ANTECEDENTS OF KNOWLEDGE SHARING BEHAVIOR TOWARDS PROJECT SUCCESS

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DEDICATION

This work is dedicated to my wife, Mahnaz, who always encouraged me to study and to my two children, Alireza and Nima. You made tremendous sacrifices during my doctorate studies, which made it possible for me to complete this difficult and long journey. The accomplishment of my Doctorate degree is a task that I would not be able to complete without your support and understanding. You provided the encouragement necessary for me to overcome the challenges and finish this project.

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ABSTRACT

In the current globally competitive knowledge economy, all organizations need to manage a project effectively to ensure success. Studies have shown that many projects failed to achieve initial objectives and unable to respond to their stakeholders' expectations. Researchers have recognized that knowledge is a key strategic resource for the project performance and effectiveness and that it is essential to encourage and assist project team members to share their know-how. Hence, the main aim of this research is to investigate the individual and organizational factors influencing project team members' knowledge sharing behavior that eventually contributes to the success of a project. This study develops a theoretical framework of underlying project knowledge sharing based on the "Theory of Planned Behavior" for identifying knowledge sharing behavior complemented by System Thinking Theory and Input-Process-Output Model. A questionnaire survey was used for data collection and analysis was made based on 423 responses from project team members of a large project based company. A semi-structured interview was conducted with 14 participants including managers and project management team members in the case company to gain a clearer and deeper understanding of knowledge sharing behaviors. The findings from the research survey and interview support the basic assumption that higher levels of individual factors including Perceived Reciprocity Benefits, Perceived Enjoyment in Helping Others, Perceived Project Commitment, Knowledge Self-efficacy; together with higher levels of organizational factors including Perceived Project Climate, Top Management Support, Rewards and Incentives, Information Technology; lead to higher levels of actual knowledge sharing. The findings also show that knowledge sharing behavior in project environment is a critical factor which can affect success of a project.

ABSTRAK

Dalam ekonomi pengetahuan semasa yang berdaya saing di peringkat global, organisasi perlu menguruskan projek secara berkesan untuk memastikan kejayaan. Kajian telah menunjukkan bahawa banyak projek gagal untuk mencapai objektif awal dan tidak berupaya untuk bertindak balas terhadap jangkaan pihak yang berkepentingan. Para penyelidik telah mengakui bahawa ilmu pengetahuan adalah sumber utama strategik bagi prestasi dan keberkesanan projek dan ia adalah penting untuk menggalakkan dan membantu ahli pasukan projek berkongsi pengetahuan mereka. Oleh itu, matlamat utama kajian ini adalah untuk meneroka faktor individu dan organisasi yang mempengaruhi sifat perkongsian ilmu ahli pasukan projek yang akhirnya menyumbang kepada kejayaan sesuatu projek. Kajian ini membina satu rangka kerja teori perkongsian projek yang mendasari pengetahuan berdasarkan "Teori Kelakuan Terancang" untuk mengenal pasti tingkah laku perkongsian pengetahuan yang dilengkapi dengan Teori Sistem Pemikiran dan Model Input-Proses-Output. Satu tinjauan soal selidik telah digunakan untuk pengumpulan data dan analisis dibuat berdasarkan 423 jawapan daripada ahli kumpulan projek sebuah syarikat gergasi. Temubual separa berstruktur telah dijalankan dengan 14 responden termasuk pengurus dan ahli pasukan pengurusan projek untuk mendapatkan pemahaman yang lebih jelas dan mendalam tentang tingkah laku perkongsian pengetahuan. Dapatan kaji selidik dan temu duga menyokong andaian asas bahawa tahap faktor individu termasuk Tanggapan Manfaat kesalingan, Tanggapan Keseronokan dalam membantu orang lain, Tanggapan Komitmen Projek, Pengetahuan-kemujaraban sendiri; sejajar dengan tahap faktor organisasi yang lebih tinggi termasuk Tanggapan Suasana Projek yang lebih tinggi, Sokongan Pengurusan Tertinggi, Ganjaran dan Insentif, Teknologi Maklumat; membawa perkongsian pengetahuan sebenar ke tahap yang lebih tinggi. Hasil kajian juga menunjukkan bahawa tingkah laku perkongsian pengetahuan dalam persekitaran projek adalah faktor penting yang boleh mempengaruhi kejayaan sesuatu projek.

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LIST OF ABBREVIATIONS

KM	Knowledge management
KSB	Knowledge sharing behavior
PMI	Project management institute
PMP	Project management professional
CoP	Community of practice
TRA	Theory of reasoned action
TPB	Theory of planned behavior
SN	Subjective norm
PBC	Perceived behavioral control
SPSS	Statistical package for social science
LISREL	Linear structural relations
AGFI	Adjusted goodness-of-fit index
CFI	Comparative fit index
GFI	Goodness-of –fit index
NNFI	Non-normed fit index
RMSEA	Root mean square error of approximation
CFA	Confirmatory factor analysis

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CHAPTER 1

INTRODUCTION

This chapter provides an overview and states the scope of the thesis. It describes the overview of project based organizations and the case study, the research background, statesment of the problem, the research questions, the research objectives, the research hypotheses, conceptual model of the research, operational definition and the research organization of the current research.

