

INVENTING A KNOWLEDGE SHARING MODEL FOR
TRANSFORMING THE LEARNING EXPERIENCE
IN HIGHER

A thesis submitted in fulfillment of the requirement for the degree of
Doctor of Philosophy

by

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**DEVELOPING A KNOWLEDGE SHARING MODEL FOR
THE IMPLEMENTATION OF THE LEARNING ORGANIZATION
IN THAILAND**

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Melbourne, Australia

2010

Declaration

"I, Chokchai Suwetwattanakul, declare that the PhD thesis entitled 'Developing a Knowledge Sharing Model for the Implementation of the Learning Organization in Thailand' is no more than 100,000 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work".

Signature

Date 28/05/2010

ABSTRACT

After the economic crisis in Thailand, many management concepts, theories and practices were adopted by Thai organizations to help them meet their ultimate purpose of sustainable development and longevity. The theory and concept of the learning organization has become popular among Thai organizations. Much research has shown that for-profit organizations and state enterprises are coping with current challenges by becoming learning organizations. However, in order to succeed in implementing learning organization theory in Thailand, more complex and culturally specific ideas need to be adapted to match the new cultural context rather than attempt to simply impose a western context.

The purpose of this study was to develop a knowledge sharing model for the implementation of the learning organization in Thailand. The objectives of this study are: first, to analyze learning organization theories to specify the knowledge sharing process in Thailand; second, to provide justifications for how Thai organizations adapt the knowledge sharing process within the Thai context; third, to investigate factors, especially Thai cultural factors, influencing knowledge sharing in Thai organizations; fourth to develop a knowledge sharing model for the implementation of the learning organization in the Thai context; fifth, to test the model by collecting data from a sample survey of Thai organizations; and finally, to suggest some policy implications of the empirical findings for implementing in current practices.

Both qualitative and quantitative methods were employed. Firstly, a qualitative method was used to explore and identify knowledge sharing in Thai organizations and appropriate factors for the development of a quantitative questionnaire. Secondly, the quantitative method was applied to develop a normative model. The qualitative method encompassed a literature review inclusive of past research on the topic, events and issues on sharing knowledge in Thailand. Following this, six in-depth interviews were carried out with Thai managers responsible for learning organization development in six Thai organizations where learning organization theory and knowledge sharing processes have been adopted.

The purpose of the quantitative method was to develop a knowledge sharing model for the implementation of the learning organization in the Thai context. The survey questionnaire was developed to examine the factors influencing knowledge sharing

based on the normative model proposed in this study. The general managers or human resource managers in 503 Thai organizations, which have adopted learning organization theory and knowledge sharing processes, were asked to rate the importance of each factor in the normative model for the achievement of knowledge sharing. A total number of 386 usable questionnaires were received, giving a response rate of 64.33%.

The findings suggest the strong significant predictors, based on the highest factor loading were organization structure (loading = 0.82), management practices (loading = 0.81), mission and strategy (loading = 0.79), systems (loading = 0.78) and organizational climate (loading = 0.70). In the structural model, the relationships between the knowledge sharing variance, learning outcomes and performance was shown to be statistically significant. The relationship between knowledge sharing variance and tacit and explicit knowledge was also shown to be statistically significant. In the measurement model organization structure, management practices, mission and strategy, systems, organizational climate, experiential learning, team learning, generative learning, documentation, dissemination, financial performance and knowledge performance were shown to be statistically significant indicators of their respective latent constructs.

The empirical evidence lends support to the conceptual model. When put all together, the inference is that the process of financial and knowledge performance is determined by these knowledge sharing variables and learning outcomes. Knowledge sharing variables and processes have a direct influence on the transfer of tacit and explicit knowledge. The results suggest that practitioners interested in developing knowledge sharing should work towards creating an organization structure with management practices in which mission, strategy and systems are aligned with knowledge sharing goals, and ensuring internal elements of the organization are designed to broaden sharing.

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CHAPTER 1

INTRODUCTION

1.1 Introduction to the Context of Research

In recent years several factors have led to the current “knowledge boom”. Knowledge has been increasingly seen as the key competitive resource in organizations (Awad & Ghaziri 2004; Dalkir 2005). Davenport and Prusak (1998, p. 43) state that “companies hire for experience more often than for intelligence or education because they understand the value of knowledge that has been developed and proven over time”. They believe that the power of knowledge can create sustainable competitive advantages for organizations. Davenport (1994) confirmed that organizational knowledge comes from individuals. According to Nonaka’s (1991) study the new knowledge of businesses depends on individuals; especially frontline employees. This is because in contemporary society, the commitment of frontline workers is decreasing. Employees often can find and change their job easily for higher wages (Bennett, H. & Durkin 1999; Foote et al. 2005). As a result of increasing employee mobility, organizations may lose valuable knowledge.

Nonaka and Takeuchi (1995) questioned whether investigated the extent to which strategy and organizational structure promote knowledge creation. They analyzed the knowledge creation process in two classical organizational types. In addition, they stated that the success of knowledge conversion is difficult in a strongly hierarchical society because the main characteristic such as society is seniority. The lower or the frontline workers must show respect to their managers and obey their instructions which is at odds with our understanding that new knowledge, being tacit knowledge, always begins with frontline employees. Limiting the transference of tacit knowledge acquired by individuals into organizationally explicit knowledge will decrease the quantity of new knowledge in a business (Nonaka, I 1991). The answer in the main to this dilemma is to increase knowledge sharing in organizations.

A range of strategies have been developed for preserving organizational knowledge. For instance it can be stored in many forms such as computer databases or filing cabinets (Anand & Manz 1998; Cross & Baird 2000), formal procedure sheets for operators, handbooks and other written documentation (Bohn 1994; Olivera 2000).

However, knowledge sharing is still a major problem to implement because it requires: a sharing mindset; a sharing of vision; a sharing of values; a sharing of knowledge; a sharing of communication and information; and of openness and trust (Addleson 2000; DiBella, A. 1997; Porth, McCall & Bausch 1999). In addition, a sense of ownership, responsibility and a leadership commitment along with localized decision making and teamwork are important factors contributing to knowledge sharing (Elliott, Smith & MaGuinness 2000; Hitt 1996).

The means of knowledge sharing in each country is different. It depends on the local culture. Thailand, the location of this study, has a long independent history where the first “Thai kingdom” was established during the first half of the 13th century (Van 1995). But Thai culture has also been influenced by many external sources as well (Hofstede, 1980). As a result Thailand has created a specific style of knowledge sharing and this forms the context of the present study. For instance, Thais believe that the power of a person is related to their tacit knowledge or their expertise. Ponpai (2005) confirmed that employees in Thai businesses resist the conversion of their tacit knowledge to explicit knowledge because they think that their importance will diminish if they pass on their expertise to others. A greater understanding of learning organization theory may reduce the impact of the gap between tacit and explicit knowledge by developing the knowledge sharing process (Crossan, Lane & White 1999; Dibella, A.J., Nevis & Gould 1996; Huber 1991). This research will clarify the understanding of the knowledge sharing process. Moreover, the research will examine the ways to encourage employees to convert their tacit knowledge to explicit knowledge in Thai businesses currently implementing learning organization theory. The findings will contribute towards filling a gap in understanding of the conversion process; improving ways to encourage employees to share their knowledge; and will enable the development of a knowledge sharing model for implementing the learning organization in the Thai context.

1.2 Objectives of the Study

A common theme in business literature is that knowledge is critical to business success and essential for business survival. Learning organization theory, which is one of the most well-known business tools, was developed in order to support knowledge management within an organization. There are three important stages for

developing the learning organization: knowledge acquisition, knowledge sharing and knowledge utilization. In particular knowledge sharing has been identified as a key element in developing the learning organization. Using learning organization theory, this study focuses on the impact of Thai culture on the knowledge sharing process.

The aims of this study are: to develop an understanding of the process of knowledge sharing in Thailand; to develop a model for the knowledge sharing process in Thai organizations; and to test the model by qualitative analysis and quantitative methods. To support the main aims, the specific objectives of the study are:

- 1) to analyze learning organization theories in order to specify the knowledge sharing process in Thailand;
- 2) to provide justifications for how Thai organizations adapt the knowledge sharing process within the Thai context;
- 3) to investigate factors, especially Thai cultural factors, influencing knowledge sharing in Thai organizations;
- 4) to develop a knowledge sharing model for the implementation of the learning organization in the Thai context;
- 5) to test the model by collecting data from a sample survey of Thai Organizations; and
- 6) to suggest some policy implications of the empirical findings about implementing in the current practices.

1.3 Research Questions

In order to complete the specific aims and objectives of this study, the following research questions are investigated.

Research Question #1

To what extent do the knowledge sharing variables: leadership, culture, mission and strategy, management practices, structure, systems, climate and motivation, explain a significant portion of the variance in learning organization outcomes as learning, team learning and generative learning of Thai organizations?

H1 The knowledge sharing variables explain a significant portion of the variance in experiential learning.

H2 The knowledge sharing variables explain a significant portion of the variance in team learning.

H3 The knowledge sharing variables explain a significant portion of the variance in generative learning.

Research Question #2

To what extent do the knowledge sharing variables and learning outcomes explain a significant portion of the variance in tacit and explicit knowledge of Thai organizations?

H4 The knowledge sharing variables and learning organization outcomes explain a significant portion of the variance in documentation.

H5 The knowledge sharing variables and outcomes explain a significant portion of the variance in dissemination.

Research Question #3

To what extent do the knowledge sharing variables, learning outcomes and tacit and explicit knowledge explain a significant portion of the variance in finance and knowledge performance improvement as financial and competitive advantage of Thai organizations?

H6 The knowledge sharing variables, learning organization outcomes and tacit and explicit knowledge will explain a significant portion of the variance in finance performance improvement.

H7 The knowledge sharing variables, outcomes and tacit and explicit knowledge will explain a significant portion of the variance in knowledge performance improvement.

Research Question #4

To what extent are the learning outcomes and tacit and explicit knowledge influenced by knowledge sharing variables and to what extent does this process in turn influence performance improvement as depicted in the conceptual model?

H8 The learning outcomes and tacit and explicit knowledge are influenced by knowledge sharing variables and this process in turn does influence finance and knowledge performance improvement as depicted in the conceptual model.

1.4 Research Methodology

Both qualitative and quantitative methods were employed. Firstly, a qualitative method was used to explore and identify knowledge sharing in Thai organizations and the appropriate factors for the development of the quantitative questionnaire. Secondly, a quantitative method was applied to test a normative model. The purpose of using a qualitative methodology were to support research objectives 1, 2 and 3 and to develop the quantitative questionnaire. The research commenced with a literature review on past events and issues in sharing knowledge and this is reported in Chapters 2 and 3.

In-depth interviews were conducted with six senior managers of organizations identified as learning organizations. This has been acknowledged as a key way of obtaining detailed situational data. For instance, Gill and Johnson (2002, p. 75) argued that:

interviews can yield a great deal of useful information. The researcher can ask questions related to: 1) facts; 2) people's beliefs about the facts; 3) feelings; 4) motives; 5) present and past behaviors; 6) standards for behaviors (i.e., what people think should be done in certain situations); and 7) conscious reasons for actions or feelings.

Following the interviews, coding technique (selective coding, axial coding and opening coding) were applied to analyze and interpret data (Strauss & Corbin 1990). The purpose of the quantitative part of the research was to develop a knowledge sharing model for the implementation of the learning organization in the Thai context. (As see objectives 4-6). A survey questionnaire was developed to examine the influencing factors of knowledge sharing based on the normative model. Participants were asked to rate the importance of each factor in the normative model for the achievement of knowledge sharing and to suggest additional critical factors which they believed to be significant in knowledge sharing practice.

SPSS (Statistical Package for the Social Science) and AMOS software were employed to analyze data obtained from the survey questionnaires. The Cronbach alpha test was applied to assess reliability of the scale items. Descriptive statistics, including frequency and percentage distribution were used to describe and

summarize characteristics of the sample. Multiple regression was conducted to analyze the influence of the independent organizational variable on each of seven predicted knowledge sharing variables (see Chapter 4). The independent variables were entered in sets to predict each variable. Structural equation modeling (SEM), a statistical technique for building and testing statistical models, was applied to develop a knowledge sharing model for the implementation of the learning organization in the Thai context. The results are reported in Chapters 5, 6 and 7.

1.5 Contribution of Research

This work builds on knowledge sharing and learning organization studies to date. Nonaka (1991) developed the theory of a knowledge creating company and divided company knowledge into two main forms: tacit knowledge and explicit knowledge. He explained that tacit knowledge represents the new knowledge of business, but that there are difficulties facing the transference of tacit knowledge acquired by individuals into organizationally explicit knowledge. Later, Davenport and Prusak (1998) suggested that the knowledge sharing process depends on national and organizational culture. Several theorists have endorsed this concept and compared the differences in each culture, particularly in Japanese and Western studies (Urabe, Child and Kagono (1998). In Thailand, according to the library websites of 20 state universities which teach business administrative programs, there are only 9 research study programs relating to the theory of knowledge. The relationship between knowledge sharing and the Thai context has been neglected. Most Thai studies focus on the overall process of the knowledge management approach (Anongkhanatrakul 2004; Arschan 2004; Karnmanakitkul & Sukontavaree 2004; Muthikul 2004; Nanthamaitri 2003; Tangmesang & Emuri 2003; Thnarudee 2005), and only one research study is about the knowledge sharing process in terms of the method of knowledge sharing (Dechanont 2004). In order to succeed in implementing the learning organization theory this study makes a major contribution towards understanding the complex, culturally specific knowledge sharing process in ideas of the cultural context in Thailand.

1.6 Outline of the thesis

This thesis is arranged into 12 chapters, a bibliography and appendices.

Chapter 1. Introduction: describes the research background, research problem, and the justification for conducting the research.

Chapter 2. Learning Organization Theory: reviews the literature pertaining to learning organizations and knowledge sharing, to develop the propositions, definitions and questions used to answer the overall objective of the study.

Chapter 3. Cultural Context, Management Practices and Knowledge Sharing: reviews the literature relating to cultural context, management practices and knowledge sharing, to develop the propositions, definitions and research questions.

Chapter 4. Methodology and Research Design: provides a description of the qualitative and quantitative research methodology, including sampling techniques, as well as the instruments and procedures used to collect and analyze data.

Chapter 5. Primarily Data Analysis: reports the results of the quantitative data analysis including descriptive statistics and reliability test.

Chapter 6. Structural Equation Modeling Development and Analysis: presents the results of a structural equation modeling and discussion.

Chapter 7. Implications for Management Practices: discusses the implications of the study along with recommendations for a knowledge sharing model for the implementation of the learning organization in Thailand.

Chapter 8. Conclusion and Limitations: describes the conclusions and the limitations of this study; recommendations for future research also are discussed.

1.7 Summary

This study involves the development and validation of a new knowledge sharing model for implementation of the learning organization in Thailand. The purpose of the study is to identify attributes of successful knowledge sharing activity and to create a multi-dimensional conceptual model for Thai organizations. Following its development, the model can be applied to Thai organization. This chapter also presented the contribution to knowledge and significance of the study, its scope, an

overview of its methodology, and finally, the overall structure of the book (Figure 1.1). The next chapter will present a review of the literature on issues related to learning organizations.

CHAPTER 2

LEARNING ORGANIZATION THEORY

2.1 Introduction

The previous chapter set the scene for the thesis, outlining the importance of tapping into the knowledge of individual workers and creating a mindset in order to develop a learning organization. This chapter reviews the literature pertaining to learning organizations and knowledge sharing to develop the propositions, definitions and questions used to answer the overall objective of the study: *“to develop a knowledge sharing model for the implementation of the learning organization in the Thai context”*. This chapter is divided into 8 parts covering learning organizations and knowledge sharing. It opens with a discussion of the definitions and concepts of learning organizations before moving on to consider the types of organization which become learning organizations and the behaviors of staff in those organizations.

2.2 Introduction to Learning Organizations and Organization Learning

Historically, research on learning organizations focused on individual knowledge. However, beginning in the 1980s the focus shifted to the collective knowledge that adapts and changes with the acquisition of knowledge by individuals within the organization (Horvath et al. 1996; Marquardt 1996). Bruffee (1999) claimed that knowledge and learning are not the same. Knowledge is socially constructed while learning not only requires social interaction between people, but also “must take place almost as a by product of people doing their work” (Bruffee 1999, p. xvii).

According to Fiol and Lyles (1985, p. 804):

"Although organizational learning occurs through individuals, it would be a mistake to conclude that organizational learning is nothing but the cumulative result of their members learning. Organizations do not have brains, but they have cognitive systems and memories. As individuals develop their personalities, personal habits, and beliefs over time, organizations develop worldviews and ideologies. Members come and go, and leadership changes,

but organizations [sic] memories preserve certain behaviors, mental maps, norms and values over time."

2.2.1 The Importance of the Learning Organization

The establishment of a learning organization or the implementation of organizational learning within an organization is paramount to the ability of an organization to survive in the competitive environment of today (El Savvy & Bowles 1997; Eskildsen, Dahlgaard & Anders 1999; Ireland, D.R. et al. 2001). Ireland et al. (2001) stated that organizational learning is a prerequisite to innovation. In a competitive environment, innovation brings additional ideas and concepts to the marketplace. Globalization in the world of today requires organizations to quickly adapt to changing technologies in order to survive (El Savvy & Bowles 1997; Marquardt 1996). If excellence is to be achieved, organizations must engage employees and create environments where learning is nurtured (Eskildsen, Dahlgaard & Anders 1999; Ireland, D.R. et al. 2001).

2.2.2 The Learning Organization

Learning organizations have been defined in several ways (Marquardt 1996; Nonaka, I. & Takeuchi 1995; Senge 1990; Watkins, K.E. et al. 1997). Watkins and Marsick (1993, p. 8) defined a learning organization as "one that learns continuously and transforms itself". Additionally, Watkins and Marsick (1993, p. 9) stated, "the learning organization has embedded systems to capture and share learning". Senge (1990) defined a learning organization as an organization in which people have the freedom to continuously create ways to produce preferred results where innovation and creativity are fostered, where management does not constrict collective learning, and where people understand the value of collaboration. Yet a third definition of a learning organization was provided by Pool (2000, p. 374) who defined a learning organization as "an organization where through learning, individuals are continually re-perceiving and reinterpreting their world and their relationship to it. A learning organization incorporates the practice of continually challenging its paradigms and accepted ways of doing things".

Learning organization theory is a reflection of the transition thinking about organizational activity as focused on information, knowledge and creative thinking. its purposes are aimed at sustaining the knowledge resources of an organization, or what has been termed its intellectual capital (Edvinsson & Malone 1997). Edvinsson

and Malone (1997) suggested that organizational value should be placed on two factors: human capital and structural capital. They believed that organizational priority should be placed on the knowledge, skills, innovativeness and ability of employees. In addition, priority is placed on the hardware, software, databases, organizational structure, and anything else that supports employee and organizational productivity. The productivity potential of an organization today is located in its intellectual and systems capabilities and not in its hard or tangible resources and assets (Quinn, Anderson & Finkelstein 1996). Perhaps Dixon (1999, p. 29) expressed it best as: "Learning is the critical competency of the 1990s".

Marquardt (1996) said that in order to be competitive and to secure their own viability, organizations must be able to learn effectively, especially from mistakes. They must be able to anticipate and adapt to environmental changes; create knowledge systems; learn from all constituents, whether employees, customers or competitors; and be competent at developing and innovating processes, services, and products. Quinn, Anderson and Finkelstein (1996) predicted that by the year 2000, 85% of all jobs in America would be knowledge-based.

These facts represent the realities for organizations in today's business arena. In response to these growing needs, Preskill (1994) wrote that most organizations have experienced some kind of reorganization in their recent history. It is reported that organizations, in an effort to improve effectiveness, have turned to development strategies such as total quality management and continuous process improvement (Ayupp & Anandan 2008; Bersin 2008; Garvin, David A., Edmondson & Gino 2008; Kelly et al. 2007; Korth 2007; Teresa & Adelino 2008).

In referring to the continuous improvement mandate, Preskill (1994) stated that organizations have changed structures and processes, and rewritten mission statements. According to Garvin (1993, p. 78), most continuous improvement efforts have had limited effects because they do not include a "commitment to learning". In fact, learning is given such importance that DeGeus (1988, p. 74) noted: "Learning is not a luxury. It's how companies discover their future".

These are the factors that Senge (1990) addressed when he introduced the concept of the learning organization in his seminal work. Senge's conceptualization acted as a stimulus for additional theorists to prescribe strategies focused on the genesis of the knowledge based organization.

2.2.3 Organizational Learning

Organizational learning has also been defined in various ways (Swieringa & Wierdsma 1992; Tsang 1997). Tsang (1997) alleged that the variation in the definition of organizational learning lies in the utilization of the writings in which the concept is discussed. Prescriptive researchers are action-oriented: they focus on behavioral changes within organizations and target practitioners. Swiennga and Wierdsma (1992) defined organizational learning as changes in organizational behavior. Conversely, descriptive writers focus on whether or not learning has occurred within the organization. Tsang (1997, p. 84) described organizational learning as "the acquiring sustaining or changing of inter-subjective meanings through the art factual vehicles of their expression and transmission and [through] the collective actions of the group". Thus the literature refers to both organizational learning and to learning organizations. A learning organization is a prescribed set of strategies that can be enacted to enable organizational learning. However, these two terms sometimes lead to confusion. It is important to recognize that organizational learning is different and that the terms are not interchangeable.

Easterly and Smith (1997, p. 1085) distinguished between organizational learning and the learning organization by stating that organizational learning is "disciplined based and analytic whereas a learning organization is multi-disciplinary and emphasizes action and creation of an 'ideal type' of organization". Tsang (1997, p. 74) further differentiated between the two concepts when he wrote that organizational learning is a concept used to describe certain types of activity that take place in an organization while the learning organization refers to a particular type of organization in and of itself. Nevertheless, there is a simple relationship between the two – a learning organization is one which is good at organizational learning. Although authors have differentiated between organizational learning and the learning organization, they are very similar concepts (Barker & Camarata 1998; Senge 1994; Tsang 1997).

Numerous researchers have studied learning organizations and organizational learning. Tsang (1997) found that there is minimal empirical data supporting concepts associated with learning organizations and organizational learning. In the quest to discover how organizations learn, research has been conducted to identify certain characteristics and attributes of learning organizations (Nonaka, I. & Takeuchi 1995; Senge 1994; Watkins, K.E. & Marsick 1993). Though different authors have

identified organizations in several ways such as learning organizations or knowledge-creating organizations, characteristics have been recognized that are very similar.

Learning, as a general construct, is defined as "an experiential process resulting in a relatively permanent change in behavior that cannot be explained by temporary states, maturation or innate response tendencies" (Kline, Peter & Saunders 1993, p. 322). As Kolb (1984, quoted in Kim (1993) described, learning is the creation of knowledge through the transformation of experience. For example, Nonaka and Takeuchi (1995) described knowledge-creating organizations and identified five enabling conditions that must be present in an organization for knowledge creation to occur. These conditions are: intention, autonomy, fluctuation/creative chaos, redundancy and requisite variety. Senge (1990) described the learning organization and distinguished five disciplines: system thinking, personal mastery, mental models, team learning and shared vision. Swieringa and Wierdsma (1992) described four distinct features of the learning organization as: a strategy of continuous development, an organic network structure, a task oriented structure and supportive systems.

According to Dixon(Dixon 1999), organizational learning is learning occurring at the system level rather than at the individual level. It does not exclude the learning that occurs at the individual level. It is, however, greater than the sum of the learning at the individual level (Fiol & Lyles 1985; Kim 1993; Lundberg 1989). Organizational learning is defined as "the intentional use of learning processes at the individual, group and system level to continuously transform the organization in a direction that is increasingly satisfying to its stakeholders"(Dixon 1999). It is learning keenly perceived at the system level and it arises from processes surrounding the sharing of insights, knowledge and mental models (Stata 1989). According to Kim (1993), the key element differentiating individual and organizational learning revolves around mental models.

Mental models are conceptualizations of reality held by individuals. These may be implicit or explicit. However, when individuals make their mental models explicit and organizational members develop and take on shared mental models, organizational learning is enabled (Kim 1993). Learning becomes organizational learning when these cognitive outcomes, the new and shared mental models, are "embedded in members' minds and in artifacts in the organizational environment" (Argyris, C & Schon 1996). This ability to take on a new view of reality, to see things from a new

perspective, is referred to as double-loop learning (Argyris, Chris 1999; Argyris, C & Schon 1996) or generative learning (Senge 1990).

This learning process is also referred to as frame-breaking and is a typical prerequisite to creative thinking and innovation (Redmann, Kaiser & Holton 1997), Learning organization strategies attempt to create more double-loop learning in organizations. In contrast to double-loop learning, a second type of organizational learning is single-loop or adaptive learning (Argyris, Chris 1999; Argyris, C & Schon 1996; Senge 1990). Single-loop learning occurs when an action leads to expected outcomes, or when the error is corrected to enable or allow the pattern of action to lead to the expected outcome. Single-loop learning does not require a change in the theories or values underlying the governing of the action-outcome relationship (Argyris, Chris 1999; Argyris, C & Schon 1996). It also does not lead to change and innovation. Most learning in organizations falls into this category,

The opportunities for learning in an organization come from multiple sources including: formal training, from other individuals such as team members, customers, vendors or competitors; experimentation; from one's own experience; and vicariously from the experience of others, be they individuals, groups or organizations. However, it is important to remember that:

although learning occurs through individuals, it would be a mistake to conclude that organizational learning is nothing but the cumulative sum of members learning ... as individuals develop their personalities, personal habits and beliefs over time, organizations develop world views and ideologies, ..., (and) organizations' memories preserve certain behaviors, mental maps, norms and values overtime (Hedberg 1981, p. 6).

Duncan and Weiss (1979) claimed that individual learning brings change in the private or non-communicable knowledge of an individual. This type of knowledge is called tacit and explicit knowledge. They stated that organizational learning is limited to public knowledge that is socially defined and available to every member of the organization. Organizational learning occurs in a social context. This importance is captured in the weight that Senge (1990) placed on the role of team learning in a learning organization. There are four processes commonly associated with organizational level learning: information or knowledge acquisition, distribution, interpretation, and memory and retrieval (Daft & Weick 1984; Dixon 1992, 1999;

Huber 1991; Kuchinke 1995; Slater & Narver 1995).

2.3 Learning Processes

Having considered the key definitions of learning organizations and organizational learning this chapter now moves on to consider in more detail the elements which constitute the learning process. This section covers information acquisition, information distribution and interpretation, and organizational memory.

2.3.1 Information Acquisition

The first process which organizations engage in for learning purposes is information acquisition. According to Daft and Huber (1987), the literature approaches this process from both a macro and a micro level. It is reported that the macro level focuses on the behaviors of the organization or a department, while the micro level of analysis examines the behaviors of individuals procuring information. Organizations must be cognizant of the activities occurring in their relevant environments. Individuals who occupy organizational positions responsible for this scanning task are referred to as boundary-spanning personnel (West Daft & Huber 1987).

Organizations may acquire information through internal and external environmental monitoring or through environmental probing (Daft & Huber 1987). Monitoring or scanning is described as a routine behavior through which information is gathered from available sources, such as professional conferences, industry reports and trade journals. Probing, on the other hand, involves a more intense and deliberate search typically initiated for the purposes of obtaining additional or specific information.

Information is also acquired from other persons, such as experts, consultants, customers, vendors, peers or team members. It can be obtained through the process known as grafting, by which new employees or new mergers serve as an informational source (Dixon 1999) sources of information include inherited knowledge, experience and experiment, collaborative efforts and joint ventures, vicarious experience or second-hand information, and performance tracking and feedback (Dixon 1992; Huber 1991; Kuchinke 1995)

2.3.2 Information Distribution and Interpretation

The next stages in processing information include distribution and interpretation. Interpretation is simply the process through which information is given meaning (Dixon 1992; Huber 1991; Kuchinke 1995; Teresa & Adelino 2008). The most central aspect of creating meaning is the reduction of equivocally and ambiguity (Daft & Huber 1987). According to Daft and Huber (1987, p. 9), the core of "organizational learning is the reduction of equivocally, not data gathering". This places prominent importance on the organization's ability to create shared meaning among the membership (Dixon 1992).

The process of information interpretation leading to organizationally accepted meaning requires that some organizational members may have to change or alter their cognitive maps or mental models (Dixon 1999; Huber 1991). As previously reported, these mental maps or models represent how individuals interpret reality, and this includes new information (Huber 1991). Sims and Gioia (1986) pointed out that social construction of interpretation is important in gaining organization-wide acceptance and commitment to the shared meaning. The process involves communication in the form of discussion and exchange (Slater & Narver 1995).

Attributes of the communication process itself influence the interpretation of information. These include: the consistency of the framing of the information; the richness of the selected communication medium; the information load presented to individuals; and the unlearning which individuals may have to negotiate before new interpretations are created and accepted (Huber 1991; Kuchinke 1995).

Organizational factors also affect the communication and interpretation process. These include trust, respect, openness, and cohesiveness (Kuchinke 1995). Once interpretation of information is complete the information must be stored and made accessible for organizational use.

2.3.3 Organizational Memory

The storage of information for later use by organizational members is referred to as organizational memory. (Walsh & Ungson 1991, p. 57) defined organizational memory as "stored information from an organization's history that can be brought to bear on present decisions". Dixon (1999) added that memory is located in

individuals, culture, transformation or processes, structure, and the ecology, or the physical environment. Organizational memory also resides in norms and codes of behavior, in scripts, in history and myths, in members' long-term memory, and organizational records and computer files (Huber 1991; Kuchinke 1995). Organizational memory acts as a reservoir for lessons learned, for discovering what has been organizationally beneficial and what has not (Dixon 1992).

The importance of organizational memory cannot be overemphasized. Huber (1991) points out that organizational memory is essential to the process of organizational learning. In addition, Kuchinke (1995, p. 315) declared that "organizational memory is the key to successful learning". However, he issued a caution regarding the four learning processes, stating that organizations must manage them for performance and the attainment of organizational goals.

2.4 Learning Organization Models and Characteristics

The field of organizational learning preceded the development of the concept of Learning Organizations and it is not surprising that a range of (often competing) models and characteristics have been described by researchers over this time. This section addresses the key models and their characteristics of learning organizations commencing with a historical overview of the field before progressing to Senge's (1994) key theory, Marsick and Watkins' (1993) imperative model and finally to a summary of the characteristics of Learning Organizations.

2.4.1 Early Thoughts on Organizational Learning

Theorists began addressing the importance of organizational learning years before the inception of the concept of a learning organization. Argyris and Schon (1996) were strong proponents of the concept of double-loop learning. They developed theories related to both single-loop and double-loop learning. These concepts are commonly referred to in the learning organization literature as adaptive and generative learning. They also suggested that while individuals are the actual agents of learning, it is organizations that create the conditions that lead to learning behaviors. Duncan and Weiss (1979) credited Argyris and Schon as being the first to systematically address organizational learning. It was Duncan and Weiss, however, who wrote about designing organizations for learning and the importance of both

strategy and the 'fit' between organizational structure and the environment. They discussed at length the design of the decentralized organization.

