge sharing. This is inconsistent

with the *obligation* mentioned by Coleman (1990) that it accrues from the relational capital. According to Coleman (1990), *obligation* refers to the commitment or duty that an actor has to perform in the future. Had the study concentrated on relational capital alone, by simply measuring trust and trustworthiness, this effect would not have been found, but by incorporating coding and frequency counts procedures in analysing the interview data, the social capital dimensions that affect tacit knowledge sharing are distinguished. Similar to identification, the following findings were able to distinguish between *obligation* in structural capital and *obligation* in relational capital.

#### **(Obligation based on structural capital)**

3A8- "Yes, we have to share knowledge with other group members because we are working in a team...it is our obligation to make sure the project is successful. After all, it is your responsibility and surely you will feel bad if it(the project) is not successful because you are one of them."

Structural capital (we are working in a team) causes the team members to be responsible (obligation to make sure the project is successful) which is structural capital that is due to team members' roles in the team.

#### **(Obligation based on relational capital)**

2A3-" It depends on what sort of relationship that the team members have, if they are all stranger than it would be different...but if you have established a good relationship with them...then I don't see it difficult to cooperate with them, in fact they will feel obligated to help you."

Having strong network (you have established a good relationship) which is structural capital, reinforces the team members to undertake some activities in the future (feel obligated to help you) which is relational capital that is rooted in the relationship.

The implication of this finding is that it suggests that project members perceived that they are obligated to perform task for the sake of the project success. This is similar to the finding of Ruuska and Vartiainen (2005). It also suggests that structural capital is the most important dimension in fostering tacit knowledge sharing in a project context



compared to the other types of capitals. Together with cognitive capital, both capitals are sufficient for sharing tacit knowledge in organisational projects. Interestingly, the study findings on relational capital is given less emphasis in comparison to the emphasis given to relational capital conducted within western samples. One possible reason is that all the projects in this study are tied up to the team members' performance appraisal. Therefore, achieving project completion and success are critical.

There are also possibilities that such discrepancy is perhaps originated from the difficulty in surfacing 'implicit' relational capital among the team members. For example, while a respondent may state that he/she would share knowledge without developing trust first, when actually there is indeed trust among the team members, either in 'existence' or 'future trust'. Because perhaps a team member knows that having work for the same organisation, he/she will be involved in another project with that same person in the future.

Another possible reason is that Malaysia with collective culture requires structural capital more than relational capital in sharing opportunities and resources. For example, this study suggests that the position of a team member in an organisational hierarchy is seen as more important in disseminating and acquiring tacit knowledge. It could also add to social capital theory that in Asian context, national culture particularly power distance (Abdullah, 1996; Hofstede, 1991) plays a role in tacit knowledge sharing. The findings of this study may also help to explain why the organisational members require more structural capital compared to other types of capitals in tacit knowledge sharing.

The third contributions of the study concern with the sequence of social capital. Separation into three separate elements allows the study to show causal relationship among the three dimensions of social capital. The findings of this study may help to explain that there is a causal sequence of social capital in a project context. Whereas the previous research focused on the relationship of social capital, this study drilled down a level further to consider the sequence of social capital in organisational project context. The findings of this study affirm previous studies that structural capital is the

prerequisite of the other two capitals (e.g., Liao and Welsh, 2005; Tsai and Ghoshal, 1998). Social capital begins with the network ties. For example, organisational members are brought together to work as a team. This team has same goals or attainable outcomes which the team members have to contribute for example by combining and exchanging knowledge in completing their tasks and are responsible for the success of the project. This requires the team members to share the same goals, visions and together with the network ties provide shared group identity and cohesiveness. This is similar to the findings of Edelman *et al.*, (2004) that the team members who identified themselves as similar with other team members, will be more willing to share knowledge and work together.

As the team members have no previous history of interactions, more interactions such as meetings and brainstorming sessions help assimilate cognitive framework and develops shared understanding (Becker, 2001). Over time, the ties become stronger and the team develops shared cognitive capital such as shared understanding and language, and resulted in the relationship among the members become more personal. As this relationship become stronger and mature, trust developed (Krackhardt, 1992). Those evidences from the interviews suggest that there is causal sequence of social capital in the development of social capital. However, there is a boundary to these new findings as the study was limited to organisational projects.

The implication of this study is that the development of social capital dimensions does not occur simultaneously or concurrently. Indeed, social capital developed in sequence as they were effected by times and context to realise the effects. The evidence of this study also suggests that shorter project times and bad history of interactions hamper the development of social capital and thus its full development may be hindered. In addition, in a short time project situation, the team members have less time to engage in activities that contribute to the development of trust (Koskinen *et al.*, 2003). Therefore, personal relationship is difficult to develop. Team members deal with one another as roles that they played in the projects than as individuals (Meyerson *et al.*, 1996). This study contributes to the knowledge about causal sequence in the development of social

capital among team members in a project context. However, team members with different background and work sites may experience unique social capital.