1.1 Project Based Organizations and Knowledge Management

Projects as a means to organize operations have become increasingly widespread in the private and public sectors (Kerzner, 2009). In the new global economy, project based organizations have been on a strong increase (Jones, 2007; Kerzner, 2009; Schwalbe, 2010; Ruuska and Teigland, 2009) since they are goal oriented systems, unique where procedural, technical, organizational, and human factors are integrated, they are as a result complex in their nature (Ruuska and Teigland, 2009). However, project based organizations face many challenges to project efficiency and effectiveness. In such organizations it may not possible to know what knowledge is accessible in the organization if there are no formal systems for creating, capturing, storing, and sharing knowledge in and between projects.

Managing knowledge helps to ensure that organizations preserve their competitive advantage, yet many have been slow to develop and implement a comprehensive knowledge management system (Fedor *et al.*, 2003; Landaeta, 2008; Nonaka and Takeuchi, 1995). According to a literature review, it is shown that management of knowledge is an essential condition for success of projects in the project based organizations (Cleland and Ireland, 2004; Hanisch *et al.*, 2009; Jewels and Ford, 2006; Koskinen, 2000; Reich and Wee, 2006). Hence, project team members have taken a key role in knowledge creation and sharing in the project. In today's knowledge era, the importance of knowledge sharing is a consequence of the perceived relation between knowledge and competitive advantage. This relation is frequently emphasized in the knowledge management literature (Davenport and Prusak, 1998; Davidson and Rowe, 2009; Guzman, 2009; Nonaka and Takeuchi, 1995; Reich and Wee, 2006; Skyrme, 2000; Trainor *et al.*, 2008). Knowledge of current and past projects is accumulated in the project team members' minds and artifacts. If a project team member leaves a project, what happens for their knowledge and experiences? All these issues aim at a better understanding of knowledge management in project based organizations.

The next subsection provides an overview about knowledge management and knowledge sharing in the case study. The explanation presents a basis of understanding of knowledge sharing behavior among project team members in the case company.

1.1.1 Overview of MAPNA Group as a Project Based Organization

Iran is one of the great countries with an ancient civilization of more than three thousand years can be regarded as one of the first countries tending toward a knowledge based approach. Iranians companies are becoming more and more familiar with knowledge management by the passing of time; there are different reasons to be optimistic about the expansion of knowledge management in Iran.

Therefore, organizations particularly, project based organizations, that have been directly involved in this field, believed that still much work has to be done (Hanisch et al., 2009; Reich and Wee, 2006). MAPNA Group is well known as a big-sized project based and knowledge based company, which is placed in a very competitive environment and it needs to encourage an effective knowledge sharing behavior among its project team members and managers who do many projects in Iran and in other countries. In recent years the company has also increased its role as a leading Iranian entity in the area of project management.

MAPNA Group includes a main company and a collection of 33 subsidiaries that since its start in 1992, they have been involved in power plant, railway transportation, oil & gas, and other industrial projects. In addition to several years of experience in execution power projects and fulfillment of domestic demand for electrical energy and accomplishment of the major goals of national power industry, MAPNA Group has entered the global power market through some international projects. Project management knowledge has been institutionalized in MAPNA. The achievement is the consequence of MAPNA project management team's knowledge and experiences in overcoming a host of challenges and impediments allowing them to commission projects in advance of the contract time schedule deadline.

More notably, individuals within MAPNA may be more-or-less specialist and professional and they have a suitable knowledge and experience for sharing their knowledge, because they are engaged in many different types of projects. MAPNA Group has some features including gigantic scope of work; infrastructure new project; participations of several project team members; the complexity of the processes; and being knowledge-worker based on comparison with some industries which make a more appropriate environment for research in the knowledge management context (Hanisch *et al.*, 2009). Hence, this large company is an ideal case study for examining the factors enabling the knowledge sharing behavior among project team members.

Many industries today are moving towards by new management systems such as knowledge management system. In MAPNA, knowledge management has been formed to reinforce organizational knowledge management and workflow processes with the aim of implementing knowledge management strategies. The company has designed the organization to use the power of human resources and reduce employees' resistance to facilitate the process of implementing knowledge management and speed it up. Because the successful implementation of knowledge management processes in MAPNA requires employees' help and support.

According to MAPNA's background from implementing various projects, the tacit and explicit knowledge can be achieved in power plant, industrial, oil and gas, and other projects. This knowledge is available for senior managers, middle managers, project managers, team members and others who are actively involved in projects. Project based companies such as MAPNA have launched for creating an internal knowledge management system with the aim of applying knowledge to solve organizational problems and decisions is one of the important activities in the area which has been carried out (Hanisch *et al.*, 2009; Jewels and Ford, 2006). Therefore, knowledge sharing among project team members and between projects is inefficient and decreases the success of the project based organizations in an environment in which managing knowledge is critical to survival.

Managing knowledge in a project based organization is often a complex task, project leaders need to create a positive and supportive working environment where they encourage project team members to share knowledge and experiences with each other (Jones, 2007; Ruuska and Teigland, 2009). In order to enhance the success of a project, it is necessary to consider in the project context to understand how actual knowledge sharing is promoted and facilitated. Therefore, this study aims to focus on knowledge sharing behavior within project environments in a project based organization in Iran in order to enhance project performance and improve chances of project success.