Hedberg (1981) examined organizational learning and the impact of the environment on the process. He noted the importance of unlearning as a means to discovering new responses and mental maps and prescribed experimentation as a strategy as well as using the reward system to encourage creativity and learning. Shrivastava (1983) reviewed the literature on organizational learning and developed a typology of learning systems. He examined the types of learning and the levels at which learning occurs. The typology he developed was based on two dimensions: the individual/organizational orientation dimension, and the evolutionary/designed learning system dimension. Levitt and March (1988, p. 336) also reviewed the organizational learning literature and discussed the meaning of intelligence in organizational learning and they concluded by referring to learning organizations as follows: "the design of learning organizations must recognize the difficulties of the process". Lundberg (1989) discussed organizational learning as organizational development.

Daft and Huber (1987) suggested that organizations need to create systems to both process information and to provide for the interpretation of information. Additionally, they suggested that organizations can be developed to maintain the organizational characteristics needed to strengthen the capacity to attain an organizational learning goal. The model known as the learning organization has been described as purposely acquiring, processing, and disseminating information and knowledge throughout the organization in order to create a shared interpretation which allows the organization to behave decisively (Slater & Narver 1995). The learning organization is an organizational conceptualization created to understand a system developed to promote and sustain organizational learning.

2.4.2 Learning Organization: Senge's Foundation Theory

The first significant work on the learning organization is credited to Peter Senge (1990). Senge (1994) suggested that the quality movement, as the precursor of the learning organization, was grounded in the belief that continual learning leads to performance improvement in an organization. In order to do this, organizations must move from a paradigm of control to one of learning, both in philosophy and in practice. Senge (1994) concluded that the quality movement focused on improving

work processes, while in the learning movement the focus is on improving how employees work, and this includes a change in management. He stated that this includes thinking and interacting, and learning about the dynamics that affect system wide performance. This shift requires a different kind of organization.

In laying out the foundation for his model of the learning organization, Senge (1992 1994) suggested three levels of work required of organizations. The first level focused on the development, production, and marketing of products and services. The second level of work is the designing and development of the systems and processes for production. The final task is undertaken by organizations focusing on thinking and interacting. Senge (1992) claimed that the first two levels of organizational work are affected by the quality of this third level. That is, the quality of organizational thinking and interacting affects organizational systems and processes, and the production and delivery of products and services. This belief places organizational thinking in a pivotal position affecting the ability of an organization to accomplish goals and perform effectively.

The mission, vision and goals of an organization establish and define the course taken for the production determination level of work. Regarding processes and systems, Senge (1994) went on to remark that the quality movement focused on this second level of organizational work. That is, the quality movement, with its statistical control and learning and motivation advocacy, sought to bring about process performance improvement.

It is the third level of organizational work that Senge addressed with his concept of learning organizations. He stated that "appropriate tools" were required to address the thinking and learning work of organizations (Senge 1994). This is the stage from which Senge (1990 1994) introduced his conceptualization and description of the organizational competencies needed to enable organizations to successfully accomplish learning tasks. In defining a learning organization, Senge (1990, p. 3) stated, "we can build learning organizations, where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to team together". Senge (1990) suggested that organizations need to develop five core disciplines or capabilities to accomplish these defined goals of a learning organization: personal mastery, mental models, shared vision, team learning and system thinking.

2.4.2.1) Personal Mastery

The first core discipline outlined by Senge (1990), personal mastery, emphasizes the importance of the individual learner's role in organizational learning. The individual is the linking pin; for without individual learning, teams and organizations cannot learn. Personal mastery evokes personal growth and learning that requires two underlying activities. The first is continual clarification of what is really important. The second revolves around the ability to see and interpret reality. Underlying this discipline is the enactment of a personal vision for the individual.

Senge acknowledged that while the concept of a personal vision is daunting to many individuals, the ability to formulate ultimate intrinsic desires is integral to personal mastery. In order to develop this discipline, Senge (1990) concluded that: the organizational climate should support the creation of visions; that individuals should be free to inquire and challenge the status quo that the norms include commitment to the truth; and leader's act as models of commitment to personal mastery. Visions are viewed as the engine behind motivation, commitment and involvement in both learning and growth.

2.4.2.2) Mental Models

The second discipline outlined by Senge (1990) is mental models. Individual's mental models or cognitive maps are defined as mental representations of reality; they enable persons to make sense of their world. Mental models are active, they possess a predisposition for action, and they mold how individuals act. In addition, Senge points out that mental models can either impede or accelerate learning.

The development of functional mental models requires two important activities. According to Senge (1990), key implicit assumptions must be examined and reflected upon by the owner. Second, through inquiry these assumptions must become explicit and be made available for discussion and challenge. In this way organizations are able to recognize any discrepancies between their espoused theories and their theories-in-use (Argyris, C & Schon 1996). Senge (1990) also stated that research suggests that most mental models are flawed and in need of critical feedback to provide reality checks and correction in order to strengthen the foundation upon which decisions are made and action is taken.

Senge (1990) talked about four skills that enable individuals to examine their mental models. The first is the recognizing “leaps of abstraction” or the ability of individuals to move from observations of situations and behaviors to generalizations about cause or reality. The second skill to recognizing mental models is to pay attention to what he calls the “left-hand column” or to what is not normally verbalized, but is being thought. This makes sub-conscious thoughts conscious, and makes individuals aware of unspoken assumptions. The third skill is the ability to “balance advocacy and inquiry”. Individuals are at some level limited in their expertise and ability to solve problems. It is important to recognize the limits of knowledge and experience, and to balance this with the ability to tap into the expertise of others, and to learn from it.

Senge (1990) pointed out that pure advocacy seeks to win an argument, while a balance of inquiry and advocacy seeks to find the best answer. The fourth skill associated with mental models is the ability to recognize the “differences between espoused theory and theories-in-use”. Saying the right words or adopting a new language may not be consistent with the behaviors exercised. A gap between the two suggests that learning cannot occur.

2.4.2.3) Shared Vision

The third discipline outlined by Senge (1990) is shared vision. A shared vision is a “picture of the future”. It is a reflection of personal visions, and therefore it elicits commitment rather than compliance from organizational members (Senge 1990). This commitment begins with having a personal vision. If an organizational member subscribes to a vision presented by the organization, the result is reported to be compliance and not commitment. The essence of a shared vision, according to Senge, is the commitment of all organizational members having the same vision; this differs from the commitment of the individual having the vision. He concluded that shared visions emerge over time from the interaction of personal visions as individuals listen and share.

The reported importance of a shared vision is the focus it provides for organizational efforts. This focused effort to create and achieve the goals of a vision is purported to be what drives generative or double-loop learning. Senge (1990) also stated that a shared vision fosters courage, risk-taking and experimentation; it is the force behind strategic planning. However, Senge pointed out that a shared vision is a force “only when people truly believe they can shape their future”.

Senge (1990) suggested that a shared vision drives the other disciplines. A vision provides a purpose. Senge (1994) stated it is the basis for shared meaning in organizational reality. A basic cornerstone for developing a shared vision is to develop the organization as a community. Senge believed that each sub-unit of the organization should be encouraged to develop its own meaning of reality, which it contributes to the creation of an organizationally shared meaning,

2.4.2.4) Team Learning

The fourth discipline discussed by Senge (1990) as essential in a learning organization is team learning. In defining team learning, Senge was careful to insist that it is more than individuals acting together. Team learning is a microcosm of organizational learning. It is the alignment of individual actions and the development of the capacity of the team to attain desired results based on the strength of a shared vision. He described three dimensions important to team learning. The first is the need for the team to think critically about organizational issues. The second is the need for innovative and coordinated action based on trust within the team. The third is the need to recognize and foster cooperative and interactive relationships with other organizational teams. These skills developed by teams and the learning accomplishments attained can set the standard for learning at the organizational level. Senge (1990) believed that individuals can learn without affecting organizational learning. However, he contended that team learning is the model for organizational learning.

The competencies which teams need to accomplish successful team learning goals include discussion, dialogue, inquiry and reflection. Senge (1990) continued stating that the opportunity to practice these skills is essential. Otherwise, the potential danger that exists is that team intelligence may be short-circuited by the effects of group-think and the interfaith conformity that stifles creativity. Senge suggested that dialogue and discussion, the two primary types of discourse, enable team-level generative learning by exposing differences among members.

2.4.2.5) System thinking

System thinking is the fifth discipline, and the one that acts to integrate the other four disciplines. It is described as the ability to take a systems perspective of

organizational reality. Senge (1990) claimed that system thinking consolidates and links the other disciplines into a unified theory for practice. System thinking is a shift away from a myopic view of behavior and reality. The claim is made that individuals typically attack problems by examining parts. System thinking, on the other hand, is about examining the whole entity and understanding the interrelatedness of the parts, and the influence that one part has on the other components. It leads to the perception of the interconnectedness of individuals, teams and organizations. This recognition leads to the realization that decisions, behaviors and activities have an effect not only on the actor, but also on all the interrelated components.

The goal of system thinking, according to Senge (1990), is to allow organizational members to see the complete pattern of their organization and the influential sphere of their decisions and behaviors. It is the process of understanding complexity by gaining insight into the patterns of causality. It enables organizational members to better understand both the causes and solutions for problems. Senge (1990) reported that system thinking involves two activities: the first is seeing interrelationships and the second is recognizing that change is a process. According to Senge, the key to systems is the ability to see patterns, and not just events that often lead to reactive behavior with short-term results. Senge (1990; 1994) subscribed to the idea that archetypes can be described which explain the complexity of the problems and issues that confront organizational management. He suggested that as more of these systems archetypes are revealed, they help leaders understand the events in their organizational systems.

This system thinking ability to see both patterns and the whole is an important competency which Senge (1990 1994) believed has an impact on the operational integrity of the other four principles. Additionally, to be effective entity the capabilities which are the basic competencies of a learning organization need to be developed simultaneously (Senge 1994) because they also work as a system. In his theory of the learning organization, Senge (1990 1994) did more than describe the needed competencies; he also prescribed how organizations might develop them. It may be concluded that these suggested activities form the strategies which are characteristic of an organization that is endeavoring to promote its organizational learning.

2.4.3 Action Imperatives of the Learning Organization

Marsick and Watkins (1993) described the learning organization as a “template” for

the purpose of sustaining learning. Their six imperatives form the basis for the organizational strategies recommended to promote learning. These comprise:

- (1) Create continuous learning opportunities.
- (2) Promote inquiry and dialogue.
- (3) Encourage collaboration and team learning.
- (4) Establish systems to capture and share learning.
- (5) Empower people toward a collective vision.
- (6) Connect the organization to its environment.

These six imperatives are similar to the disciplines and the inherent strategies suggested by Senge (1990 1994). Marquardt (1996) similarly focused on a learning system composed of five linked and interrelated subsystems related to learning: the organization, people, knowledge, technology and learning. Most theories of a learning organization focus on the importance of continuous learning, knowledge creation and sharing, systemic thinking, a culture of learning, flexibility and experimentation, and finally a people-centered view (Gephart, M.A. & Marsick 1996). Using Watkins and Marsick (1993) imperatives as a basis for comparison, similarities can be seen in the different theories on the learning organization. The six imperative are presented below.

2.4.3.1) Continuous Learning

The first imperative, continuous learning, is referred to as the foundation of a learning organization (Watkins, K.E. & Marsick 1993). Bersin (2008) stated that the important result of continuous teaming is innovation. Watkins and Marsick added that innovation is at the center of productivity. The importance of continuous learning in adding to organizational growth cannot be overemphasized. While learning can be unconscious, it is enhanced when individuals reflect on their experience (Watkins, K.E. & Marsick 1993). They suggested that the learning process should therefore involve a mental framing of the experience and the context, experimenting with solution, examining results and developing insights about similar future experiences. The skills of questioning, critical reflection and challenging mental models are used in this learning process. These are the same learning tools discussed by Senge (1990; 1994). Marquardt (1996) also addressed the learning process. He suggested important skills for the learning process that include, for example: system thinking, mental models, personal mastery and dialogue. These ideas are also found in

Senge's theory also (Senge 1990).

The implication of continuous learning described by Watkins and Marsick (1993) for the learning organization include: linking learning to the organizational goals, developing managerial support for learning initiatives, providing explanations of learning to organizational members which they can pursue to better their learning experiences. The success of a continuous learning imperative necessitates support provided by work design, the environment, the climate, technology and systems, rewards, structures, and policies. It requires allowance for risk taking and mistakes, for inquiry and challenges. It requires a new set of theories-in-use for all employees, management and workers alike. Mai and Mcadams (1996) suggested that in addition to a facilitative structure, learning systems need the support provided by active communications, workforce preparation, management commitment, operational support, and both rewards and recognition.

2.4.3.2) Inquiry and Dialogue

The second imperative suggested by Watkins and Marsick (1993) is the use of both inquiry and dialogue. These were also suggested by Senge (1990; 1994). These learning theorists subscribed to the strategy that people explore ideas and questions, with each other. This interaction effect is the key to better learning and is a core strategy in team learning. These behaviors give learning a social context. Inquiry is demanding on all parties who are required to share and listen while being willing to suspend adherence to personal mental models of reality. It requires an environment of trust.

Marquardt (1996) claimed that dialogue is important in the organizational learning process because it is central to and enhances team learning. He claimed that dialogue allows members to review organizational assumptions about the world. Dialogue is referred to as divergent conversation because it allows participants to "expand what is being communicated by opening up many different perspectives" (Ellinor & Gerard 1998, p. 22). These experts list the characteristics of dialogue as:

- (1) See the whole among the parts.
- (2) See the connections between the parts.
- (3) Inquire into assumptions.
- (4) Learn through inquiry and disclosure.

(5) Create shared meaning among many.

Dialogue is a means to attaining new levels of self-awareness. For an organization, this translates to being aware of the assumptions which underlie the structures, information flow, strategies, decision-making, reward systems and measurement of success, internal and external alignment, and culture (Ellinor & Gerard 1998). This ability for reflection enables learning at the individual, team and organizational levels. The enhanced ability allows organizations to make better decisions and judgments about its basic assumptions, whether in theory or in practice. Ellinor and Gerard (1998) described dialogue as a “powerful practice field” for advancing organizational learning capabilities.

Learning occurs when individuals make their implicit reasoning explicit and share it with others (Watkins, K.E. & Marsick 1993). The challenge in an organization is to develop an atmosphere where true dialogue can take place. This means that the process views all participants as equals and that every person is a source of learning. It also requires that all participants share their thinking and that they listen to each other's explanations of and beliefs about reality. These learning requirements involve the evolution of a learning culture and the security of a learning climate.

2.4.3.3) Team Learning

The third imperative of Watkins and Marsick (1993) echoes Senge (1990) claim in citing the importance of team learning. The strategies reported in the process are framing, refraining, integrating perspective, experimenting and crossing boundaries (Watkins, K.E. & Marsick 1993). Framing is described as the formation of perceptions about a current situation based on individuals' interpretation of prior experiences. Refraining is the process of placing that perception in the context of new understanding or a new frame that results from being open to the views of reality expressed by other individuals. Team members must then integrate the new perspectives with the group schema and mental models, or create an entirely new group interpretation of reality. These new interpretations require experimentation and testing to explore both the expected and unexpected outcomes produced in actuality.

Marquardt (1996) suggested that it is important to recognize that team learning is different from team training. Learning emphasizes the analysis and the creation of new knowledge. He concluded, as did Senge (1990), that team learning is a

“microcosm” of organizational learning. The use of continuous improvement teams, cross-functional teams, quality management teams and learning teams are suggested as useful to organizations promoting a learning goal.

Watkins and Marsick (1993) concluded that the final strategy in team learning is boundary crossing through inquiry, collaboration and sharing. They stated that organizational learning is promoted when organizational members cross team boundaries and share information for the purposes of knowledge creation and learning. Redding and Catalanello (1994) stated that teams are capable of finding new understanding and interpretations because of the process of collective learning. Argyris (1996) claimed that interdependence is the essential linking pin for cohesiveness, which is basic for sound team functioning. The learning process at the team level is dependent on supportive management, climate and structure.

2.4.3.4) Organizational Systems for Learning

The fourth learning imperative discussed by Watkins and Marsick (1993) details the organizational systems whose functions are focused on the promotion of learning and the attainment of learning outcomes. They summarized the important organizational systems as culture, structure, strategy and resources. They suggested that systems work to produce the following learning outcomes: acquired information, access to that information, distribution and sharing of information and learned knowledge, and rewards and recognition for learning. The acquisition and distribution of information are two of the core processes involved in organizational learning as previously discussed.

The same organizational variables were discussed by Marquardt (1996) as important considerations in the learning process. In particular, vision, culture, strategy and structure were cited. The importance of linking the strategic goals of the organization to the learning process was prescribed. Other organizational strategies included the recommendation to communicate the organization's vision to all stakeholders to ensure that everyone understands the organizational goals. Marquardt (1996) also stated that the culture must be one that enables and promotes continuous learning and continuous improvement. According to Dixon (1999), created knowledge is the result of the process of interpretation, and as such, is strongly influenced by the organizational culture. This interpretation of information is another of the core processes in organizational learning previously discussed.

Learning and learning processes should be essential elements in the vision and mission of learning organizations (Watkins, K.E. & Marsick 1993). It is important for organizations to develop a culture that both believes in and values learning. According to Gephart et al. (1996), the culture of a learning organization promotes inquiry, dialogue, risk taking and experimentation, and views mistakes as learning opportunities. In other words, this type of culture supports and rewards learning.

2.4.3.5) Empowerment: Toward a Collective Vision

Watkins and Marsick (1993) concurred with the learning organization theory of Senge (1990; 1994) on the importance of a shared vision for an organization. An organizational vision is the guiding force behind organizational movement and growth. It is a statement of direction toward an ideal organizational. Empowering organizational members by engendering participation creates both involvement and motivation to attain visionary goals. In a learning organization, the importance of this process is that power is shared throughout the organization. The culture and the organizational structure must support this value and the leadership must accept it. Power struggles that are common in bureaucracies should give way to a culture of mutual respect, collaboration, inquiry, honesty and trust (Watkins, K.E. & Marsick 1993).

These beliefs need to be supported by an organizational structure that allows the professed beliefs to be translated into organizational learning action and activities. Watkins and Marsick (1993) suggested that the organizational structure of a learning organization is lean, flexible and decentralized. The structure should not be a barrier to communication, information sharing or learning. To this end, the communication and information system is described as the “lifeblood” of the learning organization (Gephart, M.A. & Marsick 1996).

Marquardt (1996) discussed these issues in the guise of the technology subsystem. Technical support systems allow integrated access to, and the exchange of, information and learning. The knowledge subsystem is described as key to the management of organizational knowledge (Marquardt 1996). The aspects of this include the acquisition, creation, storage, transfer and utilization of knowledge. Again, these activities are the core processes of organizational learning as previously discussed. Furthermore, these learning activities need organizational support in the form of rewards, recognition, time, technology and finances, which are all dedicated

to the achievement of the learning goal (Watkins, K.E. & Marsick 1993, 1996).

2.4.3.6) The Organization and Its Environment

The final imperative promotes the recognition of an organization's relationships with its environments which, according to Watkins and Marsick (1993), includes the physical, social and cultural milieu. This includes aspects of both the internal and external environments. Duncan and Weiss (1979) suggested that organizational learning is essential to effective organizational adaptation to the environment.

Slater and Narver (1995) claimed that organizations need to be attuned to their business environments, especially as presented by the external market. They cited the critical challenge for organizations as the ability to learn faster than competitors. They stated that it is imperative to establish learning ties with customers, suppliers, and other organizational constituents. They described learning as a function of an organization's interdependence with external learning agents. Market orientation is a feature of organizational culture that is essential to gaining competitive advantage by compelling organizations to develop customer value to achieve effective performance (Slater & Narver 1995).

It is suggested that organizational members need a systems perspective that will enable them to make decisions and take actions that are beneficial to all constituents (Watkins, K.E. & Marsick 1993). It is important to be able to recognize that actions that might benefit one group may be devastating to the well-being of another group. This requirement for system thinking is so important and essential to the learning organization that Senge (1990) referred to system thinking as the fifth discipline: the strategy which links the other learning disciplines and unifies the theory for practice.

2.4.4 Characteristics of a Learning Company

Instead of portraying the attributes or qualities of a learning organization, Pedler et al (1997), who defined a "learning company" as "an organization that facilitates the learning of all its members and consciously transforms itself and its context" presented the characteristics their schema as 11 characteristics classified into five clusters (see Table 2.1). Briefly the clusters formed through the grouping of the 11 characteristics can be summarized as follows:

Learning Approach to Strategy and *Participative Policy Making*; the eight and ninth characteristics of the model fell into the "Strategy" cluster.

Information, *Formative Accounting and Control*, and *Internal Exchange* were allocated to the "Looking in" cluster.

Reward Flexibility and *Enabling Structure*, fit in the "Structure" cluster.

Boundary workers as Environmental Scanners and *Inter-company Learning* were placed in the "Looking out" cluster.

The last cluster, "Learning Opportunities", was comprised of *Learning Climate* and *Self-development Opportunities for All*.

Table 2.1 Learning Company Characteristics

Learning Organization	Consisted of Characteristics
1. Formative Accounting & Control	Budgeting, reporting & accounting information assists in learning on how money works in business.
2. Internal Exchange	Inter-departmental relationship, see themselves as they are in supply chain to end user.
3. Enable Structure	Organization structure, procedures and processes can easily change to meet job, user or innovation.
4. Boundary Workers as Environment Scanners	Members' contacts with outside stakeholders carry out Environment scanning.
5. Inter-company Learning	Learning alliances with other company.
6. Learning Climate	Manager primary task is to facilitate company's members to experience and learn from experience.
7. Information	IT is used to create databases and communication systems that help everyone understand what is going on.
8. Learning Approach to Strategy	Company policy and strategy formation, together with implementation, evaluation and improvement, are consciously structural as a learning process.
9. Participative Policy Making	All members of the company have a chance to take part, to discuss and contribute to major policy decisions.
10. Reward Flexibility	The underlying assumptions for reward systems are identified, shared and discussed. Alternative ways of rewarding people are explored.
11. Self-Development for All	Resources and facilities are made available to all members of the company. All members are encouraged to take responsibility for their own learning and development

Source: Pedler et al. 1997.

2.4.5 Summary of Models of the Learning Organization

As discussed earlier, Senge (1990) is credited with the phenomenon known in the organizational literature as the learning organization. However, this conceptualization has been augmented by the thoughts, theories and writings of others. A more complete understanding of the learning organization occurs by exploring the ideas of these other organizational theorists. Other significant contributions include writings by Watkins and Marsick (1993) and by Marquardt (1996). Additionally, Pedler and Burgoyne (1997) offered brief ideas and activities accompanied by diagnostic questionnaires aimed at a practitioner audience interested in learning organizations. Edited collections of papers on learning organizations have also been published which report both suggested strategies and successful organizational implementation (Chawla & Renesch 1995; Watkins, K.E. & Marsick 1996).

Watkins and Marsick (1993, p. 8) defined a learning organization as, "one that learns continuously and transforms itself". They suggested that learning is a constant process and results in changes in knowledge, beliefs and behaviors. They also believe that in a learning organization, the learning process is a social one and takes place at the individual, group and organizational levels. The systems perspective and recognition of intra-organizational interdependency is upheld in their explanation of a learning organization.

The organizational components included in most ideas about a learning organization include organizational learning, organizational transformation, empowering people, the environment and supportive systems (Marquardt 1996; Senge 1990; Watkins, K.E. & Marsick 1993). The learning organization may be the antithesis of the bureaucratic organization (Vaill 1996). It is suggested that a learning organization is one that is constantly learning and constantly changing. Vaill (1996) went on to state that learning organizations are leveraged to learn, grow and change. He claimed that learning organizations are marked by new and flexible structures and processes, imaginative leadership and empowered members, which contribute to and support learning dynamics. This fact is the basis for his claim that learning organizations are opposed to bureaucratic models which are described as stable and predictable (Vaill 1996).

A more universal characterization of a learning organization is suggested by Mai and McAdams (1996, p. 5) who stated that "every organization is a learning organization".

This statement was followed by the thesis that some organizations differentiate themselves by learning better, faster or more completely. The learning results are affected by the learning goals, the support and/or barriers, and level of participation within the organization.

These theorists concur in reporting that the need to be able to effectively compete in today's markets is the immediate impetus behind a learning organization. Watkins and Marsick (1993, p. 11) added that the primary focus is "some kind of transformational change". They suggested that the result of transformational change is the ability of the organization to behave and work in a fundamentally new and renewed manner. Organizational learning has not only been reported as enabling change but also as increasing organizational competency for innovation and growth (Watkins, Karen E. & Golembiewski, Robert T. 1995). The renewal process through organizational learning is one that was conceptualized in a set of action imperatives by Marsick and Watkins (1993). Table 2.2 summarizes the models in organizational learning.

Table 2.2 Summary of Models of the Learning Organization

Source	Means	Ends
Garratt (1986)	<ul style="list-style-type: none"> - Generation of vision - Refinement of thinking - Processes - Develop policy and strategy - Manage as a 'holistic' process - Acquire new managerial skills 	<ul style="list-style-type: none"> - Learning is key developable and tradable commodity of an organization; - Learning of people and organization is core to long - term survival
Senge (1990)	<ul style="list-style-type: none"> - System thinking - Personal mastery - Mental models - Shared vision - Team learning 	<ul style="list-style-type: none"> - An antidote for learning disabilities, especially fragmentation; expands organization's capacity to create their future; gives organization the only sustainable source of competitive advantage-ability to learn faster than its competition
Pedler & Boydell (1997)	<ul style="list-style-type: none"> - Learning approach to strategy - Participative policy-making - Information - Formative accounting & control - Internal exchange - Reward flexibility - Enabling structures 	<ul style="list-style-type: none"> - Release of underdeveloped potential - Transformation of individuals and organization - Key to survival and development - Enables organization to adapt, change, develop and transform in

	<ul style="list-style-type: none"> - Boundary workers as environmental scanners - Inter-company learning - Learning climate - Self-development opportunities for all 	<ul style="list-style-type: none"> response to wishes of people inside and outside organization - May lead to a learning society
Garvin (1993)	<ul style="list-style-type: none"> - Systematic problem solving - Experimentation with new approaches - Learning from experience and past history - Learning from experiences and best practices of others - Transference of knowledge quickly and efficiently throughout the organization 	<ul style="list-style-type: none"> - Shifts focus away from continuous improvement toward commitment to learning; organization becomes adept at translating new knowledge into new ways of behaving
Marquardt & Reynolds (1994) Marquardt (1996)	<ul style="list-style-type: none"> - Empower people - Integrate quality initiatives with quality of work life - Create free space for learning - Encourage collaboration and sharing the gains - Promote inquiry - Create continuous learning opportunity 	<ul style="list-style-type: none"> - Creates organizations that are able to adjust to the changing environment around them; only organizations that can transform themselves into more intelligent, proficient organizations will survive into the next millennium; achieves strategic advantages
Nathan (1998)	<ul style="list-style-type: none"> - Build teamwork and cooperation to NP learning organization is a CLO - Exemplifies the learning organization - Shapes a vision of the organization as learner - Designs the organization for learning - Empowers people to learn - Assesses learning 	<ul style="list-style-type: none"> - Enhances ability of organization to meet current challenges, tangible gains are realized such as superior quality, better delivery, increased membership, more revenue, and larger endowments.

2.5 Towards a Set of Core Variables in a Learning Organization

In addition to Senge (1990; 1994), Watkins and Marsick (1993), Marsick and Watkins (1993), Marquardt (1996) other organizational theorists have offered descriptive and prescriptive ideas about the learning organization. Articles and books have been authored by McGill, Slocum and Lei (1992), Calvert, Jick and Glinow (1993), Garvin (1993), Mobley and Marshall (1994), Handy (1995) Hoffman and Withers (1995),

Otala (1995), Thompson and Weiner (1996), Ulrich (1993) and Mai and McAdams (1996). A review of these writings in the literature leads to two conclusions. First, different authors may emphasize a different perspective: some detail the learning processes; some detail the role of organizational strategies, and some detail the role of management. Second, the learning organization is described in different terms. Some authors talk about learning organization features, while others outlined conditions, characteristics, strategies, skills, key principles, core practices, management architecture or practices, attributes, element, and factors. A comparison of these theoretical prescriptions leads to a final conclusion: a group of core variables (see Table 2.3).

Table 2.3 Learning Organization Factors Discussed in the Literature

Factor	Researcher				
	Hoffman& Withers	Calvert et al.	Wishart	Garvin	Mai & McAdams
Individual Learning	X				
Team Learning			x		
Organization Learning		x	x	x	x
Leadership					x
Culture		x		x	
Mission and Strategy			x		x
Management practices					x
Organizational Structure			x	x	
Technology system		x			
Organizational Climate		x		x	x
Motivation		x			

As a group, these authors outlined the importance of each of the following learning orientations: individual learning, team learning and organization learning. In addition, they described the importance of learning facilitators, which included the following: leadership, culture, mission and strategy, management practices, organization structure, systems, organizational climate and motivation. All variables in table 2.3

are applied to develop the conceptual framework of this study which are discussed in the next chapter and outlined in Figure 3.1.

One of Senge's (1990) key contributions to this field was to describe the strategies which organizations can implement to develop and encourage the five core disciplines of a learning organization. The recommended strategies involve the following organizational variables: climate, leadership, management, human resource practices, organization mission, team learning, job attitudes and organizational culture. This set of variables is now discussed:

2.5.1 Climate

Senge (1990; 1994) suggested that a supportive climate is important for learning organizations and this comprises making it safe for employees to be creative and to actualize their visions: "organizations intent on building shared visions continually encourage members to develop their personal visions" (Senge 1990, p. 211). The climate should not only accept inquiry and questioning by employees and teams, but both of these should be expected as organizations learn. Senge suggested that individuals and organizations should be open and committed to the truth. Senge also cited the importance of reflection. He claimed that individuals must be able to question and listen to other constituents, and they must be able to reflect upon and challenge their own deeply held views. He suggested that forums should be provided by organizations for individuals to pursue these activities. Senge (1994) further suggested the use of learning laboratories as practice fields for the development of the required skills in challenging and recreating mental models. Scenarios are recommended as a means of allowing individuals to step into the future and to create a new and imaginative reality (Senge 1994). This strategy is purported to enable employees to view a new collective set of assumptions about the possibilities that may eventually be encountered by an organization.

2.5.2 Leadership

Senge (1990; 1993) wrote that leaders have to support a learning program. They must inform the staff that personal growth is valued and respected by the business. A leader's role is the beginning stage of creating an organizational model for learning, and for personal mastery and growth (Senge 1990).

2.5.3 Human Resource Practices

Human resource development assumes the important role of ensuring that employees have the skills necessary for developing a vision, and for creating a personal challenge. Individuals need to know how to think systemically, how to reflect and how to inquire into and listen to others' views. Performance appraisals become an opportunity to discuss personal goals. Failures should be regarded as learning opportunities and should not be feared. Organizations must be willing to invest time and resources for the activities that in a systems perspective will enhance the organization in meeting its goals.

2.5.4 Organizational Mission

Senge (1994) also spoke about the importance of a formal mission statement that is both known and enduring. Visions and goals guide organizational activities. The mission of an organization is worthless if goals do not exist for realizing the defined purpose of the organization. These goals also must be well articulated by the organization, and they must have the support and commitment of the employees.

2.5.5 Team Learning

Individuals and teams also should have goals to drive performance behaviors. In addressing team learning, Senge (1994) discussed the importance of alignment of purpose and goals. He clearly pointed out that alignment does not mean that differences do not exist. Effective team learning is a result of using these differences to make the collective team learning more effective. This is accomplished through what Senge (1994) referred to as "the art and practice of conversation". This is the juncture in learning where the organizational structure becomes acts either as a facilitator or a barrier.