### 6.5.2 Managerial Contributions and Implications

The present study provides a number of managerial contributions. This section describes the contributions derived from the findings of the study to organisations.

The first implication concerns the role of structural capital in tacit knowledge sharing among the team members of a project. Consistent with previous literature, the study found that frequent interaction is significant in strengthening the ties among the team members. With strong relationship, team members can increase the chances for knowledge integration (Newell *et al.*, 2004). The team members perceive that face-to-face interaction especially through frequent meetings, discussions and brainstorming sessions can increase their understanding of the project goals and objectives as well as the team members. The more meetings they have, the more they developed their social capital. In addition, the more informal meeting the team members have, the more they become closer to one another. However, organisations must provide a structure for that purpose for example having a place to encourage informal meetings to occur for example a lounge or staff common rooms.

Based on the frequency analysis, the study also suggests that due to the nature of the work and the project itself, organisations must encourage the use of CMC. Younger team members as well as those who have technical background prefer to use e-mail and telephone when communicating with other team members. The findings is similar to Wasko and Faraj (2000) who found that individuals are motivated to contribute knowledge electronically because it is challenging and fun. It is also evident from the study that formal meetings and interactions play vital part in the knowledge sharing process in project context, while reciprocity play a lesser role. The lesson to be learnt by organisations from this specific finding is the importance of frequent interactions among the team members during the project implementation. They will encourage more

tacit knowledge sharing. Thus, focus should be put on developing communication and interaction skills of the project team members.

Human resource managers should allow more decentralised organisation structure to encourage more interactions among the employees. This study found that a position that a team member held in the organisation hierarchy may impact the way he/she shares knowledge. This is similar to the finding by Wasko and Faraj (2005) that team member's position in the network influences his or her willingness to contribute knowledge. Since Malaysians practice high power distance, organisation can increase co-operation between people and groups by reengineering their structure into flatter, more team-based focus, in which authority is decentralised to empowered lower-level employees (Jones and George, 1998). Moreover, senior managers should be encouraged to practice a culture of openness. They must be willing to accept criticisms from the younger team members, value their ideas, and appreciate their contributions. In line with this, project manager must increase effort to allow employees to suggest ideas for new opportunities and foster positive social interaction. Specifically, creating an organisational climate characterised by top management support, for example open communication, is a stimulus to develop social capital and encourage knowledge sharing. Moreover, the findings indicate that manager can facilitate the development of social capital by encouraging the team members to participate and contribute ideas during the discussion. The team members will feel more motivated to complete their tasks and ensure the project success. In addition, they will feel more confident that the group will not try to embarrass, reject or punish them for speaking out, or for bringing a different perspective to the task (Edmondson, 1999). Overall, these activities may assist team members to socialise and interact frequently with each other, thus, strengthening social capital which in turn driving sharing of tacit knowledge. Organisation as institutional setting can create a myriad of contexts, place, and occasions for the organisational members to join together and these help harness the development of social capital (Moran and Ghoshal, 1996).

The second implication of the findings for the organisations concerns the relationship of the project team members. Managers need to understand previous history of interactions that the team members may have. This study found that where team had not worked together previously, the development of social capital requires longer time. Thus, to strengthen and maintain the relationship among the team members, human resource managers, project managers, as well as the team members themselves must invest in more effort and resources to nurture social capital (Brown and Duguid, 1991). For example, barriers between HQs and subsidiaries can be minimised by practicing job rotations and making short visits. More trainings and seminar which involved organisational members from both HQs and subsidiaries should be conducted more often in order to encourage inter-mingling among them. First, with this knowledge in mind, managers should invest in seminars and training. Findings also indicate that through seminar and training it is not only harnessed the relationship among the team members but it also creates an environment where knowledge is disseminated and shared. Second, the findings from this study also suggest the importance of job rotation especially for large and medium companies (in this study Companies 2 and 3). This would provide the opportunities for the team members who are from disperse workplace to meet and work together.

Knowledge about the importance of structural networks in encouraging tacit knowledge sharing may be used to help managers in dealing with the employees especially in an environment in which many aspect of the employment relationship have become individualised. Managers need to encourage the collective attitudes and behaviours to emphasise on closer relationships amongst employees. This in turn create positive actions towards knowledge sharing. It is true that managers do have little control over team members' character; however, they would be better prepared to manage the team if they have a clear understanding of the role that individuals play in how they approach work, behave in the workplace, and react to different situation (Shaw *et al.*, 2000). Developing the relationship during the early phases for example through job rotation, trainings, and workshops can be important mechanism for trust building. This is because, one way to build long-term relationship is to start the relationship as early as

possible. Thus, project which has team members with established social capital are more likely to be more successful in tacit knowledge sharing.