1.2 Background of the Research

The concept of sharing and managing knowledge is definitely not new. This concept can be found throughout human history (Bergeron, 2003). The importance of sharing and managing knowledge for competitive success has been widely debated and has received widespread interest in recent years (Davenport *et al.*, 1998; Davidson and Rowe, 2009; Guzman, 2009; Nonaka and Takeuchi, 1995; Reich and Wee, 2006; Skyrme, 2000; Trainor *et al.*, 2008). The worker of the 20th century will be replaced by the knowledge worker of the 21st century (Drucker, 1993). These statements can be easily supported by enhancing and motivating knowledge worker which is the significant factor to success of any organization (Bartol *et al.*, 2009; Drucker, 1999; Gao *et al.*, 2008). Other researchers with similar views have added the ability to create and use knowledge which is believed to be the most important source for an organization to keep its competitive advantage (Fedor *et al.*, 2003; Landaeta, 2008; Nonaka and Takeuchi, 1995; Ruuska, 2005). This means that, knowledge is the most valuable asset in today's world; organizations are seeking mechanisms to improve their experience of knowledge creation, application and sharing (Bartol *et al.*, 2009; Jones, 2007; Ruuska, 2005). Hall and Sapsed (2005) also said that the sharing and use of knowledge in organizations has been widely recognized as essential to achieve sustainable competitive advantage in the today's society. Consequently, in a competitive changing environment, organizations are interested in finding ways to encourage and increase knowledge sharing behavior among their members to achieve the organization's objectives (Alavi and Leidner, 2001; Cabrera and Cabrera, 2005; Davidson and Rowe, 2009; Tohidinia and Mosakhani, 2010).

In the organizations of twenty-first century, many works have been increasingly organized and managed as projects (Ajmal *et al.*, 2009; Hanisch *et al.*, 2009; Kerzner, 2009; Schwalbe, 2010; Williams, 2005). This trend seems to be continued as the main characteristics of projects that affect the success of organizations such as flexibility, interdisciplinary work, and more innovation

(Disterer, 2001; Hanisch *et al.*, 2009). Therefore, most organizations are involved in projects and *"project management is the wave of the future"* (Stewart, 1996, p. 15). In support of this direction, Melton and Iles-Smith (2009) have discussed projects that the organizations use as an important means to achieve business objectives. In addition, there have been a large number of studies on success criteria, including the completion of the project on time, on budget, acceptable quality and meeting stakeholders' needs and expectations (Atkinson, 1999; Chua *et al.*, 1999; Cleland and Ireland, 2004; Lim and Mohamed, 1999; Melton and Iles-Smith, 2009; Reich *et al.*, 2008; Reich and Wee, 2006; Shen and Liu, 2003). Over the past two decades, some of the experienced project managers and project management researchers have attempted to define the success of the project and describe what is behind its success or failure (Anantatmula and Kanungo, 2008; Chua *et al.*, 1999; Cleland and Ireland, 2004; Kuen *et al.*, 2009; Sauser *et al.*, 2009; Williams, 2005).

According to Project Management Institute (PMI) (2008), more and more organizations are now entrenched in a dynamic arena and try to sustain their competitiveness through projects. One of the most important challenges in today's business world is to ensure that the required products, services or results are completed and delivered within the constraints of the project, with selected appropriate processes and respond to stakeholders' expectations and requirements. Therefore, success is a key concept when we try to achieve project objectives (Christenson and Walker, 2004; Kerzner, 2009). Managing projects in this complex and changing environment creates unique challenges for project managers, this is particularly true of large projects (Kerzner, 2009). Hence, organizations must have knowledge of modern project management tools and techniques, which can be applied by project team management to meet the project objectives and enable them to succeed (Kerzner, 2009; Schwalbe, 2010). In accordance with PMI (2008), it is important to choose the appropriate process and effectively manage a project by identifying pervious mistakes and using existing knowledge.

Studies explain that often project team members do not meet the project objectives and do not sufficiently learn the problems of others to develop the knowledge (Newell *et al.*, 2005). Most projects would be able to succeed if they have the chance to learn from past mistakes (Ruuska, 2005) and avoid "*reinventing the wheel*". Fedor *et al.* (2003) stated that the project managers with knowledge management are able to manage these challenges and help maintain their competitive advantage. The main aim of knowledge sharing across projects and between individuals is increasing the project performance (Cope *et al.*, 2007; DeFillippi, 2001; Landaeta, 2008). Therefore, knowledge management is an important means by which projects can better manage knowledge and share between projects (Davenport *et al.*, 1998; Drucker, 1993; Hanisch *et al.*, 2009; Nonaka, 1994; Reich *et al.*, 2008). The literature shows that knowledge sharing among team members has become very vital in projects; the successful management of knowledge in projects relates to the successful knowledge sharing (Bhirud *et al.*, 2005; Bresnen *et al.*, 2003; Davidson and Rowe, 2009; Jones, 2007; Newell *et al.*, 2006). Accordingly, organizations increasingly recognize the need to encourage, in some way, sharing of knowledge among team members (Guzman, 2009; Jones, 2007).