Senge (1994) pointed out that a critical feature necessary for team learning is a collaborative infrastructure which makes provision for the practice of dialogue and discussion. He confirmed that collective inquiry must be promoted and enabled. The structure cannot be allowed to be a barrier to learning; it must provide access to both individuals and information. Marquardt (1996) stated that the need for flexible organizational structure is essential to organizational learning and supported Senge's beliefs regarding the need for collaboration and sharing. Marquardt claimed that

organizational structures, which are characterized by rigid boundaries, bulky size, and bureaucratic restrictions, tend to extinguish learning, rather than enabling learning.

2.5.6 Organizational Culture

Nevis DiBella and Gould (1995) made the statement that culture determines the nature of learning and the way in which it occurs. Schein called culture "the basis for its (the organization's) continuing capacity to learn" (Schein, E.H. 1999, p. 98). Senge (1994) remarked that as individuals experience new alternatives, changes occur in basic attitudes and beliefs, which comprise the organizational culture. The culture of a learning organization is characterized by integrity, openness, commitment and collective intelligence (Senge 1994). In order to achieve learning goals, it is important for organizations to have a supportive learning culture.

A review of articles and books on the topic of culture suggests that the individual, team, and organizational learning are important factors that need to be supported in a learning organization. The three most generally written about facilitating factors are communication and information processing systems; organizational culture; and organizational structure. Outside of these factors are leadership and management; and organizational vision along with the strategy to enact it.

While there is no universal definition of the learning organization, there appears to be consensus about the important learning and facilitating factors. There are also suggestions for organizations on how to attain and support the desirable learning behaviors at the individual, team and organizational levels. The thesis now moves to consider the ways in which organizations bring about these learning behaviours which are performance of a learning organization; and tacit and explicit knowledge.

2.6 Performance of the Learning Organization

Many theorists have described the learning organization and have made suggestions for its implementation based on the need to be able to adapt to the accelerating changes in the environment (Kline, Peter & Saunders 1993; Marquardt 1996; Pedler, Burgoyne & Boydell 1997; Senge 1990; Watkins, K.E. & Marsick 1993). It has been suggested that by adopting some or all of the prescribed concepts of a learning

organization, an organization's performance should be improved (Kline, Peter & Saunders 1993; Kuchinke 1995; Senge 1992; Slater & Narver 1995).

Kline and Saunders (1993, p. 33) stated that "what's at stake is continuous improvement" to achieve greater performance. Learning is viewed as the means to long-term performance improvement (Guns 1996). This performance-link to the organizational learning imperative has been recognized by other theorists also, as stated above. Ireland and Hitt (1999) claimed that the systematic efforts to produce knowledge, results in an organization's ability to perform more effectively. They reported that organizations such as Andersen Consulting, Intel Corporation, General Motors and General Electric make large educational investments. They also concluded that investing in organizational members' learning leads to more knowledge and to a more creative and effective workforce.

Dodgson (1993) reported that the need for organizations to learn is often related to change. The expressed requirements during these periods are both adaptation and efficiency. He went on to state that learning is regarded as necessary in order for organizations to improve their competitiveness, productivity and innovativeness. Stata (1989) believed that learning is the principal process in management innovation. In support of these views, Slater and Narver (1995, p. 66) suggested that "behavior change is the link between organizational learning and its ultimate objective, performance improvement". Thompson and Weiner (1996) added that organizational learning is described as the foundation for change, which is described as a fundamental requirement for organizational effectiveness.

Jacobs (1995) reported that the learning organization literature needs more rigorous research and suggested that research needs to be conducted to address the claim about the learning and performance improvement link. In addition to Jacobs' concerns about the status of the learning organization, Ulrich, Jick and Glinow (1993, p. 75) addressed other issues. They listed three concerns: the learning organization becoming an organizational panacea; the lack of clarity in the language and metaphors used to describe a learning organization; and the need to test and assess actions which lead to improved learning capability. They claimed that the need exists to "design models that identify and test what managers can do to make learning happen". The authors stated that the literature consists of more 'thought papers' about learning, rather than empirical studies examining how organizational learning is affected. There is a current for empirical research exists to better understand the

organizational causes which are most salient to organizational learning as hypothesized in the learning organization literature (Jacobs 1995; Ulrich, Von Glinow & Jick 1993).

Following up on this critique of the learning organization literature, Kaiser and Holton (1997) suggested that the learning organization is a performance improvement strategy. They proposed a model hypothesizing that in organizations operating in environments which require innovation, learning organization strategies lead to learning and, in turn, to innovation. Effective innovative changes are related to performance improvement as they result in customer value (Slater & Narver 1995).

2.6.1 Defining Performance in Organizations

In discussing the meaning of performance, Holton (1999) distinguished between "performance" and "performance drivers". Performance is defined as the actual outcomes produced by organizational efforts; that is, actual products or services. Performance drivers are those aspects of performance that are expected to sustain or increase system, sub-system, process, or individual ability and capacity, to be more effective or efficient in the future. They are leading indicators of future outcomes and are unique for particular types of units (Holton, E. & Kaiser 1997). Organization performance is directly related to performance drivers. Knowledge, which results from learning, is considered to play a role as both output and input organizational processes (Sugarman 1997).

The learning organization literature suggests that learning is related to performance. The literature also suggests that performance is directly related to performance drivers. It can logically be stated then that the learning organization, designed to bring about organizational learning, is a strategy designed to improve performance drivers.

2.6.2 Learning and Innovation

The learning organization is prescribed as a response to meet the demands of environmental change. It is also reported that innovation is a response to the uncertainties created by environmental change (Brown & Duguid 1991; Damanpour & Evan 1984). The expected result is improved goal attainment and performance (Damanpour 1991; Damanpour & Evan 1984). The reported genesis of, and the

expectations from, the implementation of learning organization methods and innovation are similar.

A review of the two literature on both concepts reveals that strategies used to support and enhance learning efforts and innovation efforts are similar and parallel (Kaiser & Holton 1997). The organizational variables that influence both processes are culture, climate, leadership, management practices, information processing, organizational strategies, structures and practices (see Table 2.4). This reported similarity suggests that a relationship may exist between the learning organization and innovation. It is suggested that the culture of a learning organization supports and rewards both learning and innovation (Gephart, M.A. & Marsick 1996). Kieman (1993, p. 11) referred to innovation as a “close relative” of organizational learning, and described both as critical elements for high performance organizations. Dodgson (1993) stated that while learning itself is often equated with competitive efficiency, it can be also viewed as supporting innovative efficiency.

The learning organization literature discusses the impetus for organizational learning; it describes the learning goals, the characteristics of a learning organization; it prescribes methods of implementation and addresses the important organizational variables of concern; and it suggests the organizational outcomes of improved performance effectiveness. The literature also reports successful organizational implementation and turn-around stories in leading organizations such as Honda, Federal Express, Xerox and Coming (Garvin, D.A. 1993; Marquardt 1996). However, little attention is given to theory building and demonstration of the kinetics that make the learning organization an authentic organizational development mechanism (see Table 2.4).

Table 2.4 Characteristics of Learning and Innovating Organizations

Learning Organization		Innovating Organization	
Environment/ customers	Marquardt (1996)	External Environment	Meyers & Goes (1988)
Leadership	Marquardt (1996) Senge (1994)	Leadership	Meyers & Goes (1988) Galbraith (1982)
Alliances	Marquardt (1996)	Advocacy	Meyers & Goes (1988) Galbraith (1982)
Champion	Marquardt (1996)	Champion	Leonard and Barton (1988)
Structure: Boundaryless	Marquardt (1996) Ashkenas (1997)	Structural Complexity	Rogers (1983) Damanpour (1991)
Customers, Suppliers	Marquardt (1996)	Market Strategy	Leonard and Barton (1988) Galbraith (1982)
Resource Commitment	Marquardt (1996)	Resource Allocation	Meyer (1982) Damanpour (1991) Amabile (1988) Ettlie & O'Keefe (1982)
		Attitudes Toward	Damanpour (1991)
Communication Sharing	Marquardt (1996)	Communication	Tjosvold &McNeety (1988) Brown& Duguid (1991) Damanpour (1991) Galbraith (1982) Fidler & Johnson (1984)
Vision/Goals/ Systems	Marquardt (1996) Senge (1994)	Cooperative Goals	Tjosvold & McNeely (1988)
Double-loop Learning/ Mental Models	Argyris & Schon (1978) Marquardt (1996) Senge (1994)	New Interpretations	Brown & Duguid (1991)
Communities of Practice	Senge (1990, 1994)	Communities of Practice	Brown & Duguid (1991)
Culture	Marquardt (1996)	Culture, Norms and Values	Glynn (1996)
Learning: Individual	Marquardt (1996)	Learning Capabilities	Glynn (1996)
Team and Organization	Watkins & Marsick (1993) Marquardt (1996) Senge (1994)	Learning Capabilities	Glynn (1996)
Experiential Learning	Watkins & Marsick (1993)	Problem Novelty/ Challenge	Amabile (1988) Glynn (1996)
Learning Systems	Marquardt (1996)	Technology	Glynn (1996)

Trust, Autonomy and Empowerment	Marquardt (1996)	Operational Autonomy	Amabile (1988)
Management Practices	Marquardt (1996)	Management Practices	Amabile (1988)
Incentives/ Encouragement	Marquardt (1996)	Encouragement	Amabile (1988)
Learning Climate	Marquardt (1996)	Climate	Amabile (1988)
Recognition/ Reward	Marquardt (1996)	Recognition/ Reward	Amabile (1988) Galbraith(1982)

2.6.3 Explaining Learning and Performance

A review of the learning organization literature suggests that few conceptual models, and even fewer causal models, of a learning organization have been theorized compared to the volumes of ideas prescribed for achieving the ideal learning goal. It is more common to find models suggesting learning processes (Argyris, C & Schon 1996; Marquardt 1996; Meisel & Fearon 1996; Wise 1996).

A rare exception to this is the conceptual model of Watkins and Marsick (1993) Their model highlights their learning imperatives at the organizational, team and individual levels as leading to continuous learning and change. They discussed the organizational learning model of Meyer (1982) and the importance of the organizational variables of culture, structure, strategy and resources. This conceptual work has been used as the foundation of the Learning Organization Questionnaire and subsequently a test of a causal model of learning leading to knowledge and financial performance (Yang, B., Watkins & Marsick 1998).

A second similar exception to this has been the work of Gephart et al. (1996). These researchers developed an instrument to assess an organization based on perceptions of the strength of important learning organization variables as outlined in the literature. The theoretical foundation for this assessment tool was the Burke and Litwin model of organizational performance and change (Burke, W. & Litwin 1992; Burke, W.W. 1994). This model considers more organizational variables than does the Meyer learning model and includes a greater array of organizational relationships and influence.

2.7 Tacit and Explicit Knowledge

Tacit and explicit knowledge are the components of knowledge which rely on learning by doing (Chi 1994 ; Penrose 1995; Polanyi 1974). Explicit knowledge is easily expressed, clearly defined, unambiguous and relatively easy to codify into a database. Explicit knowledge is externalized know-how often in the form of methodologies, processes and procedures, and, being formal and systematic, is easily communicated and shared (De Leo 1994; Hernandez 2000; Poomontre 2005; Wagner, R.K. & Sternberg 1985)

Tacit knowledge is more nebulous than explicit knowledge. Tacit knowledge is the unarticulated know-how and technical skills in people's heads – it is cognitive, making it difficult to transfer, express and codify. Being highly personal it can be idiosyncratic as it is based on personal experience, mental models and beliefs; moreover, it is contextual. Tacit knowledge is often an organization's most valuable form of knowledge because of its potential for innovation and performance improvement; however it is difficult to manage (Bloodgood 1997; De Leo 1994; Reber 1993; Schmidt & Hunter 1993; Spender 1993; Wagner, R.K. & Sternberg 1985). The challenge for the learning organization is to convert tacit knowledge into explicit knowledge (Bloodgood 1997; Castillo 2008; Hernandez 2000; Korth 2007). The study of role of tacit and explicit knowledge in organizations is discussed below.

The term tacit knowledge was coined almost three decades ago by Polanyi (1974) who defined it as "knowing more than we can tell" and, like current researchers, he viewed this knowledge as implicit and not the type taught in classroom settings. Polanyi pointed out that tacit knowledge is evidenced through one's actions rather than through specific explanations of what one knows. In addition to stating that tacit knowledge cannot be formally taught in academic settings, Wagner and Hollenbeck (1992) surmised that this form of knowledge is primarily acquired through direct experience or through interactions with an experienced person. This knowledge is tacit in the sense that it is unspoken, gleaned informally on the job with limited environmental support (i.e., without the aid of a formal instructor), and usually poorly conveyed because it is not explicitly taught (Sternberg et al. 1995).

Wagner and Sternberg's (1985) delineation between tacit and explicit knowledge hinged on tacit knowledge being reflected in one's actions as opposed to explicit

knowledge of knowing what to do. This definition highlights the importance of tacit and explicit knowledge for practical success. According to Sternberg et al. (1995), the acquisition and use of tacit and explicit knowledge is uniquely important for competent performance in real-world contexts.

Nelson and Winter (1982) used the concept of tacit and explicit knowledge to explore the nature of routines in organizations. Routines are the bundles of skills brought about by learning and identified as sets of implicit rules that apply to situations (Nelson & Winter 1982). These routines are capable of "supporting complex patterns of interactions" without explicit procedures (Cohen et al. 1996; Grant 1996). Nelson and Winter (1982) drew the connection between the personal knowledge explicated by Polanyi (1974) and the skills of the organization embodied in routine, but the concept of tacit and explicit knowledge is supported as a cultural manifestation (Spender 1993). Child (1997) built on the connection between the individual and the organization by elaborating the social context under which the individual performs his or her work. Individuals operate in networks of relationships which result in shared cognition and the creation of tacit and explicit knowledge that is embedded in routines.

Porter (1998) maintained that process activities of firms create information and knowledge, aiding in the development of new resources (Itami, H. & Numagami 1992). These activities or behaviors are the routines foretold by Nelson and Winter (1982) and are used to perform the work of the organization; and these routines gain the firm experience through learning that permits building of capabilities, while creating explicit and tacit and explicit knowledge resources. Nelson and Winter (1982) proposed that routines store organizational knowledge; in fact claiming that these routines, or programs, are organizational memory

Spender (1993) divided the knowledge resident in organizations along two dimensions: "explicit" or "taken for granted" and "social" or "individual." He went on to indicate that the form in which knowledge took on these dimensions posed different strategic implications, requiring different management treatment. Thus, the knowledge characteristics of routines must be better understood to grasp the implications for strategy and performance (Penrose 1995). Recognition of the existence of multiple forms of knowledge and the resulting need for appreciation of their characteristics and strategic implications form the basis for the emerging knowledge-based view of the firm (Bloodgood 1997).

Barney (1986) compared tacit and explicit knowledge to the embedded nature of organizational culture. When culture is considered as a unique resource of an organization, it is difficult to codify or express. Thus, it is impossible for a firm to replicate the culture of a credible competitor. Inability to replicate culture is demonstrated repeatedly in joint ventures where “seaming”, to some extent, is one of the goals of the venture, but incorporating the successful functions and activities of the partner are most difficult, if not impossible. Some firm skills are more tacit than explicit and some more explicit than others, and this partially determines the potential learning that can take place between firms (Hamel 1991).

Polanyi (1974) and Reber (1993) asserted that implicit or tacit and explicit knowledge is gained through personal experience. It is not gained through formal instruction; it requires immersion in a situation where subtleties contained within that situation can be absorbed. Hasher and Zacks (1984) found that automatic encoding of essential situation-specific information occurs within individuals, just by attending to an activity. From an organizational perspective, the performance of activities occurs within the social context of the firm. So much of tacit and explicit knowledge is developed through relationships and remains connected to them. The idea that personally experiencing an activity provides a critical understanding of the activity and an increased ability to perform the activity is shared by Westley and Mintzberg (1989, pp. 18-9) who wrote: “like the craftsman, the strategic visionary would appear to develop strategic perceptions as much through practice and gut-level feel for the business, product, market and technology, as through conscious cognition”.

According to Lachman, Lachman and Butterfield (1979), the processes used to acquire explicit and tacit and explicit knowledge operate very differently. They argue that from an evolutionary perspective, unconscious processing is a much older form of information processing and is the product of millions of years of evolution. Reber and Arthur (1993) contends that consciousness appeared well after the emergence of the unconscious perceptual and cognitive properties of humankind, a point supported by historic evolutionists such as Dennet (1996) and evolutionary psychologists such as Tooby and Cosmides (1990). The role of evolutionary theory in much of the psychology and other areas of science has been significant according to Cosmides, Tooby and Barkow (1992) and Reber and Arthur (1993). Nelson and Winter (1982) and Cohen et al. (1996) use the theory of historic evolution to explicate the importance of tacit and explicit knowledge.

Schmidt and Hunter (1993) have argued persuasively that tacit and explicit knowledge should not be considered a new ability construct, but rather as the more familiar job of knowledge construct. Schmidt and Hunter (1993) defined job knowledge as an understanding of task-related facts and principles required for job performance. Job knowledge as interpreted by Hunter refers to task-related knowledge and appears more relevant for jobs requiring technical competence. In contrast, tacit and explicit knowledge (the single construct used in this thesis) refers not only to task-related knowledge but also to knowledge of appropriate behaviors or principles (e.g., socially appropriate behaviors, workplace norms) that may be relevant for both technical and non-technical jobs and result in the attainment of valued organizational goals.

Redefining tacit and explicit knowledge as the knowledge of appropriate workplace behavior corresponds with Wagner and Sternberg's (1985) definition as work-related know-how. Furthermore, conceptualizing tacit and explicit knowledge as job knowledge conforms to popular operationalizations of the construct. Tests of the tacit and explicit knowledge variable are designed specifically to tap into knowledge individuals possess about appropriate and acceptable behavior in work situations. They do not assess whether an individual is willing or able to act on that knowledge. In light of this distinction, this thesis defines tacit and explicit knowledge in terms of the job knowledge individuals possess, rather than as an ability to use or apply acquired knowledge.

As discussed above the role of tacit and explicit knowledge has a key impact on organization development and on performance including learning organization development. This study adopts the result of converting tacit knowledge into explicit knowledge which is a process informed by the dependent variables: documentation and dissemination (see further discussion on dependent variables in 3.8.2).

2.8 Definition of Knowledge Sharing

Based on preceding discussions, learning organizations (LO) seem to have a capability to learn so as to create a sustainable competitive advantage for their ability to manage change. This capability is seemingly developed through the three stages of knowledge acquisition, knowledge sharing and knowledge utilization (Crossan,

Lame & White 1999; Dibella, A.J., Nevis & Gould 1996; Huber 1991). Knowledge acquisition is a stage in the development process during which members in an organization must be able to learn independently and cooperatively from past experiences and the best practices of others; from others' success or failure; from experimentation; and from training and educational activities. As a result, members in organizations obtain knowledge from continuous learning.

The second stage in the development of learning organizations is knowledge sharing. After individual members learn and acquire new knowledge, the whole organization can only benefit if the knowledge is transferred to or shared with other members both within (between employees) and outside the organization (such as customers, suppliers, or other stakeholders). Therefore, the sharing of knowledge involves members individually and collectively in the organization.

Finally, an improvement in the ability to adapt to change is the main objective for an organization to become an learning organizations. It can only be achieved if organizational members are able to utilize the learning or knowledge acquired. This stage of development requires the management of learning at individual, team and organizational levels. Following knowledge acquisition, it is suggested that knowledge be amassed in an organizational memory system as well as a located within teams or other units. For that reason, knowledge is distributed across teams within organizations and members can retrieve this knowledge for the purposes of modification and innovation. When organizations are able to do this, they have moved on to the process of knowledge sharing in the learning organizations development stage.

2.9 The Importance of Knowledge Sharing

Knowledge sharing is the distribution of knowledge or what has been learned. Conversely, if individuals acquire learning and share nothing with each other, it is difficult to develop the organization into an LO. Shared knowledge or sharing what individual employees have learned is significant for organizational learning. Fielden (2001) argues that knowledge is useful when it is freely available, so getting information into the hands of employees is critical for successful knowledge sharing.

Dixon (1999) suggests that knowledge sharing starts with every team doing something that others in the organization could make use of and the team themselves using what others know. Likewise, King (2001) concurs that knowledge sharing is a culture that contributes to the success of knowledge management strategy. Many scholars attempt to clarify the necessity of sharing knowledge in an organization. Hong and Kuo (1999) suggest that learning through sharing becomes the operational core of knowledge management. Thus, an organization may develop important characteristics of an LO if it has placed great emphasis on learning through sharing. Goh (1998) suggests that transfer of knowledge is the ability of an organization to disseminate useful information within and from outside the organization. Not only can employees learn from transfer of knowledge between each other within organizations, they can also learn from outside or other companies. Sometimes powerful insights may come from outside an organization. Therefore, learning from the experiences of others, namely 'benchmarking', is suggested for developing LOs (Burgoyne 1995; Garvin, D.A. 1993; Luthans, Rubach & Paul 1995; Ulrich, Von Glinow & Jick 1993). Through this process, human knowledge, which is more implicit or tacit, becomes more explicit and shared and, through sharing its power grows exponentially (Huang 1998). This leads to the question of how knowledge can be shared in an organization.

2.10 Summery

The literature review in this chapter summarized several studies which found that knowledge sharing was related with an organization's ability to adapt with the changing of the external environment, and implication of sharing. Many definition of learning organization, organizational learning and knowledge sharing were Identified. Seven main key models were reviewed (Marquardt's, Senge's, Garvin's, Walkins and Marsick's, Huber's, Mike Pedler, John Burgoyne and Tom Boydell's, and David Schwandt's model). They were the principle models used to develop this dissertation framework. The review of knowledge sharing variances, performance of learning organizations, learning outcome and tacit and explicit knowledge was also discussed in this chapter.

In the next chapter, cultural context, management practices and knowledge sharing, are detailed to develop the propositions, definitions and questions presented in this thesis, to answer the research questions.

CHAPTER 3

CULTURAL CONTEXT, MANAGEMENT PRACTICES AND KNOWLEDGE SHARING

3.1 Introduction

Chapter 2 set out the research context to this study by introducing the learning organization and knowledge sharing. The definitions of learning organization were considered before moving to a discussion on the various factors known to influence knowledge sharing, learning organization outcome, tacit and explicit knowledge and organization performance.

This chapter reviews the literature relating to cultural context, management practices and knowledge sharing, to develop the propositions, definitions and questions used to answer the research question: *“What are the factors affecting knowledge sharing in Thai organizations?”* The chapter begins with a review of several important culture management theories and their implications to this study. Next, the concept and definitions of the literature about Thai characteristic are reviewed, and finally, a provisional model of knowledge sharing in Thai organizations and hypotheses are developed.

3.2 Culture and Management

Culture has played an important role in organizations. Since the 1960s, the interest in the concept of culture among management researchers has grown wider. They believe that culture has an influence on management behavior and performance (1983, p. 67). “Culture is a construct which is not directly accessible to observation, but inferable from verbal statements and other behaviors and useful in predicting other observable and measurable verbal and nonverbal behavior” (Hofstede 1991, p. 34).

Chow (2004) distinguished between the “East” and the “West” in the cultural divides concept (Table 3.1).

Table 3.1 Cultural Divides Between the “East” and the “West”

East	West
Focus on the family	Focus on the individual company
Indirectness	Directness
Personal connections are overwhelmingly	Personal connections important but individual drive and merit are vital
Acceptance	Determination to overcome
Public " focus" on life: market, street	Public" focus of private" on life: home, car
Face: saving, giving, having	Face: taking, slapping "in your face"
Order: stasis	Order: dynamism
Harmonization	Combativeness

Source: Chow (2004, p. 2).

The "East" focuses on family and company while the "West" focuses on individuals. In directedness and personal connections are the characteristics of the "East". The "East" also accepts whatever they receive while the "West" are more determined to overcome obstacles. The "East" enjoy interactions while the "West" prefer privacy and quality of life. The "West" on the other hand, are always prepared for change and dynamism while the "East" are more easy-going and enjoy gradual evolution. The "East" avoid confrontation and try to maintain harmony under all circumstances, The "West" fight to attain the expected goal and whatever they plan to achieve.

These cultural divides provided by Chow (2004) are in line with those cultural dimensions proposed by Hofstede (1980) in terms of individualism/collectivism, masculinity/femininity, power distance, uncertainty avoidance and long-term orientation.

Organization Culture

Cameron (2005) wrote that the concept of organizational culture emerged initially from two different disciplines: anthropology (e.g., organizations are culture) and sociology (e.g., organizations have cultures). In terms of sociology foundation, culture resides in individual interpretations and cognitions, and is a potential predictor of other organizational outcomes. It is difficult if not impossible to totally separate national cultures from organization cultures because national cultures affect value dimensions in the workplace. Triandis (1993) differentiates between national and organizational culture. Hofstede (1991, p. 76) posits that:

national cultures differ primarily in the fundamental, invisible values held by a majority of their members, acquired in early childhood whereas organizational cultures are a much more superficial phenomenon in the visible practices of the organization, acquired by socialization of the new members who join as young adults.

Triandis (1993) stated that organizational culture reflects organizations' symbols, heroes, rituals and values, whereas national culture resides mainly in deeply-rooted values. Organizational culture can be labeled as practices, symbols, heroes and rituals. It should remind the organization's members but is not necessary for the outsiders. Hofstede and his colleagues concluded that national culture relates to "values" whereas organizational culture relates to "organizational practices" more directly (Hofstede 1980, 1991).

Corporate culture can be viewed as an organization-specific system of widely shared assumptions and values that give rise to typical behavior patterns (Gordon, G.G. 1991). Sub units in a organization, might also develop subcultures different from the main organizational culture (Martin & Siehl 1983). Morand (1995) supported the organizational literature which describes organization culture in terms of broad sets of shared norms, values or schemas that guide patterns of cognition and interaction among individual members. He proposed that formality and informality, two distinct types of broad interaction schemas, can be used to describe dimensions of organizational culture. Similarly, Bax (1991) defined organizational culture as the sum total of values shared by the participants in the organization, that are expressed in norms, expectations, symbols and rituals, and that are related to the presentation of the organization towards the outside world, its internal functioning and its goals.

Porter, Lawler and Hackman (1974, p. 489) also drew on organizational culture as a set of shared beliefs and patterns of operation:

Organization culture' (is) a set of customs and typical patterns of ways of doing things. The force, pervasiveness and nature of modal beliefs and values vary considerably from organization to organization ... The recognition on the part of the members of the organization that there is predominant culture that can be identified is presumed to be a significant factor in facilitating and ensuring the survival of meaningful changes.

Finally, George and Jones (1997) posited organizational culture as including beliefs, norms, and values that are relatively shared in an organization and that helps organizational members make sense of organizational life and serve as a guide to action. They also propose a conceptual framework linking organizational and individual variables.

Tushman and Anderson (1997) viewed the concept of culture as abstract and difficult for managers to get a handle on. So they suggested a subject most managers are more comfortable with: control in organization. They argued that managers can use culture to prompt innovation and change. Similarly, Graves (1986) attempted to define the elements of organizational culture the in concepts of leadership, motivation, communication, decision-process, specificity of goals and degree of control. In view of this operationalization of culture, Frost (1985) provided four levels of organizational culture which together form the beginnings of operationalizing the idea. They are:

- **Artifacts:** the tangible aspects of culture shared by members of an organization. These verbal (language, stories, and myths), behavioral (rituals and ceremonies), and physical (technology and art) artifacts are the surface manifestations of organizational culture.
- **Perspectives:** the socially shared rules and norms applicable to a given context, are viewed as the solutions to common problems encountered by organizational members, and are relatively concrete.
- **Values:** the evolutionary basis that organizational members utilize for judging situations, acts, objects and people, reflecting the real goals, ideals and standards. Values represent embers' preferred means of resolving life's problem. Assumptions: to the tacit beliefs that members hold about themselves, others and their relationships to other persons, and the nature of the organization in which they live. Assumptions are the implicit, abstract axioms that determine the more explicit system of meanings.

Cameron (2005) noted that debates continue to rage among culture researchers on the best ways to assess culture, whether through quantitative or qualitative approaches and then which is more valid. He wrote that the basic issue is "when assessing culture via questionnaires or interviews, is one really measuring superficial

characteristics of an organization-namely, organizational climate-rather than in-depth cultural values?" (Cameron 2005, p. 135). For organizational research, he suggested using the competing values framework as a general framework. This framework introduces four quadrants; "clan employee focused" culture (emphasizing values that are internal, flexible with concern for people and customers), "market result focused" culture (emphasizing values that are external with a need for stability and control), "adhocracy/entrepreneurial" culture (emphasizing an external orientation with a high degree of flexibility and individuality), and "hierarchy" culture (emphasizing internal maintenance and control values).

Others have prescribed a set of variables able to distinguish organizational cultures. Dastmalchian and his colleagues proposed the organizational climate as a variable closely related to organizational culture (Dastmalchian, Blyton & Adamson 1991) and used a modified version of a climate instrument developed by Dastmalchian (1986). The 23 items which were factor analyzed resulted in two factors reflecting the culture dimensions of "openness and flexibility" and "rigidity and control".

Adding to the complexity of measuring organizational culture is the concept of organizational climate (see also Section 2.5.1). Denison (1990) offered the conceptual definition of organizational climate as "a relatively enduring quality of the internal environment of an organization that: (a) is experienced by its members; (b) influences their behavior; and (c) can be described in terms of the values of a particular set of characteristics (or attributes) of the organization". He proposes that organizational culture can be distinguished from climate in that the former refers to implicit, often indiscernible aspects of organizations, and is an enduring, slow to change core attribute of organizations; the latter refers to more overt, observable attributes of organizations and is based on attitudes which can change quickly and dramatically. Literature on culture in relation to this has been growing (Lim & Firkola 2000). It includes work on culture relating to work values (Ralston et al. 2008), productivity of R&D units (Kedia & Bhagat 1988), preference for innovation roles (Shane 1995), perception of ethical problems (Lim & Firkola 2000), ownership preferences (Erramilli 1996), economic performance (Franke, Hofstede & Bond 1991), performance of brand image strategies (Roth 1995), human resources (Laurent 1986), constraints on technology transfer across nations (Kedia & Bhagat 1988), and performance fit (Weber & Shenkar 1996).

Studies on National Cultures

As indicated earlier, organizational cultures are likely to be influenced by their national setting and national culture. The most influential cultural scholar is Hofstede, whose cultural dimensions have been cited over time (Hofstede 1991). He and his colleagues have constructed five dimensions as a framework to study cultures across nations (Hofstede 1980) as follows.