The third managerial contribution concerns the role of cross-functional team. Being acquainted with individuals from different parts of the organisation enhances an environment conducive to the development of social capital and the creation of new knowledge to the organisation. Project manager need to pull together the members with diverse background and expertise to ensure the success of the project (Hackman, 1987). However, they need to be more aware of the factors that may trigger the development of personal relationship among the team members of the project. From the organisational perspective, management must provide opportunity for frequent interaction, space for interaction, held more meetings, brainstorming and discussion to extend the relationships within and outside the team. Team members particularly from the subsidiaries or the younger members in the team also need to be encouraged to participate in the meetings so that they will feel more comfortable and will feel that their contribution is appreciated and hence encourage knowledge sharing to take place.

The fourth implication of the study concerns the role of human capital in knowledge sharing. This study suggests that human capital knowledge and experience have an impact on knowledge dissemination. For example, team members are more likely to seek information and assistance regarding the completion of the project tasks from the seniors or from the experts among the team members. Therefore, apart from social capital, the sharing and disseminating of tacit knowledge would require the organisation to hire and train well-educated and experienced team members. This would increase the likelihood that such team member can disseminate their tacit knowledge to others for the success of the project (Schneider and Northcraft, 1999; Teram, 1999). However, it would be interesting to explore if this dissemination of knowledge occurs naturally or whether this process needs to be induced by human resource management programs or organisational structures. More important, managers must be aware that the sharing of tacit knowledge is not straightforward (Gertler, 2003).

The fifth implication of the findings is that organisational members must first be aware of the importance of tacit knowledge sharing towards the success of the projects. Managers must constantly clarify and communicate the long-term goals of tacit knowledge sharing among organisational members. In order to motivate the team members to share, they must motivate the development of social capital by providing support, motivation, opportunity and ability (Jones and George, 1998). However, project success cannot be fully determined by the amount of social capital and tacit knowledge shared by the team members. What is more important is that the project has to be clear in its objectives and vision, supported from top management, and most importantly it must have adequate funds or resources (White and Fortune, 2002), and the project must be strategically aligned with the organisation's goals. Social capital alone is inadequate to ensure project success although it can enhance or help to improve communication and shared knowledge.

To sum up, the findings indicate that the roles of organisations are to ensure that the team is structured carefully to build further relationships. They can provide place enablers for the team members to enhance their relational capital. It should also be possible to develop a richer theory of institutionalisation, one that explicitly addresses both the regulations and enabling roles for social capital development. The reason is that social capital needs to be developed among the organisational members and it can be managed (Llewellyn and Armistead, 2000). However, once developed it can die if not maintained.

## **6.6 LIMITATIONS OF THE STUDY**

In this study, the role of social capital in fostering tacit knowledge sharing at project level was examined. While the researcher believed that her investigation provides additional insights as to the organisational benefits of social capital, one should be aware of a number of limitations. Thus, the findings and the implications of this study must be considered in light of these limitations.

First, limitation of this study is that social capital and knowledge sharing were measured at the group level. The use of projects in one industry may bring limitation with it. Social capital and sharing of tacit knowledge may be experienced differently among the team members in organisational projects.

Second, the other concern is regarding the team members interviewed in this study. Not all of the team members from each project were interviewed. Team members from outside of the company such as the clients or providers were not interviewed. They were not included in the present study because the aim of this study is to explore the social capital development among the team members who are working in the same organisation. The number of interviewees in this study was based on the theoretical sampling. However, a larger sample size would add more statistical significance to the frequency analysis results.

Third, is regarding the limitation of the research techniques employed for this study. The exploratory nature of the research objectives and the dynamic nature of social capital and tacit knowledge sharing justified the adoption of grounded theory method for this study. The study countered the limitations of interviews method by adopting other methods such as participant observation to aid triangulation for multiple interpretations (Klein and Myers, 1999). Additionally, probes and further clarification were used to make sure that the interviewees' responses are accurate.

Fourth, the findings from the quantitative chapter are based on the frequency counts from the interviews. It would have been ideal to code each transcript twice (Bauer, 2000), however, no attempt had been made due to the number of interviews that had been conducted, and time limitation. However, the codes derived in this study were double checked by the researcher's fellow friends. More importantly, the counts were only been carried out after the selective coding was completed. Another drawback in this method is that it is not based on likert scale instead based on rank with the highest item occurred being rank as 5.



## 6.7 SUGGESTIONS FOR FUTURE RESEARCH

This study offers several recommendations for future research. One important direction for future research is to conduct a longitudinal study involving multiple data collection procedure to see how the social capital actually develops in a long-term project. Due to the cross sectional study, the ways in which network structure changes overtime are beyond the scope of the study. As social capital needs time to develop, the cross sectional design makes it difficult to examine the dynamic interaction in social capital and tacit knowledge sharing among the team members. Future studies should take the dynamic nature of network strategy into account. Researchers could incorporate this method to shed more lights on the effect of social capital on tacit knowledge sharing and its impacts on the success or failure of the project over time.