It has been acknowledged that knowledge sharing between members of the project team is recognized as a serious challenge for project managers in organizations (Hanisch *et al.*, 2009; Jewels and Ford, 2006; Ruuska, 2005; Trainor *et al.*, 2008). Therefore, project managers are often faced with tremendous opportunities and challenges about motivating knowledge sharing among project team members (Hanisch *et al.*, 2009; Jewels and Ford, 2006; Landaeta, 2008). Consequently, managers are searching, testing and selecting various factors, incentives and tools that are required to make knowledge sharing possible in organizations. By facilitating and enhancing knowledge sharing in an organization, project managers can develop a higher level of competitive advantage.

Most project based organizations are engaged in launching an organizing several projects simultaneously. These projects are typically large, complex, unique, expensive, and fraught with risk that must be completed to an agreed level of performance within an acceptable timeframe, quality and budget (Ajmal *et al.*, 2009; Kerzner, 2009). Because of limited research in the field of knowledge management in Iran, as a new study on knowledge management particularly in the context of project based companies in Iran, this research will present results that are useful in enhancing plans related to knowledge sharing behavior as a key factor of rising competitive advantage in the project based organizations.

This study is aimed at investigating the organizational and individual factors in Iranian project based companies that have an impact on the knowledge sharing behavior of individuals in one big-sized project based company that is used as a case study (MAPNA Group), in order to help improve the success of the projects. So, the expected results of this research will help stakeholders to reduce the failure of their project by actual knowledge sharing through the best use of existing tacit and explicit knowledge in the Iranian project based company and similar companies.

1.3 Statement of the Problem

In the twenty-first century, many organizations are entangled in ever changing environment and do projects to sustain their competitiveness (Ajmal *et al.*, 2009; Hanisch *et al.*, 2009; PMI, 2008; Williams, 2005). Every year, all the countries spend nearly 25 percent of their gross domestic product (GDP) on projects of all kinds (Schwalbe, 2010; Williams, 2005). The countries of the world currently spend more than trillions of dollars on projects; with most of the projects have difficulty in achieving their objectives (Anantatmula and Kanungo, 2008; Hanisch *et al.*, 2009; Schwalbe, 2010; Williams, 2005). For example, results of a study by the Standish Group, popular as the CHAOS Report from

1995 until 2009, most projects failed to meet budget, schedule, and their objectives due to a combination of reasons, which may be caused by mismanagement of projects. Even though the numbers have improved over the years, based on its 2009 report, at least 24 percent of projects were cancelled and failed completely, 44 percent have challenges in achieving their project objectives, and only 32 percent of them succeeded (Standish, 2009). Results have been similar for other type of projects (Williams, 2005). A number of possible reasons have been put forth to explain this failure. More importantly, project practitioners seek to find the ways to decrease the project failure.

The CHAOS study approved that user contribution, management support, clear business objectives, knowledge, skills, and experiences of project management team members and project team members improve chances of success in the projects (Dulipovici, 2009; Kerzner, 2009; Reich *et al.*, 2008; Schwalbe, 2010; Williams, 2005). Researchers believe that project managers can succeed if they take a lesson from their mistakes (Landaeta, 2008; Ruuska, 2005; Williams, 2005). Consequently, members of the team in the project environment have to work in the field of knowledge that they do not know, and also need to quickly grasp new technologies, techniques, markets, people and organizations and respond to changing environments (Bourne, 2005; Kerzner, 2009; Schwalbe, 2010). In general, knowledge management, direct attention to all the activities are structured to strengthen the capacity of organizations to create, share, and use knowledge to improve its success (Dulipovici, 2009; Guzman, 2009). Some previous studies are more concerned with how a project manager is able to create, acquire, develop, share and use knowledge in the field of responsibility and among team members, and how it is exchanged with other projects (Davenport *et al.*, 1998; Hanisch *et al.*, 2009; Reich *et al.*, 2008).

In the past two decades, a growing number of researchers have linked project knowledge sharing with project success (Cleland and Ireland, 2004; Davidson and Rowe, 2009; Jewels and Ford, 2006; Koskinen, 2000; Landaeta, 2008; Reich and Wee, 2006). They found that knowledge sharing among project

team members can play a significant role in achieving the success of projects. Knowledge sharing is difficult without the notion of the desire and intention of sharing in organizations (Guzman, 2009; Jewels and Ford, 2006; Jones, 2007). In addition, several studies have argued that the absence of a successful and efficient sharing of knowledge is the main cause of repeated mistakes between projects (Dulipovici, 2009; Jones, 2007; Ruuska, 2005). Despite many important researches have been conducted on the importance of knowledge sharing in projects, but there are still problems of research and many questions that remain unanswered in the field of projects and knowledge of the project team (Guzman, 2009; Reich *et al.*, 2008). This means that, although knowledge sharing is a critical success factor for projects, the research on knowledge sharing behavior in the project context is limited (Choi and Lee, 2003; Hsu, 2008; Jewels and Ford, 2006; Jones, 2007; Ruuska, 2005). Therefore, the reason of this research is the need to fill the gap in the theoretical literature on knowledge sharing behavior (Dulipovici, 2009; Jones, 2007). Organizations require having a better chance of completing and delivering projects successfully and understand how knowledge sharing are important to maximize project success rates (Bresnen *et al.*, 2003; Jones, 2007).