- 1) *Individualism/collectivism* describes a continuum or range of values which emphasizes individual accomplishments at one extreme and loyalty to the collectivity at the other. Business practitioners from collectivistic cultures tend to be more susceptible to group and intra organizational influence than their counterparts in individualistic cultures.
- 2) *Power distance* describes the extent to which people accept and value differentiation based on position. In countries with a large power distance, superiors are expected to act autocratically without consulting subordinates.
- 3) *Uncertainty avoidance* deals with a society's tolerance for uncertainty and ambiguity. Business practitioners from societies that are strong on uncertainty avoidance are more likely to be intolerant of any deviations from group/organizational norms than their counterparts from countries that have weak uncertainty avoidance. People in uncertainty avoiding countries are also more emotional and motivated by inner nervous energy.
- 4) *Masculinity/femininity* describes cultures which emphasize the acquisition of material goods and assertiveness as masculinity, while femininity values high quality relationships and quality of life over material possessions.
- 5) *Long-term/short-term orientation* describes the extent to which people in a country emphasize the long term (saving for the future and persistence) or the short term (living for the present). Tradition, age and relationships are respected in more long-term orientated cultures.

Hofstede's work on the influences of culture on management techniques established that attainable management techniques and practices in one country might not be

achievable in another country by virtue of the cultural differences. National culture influences the design and the use of management systems. Management techniques and practices in various countries require modification for effective implementation. The current study involves knowledge sharing in learning organizations in Thailand, an eastern developing country. Accordingly, the features of Thai culture which are likely to impact on knowledge sharing in Thai organizations, are considered in the context of research conducted on organizational culture and the various management perspectives taken to organizational culture in the following sections.

3.3 Organizational Culture Studies

This section investigates studies related to organizational culture. Following Hofstede' (1980, 1991) groundbreaking work in the area of culture, a range of other studies have since demonstrated that culture is an explanatory factor for a range of organizational phenomena. For instance, McAnally (1997) studied the facets of organizational culture which supported or discouraged the creation of a learning organization. She also studied organizations and their linkage to Senge's five disciplines. The results showed the elements supporting learning practices as: corporate programs, mentoring, selection practices, training and development programs, individual department processes, and slowing the pace of the business. Elements which discouraged learning included the philosophy of separateness in jobs and departments, limited resources, weak communication systems, tense times, corporate involvement, and the pace of the business.

Owens (1996) studied a learning organization and its culture. The results of his study (the Owens maturity discipline model) defined measurements, boundaries, and ways to identify the learning organization movement. The model included the Senge (1994) deep learning cycle at its core. He found that for a learning organization to emerge, all five disciplines must be present and organizational behavior must be demonstrated by the Covey (1997) maturity continuum within the dimensions of each discipline. The study culminated in the design of an educational module to recommend ways to change.

Mullern and Ostergren (1995) noted how organizational learning arises and how it is affected by the institutional conditions under which organizations work. The research strategy was based on in-depth case studies of six organizations. The organizations

had recently implemented large re-orientation projects, which made up the empirical focus for studying learning. The learning culture in the municipalities studied was summarized as reformative-split. The learning culture in the technical consultancy firms was summarized as adaptive-unified. A major finding in their study was that the organizations from the two groups used different mechanisms for learning, both externally and internally.

Research findings from the organizational culture perspective which pertains to the present study can be summarized as:

- When learning is considered to be an inquiry journey, it will help students and teachers to achieve high levels of engagement.
- The cultural elements have been linked to Peter Senge's five disciplines.
- The Owen maturity discipline model included Peter Senge's deep learning organization at its core. All five disciplines must be present and organizational behavior must be demonstrated by the Covey Maturity Continuum within the dimensions of each discipline.
- The learning culture is affected by institutional conditions (McAnally 1997; Mullen & Ostergren 1995; Owens & Kathryn 1996; Pedler, Burgoyne & Boydell 1997; Senge 1994)

3.4 Management Perspectives

Shared leadership may be a key ingredient to the success of learning organizations in a knowledge society (Genthon 1997; Hamolsky 1997; Johnson & Lofkvist 1996; Pedler, Burgoyne & Boydell 1997; Senge 1990). This means that the role of management is important in creating a LO. Johnson's (1996) work focused on strategic planning in shared leadership, the planning process and its institutional and individual effects through which organizations become learning organizations. He used participatory action research and participant observation in a community college. Lakeview Community College was a success story in sharing leadership through strategic planning. It was a learning organization with a history and environment in which people, animated by leaders, invested in 'zig zag' decision-making processes and the active participation of all members, including tone of

voices. He found that LOs are anchored in shared leadership which in turn, it affects the institution and the individuals in it.

Genthon (1997) examined organizational learning in the financial decision processes of a number of small independent colleges. The colleges in the study were categorized according to McGill and Slocum's typology of learning organizations: knowing, understanding, thinking and learning. Only one of the seven colleges investigated was a fully functioning learning organization, although two others had made changes that could result in their becoming learning organizations. The principal finding was that in examining the financial issues, the past is often an inhibitor of organizational learning rather than a facilitator, reinforcing inflexible decision processes, limiting the ways in which a problem can be framed, constraining actions to conform to past successes and failures, and predetermining outcomes. Organizational learning appears to be inhibited by an unexamined mission, rigid specialization, lack of flexibility, and accepting assumptions without 'animation'. Organizational learning is enhanced by committee models of decision making, spanning internal and external boundaries, questioning assumptions, ongoing analysis of new and old information, and a willingness to change. The president of a small, private college is a significant variable in the organizational learning process. Changes or actions are not essential for organizational learning to occur.

Hamolsky's (1997) contribution to the field was in a set of conceptual models and a pragmatic process for conducting reflexive supervisory dialogues in a learning organization. His work offers a one practice process and a "tool" that can be utilized within the culture of a learning organization to develop, nurture and improve the supervisors' and supervisees' experience of the supervisory relationship. The pragmatic process is a structure for conducting a reflexive supervisory dialogue amongst a supervisor, a supervisee and a consultant. The "tool" is a reflexive supervisory dialogue checklist intended to guide the consultant's participation in the reflexive conversation. Reflexive supervisory dialogues are understood to represent a significant shift in the supervisory relationship. Hamolsky (1997) concluded that this difference will encourage further reflexive conversations with the supervisory process and isomorphic among the members of a work team as well as between staff and clients.

Research findings from the management perspective are:

- Lakeview Community College was a success story in sharing leadership through strategic planning.
- Organizational learning is enhanced by committee models of decision making, spanning internal and external boundaries, questioning assumptions, ongoing analysis of new and old information, and a willingness to change.
- Conceptual models and dramatic processes for conducting supervisory dialogues were used to develop, nurture and improve supervisors' and supervisees' experience of the supervisory relationship (Genthon 1997; Hamolsky 1997; Johnson & Lofkvist 1996; Pedler, Burgoyne & Boydell 1997; Senge 1990)

3.5 Thai Characteristic Model

The behavior and norms of managers and employees reflect their national society, and understanding their society can assist in explaining the nature of their behavior (Hofstede 1991). This understanding is central to the context of the present study, as although Thai and western cultures have many similarities leading to similar laws and regulations, there are some western differences in management practices that may be unacceptable in the Thai cultural context.

As to Thai management style, Niratpattanasai (2000) states that the culture demands people to be humble and polite. Generally, they do not like confrontation, and if they disagree with what others say, they just keep quiet. They do not make a quick decision, and prefer to talk with co-workers outside the meeting room after discussion, resulting in a low degree of commitment. Many expatriates find that Thais frequently seem to agree during meeting room, but there is no movement. When expatriates are communicating with them, Thais nod their head, but this does mean they are listening to you. It does not mean they agree or understand, but it is because they are polite and just want to accommodate others feelings. This is the case when Thais seem to agree, but actually do not agree. Their hidden feelings of disagreement can become an undercurrent. These characteristics are defined as benevolent paternalism (Chainuvati & Granrose 2001), collectivism, intra-group harmony, deference to authority, humility, self-restraint, and consideration for others (Dubey-Villinger 2001).

Relationship-oriented

Personal relationships and strong connections between senior and junior family members are of extreme importance in Thai society (Komin 1990) , with trust being of core concern (Lawler & Atmiyanandana 2003). Therefore, personal and family relations play an integral part in business activities, and relationship-oriented behaviour takes place more frequently than work-oriented behaviour in Thai organizations (Sorod 1991). Thai management style in companies place's significantly heavier reliance on personal connections in hiring, and they are not likely to determine promotion, wages, salary and bonus increases primarily on formal performance criteria (Lawler & Atmiyanandana 2003).

Hierarchy

In Thailand, centralized control, based on seniority and family relationships, is commonly implemented, meaning that Thais have strong hierarchies in business and family matters (Hendon 2001). Therefore, as the Thai culture is characterized by a tight hierarchical social system, acceptance of existential inequality is very common among Thai employees (Komin 1990).

Decision-making

Thai employees are familiar with the traditional top-down approach in which they receive orders rather than think for themselves and express their own ideas (Kumbanaruk 1987). For them, decision-making revolves around a hierarchical, centralized authority with dependence of the subordinate upon the leader. The Thai decision-making process does not generally use a team approach. For example, a recent survey in Thailand found that subordinates in Thai companies accept that their leaders make decisions in an authoritarian way (Holmes & Tangtongtavy 1995).

However, while this management style permits managers in Thai firms to make decisions for what he or she believes is proper, the authoritarian management style used is not overbearing. As it is the leader's job to guide subordinates, the decision-making in Thailand is commonly restricted to high-level management. In other words, normal decision-making in Thai management is top-down, with the cultural norms strongly discouraging subordinates to dare, to make mistakes, or to demonstrate inventiveness.

Leadership

Although typical Thai leaders are authoritarian (Holmes & Tangtongtavy 1995; Kumbanaruk 1987), they are normally non-assertive and close supervision is favoured rather than general supervision (Deyo 1978). Thai subordinates accept a hierarchical order and value a strong leadership (Dubey-Villinger 2001) in which leaders and subordinates consider one another as existentially unequal. In agreement, Chainuvati and Granrose (2001) state that the preferred Thai leadership style is essentially autocratic, with subordinates being expected to be told what to do.

Harmony

Thais emphasize their relationships as being based on trust and emotion (Komin (Komin 1990). Thais prefer to have unwavering social relationships and maintain surface harmony (Haglund 1994), avoiding conflict between individuals if possible. Here, surface harmony means that people prefer to always be smooth, kind, pleasant, conflict-free, non-assertive, polite and humble. They typically believe that being nice helps people to be happy, and also helps build their long-term commitment (Cooper & Schindler 2006).

According to Komin (1990), author of *Psychology of The Thai People: Values and Behavioral Patterns*, the concept of values which is the core concept across all social sciences. In the study of society, culture, personality, social attitudes and behavior, it is the main dependent variable, because many disciplines find it necessary to invent it for use, when coming to grips with the cognitive behavior of man, with man as a social actor and decision maker, with the ways in which man is molded by his culture and its social institution, and more widely, with the distinctive characteristics of societies or cultures. It is therefore imperative to be clear on all concepts involved in the present study of Thai value systems and behavior patterns in order to have a better understanding of Thai culture and personality.

In her study, Komin (1990) pointed out that the significant implication of the Thai Value Systems finding can be adapted to identify the awareness of the developing Knowledge sharing process in the Thai context. Table 3.2 compares Thai and western characteristics on knowledge sharing discussed in this section

Table 3.2: Comparison of Thai and Western Characteristics Effecting on

Knowledge Sharing

Thai Characteristics	Western Characteristics
Sensitivity is valued.	Assertiveness is valued.
Dislike initiatives, failure is stigma.	Creative, take risk if appropriate.
Indirect or circuitous.	Get to the point and be efficient.
Centralization is popular.	Decentralization is popular.
Short-term oriented, focus on past and present.	Long-term oriented, focus on present and future.
Rarely plan ahead, especially in long range, play it by ear.	Always plan ahead.
Attribute failure to outside forces.	Attribute failure to individuals.
Low tolerance for deviant behavior and ideas.	Empowerment is accepted and initiative is shown.
Contented.	Ambitious.
Responsive to situation-opportunities.	Speaking one's mind is a characteristic of an honest person.
Supervisors must look for problems, subordinates wouldn't initiate a discussion.	Subordinates always seek help when they encounter problems.
Keep harmony.	Disagreement is common.
Instructions are sought and responsibility is avoided.	Empowerment is accepted and initiative is shown.
Reward behavioral traits.	Reward performance.
Purpose of education is learning how to do.	Purpose of education is learning how to learn.

Sources: Adapted from Boonchuay and Siaroon (1994), Dhamasiri (2000), Dixon (1999), Gosling (1991), Haglund (1994), Janyawadee (2001), Komin (1990), National Identity Board (2000; National Identity Board 2005), Office of the National Education Commission (2000), Quick Reference Guide on Thailand-Government: Political Parties and Leaders (2003), Thai Region (2005), Van (1995).

In conclusion, knowledge sharing in Thailand requires one to be aware of the difference between the western culture and the Thais in terms of ethical attitudes, culture and beliefs. If Thais are, in fact, more extreme in their ethical attitudes, culture and beliefs, Knowledge sharing model in Thai organizations needs to be adapted. The next section explores the impact that culture and religion have on knowledge sharing in organizations.

3.6 Possible Impacts of Cultures and Religions on Knowledge Sharing

Culture determines the actions and outlook of individuals and corporations and is likely have an impact on knowledge sharing in organizations. As Hayashi and Baldwin (1988, p. 33) wrote: "Culture is not in the genes but it is a societal legacy. Through learned behavior, human beings have formed languages, created and transmitted knowledge, and shared emotions and ideas". In a classic definition, the distinguished nineteenth-century anthropologist, Edward B. Taylor wrote that culture, or civilization, includes knowledge, belief, art, law, morals, custom, and any other capabilities and habit acquired by man as a member of society. All behavior-greetings, table manners, sleeping, habits; how people ride an escalator, run a meeting, or reach a consensus-is part of culture. These forms of behavior are transmitted from generation to generation and evolve over time (Hayashi & Baldwin 1988).

The approaches of a learning organization and knowledge sharing in different nations and cultures carry different assumptions as to the nature of management and organization (Addleson 2000; Adler 2002; Barren & John 1997; Belasen 2000; Black & Synan 1997; Burke, W.W. 1994; Chawla & Renesch 1995; Chotinucht 1997; Crossan, Lane & White 1999; Dibella, A.J., Nevis & Gould 1996; Dixon 1999; Duncan & Weiss 1979; Genthon 1997; Hofstede 1980). These different sets of assumptions shape different value systems and get translated into different management and organizational practices that, in turn, reinforce the original assumptions. Hayashi and Baldwin (1988) support the view that enterprises, particularly the large ones, are cultural catalysts in that their management methods, planning and work styles constitute a corporate culture.

Mullein and Ostergren (1995) note that a learning organization (knowledge sharing) influenced by culture is also concerned with an internal culture of enterprises. The internal culture will include the corporate culture, subculture and individual culture. Corporate culture has been a popular concept in organizational theory of management since the 1970s, and consists of an enterprise's shared values, the norms that determine outlook and behavior. It determines work patterns, with assistance from society (Hayashi & Baldwin 1988). Schein (1992) and Stupak (1999) support that subculture is also concerned with the culture of the organization, but the

cultural group is smaller than in the first group. This subculture is usually played out within individual departments in the organization such as the culture in the marketing department or the financial department and so on (Shrivastava, P, Huff & Dutton 1992).

The culture of each organization in each country has its own individual characteristics. Also to be considered is the individual culture or personal culture. This culture is influenced by the individual employee and can be influenced by such factors as socioeconomic background, education, etc. (Chen 2004; Schein, E. 1992). Stupak (1999) notes that this individual culture can also influence subculture and corporate culture if that person has real power in the organization such as in the case of a Chief Executive or a Director. Putti (1991) argues that the top management's vision will have to percolate through the firm, inducing the difficult process of changing the organization's culture.

Significantly, the culture in some organizations might be influenced by the ownership or partnerships the organization maintains (Herbig & Jacobs 1998). For instance, if the organization was Japanese owned, the culture could be influenced by the Japanese culture. However, ownership/partnership will not totally dictate culture if the organization operates in a host country. For example, foreign companies operating in Thailand may try to maintain their own corporate culture. However, they could not maintain it totally because the culture is being played out in Thailand and with Thai staff. There will inevitably be considerable influence from the Thai national culture as well as from the Thai staff members' individual cultures.

Studies show that achieving cultural congruency is a strategic issue because of its importance and scope (Austin 1990; Griffin & Pustay 2005; Kotter & Heskett 1992; Mead 2005). Many business opportunities have been lost because of failure to understand or to manage cultural diversity (Halley 1999; Ingold 2002). Getting the economics right may be futile if the enterprises have got the culture wrong (Austin 1990). The effect of internal culture on knowledge sharing in a learning organization practices will depend on the enterprises structure, decision-making, group management, personnel management, business planning, communication and organization culture which depend on the top management decisions (Austin 1990; Barkdoll 1999; Griffin & Pustay 2008; Porter, M. 1991).

The culture in organizations might lead to the adoption of Western-style management

tools, knowledge sharing, where the top level of management may be formed along western lines; on the other hand, it could be formed along Asian lines. Therefore, the managerial style between these two different culture groups might be completely different (Barkdoll 1999; Porter, M. 1991; Rindova & Starbuck 1997). Correspondingly, national culture could possibly affect knowledge sharing processes of organizations. In Asian countries such as Thailand senior managers are less likely than their Western counterparts to allow their workforce to participate in a decision-making process (Haglund 1994; Halliday 1995; Komin 1990; Nanthamaitri 2003; Poomontre 2005; Runglertkengkrai & Engkaninan 1987; Thai Region 2005; Thnarudee 2005).

The power to make decisions is a relevant issue in knowledge sharing practice. Austin (1990, p. 347) stated that "cultural attitude affects decision-making processes, and more autocratic decision-making fits better in hierarchical cultures, whereas participative decision-making would be less congruent". Furthermore, the management tools, knowledge sharing and learning organization from a culture where status differences are minimized, may create dissonance by rejecting the normal trappings and formalities bestowed on their positions in a more hierarchical culture.

As discussed earlier, the environment affects knowledge sharing practices of organizations. Culture is a factor in both the internal and external environments (Barkdoll 1999; David 2002; Mahoney 2001; Porter, M. 1991; Rindova & Starbuck 1997). The culture of the country can be considered an external factor, while the organization's culture is the internal environmental factor. These cultures necessarily have an impact on knowledge sharing in organizations when acting together.

The implementation of knowledge sharing in an organization is impacted on by external and internal cultures. These include lifestyle, social factors and even ownership of the company (Ardichvili 2008; Brennan 2008; Castillo 2008; Chow, W.S. & Chan 2008; Coakes, Coakes & Rosenberg 2008; Cullen 2008; Gupta 2008; King, William R. & Marks 2008; Lee, J.Y. & MacMillan 2008; Li-Fen 2008; Lin, C.-P. 2008; Lin, W.-B. 2008; Liu & Liu 2008; Matzler et al. 2008; Qian et al. 2008; Qian, Davison & Jibao 2008; Reiche, Kraimer & Harzing 2008; Ruey-Lin 2008; Styhre 2008; Sue Young, Young Sik & Heeseok 2008; Teagarden, Meyer & Jones 2008; Wang, Yang & Chou 2008; Yang, J. 2008). As a result, the model of knowledge sharing needs to be adapted in order to fit in Thai organizations.

3.7 THAI ORGANIZATION CHARACTERISTICS AND KNOWLEDGE SHARING

As presented in section 3.5, Thai society today consists of people sharing a rich ethnic diversity, mainly influenced by two great cultural systems of Asia—Chinese and Indian. More than 90% of Thais believe in Buddhism, the national religion. Spoken and written Thai is used as the national language. English is often used and widely understood in cities, particularly in Bangkok, where it is almost a second commercial language-Thailand has built and retained a national culture around a traditional monarchical institution. The country is ruled by an elected civilian coalition government. People have been adapting to the parliamentary system of government since the introduction of a constitutional monarchy in 1932. In order to promote a more efficient and equitable system of government, a variety of political reforms were instituted in 1997 designed to further enhance the participation of Thai people in their government. However, regardless of such political changes, one thing remains the same: Thai people continue to hold their king in great reverence.

The Thai government supports a free enterprise economy and is attempting to change Thailand's image from an agricultural country to a newly industrialized one. In addition, although still in an incipient stage of development, more and more large organizations in Thailand have begun to adopt technological changes associated with information-oriented economies and societies.

The design of today's typical Thai organization has its roots in bureaucratic and feudalistic systems (Dubey-Villinger 2001). The abolition of slavery during the 1890s contributed to reforms in Thai organizations (Hendon 2001; Holmes & Tangtongtavy 1995). Such reforms led to a rapid expansion in the number and types of jobs available in public and private organizations. Recruitment into these organizations is based less on family connections than education. However, hiring someone recommended or referred by an influential person is still common in Thai organizations (Komin 1990; Nanthamaitri 2003; National Identity Board 2000; Runglertkengkrai & Engkaninan 1987; Thai Region 2005; Thnarudee 2005) and because of the strong cultural belief in "kreng jai," is unlikely to be eliminated. As Komin (Komin 1990, p. 9) observes, "Obtaining a job, getting a promotion or raise, and resolving disputes with a superior are widely viewed as depending upon having contacts (or /mee puak/) or 'knowing somebody' (or /len sen/)".

Traditionally, Thai organizational structure was built on lines of command. Dubey-Vilinger (2001) described the Thai organization as a vertical structural system in which there must be an unbroken upward flow of documents and approval. Correspondence, reports, requests of various kinds have to be sequentially transmitted in writing until they arrive at the ultimate superior, in whom power and authority are concentrated. The boss is assumed to know everything for which s/he is responsible. It is the subordinate's responsibility to provide all information that the superior needs for responding to questions that people outside his/her section or department might ask. If the superior cannot do so, his/her position as a leader will be considerably undermined. S/he loses face and may ascribe the blame to one of his/her subordinates. Traditionally, "effective" subordinates in Thai organizations are those who carry out orders without deviation, pick up where the supervisor leaves off with colleagues, and, in general, make the supervisor look good.

Customarily, subordinates do not assertively challenge the authority of their bosses. Holmes & Tangthongtavy (1995) commented that Thai supervisors generally are not interested in soliciting opinions from their subordinates since the traditional view has been that the one in authority is free to exercise power without consulting subordinates. Nevertheless, today participatory managerial systems have been increasingly adopted by westernized managers in private sector Thai organizations. However, Holmes & Tangthongtavy (1995) commented that even if a Thai manager allows subordinates to offer their opinions, debate issues, and criticize, other cultural factors such as "kreng jai" and a tendency to mute differences of opinion may well preclude a totally candid exchange

The Thai approach to management typically follows a pattern of benevolent paternalism (Hendon 2001) which emphasizes the quality of the relationship between the superior and subordinate. That is to say, the superior has the right to order but also the responsibility to protect and assist his/her subordinates (Holmes & Tangthongtavy 1995). At the same time, the subordinate is supposed to respect and be obedient to his/her boss. In a promotion decision, behavioral traits such as diligence, deference, and respect are usually more important than the objective analysis of an employee's performance and output (Dubey-Villinger 2001).

In some respects superior-subordinate relationships in Thai organizations are closer and more paternalistic than those found in western organizations. For example, while it is typical for a subordinate to come to work earlier and stay later than his/her boss,

it is also typical to see the subordinate get involved in his/her boss' personal projects. The more the boss gets the subordinate involved, the more the subordinate is viewed as a valuable resource for the organization. Also, the "idiosyncratic credits" that the subordinate gains from his or her superior eventually turn into rewards in the forms of promotions, personal assistance, and other favors. It is also very usual and necessary for the superior to be involved in the after-work-hours life of his/her subordinates. For example, often, the supervisor hosts personal ceremonies of employees (e.g., weddings), or employees use their boss's influence to assist with solving a personal problem. In brief, the superior-subordinate relationship is a highly paternalistic one, in which an effective supervisor is a "teacher" and "respected relative" at the same time. Thai organizations emphasize protocol, deference to rank, respect for authority, and "smoothness" in work relationships. Violating the chain of command or failure to follow step-by-step procedures may be perceived by others as disrespect, challenging authority and power, irresponsibility, and will likely create interpersonal conflicts with others.

Thai cultural norms approved by social cultures strongly influence management practices, and Western and Thai management practices are demonstrably different. Therefore, as different cultural environments demand different managerial actions, considerations of cultural diversity should be taken into account when considering applying knowledge sharing practices in Thailand.

3.8 New Framework/Model and its Elements/Characteristics

A wide review of related literature has identified prior empirical studies of Knowledge sharing in learning organizations. Unexpectedly, no research has been found that examined factors that influence the knowledge sharing. Moreover, knowledge sharing study has not been applied in Thai organization. Then, in this study, learning organization factor and related study were applied.

It is the purpose of this dissertation to propose the model that best fits with Thai organizations. A scheme of this model is presented in Figure 3.1 and is discussed in this section. The model has been constructed from the literature presented in this

Chapter and from Chapter 2. The study of Hernandez M (2000) and the study of Poomontre (2005) used in concert are hypothesized as representing the relationships between the independent variable (knowledge sharing) and dependent variables (learning organization outcome, tacit and explicit knowledge and organizational performance). The sources of the variables in the conceptual framework are provided in 3.8.1 below. They are listed first followed by the organization characteristics identified as independent variables. The dependent variables are discussed in 3.8.2. The sub scale of each variable is presented in section 5.2.2.

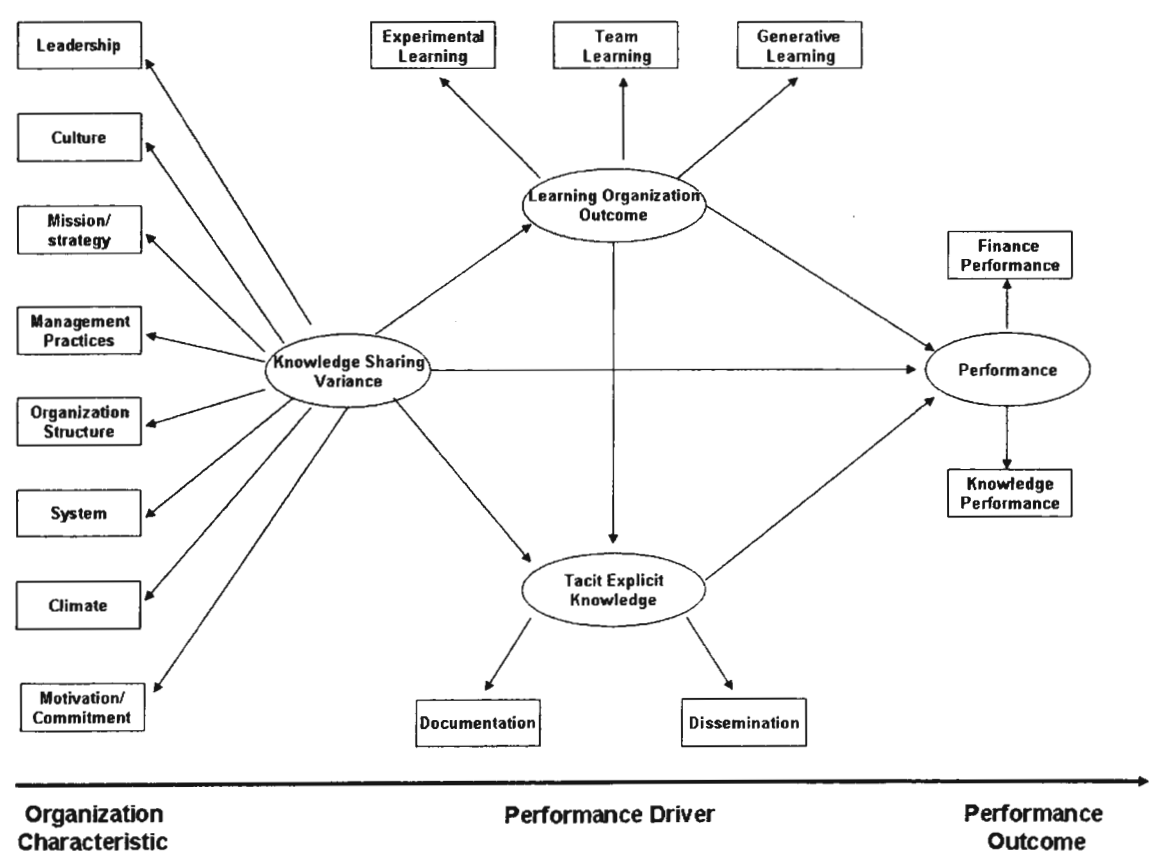


Figure 3.1 Conceptual Framework and Subcomponents

3.8.1 Independent Variables

The items to measure independent variables in this dissertation are adapted from the comparison of these theoretical prescriptions which are mentioned in section 2.5. This set of independent variables is now discussed:

(1) Leadership

The leadership scale has been defined as measuring the perceived level of strong, visible leadership, committed to the values subscribed to in a true learning organization.

(2) Culture

Three subscales were identified as measures of perceptions of organizational culture. They were: knowledge indeterminacy, learning latitude, and organizational unity.

(2.1) Knowledge Indeterminacy

The scale has been defined as measuring the perceived belief that knowledge is not fixed, but is in fact unbounded and incalculable, and any individual may be a source of knowledge, while no one person knows all things.

(2.2) Learning Latitude

Learning latitude has been defined as measuring the perceived license, within a recognized range, for learning freedom enabling individuals to be independent thinkers, and to both promote and try new ideas.

(2.3) Organizational Unity

This scale has been defined as measuring the perceived belief that all organizational members are of one mind working toward recognized common goals for the benefit of the organization and all its internal stakeholders.

(3) Mission and Strategy

Three subscales were identified as measures of organizational mission and strategy. They were: system thinking, external monitoring, and knowledge creation.

(3.1) System thinking

System thinking has been described as measuring the perceived degree to which the organization and its members recognize and act to attain successful and effective performance at the overall systemic organizational level and not solely at the individual or group level.

(3.2) External Monitoring

This scale has been defined as measuring the perceived level of organizational efforts to be judiciously aware of business and industry trends, and forces that affect organizational effectiveness.

(3.3) Knowledge Creation

Knowledge creation has been defined as measuring the perceived ability of the organization to acquire, disseminate and interpret information to establish an organizational knowledge-base which acts to benefit organizational response to challenge and to improve organizational performance.

(4) Management Practices

Four subscales were identified as measures of management practices. These included: Management Sharing Support Practices, Management Sharing Motivation Practices, Management Performance Effectiveness Practices, and Management Sharing Advice Practices.

(4.1) Management Sharing Support Practices

This scale has been defined as measuring the perceived behaviors practiced by employees' supervisors, which promote and enable learning to occur.

(4.2) Management Sharing Motivation Practices

Management Sharing Motivation Practices have been defined as measuring the perceived actions of supervisors, which encourage and motivate employees to learn and develop as individuals and as groups.

(4.3) Management Performance-Effectiveness Practices

This scale has been defined as measuring the perceived supportive skills-related actions of supervisors, which promote and enable greater effectiveness and better performance by all employees.

(4.4) Management Sharing Advice Practices

Management sharing advice practices has been defined as measuring the perceived actions of supervisors, which create the situations and provide the resources needed to support the job performance of all employees.

(5) Organizational Structure

Two subscales were identified as measures of organizational structure. They included: internal alignment and facilitative structures.

(5.1) Internal Alignment

Internal alignment has been defined as measuring the perceived level of organizational integration of goals, function, roles, work efforts, problem solving and decision-making, in order to increase organizational effectiveness.

(5.2) Facilitative Structures

This scale has been defined as measuring the perceived ability of the organizational structures to provide international access to individuals and groups both inside and outside the organization.

(6) Systems

Systems has been defined as measuring the perceived strength of various organizational systems (communication system, information system and human resource system) in their ability to function as operative learning support structures.