The study's exploration and conceptualisation of grounded theory through both qualitative and quantitative methods have been advantageous. The study's findings suggest that there is a causal sequence of social capital dimensions. Future research would be testing and refining the theory through examining the relationship within these dimensions. Systematic statistic such as structural equation modelling (SEM) could be used to test the causal sequence and to estimate relationship among the social capital dimensions (Wold, 1982). For example, testing the propositions formulated in this study using SEM to further approve or disapprove the finding of the present study on the causal sequence of social capital dimensions.

Future research should also include demographic background variables such as gender and education background of the respondents when conducting study on social capital and knowledge sharing. Particularly in relation to gender, much of the literature strongly suggest that women do not have equal access to social capital as women are excluded, or may exclude themselves from the social networks (Timberlake, 2005).

As this study was only conducted in ICT companies, another extension of this work would be to apply this research to a broad cross-section of the knowledge-based industries, such as engineering. Researchers could examine the significant factors that influence social capital to distinguish whether such factors varies in different projects and different industry, and later prove or disapprove whether the same causal sequence exist across the industries. Such understanding would enable managers to make appropriate decisions in designing interventions in developing social capital.

Additionally, the fact that a team has been established does not guarantee that social capital will continue to be managed and sustained in the future. As the project completion, what will happen to the relationship that has been developed during the project? Why would team members want to continue the relationship or vice versa? What structural capital would be most effective in ensuring that the team members maintain their relational capital to benefit future projects? What structural capital is most effective in filtering “negative” relational capital? (e.g., bad experience with a team member). Or could the “negative” relational capital be avoided altogether through project tasks – for example in selecting team members through ensuring the project team members and the task assigned fit into a project? Or could it be that in some cases, relational capital developed in stages and that “negative” relational capital is temporary in nature and would turn “positive” over time?

### **Summary**

This study recognises that organisational project brings together people from diverse background linked formally prescribed by organisational charts or explicitly defined by a project management team (Stohl, 1995, p. 23) which might or might not have overlapping network or interconnected individuals and hence social capital. This might create impersonal relationship and hence unsuccessful project implementation. In order for the project to be successful, team members need to work in a harmonious way and share tacit knowledge among them. The findings of this study indicate that due to its implicit nature, tacit knowledge is typically shared amongst team members who either

work in the same office or have previous history of interaction particularly through face-to-face interaction (Ruuska and Vartiainen, 2005). The essence of informal conversation is a co-operative attitude that fosters collaborative work on projects. This is because the importance of relationship with the team members prior to embarking in the project and the difference of relationship with the team members will only be known during the project itself. They can share and synchronise information and knowledge among themselves. Ironically, significant level of social capital will not develop in a short term organisational project. Thus, impaired the way the team members interact and share their knowledge. In summary, first structural capital is the precondition to the development of cognitive capital. Second, cognitive capital and structural capital are the preconditions to the development of relational capital. Therefore, sufficient time is needed for best use of social capital in project environment. Organisation should support social capital development by encouraging more face-to-face interaction, training, workshop, short visit and job rotation. These can help develop the relationship among the team members. Organisation can also practice decentralise power and encourage more culture of openness among the managers. They need to be more receptive to criticism and value the team members' ideas.

## 6.8 CONCLUSION

The chapter has discussed in more detail all the findings from the study that were presented in Chapter 5 and 6. Specifically, the chapter discussed each category under the three dimensions of social capital and their effect on tacit knowledge sharing. It has established that each dimension of social capital can be distinguished from one another. It also indicated that each dimension has different effect toward tacit knowledge sharing. In addition, in this particular project context, the important items under each category were also justified.

Next, the causal sequence between each of the dimension of social capital was explained. This was then followed by a discussion on theoretical development of the

distinction of social capital dimensions and causal sequence of social capital dimensions. In addition, a series of theoretical contribution were made. Based on this theoretical contribution, the implication for theory and management were also presented. This chapter ends with limitations of the present study and suggestions for future research were also made. The next and final chapter concludes this study.

## CHAPTER 7

### CONCLUSIONS

#### 7.0 INTRODUCTION

The main research objective was to develop a comprehensive model of social capital for tacit knowledge sharing in organisational project contexts. In this study, three dimensions of social capital, namely structural, cognitive, and relational capitals (Nahapiet & Ghoshal, 1998) were adopted to provide a platform for this research in identifying the development of social capital among team members working in a project. A grounded theory approach was adopted in order to overcome complexity resulting from the ambiguous nature of social capital and tacit knowledge sharing, and the diversity of the projects. At the beginning of this thesis, three research objectives were presented. Table 7-1 briefly explains the research objectives and the analysis performed to arrive to the findings and conclusions in this study.