Knowledge management in projects is related to effectiveness of knowledge sharing (Davidson and Rowe, 2009; Guzman, 2009; Jones, 2007). Even if there is a substantial literature on knowledge sharing, information on why members of an organization like to share or don't like to share knowledge, is limited; particularly in a project environment. A number of reasons have been given for the failure to share knowledge, which include lack of trust, organizational culture, leadership, rewards, and so on (Bock *et al.*, 2005; Davenport and Prusak, 1998; Ma *et al.*, 2008). In addition, the lack of knowledge sharing may be due in large part to individuals who are not motivated to share knowledge (Mitsuhara *et al.*, 2006). Previous research indicates that the individual and organizational factors may promote or inhibit actual knowledge sharing (Brown *et al.*, 2006). Thus, to be successful in a knowledge society, project managers must better understand the individual and organizational factors

that influence the motivation of an individual behavior in the sharing of knowledge and expand the efficient process which create an environment to facilitate better knowledge sharing (Connelly and Kelloway, 2003; Dulipovici, 2009; Lin, 2007a).

Although there are some studies which examine organizational factors or individual factors, the individual and organizational factors that encourage or discourage the sharing of knowledge among the employees are poorly understood (Bock *et al.*, 2005; Brown *et al.*, 2006; Connelly and Kelloway, 2003; Lin, 2007; Nita, 2008; Stewart, 2008). While individual and organizational factors influencing knowledge sharing behaviors of employees are considered, it is very essential for researchers to carefully examine antecedents of knowledge sharing behavior among organization members.

The purpose of this research is to explore the antecedents of knowledge sharing behavior at MAPNA (the big-sized project based company of Iran). In the light of the problem background of this study and the knowledge sharing behavior of MAPNA as a project based company, there is an opportunity to reflect on and to obtain a better understanding of knowledge sharing behavior in the project context. This implied to explore the antecedents of knowledge sharing behavior in the case study that can provide a better chance for project success.

Therefore, there is a need to understand the individual and organizational factors which influence how knowledge can be better managed and shared within the project context and how to help decrease the failure rate of projects (Davidson and Rowe, 2009; Jewels and Ford, 2006; Koskinen, 2000; Reich and Wee, 2006). As a result, the objective of this study was to better know and explore the antecedents of knowledge sharing behavior in the project environment. Hence, this research empirically investigates the ability of "Theory of Planned Behavior (TPB)" to understand the intention of individuals to share knowledge and the actual knowledge sharing in the project context.

1.4 Research Questions

Based on the research problem statement the following research questions are developed:

1. What are the major individual and organizational factors that affect attitude towards knowledge sharing among project team members? Do perceived reciprocity benefits, perceived enjoyment in helping others, perceived organizational commitment, top management support, and rewards and incentives influence project team members' attitude towards knowledge sharing?
2. Does perceived organization climate affect project team members' subjective norm towards knowledge sharing?
3. Do information technology and knowledge self-efficacy influence project team members' perceived behavioral control towards knowledge sharing?
4. What are the specific factors affecting intention to share knowledge among project team members? Do perceived behavioral control, attitude and subjective norm towards knowledge sharing influence intention to share knowledge?
5. Which factors influence knowledge sharing behavior among project team members? Do intention to share knowledge and perceived behavioral control towards knowledge sharing influence knowledge sharing behavior?
6. Does knowledge sharing behavior influence project success?

1.5 Research Objectives

In an effort to improve the success rate of projects, it is very significant to recognize the effects of knowledge sharing in enhancing project success. The main goal of the research is to study the result of the knowledge sharing behavior on the success of the project that leads in the following set of objectives:

1. To identify the major factors affecting attitude towards knowledge sharing among project team members.
2. To identify the major factors affecting subjective norm towards knowledge sharing among project team members.
3. To identify the major factors affecting perceived behavioral control towards knowledge sharing between the project team members.
4. To determine the antecedents affecting the intention of project team members to share knowledge.
5. To determine the antecedents affecting project team members' knowledge sharing behavior.
6. To evaluate how knowledge sharing behavior of project team members influence project success.

Despite the existence of a great deal of literature on knowledge sharing among individuals, we know little about why and how members of an organization actually share their knowledge, especially in the project environment. This study attempts to know the individual and organizational factors influencing project team members' knowledge sharing behavior that eventually contributes to the success of a project.

1.6 Research Hypotheses

The research questions and objectives can be analyzed through the following research hypotheses:

H1: Knowledge sharing behavior of project team members influences project success.

H2: Individual intention to share knowledge influences project team members' knowledge sharing behavior.

H3: Perceived behavioral control towards knowledge sharing influences project team members' knowledge sharing behavior.

H4: Perceived behavioral control towards knowledge sharing influences project team members' intention to share knowledge.

H5: Project team members' subjective norms related to knowledge sharing influences intention to share knowledge.