(7) Organizational Climate

Two subscales were identified as measures of organizational climate. They included: generative learning climate and promotive interaction.

(7.1) Learning Climate

This scale has been defined as measuring the perceived values, norms, and behaviors which foster continual learning discretion on the part of organizational members.

(7.2) Promotive Interaction

Promotive interaction has been defined as measuring the perceived degree to which individuals act to encourage and facilitate each other's efforts to grow, perform and achieve success.

(8) Motivation

This scale has been defined as measuring the perceived levels of organizational commitment and job involvement as expressed by the work effort and behaviors of employees.

3.7.2 Dependent Variables

(9) Tacit and Explicit Knowledge

The result of converting convert tacit knowledge into explicit knowledge is one variable which is concerned in the study of learning organization development (Bloodgood 1997; Castillo 2008; De Leo 1994; Hernandez 2000; Korth 2007; Reber 1993). Tacit and explicit knowledge is a source of innovation and has been described as a performance driver (Holton, E. & Kaiser 1997; Poomontre 2005). Following Rogers (1983) and Winter (1987), Kogut and Zander developed several scales measuring attributes of tacit and explicit knowledge. The constructs of codify ability, teach ability and complexity were chosen. The items for "codify ability" were designed to capture the extent to which the tacit and explicit knowledge has been articulated in documents. "Knowledge is codified using a 'people-to-documents' approach: it is extracted from the person who developed it, made independent of that

person, and reused for various purposes'(Hansen, Nohria & Tiemey 1999, p. 107). The questionnaire was developed through field research, which resulted in eight case studies. Following these case studies, an initial instrument was drawn up and pre-tested. Questionnaire data was collected by Kogut and Zander from 20 firms and Cronbach Alphas calculated, with the recommended 0.7 used roughly as a cutoff (Nunnally 1978). Respondents marked on a seven-item scale as recommended by Cox (1980). Questions with low item-to-total correlation were deleted; reliabilities for the final constructs ranged from ,678 to .785. Discriminant validity could not be tested by factor analysis, but a comparison within and between correlations of the items indicated reasonably strong discrimination (Kogut & Zander 1992).

De Leo (1994) constructs of "dissemination" and "documentation" were designed to capture the level of knowledge dissemination and the extent of knowledge documentation. According to Argyris & Schon (1996) and Jelinek (1979), information dissemination is the process by which information is shared and diffused horizontally and vertically throughout the organization. Huber (1991), Day (1994), and Sinkula (1994) argue that ,for organizational learning, information processing is a necessary condition; because it is essentially for the process of information is transformed into knowledge.

De Leo (1994) generated a list of items and a number of managers in charge of plant operations in different countries were asked to select those, on the basis of their own experience, which were the more appropriate indicators of the underlying constructs. A pilot test was run and for each item test-retest reliability was measured by submitting two weeks apart the same 7-point Likert scale to the same group of respondents under similar conditions. The scores from the two administrations were then correlated and the resulting index was interpreted in terms of the stability of performance of the measures. Although no validation data has been published by De Leo, he concludes that the list of items developed in this process can be regarded as one which reflects the nature of the phenomenon under study (De Leo 1994).

The Marquardt (1996) and O'Dell and Grayson (1998) instruments were proposed in the context of the learning organization and knowledge management in the organization, a context in which tacit and explicit knowledge plays an important role. "It is the intersection between tacit and explicit knowledge and explicit knowledge that creates learning" (Nonaka, I. & Takeuchi 1995). There has been no validation studies published on these surveys. However, they have been used extensively by a

number of corporations as reported by the authors. Items to probe on organizational "culture" as an enabler of the process of transfer of tacit and explicit knowledge and items to probe tacit and explicit knowledge "utilization" were adapted from these instruments.

Goh (1998) argued: "To be an effective learning organization, clear and practical guidelines are needed to build a culture and strategic architecture that supports the dissemination of knowledge". O'Dell and Grayson (1998) claim that the most potent enabler of transfer of knowledge in the organization is culture.

Nevis, Dibella and Gould (1995) defined knowledge utilization as the integration of learning so it is broadly available and can be generalized to new situations. While accepting the role of explicit knowledge in business endeavors, Wagner and Sternberg (1985) argue that success is more dependent on tacit and explicit knowledge utilization, gained outside of conscious cognition. Cohen et al. (1996), Reber (1993) and Poomontre (2005) contend that in most situations, it is likely that a combination of explicit and tacit knowledge will be used.

(9.1) Documentation

The measure for perceptions of documentation was a four-item subscale. The scale has been defined as the extent to which tacit and explicit knowledge is coded, assembled, recorded and comprehensively treated utilizing semantics, mechanical and/or electronic aids, and techniques of reproduction for giving documentary information maximum accessibility and usability.

(9.2) Dissemination

The measure for perceptions of documentation was a four-item subscale. The scale has been defined as the level to which explicit knowledge is shared and spread horizontally and vertically throughout the organization.

(10) Learning Organization Outcome

In a learning organization, the focus is on organizational learning as the outcome of primary concern. Learning has been hypothesized as affecting individual and organizational performance effectiveness (Cummings 2007; Kline, Peter & Saunders 1993; Kuchinke 1995; Poomontre 2005; Senge 1990; Slater & Narver 1995).

Learning has also been described as a performance driver, which is defined as an indicator of future organizational effectiveness (Holton, E. & Kaiser 1997). In this capacity, it can be used as a measure of organizational effectiveness.

Learning as a performance driver was the first dependent variable. Three organizationally important types of learning were measured: experiential learning, team learning and generative learning.

(10.1) Experiential learning

The measure for experiential learning consisted of a three-item scale defined as measuring the perceived ability of an organization to learn from actual experiences, whether the experiences are considered successes or failures, and to actually draw on the knowledge learned to make better decisions or business improvements (Holton, E. & Kaiser 1997; Poomontre 2005).

(10.2) Team learning

The measure for team learning consisted of four items. The team learning scale has been defined as measuring the perceived ability of workgroups to acquire, interpret and share knowledge in order to enhance group level learning and work practices to achieve improved performance and effectiveness (Holton, E. & Kaiser 1997; Poomontre 2005).

(10.3) Generative learning

The measure for generative learning consisted of a four item subscale. The generative learning scale has been defined as measuring the perceived ability of an organization to understand business goals and problems, and the related ability to learn and make core changes needed to eliminate established organizational

impediments to better attain stated objectives (Holton, E. & Kaiser 1997; Poomontre 2005).

(11) Organization Performance

The items to measure the dimensions of the learning organization and performance

improvement identified by two indicators: financial performance and knowledge performance, were those that appear in the Dimensions of the Learning Organization (Ji Hoon & Chermack 2008; Marsick & Watkins 2003; O'Neil 2003; Poomontre 2005;

Watkins, Karen E. & Golembiewski, Robert T. 1995; Watkins, K.E. & Marsick 1993, 1996; Watkins, K.E. et al. 1997).

(11.1) Finance Performance

The measure for finance performance improvement was a four-item subscale. This scale has been defined as the degree of enhancement of business results at the organization, process or individual level and financial results or benefits in terms of health and resources available for growth.

(11.2) Knowledge Performance

The measure for knowledge performance improvement was a four-item subscale. This scale has been defined as the level of enhancement of products and services because of learning and knowledge capacity.

3.9 Hypothesis Development

The following hypotheses will be tested in this research in order to answer following the four research questions:

Research Question #1:

To what extent do the knowledge sharing variables such as leadership, culture, mission and strategy, management practices, structure, systems, organizational climate and motivation, explain significant portions of the variance in learning organization outcomes as experiential learning, team learning and generative learning of Thai organizations?

H1 The knowledge sharing variables will explain a significant portion of the variance in experiential learning.

H2 The knowledge sharing variables will explain a significant portion of the variance in team learning.

H3 The knowledge sharing variables will explain a significant portion of the variance in generative learning,

Research Question #2:

To what extent do the knowledge sharing variables and learning outcomes explain a significant portion of the variance in tacit and explicit knowledge of Thai organizations?

H4 The knowledge sharing variables and learning organization outcomes will explain a significant portion of the variance in documentation,

H5 The knowledge sharing variables and outcomes will explain a significant portion of the variance in dissemination,

Research Question #3:

To what extent do the knowledge sharing variables, learning outcomes and tacit and explicit knowledge explain the significance of the variance in finance and knowledge performance improvement as financial and competitive advantage of Thai organizations?

H6 The knowledge sharing variables, learning organization outcomes and tacit and explicit knowledge will explain a significant portion of the variance in finance performance improvement.

H7 The knowledge sharing variables, outcomes and tacit and explicit knowledge will explain a significant portion of the variance in knowledge performance improvement.

Research Question #4:

To what extent are the learning outcomes and tacit and explicit knowledge influenced by knowledge sharing variables and to what extent does this process in turn influence performance improvement as depicted in the conceptual model?

H8 The learning outcomes and tacit and explicit knowledge influenced by knowledge sharing variables will do in this process and in turn influence finance and knowledge performance improvement as depicted in the conceptual model

3.10 Summary

The conceptual framework presented in Figure 3.1 is built on the review of literature presented in Chapter 2 and Chapter 3. It was developed to answer the research aims and research questions identified in Chapter 1. It is based on four main constructs: Knowledge Sharing Variance, Learning Organization Outcome, Tacit and Explicit Knowledge and Performance.

There has been a growing interest in research investigating organizational culture, particularly in identifying the influential factors that can facilitate knowledge sharing for the implementation of the learning organization. However, thus far there is no empirical research specifically addressing the relationship between: Knowledge Sharing Variance, Learning Organization Outcome, Tacit and Explicit Knowledge and Performance in Thai organizations. This chapter outlined the cultural and managerial indicators which make Thai managers different to their Western counterparts. From this a model was presented as the basis of the enquiry of this thesis. Based on the proposed models, the eight hypotheses developed from the framework intend to establish the influential factors in knowledge sharing. The proposed models may assist Thai manager to improve their organization, and as a result, their overall business efficiency.

The next chapter describes the research methodology of this study including ethical considerations, research design and the research instrument construction. The selection of participants, data collection methods, the difficulty of data collection, and statistical techniques used for this study will also be reviewed. .

CHAPTER 4

METHODOLOGY

4.1 Introduction

The conceptual model and the proposed hypotheses for this study were developed and presented in the previous chapter. This chapter describes the processes of data gathering from primary sources. It commences with a description of the research aims and scope of the study, before moving to consider the research design for this study and a detailed discussion of the research methodology.

4.2 Research Aims

The preceding chapters have established that a common theme in business literature is that the management of knowledge is critical to business success and essential for business survival. Learning organization theory, which is one of the most well-known business tools, was developed in order to support knowledge management within organizations. As we have seen, there are three important stages for developing the learning organization: knowledge acquisition, knowledge sharing and knowledge utilization. In particular knowledge sharing has been identified as a key aspect in developing the learning organization.

This study focuses on the impact of Thai culture on the knowledge sharing process in organizational settings. The aims of this study are to develop an understanding of the process of knowledge sharing in Thailand; to develop a suitable model for the knowledge sharing process in Thai organizations; and to test the model by qualitative analysis and quantitative methods. To support the main aims, the specific aims of the study are:

- 1) to analyze learning organization theories in order to specify the knowledge sharing process in Thailand;
- 2) to provide justifications for adaptation of knowledge sharing in a Thai context;
- 3) to investigate factors, especially the Thai cultural factors, influencing knowledge sharing in Thai organizations;
- 4) to develop a knowledge sharing model for the implementation of the learning organization in the Thai context;

- 5) to test the model by collecting data from a sample survey of Thai organizations;
and
- 6) to suggest some policy implications of the empirical findings about implementing the finding in the current practices.

4.3 Research Ethics Approval and Confidentiality

Prior to conducting this research, authorization was obtained from the Victoria University Human Research Ethics Committee. To maintain confidentiality, the researcher undertook not to disclose the interviewees’ and survey respondents’ personal details, including names, addresses, telephone numbers and any commercial plans or business activities. All data are aggregated in the thesis.

4.5 Research Method: Quantitative and Qualitative Research

There are two main research approaches commonly used in business research: qualitative and quantitative methods. While qualitative research has been found useful to gain deep insights into a particular phenomenon being studied, it has been criticized for a lack of reliability and validity, and for the production of soft data compared to quantitative methods (Gordon, W. & Langmaid 1988). Qualitative and quantitative methods both have their strengths and weaknesses. They can both be developed and designed to complement each other in order to achieve the best results within the same project. The strengths of one can compensate for the weaknesses of the other. Table 4.1 summarizes the respective strengths of qualitative and quantitative research.

Table 4.1: The Strengths of Qualitative and Quantitative Research

Qualitative	Quantitative
<ul style="list-style-type: none">• Open-ended, dynamic, flexible.• Provides depth of understanding.• Taps consumer creativity.• Provides a database that is broader and deeper.• Penetrates rationalized or superficial responses.• Provides a richer source of ideas for marketing and creative teams.	<ul style="list-style-type: none">• Requires statistical and numerical measurement.• Sub-group sampling or comparisons.• Involves survey which can be repeated in the future and results compared.• Taps individual responses.• Less dependent on research executive skills or orientation.

Source: Gordon and Langmaid, 1988, p.3.

4.5.1 Qualitative Research for this Study

Qualitative research is sometimes called “naturalistic inquiry” (Lincoln & Guba 1985). The general conditions of inquiry are natural and have to be accepted as they are discovered. The main objective of qualitative research is finding ideas that lead to the new knowledge (Sherman & Webb 1988). Gordon and Langmaid (1988) stated that qualitative research is used to expand knowledge, clarify the real issue, increase understanding of the research topic and create hypotheses. Qualitative data can be collected from either non-human sources or human sources (Lincoln & Guba 1985), both of which were used in this study.

The in-depth interview method was chosen for this study because it provides an opportunity to get more feedback from respondents and usually receives a high response rate, even though it is costly, time consuming and has geographical limits (Sekaran 2003; Zikmund & Babin 2007). This study needed individual ideas from interviewees both majority and minority points of view and it also provided a chance to get more feedback about the knowledge sharing model in Thailand.

A qualitative research method was used in two stages for this study. It was first utilized to obtain data from a primary source (to obtain experiences using the in-depth interview technique) and secondary sources (secondary data analysis). Data from the exploratory research were gathered and analyzed in order to construct research instruments for the survey in the third stages of this study. Qualitative research can be structured or unstructured (Sekaran 2003). In structured interviews, respondents were asked the same questions in the same order delivered in the same standard (Punch 2005), which may be called the “standardized interview” (Berg 2001, p. 69). In this study, this standardized interview was adopted.

4.5.2 Quantitative Research for this Study

Quantitative research provides numerical measurements and enables comparison of items within a survey or between surveys that have been carried out at different times. By using research instruments, these measurements can be made and tested by different types of statistical techniques for validity and reliability (Gordon, W. & Langmaid 1988). In order to investigate factors affecting knowledge sharing in Thailand and to examine their intention to complete the studies, quantitative research was considered for this research. A questionnaire was used as the research

instrument in this part of the study to test the existing model of knowledge sharing in Thailand.

This study uses both qualitative and quantitative techniques. The research design consisted of six stages: exploratory research, research instrument construction, testing the research instruments, selection of participants and data collection methods, data editing and data analysis which are discussed next.

4.6.1.1 Stage 1. Exploratory Research

In this stage, qualitative methods were used to gather data from both primary and secondary sources. The research started with a literature review helping this research to study past literature, events and issues about knowledge sharing. Additionally, a documentation review of the six learning organizations which participated in the study was undertaken. Secondary Data Analysis is the method used to assemble data from various sources of documented information. Literature reviews of published articles, theories from text books and previous empirical studies which relate to the research projects were analyzed to scope the framework of this study. This technique is economical and can be used to gather data faster than other techniques (Churchill & Iacobucci 2004).

Disadvantages of secondary data analysis are that the data may be out-of-date and may not meet the needs of researchers because they may have been conducted with different objectives. However, secondary data have been accepted as being of great value for exploratory studies. Secondary data analysis was chosen to use in this study because there are reliable previous studies investigating learning organization theory and knowledge sharing. Further, theories from textbooks involving the decision making process and the innovation decision process were investigated as important secondary data in order to set the framework of this study. The development of knowledge sharing and learning organizations in Thailand was also investigated. Factors affecting knowledge were assembled from different secondary sources of information including as text books and international journals (chapters 2-3).

Exploratory research is normally used as the first stage of a research process. It is conducted to identify and clarify problems (Zikmund & Babin 2007). Zikmund (2007) also claimed that exploratory research can help researchers reach a better understanding of the extent of the research problem. Similarly, Sekaran (2003) stated

that the exploratory study is conducted to clarify the nature of the research problems. The main objective of exploratory research is to scope the area of the study and to discover the research problems in order to specify research objectives (Churchill & Iacobucci 2004). Zikmund (2007) stated that exploratory research is important and that most researchers used qualitative methods. It can help to clarify the concept of the research and researchers can gain in-depth details and ideas for their study (Churchill & Iacobucci 2004). Nevertheless, Zikmund (2007) claimed that there are some limitations, for example it cannot provide quantitative measurements, and the interpretation is dependant on the judgment of a researcher. Hence, the exploratory research was used the initial stage for this study.

Stage 2 Research Instrument Construction: research instruments used for the qualitative and quantitative research methods in this study were constructed utilizing the information collected in the first stage and presented in Chapter 2 and 3. The self-administered questionnaire was developed to test a knowledge sharing model for the implementation of the learning organization in Thailand. In-depth interview questions were developed for interviews with persons whose work is relevant to learning organization development in Thailand. The qualitative research was conducted with Thai managers at their offices in Bangkok and bordering provinces. Due to time and budget limitations, telephone interviews were used for businesses located in provinces that are beyond the borders of Bangkok.

The questionnaire for this study was developed by integrating the research objective, conceptual framework, hypotheses and literature review in order to increase its reliability and validity. The questionnaire commenced with questions related to individual background variables: educational level, expatriation duration and type of business. The respondents were asked to select the option which classified response alternatives. The developed questionnaire (see copy available in Appendix 2) was checked for content validity and reliability.

Stage 3 Validity and Reliability of Research Instruments: this stage involved testing the validity and reliability of the research instruments developed in the second stage. This stage is reported in section 5.3.1.5.

Stage 4 Selection of Participants and Data Collection Methods: this stage involved selection of participants, and sampling techniques used for the quantitative phase of this study. This stage also involved selection of the data collection methods

used to gather data from persons who were involved with learning organization development in Thailand. The sampling frame is a list of sampling units from a sample, which is selected and it can consist of geographical areas or other features (Churchill & Iacobucci 2004). The sample frame for the qualitative research of this study was selected from the name list of learning organization units in Thailand. The name list was provided by the Knowledge Management Institute of Thailand and Thailand Productivity Institute.

The in-depth interviews of this study involved collecting data from persons who are involved with the learning organization development. In-depth interviews were conducted in each institution to seek out critical influencing factors. Interview request letters were sent to the total population of six managers. Yin (2003) states that 6-10 case studies are suitable for providing compelling support for the proposition. The in-depth interviews were conducted in Thai and were of approximately one hour in duration. The interview questions were translated by a researcher and were checked by an academic person in Thailand (see Appendix 1). In-depth interviews were recorded and then transcribed into English.

Stage 5 Data Editing: after data collection of the quantitative research, questionnaires were checked and edited to ensure completeness before data entry and analysis.

Stage 6 Data Analysis: the seventh stage involved data analysis using selected statistical techniques. The data analysis for this study is presented in Chapter 5.

Variables

Learning organization theory was the basis for the selection of the knowledge sharing variables used as the independent and dependent variables in the analyses. The independent variables comprised:

- leadership (in learning, personal mastery and growth);
- culture (learning latitude, knowledge indeterminacy and organizational unity);
- mission and strategy (system thinking, external monitoring and knowledge creation);
- management practices (learning support practices, learning motivation practices, performance effectiveness practice and learning advice practice);

- organization structure (internal alignment and facilitative structures);
- systems, organizational climate (generative learning organizational climate and promotive interaction); and motivation.

The dependent variables comprised:

- learning outcome (experiential learning, team learning and generative learning);
- tacit and explicit knowledge (documentation, dissemination); and
- performance abilities (finance performance and knowledge performance).

A multiple rating list scale was applied in this study. The scales were assigned as Strongly agree (7), Agree (6), Mildly agree (5), Indifferent (4), Mildly disagree (3), Disagree (2) and Strongly disagree (1) in order to record attitudes and behavior intentions (Cooper & Schindler 2006) under the headings of knowledge sharing variance, tacit/explicit knowledge, learning organization outcome and performance.

From the quantitative research, the questionnaire was categorized into 4 subsystems for a total of 98 sub-data. The first 71 questions are related to knowledge sharing variance, the next 8 to tacit and explicit knowledge, the next 10 to learning organization outcome and the last 8 to performance. Box 4.1 displays the profile of the subsystems:

Box 4.1 Survey Questions Structure

Knowledge Sharing Variance	1-63
1. Leadership	1-4
2. Culture	5-16
2.1 Learning latitude (risk-taking)	5-8
2.2 Organizational unity	9-12
2.3 Knowledge indeterminacy	13-16
3. Mission and strategy	17-28
3.1 System thinking	17-20
3.2 External monitoring	21-24
3.3 Knowledge creation	25-28
4. Management practices	29-43
4.1 Management sharing support practices	29-32
4.2 Management sharing motivation practices	33-36
4.3 Management performance effectiveness practices	37-40
4.4 Management sharing advice practices	41-43
5. Organization structure	44-51
5.1 Internal alignments	44-47
5.2 Facilitative structures	48-51
6. Systems	52-55
7. Organizational climate	56-59
8. Motivation	60-63
Tacit and Explicit Knowledge	64-71
9. Documentation	64-67
10. Distributed information (dissemination)	68-71
Learning Organization Outcome	72-82
11. Experimental learning	72-74
12. Team learning	75-78
13. Generative learning	79-82
Performance	
14. Finance performance	83-86
15. Knowledge performance	87-90

4.6.2.2 Stage 2. Pilot Study

In order to ensure the appropriateness of measures used in this study, the pre-test of the research instrument was used to examine the validity and reliability of the questions before conducting the main survey.

Procedures and Response Rate

A pilot test was administered to establish the validity and reliability of the instruments. To select the participants of the pilot test, Thai managers from the fully adopted learning organization and located in Bangkok (the capital city of Thailand) were selected. Prior to the main study a package that included a brief letter to HR managers, invitation letters and freepost envelope were enclosed with questionnaire (see Appendix 2, Appendix 3,) for participation in the pilot study was sent out. An e-mail follow up was sent two weeks later to the expatriates. A total of 50 questionnaires were mailed, and follow-ups were sent by e-mail three weeks later.

The response rate to the pilot study is described in Table 4.2 below. The total number of responses was 33. All received questionnaire were fully answers. The percentage of the complete questionnaires was 66 percent.

Table 4.2 Pilot Study Response Condition

Condition	Amount
Questionnaires Sent	50
Responses	33
Incomplete Questionnaires	0
Complete Questionnaires	33
Percentage of Valid Questionnaires	66 %

Test of Validity

After building the model, constructing research instruments and selecting the participants, it is necessary to assure that participants understand all of the questions in the research instrument. This is usually called the “validity” of the instrument (Nunnally 1978). However, Sekaran (2003) classified types of validity into three groups: content validity (face validity), criterion-related validity and construct validity.

Content Validity (Face Validity): an instrument is considered to have content validity if it provides clear and understandable questions, and covers the concept of the study

(Zikmund & Babin 2007). Content validity of an instrument can be approved by professionals involved in the area covered by the project.

Criterion-Related Validity: this can be classified as concurrent validity or as predictive validity. Concurrent validity applies when a new measurement is investigated at the same time as standard measures. Predictive validity applies when a new measure predicts a future situation or relates to measurements taken at a later time. Zikmund (2003) stated that criterion validity provides a stronger empirical test than content validity. However, the objective of each study is different hence, criterion-related validity cannot validate every test and each test has its criterion of performance (Blumberg, Cooper & Schindler 2005).

Construct Validity: can be applied in order to assure that the measurement is appropriate for testing the hypotheses and originating from the underlying theories on which the study is based (Bryman, Bell & Bryman 2003).

Selection of Tests of Validity of this Study

It has been mentioned earlier that to the best of the author's knowledge, there has been no research instrument that has been developed to test the model of "knowledge sharing for the implementation of the learning organization in Thailand". Therefore, content validity (face validity) was decided upon as the most appropriate method for pre-testing the quantitative research instruments of this study, even though it provides less precise information than criterion-related validity. Content validity (face validity) of this study was checked by three persons in Thailand, who were involved with the sharing and learning organization in Thailand in order to confirm that these instruments were suitable for this study.

Test of Reliability

Reliability refers to the precision of measurement (Roscoe 1975). Reliability is synonymous with other terms such as dependability, stability, consistency, predictability and accuracy (Kerlinger 1986). According to Nunnally (1978) investigations of reliability should be made when new scales are developed. There are two key aspects of reliability: consistency of the items within a scale and stability of the scale over time (Hinkin 1995). Consistency of items (internal consistency) within a scale refers to the homogeneity of the items in the scale that tap the construct while stability refers to the ability of a scale to remain the same over time or

yield the same results on repeated trials (Carmines & Zeller 1979).

In this thesis, the stability of the scale was not examined because the researcher encountered difficulty in obtaining the same group of people after a period of time. Therefore, the thesis only examined the consistency of the scale. Cronbach's coefficient alpha was used to examine the consistency of the entire scale (Nunnally 1978; Carmines & Zeller 1979; DeVellis 2003). In addition, Cronbach's alpha is the most common form of reliability coefficient. The Cronbach's alpha is expressed as a correlation coefficient, and its value ranges from 0 to +1. By convention, alpha should be 0.70 or higher to retain an item in a scale.

This was done to verify the accuracy of the measurement process. As revealed in Table 4.3, the total number of questions on knowledge sharing variance were sixty-seven and reliability was 0.985; the total number of questions on Tacit & explicit knowledge were eight and reliability was 0.847; the total number of questions on Learning organization outcome were eleven and reliability was 0.958; the total number of questions on Performance were eight and reliability was 0.887

Reliability estimates ranged from 0.847 to 0.985 for the pilot data. These all fall in the range that is higher than 'minimally acceptable' and the range of 'very good' according to the guidelines provided by DeVellis (2003).For this study, the reliability is higher than the minimally acceptable.

Table 4.3 Instrument Reliability

Variables	Number of Questions	Pilot Study (α)
Knowledge sharing variance	67	.985
Tacit and explicit knowledge	8	.847
Learning organization outcome	11	.958
Performance	8	.887

The Research Sample Population

Random sampling based on a random table was used in this study. Every enterprise in the population had a chance of being selected. Normally this is an equal chance of being selected.

The questionnaires were sent to companies without asking for identifying details of employees and including a self-addressed envelope. The company could then distribute the survey and information forms to the relevant persons who can complete them if they voluntarily consented, and sent the survey back to the researchers independently.

Sample Size

It was difficult to find out the real statistics on organizations which can be considered adopted learning organizations. According to the Knowledge Management Institute of Thailand and Thailand Productivity Institute, 503 Thai organizations have been adopted learning organization theory and knowledge sharing processes. Therefore, the total population of this study is 503. Table 4.4 presents a helpful lead for calculating the sample size. “Researchers may need to calculate the necessary sample size for a different combination of levels of precision, confidence, and variability” (Schwab 2005, p. 185), by applying an equation such as that proposed by Yamane (1973).

Table 4.4 Sample Size

Size of population	Sample size (n) for precision (e) of :			
	3 %	4 %	5 %	10 %
500	<i>B</i>	<i>b</i>	222	83
1,000	<i>B</i>	385	286	91
1,500	638	441	316	94
∞	1111	625	400	100

Note: a= Assumption of normal population is poor. The entry population should be sampled.

Where confidence level is 95% and P=.5

Source: Yamane (1973).

The sample size of this study was 222 Thai managers selected from the fully adopted Thai organizations. Those numbers are from the table of Sample Size for Specified Confidence Limits and Precision of Yamane calculation with 5% error (Yamane 1973).

Non-responses

A researcher should monitor and minimize the non-responses to avoid bias in the sampling results. In order to avoid bias, in this research the responses were managed by sending follow-up electronic mails in order to decrease the non-responses rate.

4.6.2.3 Procedures for Data Collection

A mailing survey was used to collect data for this study. Five hundred and three organizations were sent a questionnaire to complete. It was expected that some companies would not respond to this request. However, it was expected that the responses would be more than the minimum observations required for a population size of 503 (the minimum sample size of this study was 222 organizations). Following sending questionnaire packages, e-mail follow-ups were made four weeks later. The survey package was mailed to each organization. The survey package contained a letter explaining the purpose of the study, the questionnaire, and a freepost of reply envelope. The invitation letters for participation were sent to each company and managers were to be asked to allocate questionnaires to participants. In order to ensure confidentiality, all respondents were provided with reply envelopes and returned the surveys directly to the researcher. All of the data were anonymous. The follow-up package also contained a letter explaining the purpose of the study and the questionnaire.

Response Rate

Kiesler and Sproull (1986, p. 403) reported a positive result as : “e-mail response rates of over 65 percent, with both studies showing e-mail response rates significantly higher than the comparable postal mail method”. Schall (2003) described a positive response rate range from 6 to 68 percent for e-mail surveys and 7 to 44 percent for web surveys.

In this study, electronic mail was used to increase the response to follow-up attempts by including another copy of the questionnaire. The rate of response is increased by 17.7 % after follow up by electronic mail.

In this research where both mail and e-mail were used to deliver surveys, mail surveys took over 15 days to return and follow-up e-mail surveys were returned within 10 days. E-mail is the one of survey method which can help the participants feel more easier to respond to and can increase the response rate (Flaherty, Honeycutt & Powers 1998). In addition, an e-mail survey can give cost benefits to the researcher. The cost of an e-mail survey is estimated to be between 5% and 20% of a paper survey (Shaffer, Harrison & Gilley 1999; Weible & Wallace 1998). In this study the cost savings was an important issue for choosing e-mail surveys, especially for the follow-up process.

4.7 Data Preparation and Screening

Prior to data analysis, screening and cleaning of the data were conducted according to procedures recommended by Wellington and Szczerbinski (2007). All the returned questionnaires were firstly manually checked for completeness of responses. As missing data normally occurs when a respondent has failed to complete all items in a questionnaire (Punch 2005; Sarantakos 2005; Saunders, Thornhill & Lewis 2003; Sekaran 2003), incomplete questionnaires containing one or more missing items were excluded from the dataset. Following this, the retained questionnaires were checked again manually prior to computer entry to identify missing items.

Once the data was entered, it was screened to ensure that no errors in data entry had occurred as clearly these can distort the statistical analyses. This was done by detecting any 'out of range values' using the 'Descriptive' and 'Frequencies' commands in the SPSS statistical software package (Bryman, Bell & Bryman 2003; Roscoe 1975; Sarantakos 2005).

The process of preparation and screening were completed, and descriptive analyses was undertaken to determine the validity of the underlying assumptions about the data required for further multivariate analysis (e.g. structural equation modeling).

4.8 Statistics Analysis and Definitions

All statistical data analyses were performed on a PC computer using in the SPSS statistical software package. The analyses were descriptive statistics, ANOVA, correlation and multiple regressions. Furthermore, SPSS was also used for recoding, computing and preparing the syntax with the data to be able to use it for the structural equation model (SEM) by AMOS.