**Table 7-1: Summary of Study's Research Objectives, Data Analysis Used, and Research Contributions**

<b>Research Objectives</b>	<b>Data Analysis</b>	<b>Research Contributions</b>
1. To further define social capital dimensions and identify categories and items under each of the dimensions.	<i>Qualitative analysis:</i> Used grounded theory approach by utilising open, axial, and selective coding. Then iteratively match research findings with the literature.	<ul style="list-style-type: none"> <li>• Generates a comprehensive list of categories and items under social capital dimensions related to tacit knowledge sharing in organisational project context.</li> </ul>
2. To determine significant categories and items of social capital for tacit knowledge sharing.	<i>Quantitative Analysis:</i> Utilised intelligent coding based on selective coding for the purpose of performing univariate analysis.	<ul style="list-style-type: none"> <li>• Identifies factors that foster or hinder tacit knowledge sharing.</li> <li>• Generates a refined list of the most important categories and items of social capital in tacit knowledge sharing.</li> <li>• Generates propositions based on the observed relationships.</li> </ul>
3. To identify the most significant dimension of social capital in fostering the sharing of tacit knowledge.	<i>Quantitative Analysis:</i> Utilised intelligent coding based on selective coding. Analysis of univariate.	<ul style="list-style-type: none"> <li>• Identifies structural capital as the most important dimension for tacit knowledge sharing in project context.</li> <li>• Generates propositions.</li> </ul>

In addition to research contributions highlighted in Table 7-1 above, the utilisation of the grounded theory approach extended our understanding of the nature of social capital, i.e., social capital evolved over time and occurred in sequential order. This discovery completed the development of a comprehensive social capital model. Conclusively, social capital variables are found to influence tacit knowledge sharing among team members, and among these variables, structural capital is found to be the most important dimension subjected to the project context. The following paragraphs highlight the discussion for each research objective and its respective research contributions.

## **7.1 SUMMARY OF RESEARCH FINDINGS AND CONTRIBUTIONS**

### **7.1.1 Objective 1**

*To further define social capital dimensions and identify categories and items under each of the dimensions.*

First, the study explored the concept of social capital to enhance understanding of its development in the context of organisational project. By employing grounded theory approach where individual project was considered as unit of analysis, the development of social capital in organisational projects was examined. In general, the development of social capital in an organisational project is difficult to be realised. This is obviously true if the team members have no previous history of interactions. Both structural and cognitive capital started to evolve during the 'kick-off' meeting and further enhanced throughout the project activities such as meetings, discussion, and brainstorming sessions. Findings from this study show that only after several formal interactions such as meetings and brainstorming sessions, the team members started to develop personal relationship with one another. In other words, the personal relationship fostered through working related interactions helps in building up social capital. Furthermore, by understanding and sharing the same vision and objectives of the project, the team members were able to develop mutual understanding which is essential for the project success. However, relational capital was more difficult to be realised and developed

since the nature of the project that was short-term and was one-off. However, over longer period of time with heightened interactions, the team members started to develop closeness that fostered greater friendships which in turn led to sincerity and co-operation among them. This is especially apparent in long-term projects.

Second, the study was able to identify the differences among the three dimensions of social capital. Although it was difficult to identify the categories under each dimension, grounded theory method facilitated the effort of distinguishing the three dimensions of social capital for knowledge sharing in a project context. The findings revealed that attributes, such as obligation and identification should be positioned under structural and cognitive capitals respectively, within the project context, rather than under relational dimension. These findings extend Nahapiet and Ghoshal's (1998) social capital framework.

*Important contributions of Objective 1 to the social capital theory for tacit knowledge sharing:*

Adopting qualitative approach and using grounded theory to explore social capital dimensions enhanced the investigation of the key dimensions in social capital for tacit knowledge sharing in a project context. Such analysis overcomes the prevailing problems of insufficient definitions of social capital within the social capital literature. Thus, implementing social capital concepts within project could be made more effective. Grounded theory enables the discovery of sequential dimensions and thus, providing important insights on social capital development. A list of dimensions of social capital together with their categories and items related to tacit knowledge sharing in a project context is presented in Table 7-2. Category is an operationalisation of the social capital dimensions for instance structural capital is manifested in meeting, interaction, relationship, position, and proximity. Item refers to how each of the categories is being measured.

In examining the role of social capital dimensions in sharing tacit knowledge among the team members of an organisational project, specific contributions are as follows:

- i. Three capitals i.e., structural, cognitive, and relational play important roles in tacit knowledge sharing when applied in the contexts of projects particularly in ICT companies (this is congruent with existing studies on social capital).
- ii. Structural capital when accompanied by cognitive capital is sufficient for the team members to share knowledge related to accomplishing projects goals.
- iii. Over time, as the team members developed a history of interactions with each other, relational capital started to evolve.
- iv. Social capital needs to be developed and maintained; this requires sufficient opportunities and resources to be allocated for the purpose of building, strengthening, and maintaining the social capital among organisational members.