H6: Attitude towards knowledge sharing affects project team members' intention to share knowledge.

H7: Perceived reciprocity benefits influence project team members' attitude towards knowledge sharing.

H8: Perceived enjoyment in helping others affects project team members' attitude towards knowledge sharing.

H9: Perceived organizational commitment influences project team members' attitude towards knowledge sharing.

H10: Knowledge self-efficacy influences project team members' perceived behavioral control towards knowledge sharing.

H11: Top management support influences project team members' attitude towards knowledge sharing.

H12: Rewards and incentives will affect project team members' attitude towards knowledge sharing.

H13: Perceived organizational climate influences project team members' subjective norm to share knowledge.

H14: Information technology affects project team members' perceived behavioral control knowledge sharing.

1.7 Conceptual Model of the Research

On the basis of the literature review, a conceptual model of the factors that influence the knowledge sharing behavior in a project-based context is proposed by the present study. The dynamics of knowledge sharing can be described by adopting various theories; a central proposition in this research is to recognize appropriate organizational and individual motivational factors that contribute to knowledge sharing behavior between project team members that can significantly

improve the chances of project success. This proposed framework is based on "The Theory of Planned Behavior (TPB)" and complemented by System Thinking Theory, and Input-Process-Output Model is also used to analyze the individual and organizational motivational factors that influence on intention of project team members to knowledge sharing behavior that eventually will contribute to the success of projects. It depends on several important assumptions, as depicted in Figure 1.1.

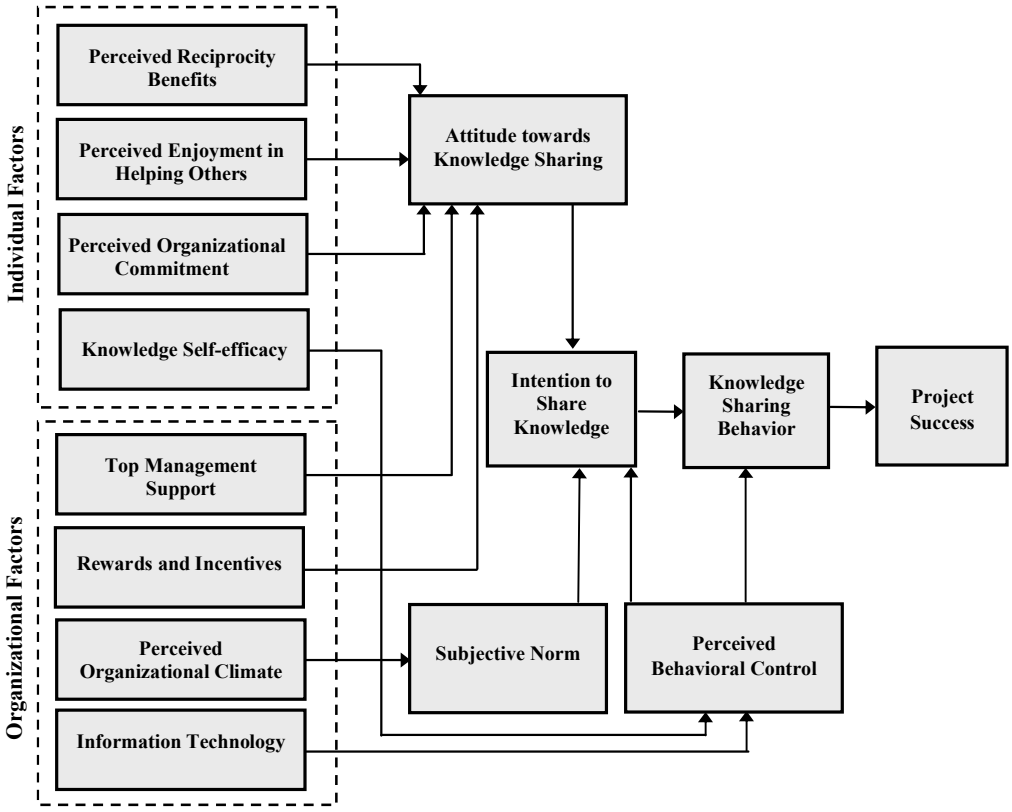

Figure 1.1 Conceptual Model of the Research

This combined model consists of three components: first, motivational factors include organizational and individual factors that influence in attitude, subjective norms, perceived behavioral control towards knowledge sharing, second, attitude towards knowledge sharing, subjective norms, perceived and behavioral control, intention to share knowledge and knowledge sharing behavior

that show knowledge sharing behavior among individuals in the project context. This explains why knowledge sharing behavior among project team members plays the significant contribution to the success of a project and third, the project success itself as an outcome. This study indicates that there is a need for knowledge sharing in all processes of the project environment. Therefore, as mentioned earlier, the aim of this research is to provide the framework for knowledge sharing behavior that can help to accelerate the knowledge sharing in the project context.