The statistical methods which were used could be summarized as follows;

- reliability tests of the questionnaire by Cronbach's alpha coefficient;
- person correlation was used to find the correlation of factors variables;
- multiple regressions analysis is used to find the equation model;
- structural equation modeling.

4.8.1 Level of Significance

The level of significance, type I error, is the probability of rejecting the null hypothesis when it is true. This study conducted two-tailed statistical tests at the 0.05 alpha levels. The reason for setting alpha so low was to minimize the probability of making this error. The researcher can control quite effectively the risk of this type of error.

4.8.2 Descriptive Statistics

Descriptive statistics have been applied to describe the basic features of the data in this study. The simple summaries of the sample, simple graphics analysis and the basis of virtually for the every quantitative analysis were provided by the descriptive statistics.

Descriptive statistics were conducted for demographic factors including educational level, expatriation duration and type of business. The descriptive statistics of this study are report in Chapter 5, Section 5.3.1 sample characteristics.

4.8.3 Reliability Analysis

The reliability analysis procedure can analyze items on measures that assess one or more constructs. This study analyzed the reliability of the scores measured in the

questionnaire. Cronbach's coefficient alpha was calculated for examining internal consistency in each instrument. The reliability analysis is report in Table 6.5 Instrument Reliability.

4.8.4 Pearson Correlation Coefficient

The correlation coefficient was used to describe directions and strengths between the independent variable and the dependent variable. The correlation is report in Chapter 5, section 5.3.4 Hypothesis Testing.

4.8.5 ANOVA

In this research, ANOVA tests of mean (cross-cultural adjustment) difference were conducted for four factors. The factors were knowledge sharing variance, tacit & explicit knowledge, learning organization outcome and performance. The ANOVA tests of mean in this study is reported in Chapter 5 Section 5.3.3 Response Differences Between Demographic Group

4.8.6 Multiple Regressions Analysis

Multiple regression is used to account for (predict) the variance in an interval dependent, based on linear combinations of interval, dichotomous, or dummy independent variables.

Multiple regression was conducted to analyze the influence of the independent organizational variable on each of the seven predicted knowledge sharing variables. The independent variables were entered in sets to predict each variable. The seven dependent variables were documentation, dissemination, experimental learning, team learning, generative learning, finance performance and knowledge performance. The multiple regression analysis of this study is reported in Chapter 5, Section 5.3.4 Hypothesis Testing

4.8.7 Structural Equation Modeling (SEM)

By adopting a structural equation modeling approach, this research can think of Learning Organization Variables, Learning Outcomes, Tacit and Explicit Knowledge, and Performance Improvement as "latent constructs" identified in the model, which

are not directly measurable, although they can be indirectly identified by a set of measurable indicators. The set of a structural equation modeling in this study is reported in Chapter 6.

4.9 Summary

This chapter has presented the methodologies used in this research, including preliminary information gathering, pre-tests, pilot study, reliability and validity of the instrument, data collection and data analysis procedures. The study used both qualitative and quantitative methods in an effort to gain deeper insight and triangulation into its findings. The survey instrument was shown to be reliable and valid after conducting the pilot study.

Data collection methodology included a discussion of the survey procedure, population, sample size, and problems encountered in collecting data. To fulfill the purpose of the study, structural equation modeling is applied as the main statistical technique used in analysis. The minimum sample size requirement and how to organize and clean data is also investigated.

Primary data analysis using SPSS will be discussed in the next chapter (Chapter 5), and the results of data analysis using AMOS for the structural equation modeling used in this research will be discussed in Chapter 6.

CHAPTER 5

PRIMARILY DATA ANALYSIS

5.1 Introduction

In Chapters 4, the research methodology used to gather and analyze the data was discussed. Consequently, the purpose of this chapter is to summaries and present the results of the descriptive statistics used to describe the samples. This chapter outlines the use of a computer package for analyzing data from questionnaire surveys, and presents the findings of the data analysis. Because this research was conducted in multiple stages, it was considered more appropriate to combine the empirical results and deliver them as sections within a single chapter. Section 5.2 focuses on the exploratory qualitative interview sample. Section 5.3 is devoted to the quantitative survey sample. The conclusion are presented in section 5.4

5.2 Qualitative In-depth Interview Data Analysis

Following the literature review on knowledge sharing and the learning organization (Chapters 2 and 3) in-depth interviews were taken for the pilot study. Six in-depth interviews were carried out with Thai managers responsible for learning organization development in six Thai organizations where learning organization theory and knowledge sharing processes have been adopted. The main purpose of this pilot study was to gain enough understanding about these issues in Thailand to develop the detailed questionnaires to be adopted in the next part of this research. The results of the in-depth interviews are reported as follow.

5.2.1 Sample Selection

As this study focuses its investigation on Thai organizations, it was deemed appropriate to gather responses, about the four-sub systems of the knowledge sharing model themes from Thai businesses. The expert people from the list of organizations which have adopted the learning organization concept as a management tool were chosen from the Knowledge Management Institute of Thailand, as they would provide valid and consistent views on the four dimensions as they relate to their organization and knowledge sharing activities. The interviewees

comprised six people in various positions such as the Vice President, Assistant Vice president, General Manager and Knowledge Management Manager (see table 5.1 for the full list of participants).

The aggregate demographic data from the interviewees are provided in Table 5.1. Briefly, five of the six interviewees were male; four were aged between 41 and 50 with the other two between 30 and 40. Only one did not hold a qualification of either a Masters degree or PhD.

Table 5.1 Profile of Respondents from the Qualitative In-depth Interviews

Respondent	1	2	3	4	5	6
Gender	M	M	M	F	M	M
Age	41-50	41-50	41-50	41-50	30-40	30-40
Role	Top	Top	Top	Mid	Mid	Mid
Qualifications	Master	PhD	Master	Master	N/A	Master

Legend: M = Male, F =Female, Top = Top Management and Mid = Middle Management.

5.2.2 Qualitative In-depth Interviews: The Results

The purpose of presenting these findings here is to demonstrate the basis on which the detailed questionnaire used in the qualitative research was developed. The themes established during the literature review were:

- **knowledge sharing variance** (1. Leadership, 2. Culture, 3. Mission and strategy, 4. Management practices, 5. Organization structure, 6. Systems, 7. Organizational climate, 8. Motivation);
- **tacit and explicit knowledge** (9. Documentation, 10. Dissemination), **learning organization outcome** (11. Experimental learning, 12. Team learning, 13. Generative learning); and
- **performance** (14. Finance performance, 15. Knowledge performance) of the six interviews from several businesses.

The factors in each variance presented in table 5.2-5.18 were derived from the theoretical prescriptions which are mentioned in chapter 2 and the suggestion of the interviewee. The results of the interviews are presented in the following table. It is denoted with an 'X', in the tables when the respondents mentioned same issue.

5.2.2.1 Independent Variables

As eight knowledge sharing variances continually emerged as a key issue in the knowledge sharing model from the literature review (see section 3.1), all variances were seen as key research issues for a knowledge sharing model in Thailand. Consequently, the answers to this question were seen as crucial and so, each interviewee was asked: “. *In terms of (knowledge sharing variance) What are the influencing factors which inspire member to share their knowledge in Thai organization?*”. The factors in each variance presented in each table (5.2 to 5.18 below) were derived from the theoretical prescriptions discussed in Chapter 2 and the suggestions of the interviewees. Interviewee’s answers are arranged according to the individual, numbered 1 to 6. The results are displayed in tables 5.2-5.18.

(1) Leadership

In a learning organization, the role of a leader emphasizes the learning mandate. Leaders are instructors, coaches and mentors. They build visions, help members test mental models and engage in system thinking. They support creativity, innovation and sharing (Argyris, Chris 1999; Argyris, C & Schon 1996; Ayupp & Anandan 2008; Poomontre 2005; Senge 1990). Consequently, the answers to this question were seen as crucial and so, each interviewee was asked: “*In terms of leadership, what are the influencing factors which inspire a member to share their knowledge?*”. The results are displayed in Table 5.2.

As shown in Table 5.2, five interviewees suggest “Help others understand how sharing affects organizational progression” as the influencing factor, follow by “insist that new knowledge be shared and disseminated”, “spend time Sharing how to do member’s jobs better” and “Actively champion new ideas for organizational development”.

Table 5.2 Factors about leadership

Factor	1	2	3	4	5	6	Total
Help others understand how sharing affects organizational progression.	X	X	X	X		x	5
Insist that new knowledge be shared and disseminated.		X		X	X	X	4
Spend time sharing how to do members' jobs better.		X	X		X		3
Actively champion new ideas for organizational development.			X	X	x		3

(2) Culture

The literature suggests that culture has an important role in effective organizational functioning. It is reported that culture is related to the environment, mission and strategy, and to leadership (Bennett, J.K. & O'Brien 1994; Denison 1990; Garvin, D.A. 1993; Poomontre 2005; Senge 1990; Southern 1997; Watkins, E & Marsick 1992) In this study, culture is divided into three categories which are learning latitude (risk-taking), organizational unity and knowledge indeterminacy. There were some common views that were repeatedly expressed as will be demonstrated in the comments and as can be seen from tables 5.3 to 5.5 as shown below.

(2.1) Learning Latitude (risk-taking)

Learning latitude has been defined as measuring the perceived license, within a recognized range, for learning freedom enabling individuals to be independent thinkers and to both promote and try new ideas.

The factors which were most suggest by the interviewees are “Learning from mistakes”, “Encouraging to be an independent thinker”, “Supporting to find the best ideas” and “Being flexible” (table 5.3).

Table 5.3 Factors about Learning Latitude (risk-taking)

Factor	1	2	3	4	5	6	Total
Learning from mistakes.	X	X	X	X	X	X	6
Encouraging to be an independent thinker.		X	X		X	X	4
Supporting to find the best ideas.		X	X	X			3
Being flexible.	X	X				X	3

(2.2) Organizational Unity

The scale for organizational unity has been defined as measuring the perceived belief that all organizational members are of one mind working toward recognized common goals for the benefit of the organization and all its internal stakeholders. Having a shared mindset is an important precursor for the learning organization (see section 2.4).

According to Table 5.4, “Better solutions to problems are developed when people work together in groups”, “Ask questions related to work”, “Members trust each other enough to be honest” and “Members share a common understanding of organizational goals” were emphasized by interviewees.

Table 5.4 Factors about Organizational Unity

Factor	1	2	3	4	5	6	Total
Better solutions to problems are developed when people work together in groups.	X	X	X	X	X		5
Ask questions related to work.		X	X	X		X	4
Members trust each other enough to be honest with each other.		X	X	X	X		4
Members share a common understanding of organizational goals.			X	X			2

(2.3) Knowledge Indeterminacy

The knowledge indeterminacy scale has been defined as measuring the perceived

belief that knowledge is not fixed, but is in fact unbounded and incalculable, and any individual may be a source of knowledge, while no one person knows all things.

Table 5.5 presents the findings on knowledge indeterminacy. This time answers were divided equally between: “Ability to predict where things appear to be headed in organization”; and “The nature of the work makes it essential to work and share with people from different parts of the organization.”; whilst only two of the six respondents nominating: “Taking risks and try new things” and “Long term outcomes are just as important as short term”.

Table 5.5 Factors about Knowledge Indeterminacy

Factor	1	2	3	4	5	6	Total
Ability to predict where things appear to be headed in organization..	X	X		X	X		4
The nature of the work makes it essential to work and share with people from different parts of the organization.			X	X	X	X	4
Taking risks and try new things.	X	X					2
Long term outcomes are just as important as short term.	X	X					2

(3) Mission and Strategy

Mission is defined as what leaders and employees believe is the core purpose of the organization. The mission statement of an organization is a source of purpose, direction and goals. For this reason, it is essential that individuals and groups understand the roles they fulfill and the contributions they make to organizational goal attainment, performance and success(Ardichvili 2008; Chotinucht 1997; Dhamasiri 2000; Hedberg 1981; Ipe 2003; Karnmanakitkul & Sukontavaree 2004; Neeley, D. 1997; Poomontre 2005; Qian et al. 2008; Senge 1994; Ulrich, Von Glinow & Jick 1993; Watkins, K.E. & Marsick 1996). Key to this is the organization’s strategy. Strategy was referred to as a manifestation of the leader’s beliefs about successfully competing within an organization's industry environment. It is the organization's blueprint for coordinating internal effort, for internal and external alignment, and for taking action through the use of organizational systems to achieve stated goals

(Ardichvili 2008; Belasen 2000; Gephart, M.A. & Marsick 1996; O'Brien 1994; Pedler, Burgoyne & Boydell 1997; Poomontre 2005).

As mission and strategy impact on knowledge sharing, the following question was posed to all of the interviewees: *"In terms of mission and strategy, what are the influencing factors which inspire a member to share their knowledge?"*. The elements which comprise mission and strategy are system thinking, external monitoring and knowledge creation. The results are presented in tables 5.6 to 5.8.

(3.1) System Thinking

System thinking has been described as measuring the perceived degree to which the organization and its members recognize and act to attain successful and effective performance at the overall systemic organizational level and not solely at the individual or group level (Argyris, C & Schon 1996; Baker 1997; Barren & John 1997; Duncan & Weiss 1979; Lundberg 1989; Ojala 1995; Poomontre 2005; Senge 1992, 1994).

Interviewees agree that in their organizations "Members give input to strategic plans have a chance to do so"; "Considering how a plan in one part of the organization will have impacts in other parts"; and "Thinking about how today's actions can have long-term consequences we might not expect" and three interviewees also nominated: "Focusing on monitoring the progress of work" should be applied as the factor about system thinking (Table 5.6)

Table 5.6 Factors about System Thinking

Factor	1	2	3	4	5	6	Total
Members give input to strategic plans have a chance to do so.		X	X	X	X	X	5
Considering how a plan in one part of the organization will have impacts in other parts.		X	X	X		X	4
Thinking about how today's actions can have long-term consequences we might not expect.	X	X	X			X	4
Focusing on monitoring the progress of work.	X		X	X			3

(3.2) External Monitoring

The scale for external monitoring has been defined as measuring the perceived level of organizational efforts to be judiciously aware of business and industry trends and forces that affect organizational effectiveness (Argyris, C & Schon 1996; Barren & John 1997; Gephart, M.A. & Marsick 1996; Lundberg 1989; Pedler, Burgoyne & Boydell 1997; Poomontre 2005; Senge 1992, 1994).

Table 5.7 displays the six interviewees' responses to external monitoring. The most popular response was "The business plans include developing new products/services". The remaining responses received three nominations: "Obtaining inside and outside trends and forces which will have an impact in the future", "The organization conducts research and development" and "Establishing some key measurements against which we can track progress in achieving goals".

Table 5.7 Factors about External Monitoring

Factor	1	2	3	4	5	6	Total
The business plans include developing new products / services.	X		X		X	X	4
Obtaining inside and outside trends and forces which will have an impact in the future.	X	X				X	3
The organization conducts research and development.		X	X	X			3
Establishing some key measurements against which we can track progress in achieving goals.			X	X	X		3

(3.3) Knowledge Creation

Knowledge creation has been defined as measuring the perceived ability of the organization to acquire, disseminate and interpret information to establish an organizational knowledge-base which acts to benefit organizational responses to challenge and to improve organizational performance (Belasen 2000; Pedler, Burgoyne & Boydell 1997; Poomontre 2005; Senge 1992, 1994).

From Table 5.8 it is clear that most interviewees agree that they “Look around the organization to find examples of knowledge sharing”. Four responses were given to “Gathering information on outside forces and trends that may impact the organization” and “Developing plans to increase the overall level of knowledge sharing”. Finally one interviewee nominated “Learning from failures and problems, without placing blame” can be presented as the factors about knowledge creation.

Table 5.8 Factors about Knowledge Creation

Factor	1	2	3	4	5	6	Total
Look around the organization to find examples of knowledge sharing.	X	X		X	X	X	5
Gathering information on outside forces and trends that may impact the organization.		X	X		X	X	4
Developing plans to increase the overall level of knowledge sharing.	X	X	X	X			4
Learning from failures and problems, without placing blame.	X		X			X	3

(4) Management Practices

Management practices as a term is defined as the behaviors engaged by managers to effectively and efficiently use the resources available to accomplish goals (Dibella, A.J., Nevis & Gould 1996; Pedler, Burgoyne & Boydell 1997; Poomontre 2005; Senge 1994). In a learning organization management practices include the encouragement of experiments, the facilitation of questioning and examination, the promotion of constructive dissent, the modeling of learning, sharing and the acknowledgement of failures. The practices of management are: owning or active involvement, aligning at the supervisor's level of span of control, setting expectations, modeling, communicating, engaging, and rewarding. Management sharing support practices, management sharing motivation practices, management performance effectiveness practices and management sharing advice practices are divided for manage practices in this thesis.

When asked: *"In terms of management practices, what are the influencing factors which inspire a member to share their knowledge?"* There were some very interesting responses, as can be seen in tables 5.9 to 5.12 and described below.

(4.1) Management Sharing Support Practices

The scale for management sharing support practices has been defined as measuring the perceived behaviors practiced by employees' supervisors, which promote and

enable learning to occur (Dibella, A.J., Nevis & Gould 1996; O'Brien 1994; Pedler, Burgoyne & Boydell 1997; Poomontre 2005; Senge 1994). Table 5.9 displays the interviewees' responses. There was unanimous support for "Managers make time to share from successes and failures". Four interviewees nominated "Managers provide opportunities for members to generate new creative ideas about their work" and "Manager actions help valuable knowledge sharing to be used across the organization". Less supported with two nominations was: "Managers allow members as much freedom as possible to set their own knowledge sharing goals and work processes" can be applied.

Table 5.9 Factors about Management Sharing Support Practices

Factor	1	2	3	4	5	6	Total
Managers make time to share from successes and failures.	X	X	X	X	X	X	6
Managers provide opportunities for members to generate new creative ideas about their work.	X		X	X	X		4
Manager actions help valuable knowledge sharing to be used across the organization.	X	X		X		X	4
Managers allow members as much freedom as possible to set their own knowledge sharing goals and work processes.			X			X	2

(4.2) Management Sharing Motivation Practices

Management sharing motivation practices is defined as measuring the perceived actions of supervisors, which encourage and motivate employees to learn and develop as individuals and as groups (Dibella, A.J., Nevis & Gould 1996; O'Brien 1994; Pedler, Burgoyne & Boydell 1997; Poomontre 2005; Senge 1994).

Table 5.10 displays the factors on management sharing motivation practices nominated by the six interviewees. There was unanimous support for two of the "Managers help set goals that encourage members to share their knowledge" and "Managers expect members to accept responsibility for their knowledge sharing". Three interviewees nominated "Managers help members communicate with other parts of the organization to create more" and one interviewee nominated "managers

allow as much flexibility as possible in the way members do their jobs”.

Table 5.10 Factors about Management Sharing Motivation Practices

Factor	1	2	3	4	5	6	Total
Managers help set goals that encourage members to share their knowledge.	X	X	X	X	X	X	6
Managers expect members to accept responsibility for their knowledge sharing.	X	X	X	X	X	X	6
Managers help members communicate with other parts of the organization to create more sharing between team.		X	X		X	X	4
Managers allow as much flexibility as possible in the way members do their jobs.	X	X		X			3

(4.3) Management Performance Effectiveness Practices

The scale for management performance effectiveness practices has been defined as measuring the perceived supportive skills-related actions of supervisors, which promote and enable greater effectiveness and better performance by all employees (Chotinucht 1997; Dhamasiri 2000; Poomontre 1991; Senge 1994).

As presented in Table 5.11, five interviewees believe that “Managers help members to develop skills they need to share and learn together effectively” was most important. Four interviewees also nominated “Managers assure that the assignments encourage members to develop their performance” and “Managers provide feedback about member’s performance”. Finally two interviewees indicated “Managers see to it that members have the resources they need”.

Table 5.11 Factors about Management Performance Effectiveness Practices

Factor	1	2	3	4	5	6	Total
Managers help members to develop skills they need to share and learn together effectively.	X		X	X	X	X	5
Managers assure that the assignments encourage members to develop their performance.		X	X		X	X	4
Managers provide feedback about member's performance.	X	X	X	X			4
Managers see to it that members have the resources they need.		X		X			2

(4.4) Management Sharing Advice Practices

Management sharing advice practices has been defined as measuring the perceived actions of supervisors, which create the situations and provide the resources needed to support the job performance of all employees (Bennett, J.K. & O'Brien 1994; Garvin, D.A. 1993; Poomontre 1991; Senge 1994; Watkins, E & Marsick 1992).

According to Table 5.12 five interviewees believed that "Managers create situations where everyone wins when goals are achieved" was the most important factor related to sharing advice practices. Four responses supported the factor: "Managers provide opportunities for members to input and participation in decision". Less supported were: "Managers provide opportunities for members to input and participation in decision" with two responses and "Managers work with members and also create strategy to do for them" by one interviewee.

Table 5.12 Factors about Management Sharing Advice Practices

Factor	1	2	3	4	5	6	Total
Managers create situations where everyone wins when goals are achieved.	X	X	X		X	X	5
Managers provide opportunities for members to input and participation in decision.	X	X	X	X			4
Managers provide opportunities for members to input and participation in decision.		X		X		X	3
Managers work with members and also create strategy to do for them.				X	X		2

(5) Organization Structure

Structure is defined as the arrangement of function and people for the purpose of responsibility, decision-making authority and relationships. It is this system of task, reporting and authority relationships which characterizes the functional form of an organization. It was further described as enabling the enactment of the organization's mission and strategy. Structure affects the coordination of efforts among different divisions and departments in an organization. It provides job and role clarity and reduces ambiguity related to organizational responsibility at the individual and at the group levels. It also affects the alignment of goals across the knowledge sharing in a organization (Black & Synan 1997; Garvin, D.A. 1993; Gephart, M.A. & Marsick 1996; Pedler, Burgoyne & Boydell 1997; Poomontre 1991; Senge 1994; Watkins, K.E. et al. 1997). The elements associated with organizational structure are internal alignment and facilitative structures.

The question posed in the interviews about the internal alignment and facilitative structures are the part of the organization structure in this research. The comments made by the interviewees can be seen from both tables 5.13 and 5.14.

(5.1) Internal Alignment

Internal alignment has been defined as measuring the perceived level of organizational integration of goals, function, roles, work efforts, problem solving and

decision-making, in order to increase organizational effectiveness (Black & Synan 1997; Pedler, Burgoyne & Boydell 1997; Poomontre 1991; Senge 1994; Watkins, K.E. et al. 1997).

The most heavily supported of the factors were “The different functions in the organization work well together to help members be more competitive”; “The work processes have been designed to integrate across functions / departments” and “The organization's goal have helped units to share more effectively” with five interviewees nominating these. Two interviewees supported “The organization has revised its plan and goals quickly” (table 5.13).

Table 5.13 Factors about Internal Alignment

Factor	1	2	3	4	5	6	Total
The different functions in the organization work well together to help members be more competitive.	X	X	X		X	X	5
The work processes have been designed to integrate across functions / departments.	X		X	X	X	X	5
The organization's goal have helped units to share more effectively.	X	X	X	X	X		5
The organization has revised its plan and goals quickly.				X		X	2

(5.2) Facilitative Structures

The scale has been defined as measuring the perceived ability of the organizational structures to provide international access to individuals and groups both inside and outside the organization (Black & Synan 1997; Liebowitz 2000; Pedler, Burgoyne & Boydell 1997; Poomontre 1991; Senge 1994; Watkins, K.E. et al. 1997).

The results are displayed in Table 5.14. Of the six interviewees, all supported “The structure helps members to share and keep in touch with the right people” as the key factor in facilitative structures. Four interviewees nominated “The structure helps members to know the way of coordinating between people and their jobs” and “The structure helps members to know the way of sharing their knowledge”. Three

interviewees supported: “The structure helps members to share with the people outside the organization” (Table 5.14).

Table 5.14 Factors about Facilitative Structures

Factor	1	2	3	4	5	6	Total
The structure helps members to share and keep in touch with the right people.	X	X	X	X	X	X	6
The structure helps members to know the way of coordinating between people and their jobs.		X		X	X	X	4
The structure helps members to know the way of sharing their knowledge.	X		X	X	X		4
The structure helps members to share with the people outside the organization.			X	X	X		3

(6) Systems

Systems represent the standardized organizational policies and procedures that are put in place to facilitate work. It is one of many variables involved in change (Black & Synan 1997; Liebowitz 2000; Pedler, Burgoyne & Boydell 1997; Poomontre 1991; Senge 1994; Watkins, K.E. et al. 1997). In order to understand how an organization accomplishes things, one should examine the systems because it reflects the state of the organization. In learning organizations, systems prevent information from remaining localized, and instead promote organizational learning and knowledge sharing.(Black & Synan 1997; Duncan & Weiss 1979; Liebowitz 2000; Pedler, Burgoyne & Boydell 1997; Poomontre 1991; Senge 1994; Watkins, K.E. et al. 1997)

To assess the system as part of the overall research issues, each of the convergent interviewees were asked to respond to the following question: *“In terms of management practices, what are the influencing factors which inspire a member to share their knowledge?”*. The findings are summarized in Table 5.15.

The most supported statements regarding systems were: “The standards of measurement”, information system is of a good standard and easy to access”, and “The information system can help members to share their knowledge”. Three

interviewees supported “The information technology systems are enough to support knowledge sharing as factors about the system” (Table 5.15).

Table 5.15 Factors about the Systems

Factor	1	2	3	4	5	6	Total
The standards of measurement.		X	X	X	X	X	5
Information system is of a good standard and easy to access.	X	X	X		X	X	5
The information system can help members to share their knowledge.	X	X		X	X	X	5
The information technology systems are enough to support knowledge sharing.		X	X		X		3

(7) Organizational Climate

Organizational climate is known as a psychological state strongly affected by organizational conditions (Dibella, A.J., Nevis & Gould 1996; Easterby-Smith, Araujo & Burgoyne 1999; Gephart, M. et al. 1996; Goh 1998; McGill & Slocum 1993; Pedler, Burgoyne & Boydell 1997; Poomontre 1991; Senge 1992). It is the collective impressions, expectations, and feelings of employees, which affect their work-related relationships. Organizational climate is the result of day-to-day transactions involving issues important to the psychological state of organizational members. Those issues of importance are commonly associated with a sense of direction or knowledge of work-related responsibilities, which comes from mission clarity. It can support the effect of management practices in bringing about an attitude of commitment on the part of employees and in establishing standards for organizational practices. In order to find the influencing factor in terms of organizational climate, the thesis investigated generative sharing climate and promotive interaction as key elements. Tables 5.16 and 5.17 display the interviewees' comments on these two elements.

(7.1) Generative Sharing Climate

The scale for generative sharing climate has been defined as measuring the perceived values, norms and behaviors, which foster continual sharing discretion on

the part of organizational members(Dibella, A.J., Nevis & Gould 1996; Easterby-Smith, Araujo & Burgoyne 1999; Gephart, M. et al. 1996; Goh 1998; McGill & Slocum 1993; O'Brien 1994; Pedler, Burgoyne & Boydell 1997; Poomontre 1991; Senge 1992).

The results for generative sharing climate were quite mixed between the interviewees. Of the four factors five interviewees supported “Encouraging members to explore the reasons behind the unexpected”. Four interviewees nominated “Encouraging members to be pleased to share their knowledge”. Three interviewees nominated “Encouraging members to used information for self development and sharing” and two supported “Encouraging members to find new knowledge” (Table 5.16).

Table 5.16 Factors about Generative Sharing

Factor	1	2	3	4	5	6	Total
Encouraging members to explore the reasons behind the unexpected.	X	X		X	X	X	5
Encouraging members to be pleased to share their knowledge.		X	X		X	X	4
Encouraging members to used information for self development and sharing.	X		X		X		3
Encouraging members to find new knowledge.			X	X			2

(7.2) Promotive Interaction

Promotive interaction has been defined as measuring the perceived degree to which individuals act to encourage and facilitate each other's efforts to grow, perform and achieve success (Dibella, A.J., Nevis & Gould 1996; Easterby-Smith, Araujo & Burgoyne 1999; Gephart, M. et al. 1996; Goh 1998; McGill & Slocum 1993; O'Brien 1994; Pedler, Burgoyne & Boydell 1997; Poomontre 1991; Senge 1992).

Table 5.17 demonstrates that the interviewees were divided on promotive interaction. Four supported “Having enough equipment for doing the work” and “Supporting member to find new solutions for solving problems”. Three nominated “Supporting

members to actively spend time for reviewing in knowledge sharing” and one interviewee nominated “Supporting members to be active in sharing about external environments”.

Table 5.17 Factors about Promotive Interaction

Factor	1	2	3	4	5	6	Total
Having enough equipment for doing the work.	X	X		X		X	4
Supporting member to find new solutions for solving problems.		X	X		X	X	4
Supporting members to actively spend time for reviewing in Knowledge sharing.	X		X		X		3
Supporting members to be active in sharing about external environments.				X			1

(8) Motivation

Motivation is deemed as being the arousal to move toward goals, to take action and to persist until satisfaction is achieved (Ayupp & Anandan 2008; Liebowitz 2000; Pool 2000; Poomontre 1991; Senge 1992; Simon & Rugchart 2003). Organizations need to set up conditions that encourage learning and sharing. Individual interest and curiosity are needed to build commitment to new behaviors. Some organizations are blamed for blocking intrinsic motivation by creating policies and structures which act as barriers, instead of encouraging learning and sharing(Ayupp & Anandan 2008; Goh 1998; Liebowitz 2000; Pool 2000; Poomontre 1991; Senge 1992; Simon & Rugchart 2003). The interviewees indicated their views on motivation and this is presented in Table 5.18

The most strongly supported factor by all six interviewees was “Supporting members to try to work for the best situation in crisis”. Four nominated “Supporting members to be enthusiastic for having high active in performance”. Three nominated “Supporting members to concentrate in plans and goals and two “Supporting members to have relationship like family”.

Table 5.18 Factors about Motivation

Factor	1	2	3	4	5	6	Total
Supporting members to try to work for the best situation in crisis.	X	X	X	X	X	X	6
Supporting members to be enthusiastic for having high active in performance.		X	X		X	X	4
Supporting members to concentrate in plans and goals.			X	X		X	3
Supporting members to have relationship like family.	X				X		2

5.2.2.2 Dependent Variables

(9) Tacit and Explicit Knowledge

The tacit and explicit component of the organization knowledge base makes its formalization difficult, reducing its ease of transfer across organizational boundaries. Thus, a number of resource-based scholars have argued that tacit and explicit knowledge is a valuable source of competitive advantage because it protects an organization against boundary leakages of organization specific know-how assets (Argyris, Chris 1999; Bloodgood 1997; De Leo 1994; Reber 1993; Wagner, R.K. & Sternberg 1985). In addition, tacit and explicit knowledge has a higher return, generating potential when implemented within the boundaries of the organization. Tacit and explicit knowledge were explored in this thesis with the following elements: documentation and distributed information (dissemination).

To assess the credibility of including tacit and explicit knowledge concerns as a part of the overall research issues, each of the interviewees were asked to respond to the following question: “*In terms of (tacit and explicit knowledge) What are the influencing factors which inspire members to share their knowledge in Thai organizations?*”. The results can be seen from both tables 5.19 and 5.20.