**Table 7-2: Comprehensive List of Categories and Items of Social Capital Dimensions  
(Structural, Cognitive, and Relational)**

Structural		Cognitive		Relational			
Category	Items	Category	Items	Category	Items		
Meeting	Formal	Shared vision	Obvious/clarity	Collaboration	Share Expertise		
	Informal		Motivation value		Share Knowledge		
	Frequency		Attributes/skills		Feedback		
	Place		Share Identity/Identification		Commitment		
	Urgency		Norms		Active Participation		
	Time	Collective thinking	Assistance				
	Relationship	Job rotation	Shared Objectives		Shared Understanding	Cooperation	Level of support
		Same department			Shared Input		Teamwork
		Short visit			Exchange knowledge		Favourite
		Previous involvement			Hard work		Solving problem
Training /workshop				Discussion			
Similarity		Shared Language	Jargon	Toleration	Unity		
Face-to-face			Vocabulary		Partner		
Telephone			Codes		Group		
E-mail			Technical Word		Comfort		
Black and White			Interpretation		Ease		
Position	Written Formal	Stories	Effort		Reciprocity	Willingness	
	Status		Expectation				
	Senior Experience		Reliable				
	Familiarity		Return				
	Culture		Help				
	Obligation		Benefits				
	Office environment		Tips				
	Share equipment		Give and take				
	Distance		Respect				
	Privacy		Trust				
Proximity	Conducive			Sincerity			
	Partition						
	Comfortable						

### 7.1.2 Objective 2

*To determine significant categories and items of social capital for tacit knowledge sharing.*

This study has also identified social capital factors that foster or hinder tacit knowledge sharing among the team members of an organisational project. This was achieved through frequency count analysis.

*Important contributions of objective 2 to the social capital theory for tacit knowledge sharing:*

Through frequency counts and univariate analysis, this study was able to identify the most important categories and items for social capital dimensions. This method has strengthened the study's findings by overcoming some of the prevailing problems in qualitative analysis. Table 7-3 (similar to Table 5-14) described the refined categories of social capital dimensions, with list of items under each category of social capital dimensions that are most important for tacit knowledge sharing.

As highlighted in Table 7-3, among the three social capital dimensions, structural capital is the most occurred themes. This indicates that structural capital is the most important elements in tacit knowledge sharing in the context of projects in the five cases that have been examined. Specifically, this finding contributes to social capital theory with regards to tacit knowledge sharing in a project context. It indicates that structural capital has to be emphasised when managing projects implementation.

Following are the observed relationships among the categories and items of social capital dimensions:

- i. Categories or factors of social capital that foster tacit knowledge sharing in a project context are *meeting, relationship, interaction, position, shared vision,*

*shared objective, shared language, collaboration, co-operation, and toleration.*

- ii. Categories or factors of social capital that hinder tacit knowledge sharing in a project context are *position* such as status, *proximity* such as the distance between headquarter and subsidiary, lack of *shared vision* such as unclear goals and objective indicative by lack of clarity, lack of *shared language* such as team members' inability to understand the technical words and jargons used during meetings, and *sincerity* such as lack of trust. Other factors such as less opportunity and lack of meeting place also impede interactions among the team members.

**Table 7-3: Refined List of the Most Important Categories and Items of Social Capital Dimensions (Structural, Cognitive, Relational)**

Dimensions					
Structural		Cognitive		Relational	
Category	Items	Category	Items	Category	Items
<i>Meeting</i>	Formal Informal Frequency Time Place	<i>Shared Vision</i>	Obvious/clarity Shared Identity/ Identification	<i>Collaboration</i>	Share Expertise Share knowledge Feedback Commitment Level of support Assistance Teamwork
<i>Relationship</i>	Job rotation Same department Short visit Similarity	<i>Shared Objectives</i>	Shared Understanding Shared input Hard work	<i>Co-operation</i>	Solving problem Discussion
<i>Interaction</i>	Face-to-face Telephone E-mail	<i>Shared Language</i>	Jargon Interpretation	<i>Toleration</i>	Effort Willingness
<i>Position</i>	Status Experience Familiarity Culture Obligation				
<i>Proximity</i>	Off Environment Distance Conducive Comfortable				

The following are the propositions generated based on the relationship amongst the categories, between categories and items, and amongst items:

- Frequent interactions among project team members as indicated by the frequent meetings, especially formal meetings during brainstorming sessions and discussion, resulted in team members being more comfortable with each other and thus, are more willing to share knowledge.
- In supporting their communication, generally, older members prefer to have face-to-face interaction in comparison to using technology device (excluding older IT engineers). However, younger team members prefer e-mail and text messages.
- In a project involving team members from headquarters and subsidiaries, short visit to the headquarters, and attending training and workshops together are important to build the relationship among the team members.
- Formal organisational structure which is particularly related to the team members' positions in the organisation like status, experience, and seniority may influence the way knowledge is shared within a project. For example, a person with status may find subordinates to be more willing to share information with him.
- Team members who are clear about the project vision such as clear about the project goals and perceived themselves as a group who are working together to achieve a specified goal are likely to develop social capital.
- Team members who are clear about their tasks and are hard working, may enhance their relationship and this will further encourage social capital development.
- Shared language such as jargon and technical terms is important for the team members to understand and participate in the meetings, discussion, and brainstorming sessions.
- Team members need to collaborate with other team members through sharing their knowledge and expertise, work together as a team, give full support and assistance to other team members, provide suggestions, give feedback, and

committed to completing the project tasks; in order to enhance the process of knowledge sharing among them.