1.8 Scope and Contribution of the Study

The scope of this research was confined to the projects in Iran. The study was carried out based on a case study, MAPNA Group, as a large-sized project based company in Iran. The company is recognized as one of the largest project based corporations and the most dynamic, highly skilled employees and knowledge based company, more details will be given in Chapter three. This research focuses on contributing to the project management body of knowledge by developing best practices for project knowledge sharing. By examining the link between the independent variable of knowledge sharing behavior with the dependent variable of the success of a project, a basis for further inquiries into the loss of project knowledge between projects and project knowledge sharing behavior will be developed. Another desired outcome is to provide possible insights to project managers to understand organizational and individual motivational factors, which affect the intention of project team members to share their knowledge as well as knowledge sharing behavior in the project context.

According to the knowledge management literature, some approaches to project knowledge sharing are not effective (Jewels and Ford, 2006; Jones, 2007; Newell, 2004). This ineffectiveness can be traced to approaches to knowledge sharing that are not being used at the proper times (Newell, 2004). Previous studies have not outlined the conditions under which each approach is effective.

The endeavor of this research is to help shed some light on the project knowledge sharing behavior. Therefore, the Theory of Planned Behavior (TPB) is the main basis of this study for investigating the knowledge sharing behavior in the project context. The findings from this research can help to find valuable insights from the body of project management knowledge and may also provide a learning point for project managers to develop effective knowledge sharing behavior, which will contribute to the success of a project.

1.9 Operational Definition

This research based on two main topics, which are knowledge sharing behavior and project success. These concepts have specific definition that need to be understood to develop comprehension of this study. The following interpretation of terms was used throughout the current research.

Project Management

Project management is defined by the Project Management Institute (PMI, 2008, p. 6), as "the application of knowledge, skills, tools, techniques to project activities to meet the project requirements". In this study project management refers to the skill and knowledge of getting work done with the active cooperation of project team members and project team management who are directly or indirectly involved with the project.

Project

Projects are distinguished from other organizational operations by their temporary and unique nature; unique in that they create a product or service that is unlike from all other products or services, and temporary in terms of having a definite beginning date and an equally distinct completion date (PMI, 2008). Projects can

be divided into four types including small-sized, medium-sized, big-sized and mega-sized.

Project Success

Project success is defined as full scope delivered on quality, on time, within budget and stakeholders expectations in proportion with the organization's mission and objectives and the failure is often associated with the lack of achievement of the expected benefits.

Knowledge

In this study knowledge is related to tacit and explicit knowledge in the project environment. Knowledge of the project team is related to create, execute, deliver and close the project according to its objective. Therefore, the project team members are recognized as knowledge workers and create new knowledge.

Knowledge Sharing

In this study knowledge sharing is related to transfer and share of knowledge between a knowledge provider and a knowledge seeker in the project environment.

Knowledge Sharing Behavior

This is related to the degree to which project team members actually share knowledge with others in the project context. Therefore, in this research, the emphasis is largely on knowledge sharing behavior in the project context.

Intention to Share Knowledge

Intention is the cognitive representation of a person's readiness to perform a given behavior, and it is considered to be the immediate antecedent of behavior.

The behavior of an individual depends on his or her desire to share knowledge. This related to project team members desire and willingness to share their knowledge in the project context. The TPB suggested that the behavior of individuals is shaped by their desire to carry out the explicit behavior (Ajzen, 1991).

Subjective Norm

TPB implies that Subjective norm as an antecedent is strongly affected by social influences (Ajzen, 1991). It refers to individuals' perception of social normative forces, or related other beliefs which they are supposed to commit a behavior (Ajzen and Fishbein, 1980). This is related to perception of project team members to share their knowledge because of social influences.

Perceived Behavioral Control

Perceived behavioral control can explain as an individual's skills, feelings, abilities towards the intention of doing the especial behavior (Ajzen, 1991). In this study, perceived behavioral control is related to resources, self-efficacy, and technology considerably affect project team members' intention and behavior to perform a specific task.

Attitude towards Knowledge Sharing

This research relates attitude of individuals across the project context for willingness to share knowledge. Therefore, prior studies have indicated that attitude towards knowledge sharing is strongly related to values, behavioral beliefs, and is also about how individuals see their world (Bock *et al.*, 2005).

Reciprocity

Reciprocity is defined as a state of being common for knowledge sharing between individuals that they want to help each other. In this study, reciprocity has a

major impact as it results in perceptions of individual responsibility, appreciation and trust.

Enjoyment in Helping Others

Perceived enjoyment in helping others as an antecedent of attitude towards knowledge sharing is founded on the concept of unselfish devotion to others or self-sacrifice. This study relates perceived enjoyment in helping others to self-sacrifice exists when project team members consider performing the behavior intended bring benefit consequences to others without thinking about the personal benefits.

Organizational Commitment

Organizational commitment is a subset of individuals' commitment, which is relevant to peoples' emotions to their organizations (Mowday *et al.*, 1979). It can be compared with other employees' attitudes to work, such as organizational identification and job satisfaction (Meyer and Allen, 1991). Being committed to an organization generally means an allegiance and obligation to an organization (Meyer and Allen, 1997; Mowday *et al.*, 1979).

Knowledge Self-efficacy

In this research knowledge self-efficacy refers as a personal factor of project team members which describes the extent to which individuals (regarding their ability) can organize and perform daily works required to obtain successful performance in the project context.