(9.1) Documentation

The scale for documentation has been defined as the extent to which tacit and explicit knowledge is coded, assembled, recorded and comprehensively treated utilizing semantics, mechanical and/or electronic aids, and techniques of reproduction for giving documentary information maximum accessibility and usability (De Leo 1994; Reber 1993; Spender 1993; Wagner, R.K. & Sternberg 1985).

All six interviewees nominated “Having a manual that explains the rules of the organization carefully and clearly”. Three indicated “Members remember the trends and performance that the organization creates well”. Two interviewees nominated “Having the documents containing information to deal with problems members face” and one “Support to find new ideas, sharing opinions with each other by using documents” (Table 5.19).

Table 5.19 Factors about Documentation

Factor	1	2	3	4	5	6	Total
Having a manual that explains the rules of the organization carefully and clearly.	X	X	X	X	X	X	6
Members can remember the trends and performance that the organization creates well.		X	X		X		3
Having the documents containing information to deal with problems members face				X		X	2
Support to find new ideas, sharing opinions with each other by using documents.	X						1

(9.2) Distributed Information (Dissemination)

The scale for dissemination has been defined as the level to which tacit and explicit knowledge is shared and spread horizontally and vertically throughout the organization (Bloodgood 1997; De Leo 1994; Korth 2007; Reber 1993; Spender 1993).

The findings of the interviewees’ opinions on dissemination are contained in Table 5.20. All six interviewees nominated “Encouraging to sharing opinions between units” as an important dissemination factor. Three also nominated “Having efficient distributed information system and two with “Having some tests to find expert persons for each area”. One interviewee also nominated “concern quickly services for the customers”

Table 5.20 Factors about Dissemination

Factor	1	2	3	4	5	6	Total
Encouraging to sharing opinions between units.	X	X	X	X	X	X	6
Having efficient distributed information system.		X	X		X		3
Having some tests to find expert persons for each area.	X			X			2
Concern quickly services for the customers.						X	1

(10) Learning Organization Outcome

The issue of funding constraints was very evident from even the earliest and briefest reviews of the literature (Bennett, J.K. & O'Brien 1994; Chotinucht 1997; DiBella, A. 1997; Garavan 1997; Hitt 1996; McGill, Slocum & Lei 1992; Neeley, D.K. 1997; O'Brien 1994; Poomontre 2005; Senge 1994; Swieringa & Wierdsma 1992; Watkins, E & Marsick 1992; Watkins, K.E. & Golembiewski, R.T. 1995) Thus, the concept of knowledge sharing outcome was seen as an important reason why Thai organizations need to develop in order to be a learning organizations. This thesis explored learning organization outcome by investigating interviewee reactions to experimental learning, team learning and generative learning. Consequently, the question posed in the interviews was: *“How can knowledge sharing support the learning organization outcome in Thai organizations?”* This issue is addressed in tables 5.21 to 5.23.

(10.1). Experimental learning

Experimental learning is the measure for gauging the perceived ability of an organization to learn from actual experiences, whether the experiences are considered successes or failures, and to actually draw on the knowledge learned to make better decisions or business improvements (Bennett, J.K. & O'Brien 1994; Chotinucht 1997; DiBella, A. 1997; Garavan 1997; Hitt 1996; McGill, Slocum & Lei 1992; Neeley, D.K. 1997; O'Brien 1994; Poomontre 2005; Senge 1994; Swieringa & Wierdsma 1992; Watkins, E & Marsick 1992; Watkins, K.E. & Golembiewski, R.T. 1995).

According to interviewees' opinions on experimental learning (Table 5.21) all supported the notion that "Knowledge sharing supports the success in development of performance of members". Three interviewees nominated "Knowledge sharing and learning from mistake supports members to success in the goals and two suggested that "Knowledge sharing removes the change threat to be an opportunity by changing plans for achieving goals" were mentioned by interviewees.

Table 5.21 Results about Experimental Learning

Results	1	2	3	4	5	6	Total
Knowledge sharing supports the success in development of performance of members.	X	X	X	X	X	X	6
Knowledge sharing and learning from mistake supports members to success in the goals.			X		X	X	3
Knowledge sharing removes the change threat to be an opportunity by changing plans for achieving the goals.		X		X			2

(10.2) Team Learning

The team learning scale has been defined as measuring the perceived ability of workgroups to acquire, interpret and share knowledge in order to enhance the group level learning and work practices to achieve improved performance and effectiveness (Bennett, J.K. & O'Brien 1994; Chotinucht 1997; DiBella, A. 1997; Garavan 1997; Hitt 1996; McGill, Slocum & Lei 1992; Neeley, D.K. 1997; O'Brien 1994; Poomontre

2005; Senge 1994; Swieringa & Wierdsma 1992; Watkins, E & Marsick 1992; Watkins, K.E. & Golembiewski, R.T. 1995).

Interviewees provided a mixed picture of the factors deemed important in team learning. Five nominated the concept that “Knowledge sharing supports workgroup members to understand strengths and weaknesses of the organization well”. Four nominated “Knowledge sharing supports workgroup members to find the causes of the problems even though the mistakes might not be from the team or department.”, Three interviewees suggested that “Knowledge sharing supports workgroup members to share the experience with each other” and two nominated that “Knowledge sharing supports workgroup members to check feedback for developing and sharing knowledge with other groups”.

Table 5.22 Results about Team Learning

Results	1	2	3	4	5	6	Total
Knowledge sharing supports workgroup members to understand the strengths and weaknesses of the organization well.	X	X	X		X	X	5
Knowledge sharing supports workgroup members to find the causes of the problems even though the mistakes might not be from the team or department.	X			X	X	X	4
Knowledge sharing supports workgroup members to share the experience with each other.		X	X		X		3
Knowledge sharing supports workgroup members to check feedback for developing and sharing knowledge with other groups or other departments.	X			X			2

(10.3) Generative Learning

The generative learning scale has been defined as measuring the perceived ability of an organization to understand business goals and problems, and the related ability to learn and make core changes needed to eliminate established organizational impediments to better attain stated objectives (Bennett, J.K. & O'Brien 1994;

Chotinucht 1997; DiBella, A. 1997; Garavan 1997; Goh 1998; Hitt 1996; McGill, Slocum & Lei 1992; Neeley, D.K. 1997; O'Brien 1994; Poomontre 2005; Senge 1994; Swieringa & Wierdsma 1992; Vaill 1996; Watkins, E & Marsick 1992; Watkins, K.E. & Golembiewski, R.T. 1995; Watkins, K.E. & Marsick 1996).

As presented in Table 5.23, all six interviewees believe that “Knowledge sharing helps to respond quickly to change our goals and practices when business problems or crises have arisen” and “Knowledge sharing helps to solve problems and prevent them from occurring again” are the key factors in generative learning. Three interviewees also nominated “Knowledge sharing helps to understand the duties of each department clearly and leads to decreased conflict between departments” and one suggested “Knowledge sharing helps to consider how short term decisions will impact long range business”.

Table 5.23 Results about Generative Learning

Results	1	2	3	4	5	6	Total
Knowledge sharing helps to respond quickly to change our goals and practices when business problems or crises have arisen.	X	X	X	X	X	X	6
Knowledge sharing helps to solve problems and prevent them from occurring again.	X	X	X	X	X	X	6
Knowledge sharing helps to understand the duties of each department clearly and leads to decreased conflict between departments.		X		X		X	3
Knowledge sharing helps to consider how short term decisions will impact long range business outcomes.				X	X		2

(11) Performance

Performance is the outcome or result as well as the indicator of effort and achievement. In a systems perspective, it is the convergence of the effects of all

knowledge sharing variables that lead to performance. In this research two aspect of the performance which are finance performance and knowledge performance are adopted (Damanpour & Evan 1984; Hernandez 2000; Kuchinke 1995; Leitch et al. 1996; Liu & Liu 2008; McGrath & MacMillan 1995; Poomontre 1991, 2005; Samson, Terziovski & Monash University. Dept. of Management. 1999; Schneider 1980; Senge 1994; Slater & Narver 1995). In this thesis performance was investigated by gauging interviewees' responses to finance performance and knowledge performance.

As knowledge sharing continues to impact on organizational performance, the following question was posed to all of the interviewees: *"In terms of (performance) What are the results of knowledge sharing in Thai organizations?"* The answers of the interviewees are presented in tables 5.24 to 5.25.

(11.1) Finance Performance

The scale for finance performance has been defined as the degree of enhancement of business results at the organization, process or individual level, and financial results or benefits in terms of health and resources available for growth (Damanpour & Evan 1984; Hernandez 2000; Kuchinke 1995; Leitch et al. 1996; Liu & Liu 2008; McGrath & MacMillan 1995; Poomontre 1991, 2005; Samson, Terziovski & Monash University. Dept. of Management. 1999; Schneider 1980; Senge 1994; Slater & Narver 1995).

When put to the interviewees all nominated "Knowledge sharing supports the organization's income as an important factor contributing to finance performance. Four interviewees also suggested that "Knowledge sharing helps the organization's accomplishment report to increase". Three nominated "Knowledge sharing helps the organization's rewards for members to increase" and "Knowledge sharing helps the organization's property to increase rapidly" are the factors about finance performance as presented in Table 5.24.

Table 5.24 Results about Finance Performance

Results	1	2	3	4	5	6	Total
Knowledge sharing supports the organization's income.	X	X	X	X	X	X	6
Knowledge sharing helps the organization's accomplishment report to increase.		X	X	X	X		4
Knowledge sharing helps the organization's rewards for members to increase.	X			X	X		3
Knowledge sharing helps the organization's property to increase rapidly.		X	X			X	3

(11.2) Knowledge Performance

The scale for knowledge performance has been defined as the level of enhancement of products and services because of learning and knowledge capacity(Damanpour & Evan 1984; Hernandez 2000; Kuchinke 1995; Leitch et al. 1996; Liu & Liu 2008; McGrath & MacMillan 1995; Poomontre 1991, 2005; Samson, Terziovski & Monash University. Dept. of Management. 1999; Schneider 1980; Senge 1994; Slater & Narver 1995)

Table 5.25 presents the results on knowledge performance as reflected on by the six interviewees. The following statements were nominated by all six interviewees as being key contributors to knowledge performance: "Knowledge sharing supports the organization to increase performance efficiently when compared with financial resources for the member"; "Knowledge sharing supports members to manage the number of task which increase each day", "Knowledge sharing helps to decrease mistakes in members' work" and "Knowledge sharing helps the performance of each members' work to be faster than the last".

Table 5.25 Results about Knowledge Performance

Results	1	2	3	4	5	6	Total
Knowledge sharing supports the organization to increase performance efficiently when compared with financial resources for the member development.	X	X	X	X	X	X	6
Knowledge sharing supports members to manage the number of task which increase each day.	X	X	X	X	X	X	6
Knowledge sharing helps to decrease mistakes in members' work	X	X	X	X	X	X	6
Knowledge sharing helps the performance of each members' work to be faster than the last	X	X	X	X	X	X	6

We now turn to the results from the detailed questionnaires which were developed from the interviews with the six managers from Thai learning organizations. A copy of the questionnaire may be found in Appendix 2.

5.3 Quantitative Survey Data Analysis

A quantitative study was conducted to investigate the hypothesized effect of the organizational variables measured specifically through a knowledge sharing lens on organizational learning outcomes described in the learning organization literature and supplemented with the interview results reported above. The independent organizational variable sets were leadership, culture, mission and strategy, management practices, systems, structure, organizational climate and motivation. The seven dependent variables were experiential learning, team learning, generative learning, documentation, dissemination, knowledge performance improvement and finance performance improvement. Multiple regression analysis and structural equation modeling (SEM) were used to examine the relationships between the independent and dependent variables.

5.3.1 Sample Characteristics

As discussed in Chapter 4 a survey was sent by mail to 503 managers in Thai learning organizations. There was a 64.33% return rate. The questionnaire was set out into three parts including a demographic section and sections covering the independent and dependent variables described above. We turn now to consider the demographics of the sample.

5.3.1.1 Gender

As shown in Table 5.26, a majority of the sample was female (29%), while male respondents accounted for 71% of the total sample.

Table 5.26 Frequency and Percentage of Respondents by Gender

Gender	Frequency	Percent
Male	112	29
Female	274	71
Total	386	100

5.3.1.2 Education Level

Respondents were asked to report the level of education they had attained. As shown in table 5.27, approximately 78.8% of the respondents attained a Bachelor's degree and 21.2% attained a Master's degree. The sample can be considered an educated group as there were no managers in the sample who had no qualifications.

Table 5.27 Frequency and Percentage of Respondent by Education Level

Education Level	Frequency	Percentage
Below or equivalent diploma	0	0
Bachelor 's degree	304	78.8
Master's degree	82	21.2
Doctorate degree	0	0
Total	386	100

5.3.1.3 Respondent Age

Respondents were asked to indicate the range in which their age fell. The majority (26.42%) of the sample were in the age range of 25-29 years and 67.88 % under 39 years of age making it a relatively young sample of managers. The complete results for respondent age groups are reported in table 5.28

Table 5.28 Frequency and Percentage of Respondents by Age

Age	Frequency	Percentage
25-29	102	26.42
30-34	91	23.58
35-39	69	17.88
40-44	76	19.69
45-49	18	4.66
45-49	16	4.15
50-54	14	3.63
55-59	0	0

5.3.1.4 Number of Working Years

Respondents were asked to indicate the length of time they have worked with their organization. Approximately 21.24.% of the respondents had worked for their organization 3-4 years, followed by 17.88% having worked for their company between 11-15 years, and 17.36% between 16-20 years. The complete results for number of years working in the organization are reported in Table 5.29

Table 5.29 Frequency and Percentage of Respondents by Number of Working Years in the Organization

Number of Working Years	Frequency	Percentage
Less than 1 year	0	0
1-2 years	0	0
3-4 years	82	21.24
5-6 years	64	16.58
7-8 years	36	9.33
9-10 years	40	10.36
11-15 years	69	17.88
16-20 years	67	17.36
Greater than 20 years	28	7.25

5.3.1.5 Work Position

Respondents were asked to select one of 3 work positions that best describes their position in the company. Top management in this study include Chairman, Board of Executive Director, Managing Director, Deputy of Managing Director and Assistant Managing Director. Middle management are defined as Director, Deputy Director, Assistant Director, Manager and Assistant Manager. Finally, Officer represents the officers who are responsible for developing the learning organization.

Almost half of the sample held Officer positions, followed by 36.8% as Middle management, 15% as Top management. The responses for work position are summarized in Table 5.30.

Table 5.30 Frequency and Percentage of Respondent by Position

Position	Frequency	Percentage
Top management	58	15
Middle management	142	36.8
Officer	186	48.2

5.3.2 The Correlation matrix and Multicollinearity

This study utilized correlation analysis for two purposes: firstly to examine the presence of multicollinearity, and secondly to explore the relationships between the variables. As shown in Table 5.31, there was a statistically significant linear relationship between the independent variables of knowledge sharing variances and the dependent variable of LO outcome, Tacit and explicit knowledge and Organizational performance components. The Correlation matrix shows that the highest correlation is the correlation between organization structure and management practice which is 0.697. Examination of both correlation matrices suggested that multicollinearity was not a problem in this study since none of the correlation coefficients exceeded the limit of 0.80 recommended by Berry and Feldman(1985) and Hair (2006).

Multicollinearity is a statistical technique which can predict variables in a multiple regression model. Kline and Paul (1994) noted that this problem affects how a researcher interprets any relationship between the independent variables and the dependent variable, and multicollinearity can be detected by examining the correlation matrix.

In this study, the variance inflation factor (VIF) was applied to test multicollinearity, when the VIF is greater than or equal to 10 (≥ 10), there is high multicollinearity and instability of the B and Beta coefficients (Cureton & D'Agostino 1983; Kline, Paul 1994; Reese & Lochmüller 1994; Wherry 1984). In this study, according to Table 5.31, Tacit and explicit knowledge had the highest VIF. The VIF of Tacit and explicit knowledge was 2.947. According to the guidelines, the VIF of this study is lower than the maximally acceptable.

Table 5.31 Correlation Matrix Analysis and Variance-inflation factor (VIF) for variables

Correlations	Mean	S.D.	V1	V2	V3	V4	V5	V6	V7	V8	O	D	P	VIF
(V1) Leadership	6.00	1.00	1											1.829
(V2) Culture	5.81	1.01	0.407**	1										2.160
(V3) Mission	6.12	0.97	0.624**	0.518**	1									2.657
(V4) Management	5.77	0.96	0.590**	0.549**	0.666**	1								2.693
(V5) Structure	5.89	0.98	0.490**	0.616**	0.636**	0.697**	1							2.837
(V6) Systems	5.69	1.04	0.482**	0.589**	0.601**	0.644**	0.663**	1						2.470
(V7) Climate	5.97	0.95	0.431**	0.546**	0.595**	0.555**	0.538**	0.512**	1					1.959
(V8) Motivation	6.08	1.05	0.378**	0.542**	0.524**	0.566**	0.640**	0.641**	0.497**	1				2.246
(O) Learning organization outcome	6.00	0.75	0.335**	0.394**	0.362**	0.421**	0.436**	0.437**	0.358**	0.524**	1			1.487
(D) Tacit and explicit knowledge	5.81	0.85	0.510**	0.677**	0.659**	0.622**	0.671**	0.636**	0.638**	0.555**	0.461**	1		2.947
(P) Organizational performance	5.54	0.73	0.292**	0.257**	0.299**	0.305**	0.331**	0.335**	0.270**	0.363**	0.635**	0.363**	1	-

**P < .01

5.3.3 The Factor Analysis of knowledge sharing variance

Factor analysis is a statistical technique which can be applied to examine a broad range of data sets. Its main purpose is to reduce the numbers of variables as well as to identify the structure of relationship between those variables. Thus, it is a data reduction and structure detection method (Blumberg, Cooper & Schindler 2005). Kline (2005) advocates that it is a statistical technique to simplify the complexity of data. This study has applied factor analysis in achieve the same purposes.

This section aims to illustrate the integration of variables from questionnaire survey using the factor analysis. It shows a summarization of the independent variables (knowledge sharing variance). Independent variables were V1 (leadership), V2 (culture), V3. (mission and strategy), V4 (management practices), V5 (organizational structure), V6 (systems), V7 (organizational climate) and V8 (motivation).

Table 5.32 Total Variance Explained for knowledge sharing

Component	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.954	61.929	61.929	4.954	61.929	61.929
2	.743	9.282	71.210			
3	.557	6.965	78.175			
4	.449	5.618	83.793			
5	.375	4.690	88.483			
6	.338	4.230	92.713			
7	.315	3.938	96.651			
8	.268	3.349	100.000			

According to Table 5.32, Extraction sums of squared loadings. Initial eigenvalues and eigenvalues after extraction are the same for PCA extraction, the sum of variances for all factor, which is equal to the number of variables since the variance of a standardized variable is 1.00. Only one component shows initial eigenvalues. Then, knowledge sharing variance is one component.

Table 5.33 Principle Component Analysis (PCA), no rotated for knowledge sharing

Knowledge sharing Variable	Component score
(V1) Leadership	.692
(V2) Culture	.757
(V3) Mission	.823
(V4) Management	.842
(V5) Structure	.846
(V6) Systems	.821
(V7) Climate	.739
(V8) Motivation	.762
Eigen values	4.954
Explained Variance (%)	61.929
Cumulative Exp. Variable (%)	61.929

From Table 5.33, one factor is extracted from factor analysis of knowledge sharing. Eight of the variables are considered loading very high. The grand mean of this factor is 0.785 and standard deviation is 0.056. Therefore, this factor is considered loading moderately high to high. One factor accounted for 61.9 % of the total variance and therefore represents the eight variables very well.

5.3.4 Test of Reliability

The Cronbach's alpha was done to verify the accuracy of the data set. As revealed in Table 5.34, the total number of questions on knowledge sharing variance were sixty-seven and reliability was 0.979; the total number of questions on tacit & explicit knowledge were eight and reliability was 0.862; the total number of questions on learning organization outcome were eleven and reliability was 0.876; the total number of questions on performance were eight and reliability was 0.891

Table 5.34 Instrument Reliability

Variables	Number of Questions	Pilot Study (α)
Knowledge sharing variance	67	.979
Tacit and explicit knowledge	8	.862
Learning organization outcome	11	.876
Performance	8	.891

Reliability estimates ranged from 0.862 to 0.979 for the data set. These all fall in the range that is higher than 'minimally acceptable' and the range of 'very good' according to the guidelines provided by DeVellis (2003). For this study, the reliability is higher than the minimally acceptable.

5.3.5 Hypotheses Testing

Regression analysis was used to partition the variance explained in dependent variables by sets of organizational variables when entered into the regression model using a sequence derived from existing theory. The sequence of entrance into the regression model was related to organization development theory using the generic hierarchical model developed by Burke & Litwin (1992) and supplemented by the Kaiser and Holton (1998) learning organization performance model.

Independent variables were;

V1 (leadership),

V2 (Culture) has three sub-constructs which are;

- V2.1 (learning latitude),
- V2.2 (knowledge indeterminacy),
- V2.3 (organization unit).

V3 (Mission and strategy) has three sub-constructs which are;

- V3.1 (system thinking),
- V3.2 (external monitoring),
- V3.3 (knowledge creation).

V4 (Management practices) has four sub-constructs which are;

- V4.1 (sharing support practices),
- V4.2 (sharing motivation practices),

- V4.3 (performance effectiveness practices),
 - V4.4 (sharing advice practices).
- V5 (Organization structure) has two sub-constructs which are;
- V5.1 (internal alignment),
 - V5.2 (facilitative structures).
- V6 (systems)
- V7 (Organization structure) has two sub-constructs which are;
- V7.1 (generative sharing organizational climate),
 - V7.2 (Promotive interaction)
- V8 (motivation).

Dependent variables are O1 (experiential learning), O2 (team learning), O3 (generative learning)), D1 (documentation), D2 (dissemination), P1 (finance performance) and P2 (knowledge performance).

For Hypotheses 1 to 3 (below) the eight knowledge sharing variables were analyzed in an attempt to explain the variance of the learning outcomes variable sets. For hypotheses 4 and 5, two regression analyses were run as the variable set for learning outcomes was entered after the above listed independent variables. Finally, for the last two hypotheses (6 and 7), another two regression analyses were run as the variable sets for learning outcomes and tacit and explicit knowledge were also entered after the above listed independent variables.

HYPOTHESIS 1: The knowledge sharing variables explain a significant portion of the variance in experiential learning as follows:

- a. *Leadership* explains a significant portion of the variance in experiential learning.
- b. *Culture* explains a significant portion of the variance in experiential learning.
- c. *Mission and strategy* explains a significant portion of the variance in experiential learning.
- d. *Management practices* explains a significant portion of the variance in experiential learning.
- e. *Organization structure* explains a significant portion of the variance in experiential learning.
- f. *Systems* explains a significant portion of the variance in experiential learning.

- g. *Organizational climate* explains a significant portion of the variance in experiential learning.
- h. *Motivation* explains a significant portion of the variance in experiential learning.

Hypothesis 1: The knowledge sharing variables explain a significant portion of the variance in experiential learning.

Hypothesis 1 suggested that knowledge sharing variables would explain a significant portion of the variance in experiential learning (Mean = 6.14, SD = 0.78). The results for the correlation and multiple regression analysis of experiential learning can be found in tables 5.35 and 5.36.

Table 5.35 Correlation between Knowledge Sharing Variables and Experiential Learning

Variables	Experiential Learning	Sig.
(V1) Leadership	0.341	**
(V2) Culture		
(V2.1) Learning latitude	0.342	**
(V2.2) Knowledge Indeterminacy	0.350	**
(V2.3) Organizational unity	0.405	**
(V3) Mission and strategy		
(V3.1) System thinking	0.375	**
(V3.2) External monitoring	0.348	**
(V3.3) Knowledge creation	0.395	**
(V4) Management practices		
(V4.1) Sharing support practices	0.425	**
(V4.2) Sharing motivation practices	0.420	**
(V4.3) Performance effectiveness practices	0.406	**
(V4.4) Sharing advice practices	0.414	**
(V5) Organization structure		
(V5.1) Internal alignment	0.427	**
(V5.2) Facilitative structures	0.458	**
(V6) Systems	0.427	**
(V7) Organizational climate		
(V7.1) Generative sharing climate	0.496	**
(V7.2) Promotive interaction	0.487	**
(V8) Motivation	0.513	**

*P< .05

**P< .01

Table 5.36 Standardized Coefficients for Independent Variables in Multiple Regression for Experimental Learning

Variables	Entry Step							Final
	1	2	3	4	5	6	7	8
(V1) Leadership	.341**	.166**	.150**	.060	.052	.052	.073	.092
(V2) Culture								
(V2.1) Learning latitude		.056	.029	-.007	.029	.029	-.035	.008
(V2.2) Knowledge Indeterminacy		.086	.019	-.010	-.089	-.087	-.061	-.067
(V2.3) Organizational unity		.243**	.129	.110	.121	.120	.098	.081
(V3) Mission and strategy								
(V3.1) System thinking			.076	.040	.014	.014	-.015	.003
(V3.2) External monitoring			.041	.007	-.023	-.024	-.016	-.031
(V3.3) Knowledge creation			.144*	.053	.059	.059	.014	.062
(V4) Management practices								
(V4.1) Sharing support practices				.123	.093	.090	.048	.039
(V4.2) Sharing motivation practices				.083	.065	.064	.080	.048
(V4.3) Performance effectiveness practices				.023	-.011	-.010	-.032	-.079
(V4.4) Sharing advice practices				.112	.023	.025	.015	-.016
(V5) Organization structure								
(V5.1) Internal alignment					.069	.060	.015	-.025
(V5.2) Facilitative structures					.212*	.207*	.151	.175*
(V6) Systems						.017	-.102	-.100
(V7) Organizational climate								
(V7.1) Generative sharing climate							.223*	.166
(V7.2) Promotive interaction							.174*	.018
(V8) Motivation								.282**
R-square	.116	.205	.220	.240	.264	.265	.300	.318
Adj. R-square	.114	.196	.206	.218	.239	.237	.270	.286

*P< .05

**P< .01

Hypothesis 1(a): Leadership explains a significant portion of the variance in experiential learning.

In the analysis, the predictor was leadership. *Leadership* was significantly correlated with experiential learning ($r = 0.341, p < .01$), as shown in Table 5.35. The model was significant with an R^2 of .116. As can be seen in table 5.36 of step one, *leadership* was a significant predictor of *experiential learning* ($\beta = .341, p < .01$). However, at the final step (8th step), *leadership* was not a significant predictor as can be seen in Table 5.36.

Thus, hypothesis 1(a) was supported on *experiential learning* but *leadership* was not a significant predictor of *experiential learning*.

Hypothesis 1(b): Culture explains a significant portion of the variance in experiential learning.

In the next analysis, the predictor was *culture*. Three culture variables were significantly correlated with experiential learning at the $p < .01$ level (see Table 5.35). In the 2nd step of the multiple regression analysis, added to the model were the three measures of culture: *learning latitude* (Mean = 5.83, SD = 0.91), *knowledge indeterminacy* (Mean = 5.90, SD = 0.93) and *organizational unity* (Mean = 5.50, SD = 0.91). The model was significant with an R^2 of .205. As can be seen in Table 5.36, only *organizational unity* ($\beta = .243, p < .01$) was a significant predictor of *experiential learning*. However, at the 8th final step, all three measures of culture were not significant predictors.

Therefore, hypothesis 1(b) was supported on experiential learning but it was not a significant predictor of experiential learning.

Hypothesis 1(c): Mission and strategy explains a significant portion of the variance in experiential learning.

In the next analysis, the predictor was *mission and strategy*. Three mission and strategy variables were significantly correlated with experiential learning at the $p < .01$ level (see Table 5.35). In the 3rd step of the multiple regression analysis, the following measures of mission and strategy were added to the model: *system*

thinking (Mean = 5.67, SD = 0.97), *external monitoring* (Mean = 5.76, SD = 0.82), and *knowledge creation* (Mean = 5.88, SD = 0.78). The model was significant with an R^2 of .220. As can be seen in Table 5.36, only *knowledge creation* ($\beta = .144, p < .05$) was a significant predictor of *experiential learning*. However, at the final step, all three measures of culture were not significant predictors.

Thus, hypothesis 1(c) was supported on experiential learning but mission and strategy was not a significant predictor of experiential learning.

Hypothesis 1(d): Management practices explains a significant portion of the variance in experiential learning.

In the next analysis, the predictor was *management practices*. Four management practices variables were significantly correlated with experiential learning at the $p < .01$ level (see Table 5.35). In the 4th step of the multiple regression analysis the following measures of management practices were added to the model: *sharing support practices* (Mean = 5.99, SD = 0.96), *sharing motivation practices* (Mean = 5.66, SD = 0.94), *performance effectiveness practices* (Mean = 5.81, SD = 0.94), and *sharing advice practices* (Mean = 5.68, SD = 0.96). The model was significant with an R^2 of .240. As can be seen in Table 5.36, management practices was not a significant predictor of experiential learning. Moreover, at the final step (8th step), all four measures of management practices were not significant predictors.

Hence, hypothesis 1(d) was supported on experiential learning but *management practices* was not a significant predictor of experiential learning.

Hypothesis 1(e): Organization structure explains a significant portion of the variance in experiential learning.

In the next analysis, the predictor was *organization structure*. Two organization structure variables were significantly correlated with experiential learning at the $p < .01$ level (see Table 5.35). In the 5th step of the multiple regression analysis, two measures of organization structure, *internal alignment* (Mean = 5.93, SD = 1.10) and *facilitative structures* (Mean = 5.70, SD = 1.07), were added to the model. The model was significant with an R^2 of .264. As shown in Table 5.36, only the *facilitative structures* ($\beta = .212, p < .05$) was a significant predictor of experiential learning.

Further, at the final step (8th step), *facilitative structures* ($\beta = .175, p < .05$) was a significant predictor.

Therefore, hypothesis 1(e) was supported on experiential learning and organization structure (*facilitative structures*) was a significant predictor of experiential learning.

Hypothesis 1(f): Systems explains a significant portion of the variance in experiential learning.

In the next analysis, the predictor was *systems*. The Systems variable was significantly correlated with experiential learning at the $p < .01$ level (see Table 5.35). In the 6th step of the multiple regression analysis, the measure of systems (Mean = 5.77, SD = 1.16) was added to the model. The model was significant with an R^2 of .265. However, as shown in Table 5.36, the systems ($\beta = .017, p < .05$) was not a significant predictor of experiential learning. Moreover, at the final step (8th step), systems was not a significant predictor.

Thus, hypothesis 1(f) was supported on experiential learning but system was not a significant predictor of experiential learning.

Hypothesis 1(g): Organizational climate explains a significant portion of the variance in experiential learning.

In the next analysis, the predictor was *organizational climate*. The two organizational climate variables were significantly correlated with experiential learning at the $p < .01$ level (see Table 5.35). In the 7th step of the multiple regression analysis, the following measures of organizational climate were added to the model: *generative sharing climate* (Mean = 6.02, SD = 1.00) and *promotive interaction* (Mean = 5.81, SD = 1.08). The model was significant with an R^2 of .300. As can be seen in Table 5.32, the two measures of organizational climate, generative sharing climate ($\beta = .223, p < .05$) and promotive interaction ($\beta = .174, p < .05$), were significant predictors of experiential learning. However, at the 8th final step, neither measures of culture were significant predictors.

Thus, hypothesis 1(g) was supported on experiential learning but organizational climate was not a significant predictor of experiential learning.