- Co-operation especially in helping to solve problems and involvement in the discussion actively helps to foster knowledge sharing among the team members.
- Team members who are able to tolerate weaknesses of other team members such as lack of effort and willingness to help other team members, will increase the likelihood of knowledge sharing within the team.

### **7.1.3 Objective 3:**

*To identify the most significant dimension of social capital in fostering the sharing of tacit knowledge.*

This objective was to identify which social capital dimension is the most influential for tacit knowledge sharing amongst team members in a project. By utilising frequency count (counts based on the selective coding), the most important dimension identified in this study was structural capital. The findings indicate that:

- Structural capital is the most significant dimension in social capital that enables sharing of tacit knowledge among project team members. Structural capital categories such as meetings, interactions, formal relationship, position, and proximity of the team members are predominantly important in contributing to the formation of structural capital, which lead to extensive knowledge sharing.
- Cognitive capital is less important as compared to structural capital in tacit knowledge sharing among organisational project members. However, the existence of cognitive capital will support and enhance the understanding

amongst the team members and thus, foster tacit knowledge sharing among them.

- Structural and cognitive capitals without relational capital are adequate for tacit knowledge sharing in a project context. However, the effect is more visible and stronger if all the three dimensions exist.
- For relational capital, all categories, except collaboration, are found to be less important. This shows that personal relationship does not necessarily evolve among the team members particularly in a short term project. However, only when the network ties become stronger, then team members will eventually develop shared understanding, and hence the interpersonal relationship among the team members will grow.

## 7.2 OTHER SIGNIFICANT FINDINGS

### 7.2.1 Social Capital Dimensions and Their Relation to Demographic Variables

The frequency counts and bivariate analysis enables this study to identify the effect of demographic factors such as *age*, *gender*, *work place*, and *size of the companies* on social capital development among the team members. The purpose of this section is to explain the significant differences between groups such as *gender*, *age*, *work site* and *size of the company*.

- With regard to gender, the statistically significant difference is found in the team members' level of *Collaboration*.
  - Gender may influence the level of *collaboration* among the team members, which in turn influence the knowledge sharing among them.
- As for the age of the interviewees, there are statistically significant differences in level of having the *Shared Vision* and the level of having *Shared Language*.

- Age of the team members (e.g., older team members) may determine the level of understanding of the *shared vision* which is reflective in their capabilities to share knowledge
- Age of the team members may affect the level of understanding of *shared language* which indicates their competence in acquiring and disseminating knowledge to other team members.
- The results of mean rank test show that Headquarter (HQ) has statistically higher *Relationship* level than subsidiary company. However, the subsidiary company has statistically higher level of *Position* and *Shared Language* than HQ.
  - The *relationship* among the team members in HQ developed through job rotation and working in the same department is stronger than the *relationship* among the team members from subsidiaries which heightened knowledge sharing among them.
  - The *position* of the team members from the subsidiary may influence the knowledge that they shared or received from other team members
  - The team members from the subsidiary share the same language more compared to the team members from the HQ, which indicates that being proximate to one another increases the level of language shared among them, which in turn increase their ability to share knowledge.
- The development of social capital particularly structural capital is mostly affected by the size of the companies. In terms of the size of the company, there were statistically significant differences in *Meeting*, *Interaction*, *Relationship*, *Position*, and *Proximity*. As for cognitive capital, there are statistically significant differences in level of *Shared Objective* and *Shared Language*. For relational capital, the only statistically significance difference is the level of *Reciprocity* among the team members.
  - Size of company may affect the frequency of *meetings* either formal or informal, the strength of relationship, the medium and frequency of

interactions, the position of the team members, and the proximity of the team members from one another, which in turn influence the knowledge sharing among them.

- Size of the company influence the level of *shared language* and *shared understanding* among the team members which may influence their ability to share knowledge.
- Size of the company may affect the level of *reciprocity* of the team members which in turn influence their willingness to disseminate and acquire knowledge with other team members

**Table 7-4: Summary of Means (Social Capital Dimensions) by Demographic Characteristics (Non-Parametric K Independent Test)**