Organizational Climate

In this study, organizational climate refers as a set of characteristics that describe an organization and that a) distinguishes the organization from other

organizations; b) are relatively enduring over time; and c) influence the behavior of people in the organization.

Information Technology

In this study information technology (IT) is related to facilitate knowledge creation, storage, and sharing through better internal communication flows. Therefore, this research employs Technology Acceptance Model (TAM) by Davis (1989) introduced the concept of perceived ease of use and perceived usefulness of technology. Perceived usefulness expresses the perception of individuals which is related to job performance and effectiveness, while, perceived ease of use measures the individual' evaluation of simplicity of use and simplicity of learning.

1.10 Structure of the Thesis

This research is organized in five chapters, as shown in Figure 1.2.

Chapter 1 provides an overview and describes the scope of the thesis. It describes the research background, the statement of problem, the research questions, the research objectives, the research hypotheses, conceptual model of the research and the research organization of the current research.

Chapter 2 presents a brief review of the various fields associated with studies on knowledge sharing behavior in the project context. This chapter is divided into the concepts of project success, knowledge, knowledge sharing and the individual and organizational factors which impact on the behavior of knowledge sharing between project team members in the context of the project. Then, the basic theories such as Systems Thinking Theory, Theory of Planned Behavior, and Input-Process-Output model are discussed. A theoretical analysis of the intention of individuals to share knowledge and knowledge sharing

behavior is also discussed by presenting a conceptual model underlying the study illustrates that the link between motivational factors, attitude towards knowledge sharing, subjective norms, perceived behavioral control, intending to share knowledge, knowledge sharing behavior and contribution to the success of the project that forms the basis of this research. Finally, hypotheses according to proposed research model are discussed.

Chapter 3 presents a brief outline of the research method that had been adopted to guide this study. This research employed a case study approach with the combination of survey and interview methods in this investigation. A survey method was used to validate the factors that supported the knowledge sharing behavior in the project environment. An interview method was carried out as a supplementary method with the participants from the case study to verify the findings from the survey method about the factors that can play the significant effects on the knowledge sharing behavior in the project context. The research method of the current study includes discussion about research design, data gathering, instrumentation or measures, analysis of data, and validity and reliability.

Chapter Four presents data analysis results which contain the description of the results, discussion of the research findings, and testing the research questions and hypotheses. Since the research used a combination of methods of data collection (questionnaire and interview), accordingly data analysis was driven from both qualitative and quantitative strands. The main analysis of quantitative data was made by the structural equation modeling (SEM) technique. In this study, the researcher used LISREL and SPSS programs to evaluate the data from the survey. The LISREL was used to analysis the measurement model and examine the relationships between latent variables. There are fourteen hypotheses tested and analyzed in this chapter. The summary of the survey findings concluded the chapter.

Chapter 5 seeks to answer the research questions posed and objectives set in Chapter One the appropriate deductions derived from the study's findings presented in Chapter Four. It also presents the potential contribution, research implications, research limitations, recommendation arising from this research for project based companies and future research directions.

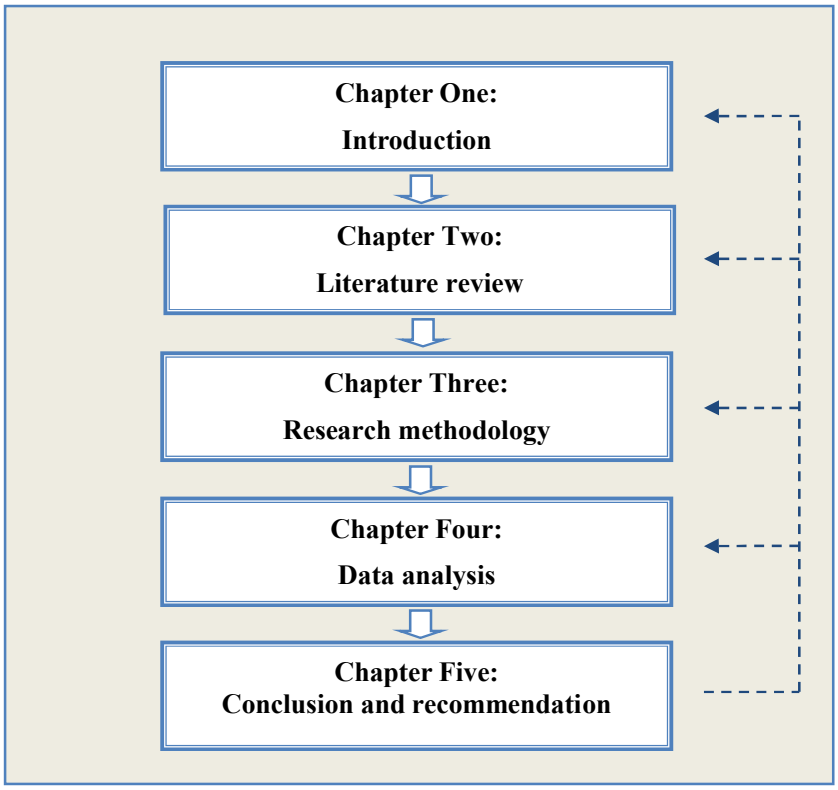

Figure 1.2 Organization of the Thesis

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