	Structural	Cognitive	Relational
<b>Gender</b>			Collaboration ( $\chi^2 = 5.036, p = 0.05$ )
<b>Age</b>		Shared Vision ( $\chi^2 = 7.362, p = .10$ ) Shared Language ( $\chi^2 = 6.637, p = 0.10$ )	
<b>Work site</b>	Relationship ( $\chi^2 = 5.993, p = 0.10$ ) Position ( $\chi^2 = 4.454, p = .005$ )	Shared Language ( $\chi^2 = 5.034, p = 0.05$ )	
<b>Size of company</b>	Meetings ( $\chi^2 = 6.195, p = 0.10$ ) Interactions ( $\chi^2 = 7.812, p = 0.10$ ) Relationship ( $\chi^2 = 12.798, p = 0.10$ ) Position ( $\chi^2 = 17.275, p = 0.001$ ) Proximity ( $\chi^2 = 4.461, p = 0.10$ )	Shared Objective ( $\chi^2 = 19.929, p = .001$ ) Shared Language ( $\chi^2 = 9.272, p = 0.05$ )	Reciprocity ( $\chi^2 = 7.266, p = 0.05$ )



### 7.2.2 Sequence Model of Social Capital Dimensions for Tacit Knowledge Sharing In Project Context.

Remarkably, by adopting a grounded theory, this study was able to identify a sequence of social capital dimensions for tacit knowledge sharing in a project context and thus, propositions were generated based on the sequence. This study proves that there is a sequential linkage among social capital dimensions, i.e., which to the researcher's understanding has not been identified in prior studies. Although some researchers have acknowledged that these dimensions are inter-related (e.g. Inkpen and Tsang, 2005; Nahapiet and Ghoshal, 1998), previous studies did not explore the possibility of sequential order in these three dimensions. As Nahapiet and Ghoshal (1998) had outlined static dimensions of social capital, this study offered a dynamic perspective in sequential theory towards explanation of these three dimensions. This study found that structural capital is a precondition for the presence of cognitive capital and relational capital. Structural capital leads to the development of cognitive capital and over time structural and cognitive capital will lead to the development of relational capital. Four main propositions were generated based on this sequence as possible research questions for future research (see details of propositions in section 6.4.1, p. 245-246).

*P1: Structural capital leads to cognitive capital*

*P2: Cognitive capital leads to relational capital.*

*P3: Structural capital without cognitive capital takes longer to lead to relational capital than structural and cognitive capital combined.*

*P4: Structural capital is a necessary condition for cognitive and relational capital.*

## 7.6 CONCLUSION

In conclusion, this study has enriched the discussion in the current social capital literature. Using grounded theory approach, the study uses social capital theory as a platform to explore tacit knowledge sharing in project implementation. The outcome is a comprehensive social capital model. This model explicitly distinguishes social capital dimension for tacit knowledge sharing in the context of organisational projects. The study suggests that the most important dimension is structural capital; however, it is conditioned by the situational contexts, such as the nature of the projects in ICT companies. Structural capital alone is sufficient for sharing tacit knowledge among team members in the context of projects. Effective tacit knowledge sharing among the team members can be achieved once all of the social capital dimensions have been developed. The study also suggests that dimensions of social capital may happen in sequential order, but it requires time to evolve. In any event, social capital may be fostered or hindered by factors such as frequency of meetings, level of interactions among the team members, level of position of team members in the organisation hierarchy, and level of project goals clarity.

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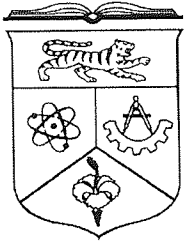


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Date: March 2004

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TO:

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Sir,

### **PARTICIPATION IN KNOWLEDGE MANAGEMENT STUDY**

I am writing this letter to ask for your permission to conduct a case study in your organization. My name is Rosmah Mat Isa, a lecturer attached with University Kebangsaan Malaysia, and I am currently working on my PhD. at Aston Business School under the supervision of Professor John A.A. Sillince, Chair of Knowledge Management, Aston Business School. The research that I am undertaking seeks to examine how social capital affects the sharing of knowledge among knowledge workers within organisations. Specifically, I am interested to study the sharing of knowledge among project team members for Web-based systems development projects or any technology-related projects that are currently in progress or recently launched in your organization. I would appreciate if you could allow me to examine two of the above projects.

The study would require in-depths interviews of managers involved at the project steering committee level and specialists in the implementation team. In order to gain better insights of the project implementations, I need to interview at least 5 managers and 5 technology specialists for each project selected for study.

The study is expected to contribute in the understanding of how organisations should better manage their employees as knowledge is the strategic asset for organisation competitive advantage. On the basis of the research finding, a detailed report will be produced and a copy will be sent to your organisation. Besides helping with the PhD research, your participation in this study can also offer some benefits to your organisation. The following are highlights of the potential benefits that this study will provide to your organisation:

- i. a comprehensive evaluation of organisational social capital in enhancing the sharing of knowledge.
- ii. a feedback to the Board of Director in the form of executive summary report detailing current research in social capital good practice and summarizing the research findings.
- iii. a feedback on Knowledge Management practices compared within best practices elsewhere.

In reporting the results, either in the thesis, journals or conference proceedings, pseudonyms will be used for all interviewees and the name of your organization will not be mentioned. If you require further details on the interview questions, please do not hesitate to contact me. I would appreciate if you could schedule the interviews in the fourth week of March 2004. Enclosed is a letter of support from my supervisor.



Aston University

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