Hypothesis 1(h): Motivation explains a significant portion of the variance in experiential learning.

In the next analysis, the predictor was *motivation*. It was significantly correlated with experiential learning at the $p < .01$ (see Table 5.35). In the 8th step of the multiple regression analysis, the measure of motivation was added to the model (Mean = 5.95, SD = 1.04). The model was significant with an R^2 of .318. As can be seen in Table 5.32, motivation ($\beta = .282, p < .01$) was a significant predictor.

Hence, hypothesis 1(h) was supported on experiential learning and it was a significant predictor of experiential learning.

The results for hypothesized variables explaining experimental learning are presented in Table 5.37

Summary for Hypothesis 1: The knowledge sharing variables explain a significant portion of the variance in experiential learning.

The final model for experiential learning with all independent Knowledge Sharing variables explained 31.8% (adjusted $R^2 = 28.6\%$) of the variance in experiential learning with two significant predictors. The significant predictors, based on relative influence, were *organization structure* (facilitative structures) ($\beta = .175^*$) and *Motivation* ($\beta = .282^{**}$).

As shown in Table 5.37, hypothesis 1 was fully supported. Six hypotheses, 1a (leadership), 1b (culture) 1c (mission and strategy), 1d (management practices), 1f (systems) and 1g (organizational climate) and two hypotheses, 1e (organization structure) and 1h (Motivation) were significant predictors of experiential learning.

Table 5.37 Summary for Hypothesis 1: Results for Hypothesized Variables Explaining Experimental Learning

Variables	Pearson Correlation	Multiple Regression	Hypothesis Conclusion
		Adj-R ² = 28.6	
(V1) Leadership	0.341	.092	Supported
(V2) Culture			Supported
(V2.1) Learning latitude	0.342	.008	
(V2.2) Knowledge Indeterminacy	0.350	-.067	
(V2.3) Organizational unity	0.405	.081	
(V3) Mission and strategy			Supported
(V3.1) System thinking	0.375	.003	
(V3.2) External monitoring	0.348	-.031	
(V3.3) Knowledge creation	0.395	.062	
(V4) Management practices			Supported
(V4.1) Sharing support practices	0.425	.039	
(V4.2) Sharing motivation practices	0.420	.048	
(V4.3) Performance effectiveness practices	0.406	-.079	
(V4.4) Sharing advice practices	0.414	-.016	
(V5) Organization structure			Supported and significant predictor
(V5.1) Internal alignment	0.427	-.025	
(V5.2) Facilitative structures	0.458	.175*	
(V6) Systems	0.427	-.100	Supported
(V7) Organizational climate			Supported
(V7.1) Generative sharing climate	0.496	.166	
(V7.2) Promotive interaction	0.487	.018	
(V8) Motivation	0.513	.282**	Supported and significant predictor

*P< .05

**P< .01

HYPOTHESIS 2 The knowledge sharing variables explain a significant portion of the variance in team learning as follows:

- a. *Leadership* explains a significant portion of the variance in team learning.
- b. *Culture* explains a significant portion of the variance in team learning,
- c. *Mission and strategy* explains a significant portion of the variance in team learning.
- d. *Management practices* explains a significant portion of the variance in team learning,
- e. *Organization structure* explains a significant portion of the variance in team learning.
- f. *Systems* explains a significant portion of the variance in team learning.
- g. *Organizational climate* explains a significant portion of the variance in team learning.
- h. *Motivation* explains a significant portion of the variance in team learning.

Hypothesis 2: The knowledge sharing variables explain a significant portion of the variance in team learning.

Hypothesis two suggested that knowledge sharing variables would explain a significant portion of the variance in team learning (Mean = 5.91, SD = 0.79). The results for the correlation and multiple regression analysis of team learning can be found in tables 5.38 and 5.39

Table 5.38 Correlation between Knowledge Sharing Variables and Team Learning

Variables	Team Learning	Sig.
(V1) Leadership	0.312	**
(V2) Culture		
(V2.1) Learning latitude	0.359	**
(V2.2) Knowledge Indeterminacy	0.411	**
(V2.3) Organizational unity	0.435	**
(V3) Mission and strategy		
(V3.1) System thinking	0.392	**
(V3.2) External monitoring	0.388	**
(V3.3) Knowledge creation	0.436	**
(V4) Management practices		
(V4.1) Sharing support practices	0.330	**
(V4.2) Sharing motivation practices	0.409	**
(V4.3) Performance effectiveness practices	0.400	**
(V4.4) Sharing advice practices	0.441	**
(V5) Organization structure		
(V5.1) Internal alignment	0.459	**
(V5.2) Facilitative structures	0.530	**
(V6) Systems	0.432	**
(V7) Organizational climate		
(V7.1) Generative sharing climate	0.505	**
(V7.2) Promotive interaction	0.492	**
(V8) Motivation	0.517	**

*P< .05

**P< .01

Table 5.39 Standardized Coefficients for Independent Variables in Multiple Regression for Team Learning

Variables	Entry Step							Final
	1	2	3	4	5	6	7	8
(V1) Leadership	.312**	.094	.079	.110	.103	.103	.123	.144*
(V2) Culture								
(V2.1) Learning latitude		.032	-.001	.006	.068	.068	.009	.056
(V2.2) Knowledge Indeterminacy		.187**	.117	.125	.006	.007	.028	.021
(V2.3) Organizational unity		.259**	.135	.127	.139	.139	.120	.101
(V3) Mission and strategy								
(V3.1) System thinking			.041	.006	-.031	-.031	-.055	-.035
(V3.2) External monitoring			.083	.045	-.008	-.008	-.002	-.019
(V3.3) Knowledge creation			.161*	.169*	.176*	.176*	.135	.188**
(V4) Management practices								
(V4.1) Sharing support practices				-.197*	-.252**	-.253**	-.293**	-.303**
(V4.2) Sharing motivation practices				.042	.013	.013	.031	-.005
(V4.3) Performance effectiveness practices				.008	.032	-.032	-.054	-.106
(V4.4) Sharing advice practices				.187**	.072	.072	.062	.028
(V5) Organization structure								
(V5.1) Internal alignment					<.001	-.002	-.046	-.089
(V5.2) Facilitative structures					.403**	.402**	.351**	.377**
(V6) Systems						.004	-.112	-.110
(V7) Organizational climate								
(V7.1) Generative sharing climate							.227*	.164
(V7.2) Promotive interaction							.147*	-.025
Motivation (V8)								.310**
R-square	.097	.230	.249	.275	.336	.336	.367	.389
Adj. R-square	.095	.222	.235	.253	.313	.311	.340	.361

*P< .05

**P< .01

Hypothesis 2(a): Leadership explains a significant portion of the variance in team learning.

In the analysis, the predictor was *leadership*. *Leadership* was significantly correlated with *team learning* ($r = 0.312, p < .01$), as shown in Table 5.38. The model was significant with an R^2 of .097. As can be seen in table 5.39 of step one, *leadership* was a significant predictor of *team learning* ($\beta = .312, p < .01$). At the final step (8th step), as can be seen in Table 5.39, *leadership* ($\beta = .144, p < .05$) was a significant predictor.

Thus, hypothesis 2(a) was supported on *team learning* and *leadership* was a significant predictor of *team learning*.

Hypothesis 2(b): Culture explains a significant portion of the variance in team learning.

In the next analysis, the predictor was *culture*. Three culture variables were significantly correlated with team learning at the $p < .01$ level (see Table 5.38). In the 2nd step of the multiple regression analysis, added to the model were the three measures of measures of culture: *learning latitude* (Mean = 5.83, SD = 0.91), *knowledge indeterminacy* (Mean = 5.90, SD = 0.93), and *organizational unity* (Mean = 5.47, SD = 0.91). The model was significant with an R^2 of .230. As can be seen in Table 5.39, only two measures of culture, *knowledge indeterminacy* ($\beta = .187, p < .01$) and *organizational unity* ($\beta = .259, p < .01$), were significant predictors of team learning. However, all three measures of culture were not significant predictors.

Thus, hypothesis 2(b) was supported on experiential learning but *culture* was not a significant predictor of team learning.

Hypothesis 2(c): Mission and strategy explains a significant portion of the variance in team learning.

In the next analysis, the predictor was *mission and strategy*. Three mission and strategy variables were significantly correlated with team learning at the $p < .01$ level

(see Table 5.38). In the 3rd step of the multiple regression analysis, the following three measures of mission and strategy were added to the model: *system thinking* (Mean = 5.67, SD = 0.97), *external monitoring* (Mean = 5.76, SD = 0.82), and *knowledge creation* (Mean = 5.88, SD = 0.78). The model was significant with an R^2 of .249. As can be seen in Table 5.39, only *knowledge creation* ($\beta = .161, p < .05$) was a significant predictor of team learning. At the final step (8th step), as can be seen in table 5.39, knowledge creation ($\beta = .188, p < .01$) was a significant predictor.

Hence, hypothesis 2(c) was supported on team learning and mission and strategy (*knowledge creation*) was a significant predictor of team learning.

Hypothesis 2(d): Management practices explains a significant portion of the variance in team learning.

In the next analysis, the predictor was *management practices*. Four management practices were significantly correlated with team learning at the $p < .01$ (see Table 5.38), In the 4th step of the multiple regression analysis, the following measures of management practices were added to the model: *sharing support practices* (Mean = 5.99, SD = 0.96), *sharing motivation practices* (Mean = 5.66, SD = 0.94), *performance effectiveness practices* (Mean = 5.81, SD = 0.94) and *sharing advice practices* (Mean = 5.68, SD = 0.96). The model was significant with an R^2 of .275. As can be seen in Table 5.39, only two measures of management practices, *sharing support practices* ($\beta = -.197, p < .05$) and *sharing advice practices* ($\beta = .187, p < .01$), were a significant predictor of management practices. At the final step (8th step), as can be seen in Table 5.39, *sharing support practices* ($\beta = .303, p < .01$) was a significant predictor.

Hence, hypothesis 2(d) was supported on team learning and management practices (*sharing support practices*) was a significant predictor of team learning.

Hypothesis 2(e): Organization structure explains a significant portion of the variance in team learning.

In the next analysis, the predictor was *organization structure*. Two organization structure variables were significantly correlated with team learning at the $p < .01$

level (see Table 5.38). In the 5th step of the multiple regression analysis, the following measures of organization structure were added to the model: *internal alignment* (Mean = 5.93, SD = 1.10) and *facilitative structures* (Mean = 5.70, SD = 1.07). The model was significant with an R^2 of .336. As shown in Table 5.39, only *facilitative structures* ($\beta = .403, p < .01$) was a significant predictor. At the final step (8th step), as can be seen in Table 5.39, *facilitative structures* ($\beta = .377, p < .01$), was a significant predictor.

Therefore, hypothesis 2(e) was supported and organization structure (*facilitative structures*) was a significant predictor of team learning

Hypothesis 2(f): Systems explains a significant portion of the variance in team learning.

In the next analysis, the predictor was *systems*. *Systems* was significantly correlated with team learning at the $p < .01$ level (see Table 5.38). In the 6th step of the multiple regression analysis, the measure of *systems* (Mean = 5.77, SD = 1.16) was added to the model. The model was significant with an R^2 of .336. As shown in Table 5.39, *systems* was not a significant predictor of team learning. At the 8th step, *systems* was not also a significant predictor.

Hence, hypothesis 2(f) was supported but *systems* was not a significant predictor of team learning.

Hypothesis 2(g): Organizational climate explains a significant portion of the variance in team learning.

In the next analysis, the predictor was *organizational climate*. The two organizational climate variables were significantly correlated with team learning at the $p < .01$ level (see Table 5.38). In the 7th step of the multiple regression analysis, the two organizational climate measures, *generative sharing climate* (Mean = 6.02, SD = 1.00) and *promotive interaction* (Mean = 5.81, SD = 1.08) were added to the model. The model was significant with an R^2 of .367. As can be seen in Table 5.39, the two measures of organizational climate, *generative sharing climate* ($\beta = .227, p < .05$) and *promotive interaction* ($\beta = .147, p < .05$), were significant predictors of team

learning. However, at the 8th final step, both measures were not significant predictors.

As a result, hypothesis 2(g) was supported but *organizational climate* was not a significant predictor of team learning.

Hypothesis 2(h): Motivation explains a significant portion of the variance in team learning.

In the next analysis, the predictor was *motivation*. *Motivation* was significantly correlated with team learning at the $p < .01$ level (see Table 5.38). In the 8th step of the multiple regression analysis, the measure of *motivation* was added to the model (Mean = 5.95, SD = 1.04). The model was significant with an R^2 of .389. The final step, as shown in Table 5.39, *motivation* ($\beta = .310, p < .01$) was also a significant predictor.

Therefore, hypothesis 2(h) was supported and *motivation* was a significant predictor of team learning.

Summary for Hypothesis 2: The knowledge sharing variables explain a significant portion of the variance in team learning.

The final model for team learning with all independent knowledge sharing variables explained 38.9% (adjusted $R^2 = 36.1\%$) of the variance in team learning with five significant predictors. The significant predictors, based on relative influence, were *leadership* ($\beta = .144^*$), *knowledge creation* ($\beta = .188^{**}$), *sharing support practices* ($\beta = -.303^{**}$), *facilitative structures* ($\beta = .377^{**}$) and *motivation* ($\beta = .310^{**}$).

As shown in Table 5.40, hypothesis 2 was fully supported. Three hypotheses 2b (culture), 2f (systems) and 2g (organizational climate) were supported. Five hypotheses: 2a (leadership), 2c (mission and strategy), 2d (management practices), 2e (organization structure) and 2h (motivation) were found as significant predictors of team learning.

Table 5.40 Summary for Hypothesis 2: Results for Hypothesized Variables Explaining Team Learning

Variables	Pearson Correlation	Multiple Regression	Hypothesis Conclusion
	(r)	Adj-R ² = 36.1	
(V1) Leadership	0.312	.144*	Supported and significant predictor
(V2) Culture			Supported
(V2.1) Learning latitude	0.359	.056	
(V2.2) Knowledge Indeterminacy	0.411	.021	
(V2.3) Organizational unity	0.435	.101	
(V3) Mission and strategy			Supported and significant predictor
(V3.1) System thinking	0.392	-.035	
(V3.2) External monitoring	0.388	-.019	
(V3.3) Knowledge creation	0.436	.188**	
(V4) Management practices			Supported and significant predictor
(V4.1) Sharing support practices	0.330	-.303**	
(V4.2) Sharing motivation practices	0.409	-.005	
(V4.3) Performance effectiveness practices	0.400	-.106	
(V4.4) Sharing advice practices	0.441	.028	
(V5) Organization structure			Supported and significant predictor
(V5.1) Internal alignment	0.459	-.089	
(V5.2) Facilitative structures	0.530	.377**	
(V6) Systems	0.432	-.110	Supported
(V7) Organizational climate			Supported
(V7.1) Generative sharing climate	0.505	.164	
(V7.2) Promotive interaction	0.492	-.025	
(V8) Motivation	0.517	.310**	Supported and significant predictor

*P< .05

**P< .01

HYPOTHESIS 3: The Knowledge sharing variables explain a significant portion of the variance in generative learning as follows.

- a. *Leadership* explains a significant portion of the variance in generative learning,
- b. *Culture* explains a significant portion of the variance in generative learning.
- c. *Mission and strategy* explains a significant portion of the variance in generative learning.
- d. *Management practices* explains a significant portion of the variance in generative learning.
- e. *Organization structure* explains a significant portion of the variance in generative learning.
- f. *Systems* explains a significant portion of the variance in generative learning.
- g. *Organizational climate* explains a significant portion of the variance in generative learning.
- h. *Motivation* explains a significant portion of the variance in generative learning.

Hypothesis 3: The knowledge sharing variables explain a significant portion of the variance in generative learning.

Hypothesis three suggested that knowledge sharing variables would explain a significant portion of the variance in generative learning (Mean = 5.75, SD = 0.93). The results for the correlation and multiple regression analysis of generative learning can be found in tables 5.41 and 5.42.

Table 5.41 Correlation between Knowledge Sharing Variables and Generative Learning

Variables	Generative Learning	Sig.
(V1) Leadership	0.310	**
(V2) Culture		
(V2.1) Learning latitude	0.313	**
(V2.2) Knowledge Indeterminacy	0.320	**
(V2.3) Organizational unity	0.388	**
(V3) Mission and strategy		
(V3.1) System thinking	0.400	**
(V3.2) External monitoring	0.379	**
(V3.3) Knowledge creation	0.426	**
(V4) Management practices		
(V4.1) Sharing support practices	0.335	**
(V4.2) Sharing motivation practices	0.445	**
(V4.3) Performance effectiveness practices	0.383	**
(V4.4) Sharing advice practices	0.380	**
(V5) Organization structure		
(V5.1) Internal alignment	0.371	**
(V5.2) Facilitative structures	0.435	**
(V6) Systems	0.410	**
(V7) Organizational climate		
(V7.1) Generative sharing climate	0.414	**
(V7.2) Promotive interaction	0.426	**
(V8) Motivation	0.427	**

*P< .05

**P< .01

Table 5.42 Standardized Coefficients for Independent Variables in Multiple Regression for Generative Learning

Variables	Entry Step							Final
	1	2	3	4	5	6	7	8
(V1) Leadership	.310**	.146**	.115*	.095	.092	.089	.098	.110
(V2) Culture								
(V2.1) Learning latitude		.040	.014	.004	.042	.040	.009	.037
(V2.2) Knowledge Indeterminacy		.067	-.056	-.081	-.148*	-.131*	-.116	-.120
(V2.3) Organizational unity		.257**	.037	.033	.038	.035	.023	.012
(V3) Mission and strategy								
(V3.1) System thinking			.152	.130	.110	.110	.093	.105
(V3.2) External monitoring			.099*	.076	.043	.038	.043	.033
(V3.3) Knowledge creation			.249**	.214**	.217**	.214**	.192**	.223**
(V4) Management practices								
(V4.1) Sharing support practices				-.121	-.157	-.179**	-.197*	-.203*
(V4.2) Sharing motivation practices				.234**	.216**	.205**	.210**	.189*
(V4.3) Performance effectiveness practices				.031	-.049	-.045	-.054	-.084
(V4.4) Sharing advice practices				.034	-.022	-.010	-.014	-.034
(V5) Organization structure								
(V5.1) Internal alignment					-.051	-.107	-.127	-.153
(V5.2) Facilitative structures					.270**	.238**	.211*	.227**
(V6) Systems						.110	.061	.062
(V7) Organizational climate								
(V7.1) Generative sharing climate							.081	.043
(V7.2) Promotive interaction							.099	-.002
(V8) Motivation								.182*
R-Square	.96	.179	.232	.254	.277	.280	.288	.295
Adj. R-Square	.94	.170	.218	.232	.252	.253	.257	.263

*P< .05

**P< .01

Hypothesis 3(a): Leadership explains a significant portion of the variance in generative learning.

In the analysis, the predictor was *leadership*. *Leadership* was significantly correlated with generative learning ($r = 0.310, p < .01$), as shown in Table 5.41. The model was significant with an R^2 of .96. As can be seen in Table 5.42 of step one, *leadership* was a significant predictor of generative learning ($\beta = .310, p < .01$). However, at the 8th final step, as can be seen in Table 5.42, *leadership* was not a significant predictor.

Hypothesis 3(a) was supported on generative learning but *leadership* was not a significant predictor of generative learning.

Hypothesis 3(b): Culture explains a significant portion of the variance in generative learning.

In the second analysis, the predictor was *culture support* for generative learning. Three culture variables were significantly correlated with Generative learning at the $p < .01$ level (see Table 5.41). Only one of the culture variables, *organizational unity*, was significantly correlated with generative learning ($\beta = .257, p < .01$). The model was significant with an R^2 of .179. However, at the final step (step 8th), as can be seen in Table 5.42, all three measures of culture were not significant predictors.

Hypothesis 3(b) was supported on generative learning but culture was not a significant predictor of generative learning.

Hypothesis 3(c): Mission and strategy explains a significant portion of the variance in generative learning.

In the third analysis, the predictor was *mission and strategy*. Three mission and strategy variables were significantly correlated with generative learning at $p < .01$ (see Table 5.41). The model was significant with an R^2 of .232. As can be seen in Table 5.42, two measures of *mission and strategy*, *external monitoring* ($\beta = .99, p < .05$) and *knowledge creation* ($\beta = .249, p < .01$), were significant predictors of generative learning. At the final step (8th step), as can be seen in Table 5.42, *knowledge creation* ($\beta = .223, p < .01$) was a significant predictor.

Therefore, hypothesis 3(c) was supported on generative learning and mission and strategy (*knowledge creation*) was a significant predictor of generative learning.

Hypothesis 3(d): Management practices explains a significant portion of the variance in generative learning.

In the fourth step, the predictor was *management practices*. *Management practices sharing* was significantly correlated with generative learning at $p < .01$ (see Table 5.41). The model was significant with an R^2 of .254. As can be seen in Table 5.42, *sharing motivation practices* ($\beta = .234, p < .01$), was a significant predictor of generative learning. However, at the final step (8th step), as can be seen in Table 5.42, *sharing support practices* ($\beta = -.203, p < .05$) and *sharing motivation practices* ($\beta = .189, p < .05$) were significant predictors.

Hence, hypothesis 3(d) was supported on generative learning and *management practices (sharing support practices and sharing motivation practices)* was a significant predictor of generative learning.

Hypothesis 3(e): Organization structure explains a significant portion of the variance in generative learning.

In the fifth analysis the predictor was *organization structure*. The two organization structure variables were significantly correlated with generative learning at the $p < .01$ level (see Table 5.37). The model was significant with an R^2 of .277. As shown in Table 5.42, one measure of *organization structure, facilitative structures* ($\beta = .270, p < .01$), was a significant predictor of generative learning. At the 8th step, as can be seen in Table 5.42, *facilitative structures* ($\beta = .227, p < .01$) was a significant predictor.

Therefore, hypothesis 3(e) was supported and organization structure (*facilitative structures*) was a significant predictor of generative learning.

Hypothesis 3(f): Systems explains a significant portion of the variance in generative learning.

In the sixth step, the predictor was *systems*. *Systems* was significantly correlated with generative learning at the $p < .01$ (see Table 5.41). The model was significant with an R^2 of .280. As can be seen in Table 5.42, *systems* was not a significant predictor of generative learning.

Hence, hypothesis 3(f) was supported on generative learning but *systems* was not a significant predictor of generative learning.

Hypothesis 3(g): Organizational climate explains a significant portion of the variance in generative learning.

In the seventh step, the predictor was *organizational climate*. It was significantly correlated with generative learning at the $p < .01$ (see Table 5.41). The model was significant with an R^2 of .288. As can be seen in Table 5.42, *organizational climate* was not a significant predictor of generative learning.

Thus, hypothesis 3(g) was supported on generative learning but *organizational climate* was not a significant predictor of generative learning.

Hypothesis 3(h): Motivation explains a significant portion of the variance in generative learning.

In the final analysis, the predictor was *motivation*. *Motivation* was significantly correlated with generative learning at the $p < .01$ (see Table 5.41). The model was significant with an R^2 of .295. The final step, as shown in Table 5.42, *motivation* ($\beta = .182, p < .05$) was also a significant predictor.

Therefore, hypothesis 3(h) was supported and *motivation* was a significant predictor of generative learning.

Summary for Hypothesis 3: The knowledge sharing variables explain a significant portion of the variance in generative learning.

The final model for generative learning with all independent knowledge sharing variables included explained 29.5% (adjusted $R^2 = 26.3\%$) of the variance in generative learning with five significant predictors. The significant predictors were

knowledge creation ($\beta = .223^{**}$), *sharing support practices* ($\beta = -.203^{*}$), *Sharing motivation practices* ($\beta = .189^{*}$), *facilitative structures* ($\beta = .227^{**}$) and *motivation* ($\beta = .182^{*}$).

As shown in Table 5.43, hypothesis 3 was fully supported. Four hypotheses: 3a (leadership), 3b (culture), 3f (systems) and 3g (organizational climate) were supported. Four hypotheses: 3c (mission and strategy), 3d (management practices), 3e (organization structure) and 3h (motivation) were found as significant predictors of generative learning.

Table 5.43 Summary for Hypothesis 3: Results for Hypothesized Variables Explaining Generative Learning

Variables	Pearson Correlation	Multiple Regression	Hypothesis Conclusion
	(r)	Adj-R ² = 26.3	
(V1) Leadership	0.310	.110	Supported
(V2) Culture			Supported
(V2.1) Learning latitude	0.313	.037	
(V2.2) Knowledge Indeterminacy	0.320	-.120	
(V2.3) Organizational unity	0.388	.012	
(V3) Mission and strategy			Supported and significant predictor
(V3.1) System thinking	0.400	.105	
(V3.2) External monitoring	0.379	.033	
(V3.3) Knowledge creation	0.426	.223**	
(V4) Management practices			Supported and significant predictor
(V4.1) Sharing support practices	0.335	-.203*	
(V4.2) Sharing motivation practices	0.445	.189*	
(V4.3) Performance effectiveness practices	0.383	-.084	
(V4.4) Sharing advice practices	0.380	-.034	
(V5) Organization structure			Supported and significant predictor
(V5.1) Internal alignment	0.371	-.153	
(V5.2) Facilitative structures	0.435	.227**	
(V6) Systems	0.410	.062	Supported
(V7) Organizational climate			Supported
(V7.1) Generative sharing climate	0.414	.043	
(V7.2) Promotive interaction	0.426	-.002	
(V8) Motivation	0.427	.182*	Supported and significant predictor

*P< .05

**P< .01

HYPOTHESIS 4: The knowledge sharing variables and learning organization outcomes explain a significant portion of the variance in documentation as follow:

- a. *Leadership* explains a significant portion of the variance in documentation.
- b. *Culture* explains a significant portion of the variance in documentation.
- c. *Mission and strategy* explains a significant portion of the variance in documentation.
- d. *Management practices* explains a significant portion of the variance in documentation.
- e. *Organization structure* explains a significant portion of the variance in documentation.
- f. *Systems* explains a significant portion of the variance in documentation.
- g. *Organizational climate* explains a significant portion of the variance in documentation.
- h. *Motivation* explains a significant portion of the variance in documentation.
- i. Learning outcomes explains a significant portion of the variance in documentation.

Hypothesis 4: The knowledge sharing variables and learning organization outcomes explain a significant portion of the variance in documentation.

Hypothesis four suggested that knowledge sharing variables would explain a significant portion of the variance in documentation (Mean = 5.75, SD = 0.63). The results for the correlation and multiple regression analysis of documentation can be found in tables 5.44 and 5.45.

Table 5.44 Correlation between Knowledge Sharing Variables and Documentation

Variables	Documentation	Sig.
(V1) Leadership	0.309	**
(V2) Culture		
(V2.1) Learning latitude	0.341	**
(V2.2) Knowledge Indeterminacy	0.359	**
(V2.3) Organizational unity	0.451	**
(V3) Mission and strategy		
(V3.1) System thinking	0.447	**
(V3.2) External monitoring	0.465	**
(V3.3) Knowledge creation	0.552	**
(V4) Management practices		
(V4.1) Sharing support practices	0.372	**
(V4.2) Sharing motivation practices	0.466	**
(V4.3) Performance effectiveness practices	0.481	**
(V4.4) Sharing advice practices	0.420	**
(V5) Organization structure		
(V5.1) Internal alignment	0.376	**
(V5.2) Facilitative structures	0.421	**
(V6) Systems	0.407	**
(V7) Organizational climate		
(V7.1) Generative sharing climate	0.477	**
(V7.2) Promotive interaction	0.529	**
(V8) Motivation	0.519	**
Learning organization outcome		
(O1) Experiential learning	0.450	**
(O2) Team learning	0.515	**
(O3) Generative learning	0.472	**

*P< .05

**P< .01

Table 5.45 Standardized Coefficients for Independent Variables in Multiple Regression for Documentation

Variables	Entry Step							8	Final
	1	2	3	4	5	6	7		
(V1) Leadership	.309**	.109*	.067	.083	.085	.083	.102	.118*	.075
(V2) Culture									
(V2.1) Learning latitude		.025	-.005	-.043	-.029	-.030	-.104	-.066	-.081
(V2.2) Knowledge Indeterminacy		.086	-.101	-.104	-.121	-.109	-.064	-.069	-.058
(V2.3) Organizational unity		.335**	.023	.030	.029	.027	-.005	-.020	-.045
(V3) Mission and strategy									
(V3.1) System thinking			.127	.098	.095	.094	.046	.062	.059
(V3.2) External monitoring			.165**	.121	.109	.105	.124	.111	.113
(V3.3) Knowledge creation			.434**	.428**	.428**	.425**	.372**	.415**	.355**
(V4) Management practices									
(V4.1) Sharing support practices				-.164*	-.180*	-.197*	-.230**	-.238*	-.165*
(V4.2) Sharing motivation practices				.097	.091	.083	.085	.057	.037
(V4.3) Performance effectiveness practices				.127	.129	.131	.117	.076	.109
(V4.4) Sharing advice practices				-.012	-.016	-.007	-.011	-.039	-.040
(V5) Organization structure									
(V5.1) Internal alignment					-.079	-.119	-.162	-.197*	-.164*
(V5.2) Facilitative structures					.125	.102	.037	.058	-.045
(V6) Systems						.079	-.015	-.013	.008
(V7) Organizational climate									
(V7.1) Generative sharing climate							.112	.061	.016
(V7.2) Promotive interaction							.283**	.145	.148
(V8) Motivation								.250**	.156
Learning organization outcome									
(O1) Experiential learning									.066
(O2) Team learning									.187**
(O3) Generative learning									.093
R-square	.096	.224	.349	.364	.368	.370	.413	.427	.480
Adj. R-square	.093	.216	.337	.345	.346	.346	.387	.400	.452

*P< .05

**P< .01

Hypothesis 4(a): Leadership explains a significant portion of the variance in documentation.

In the analysis, the predictor was *leadership*. *Leadership* was significantly correlated with *documentation* ($r = 0.309, p < .01$) as shown in Table 5.44. The model was significant with an R^2 of .096. As can be seen in Table 5.45 from the 1st step, leadership was a significant predictor of *documentation* ($\beta = .309, p < .01$). However, at the final step (9th step), *leadership* was not a significant predictor.

Thus, hypothesis 4(a) was supported on documentation but *leadership* was not a significant predictor of documentation.

Hypothesis 4(b): Culture explains a significant portion of the variance in documentation.

In the next analysis, the predictor was *culture*. Three culture variables were significantly correlated with documentation at the $p < .01$ level (see Table 5.44). The model was significant with an R^2 of .224. As can be seen in Table 5.45, only one measure of *culture*, *organizational unity* ($\beta = .335, p < .01$) was a significant predictor of documentation. However, at the final, 9th step, *culture* was not a significant predictor.

Thus, hypothesis 4(b) was supported on documentation but *culture* was not a significant predictor of documentation.

Hypothesis 4(c): Mission and strategy explains a significant portion of the variance in documentation.

In the 3rd analysis, the predictor was *mission and strategy*. Three mission and strategy variables were significantly correlated with documentation at the $p < .01$ level (see Table 5.44). The model was significant with an R^2 of .349. As can be seen in Table 5.45, only two measures of *mission and strategy*, *external monitoring* ($\beta = .165, p < .01$) and *knowledge creation* ($\beta = .434, p < .01$), were significant predictors of documentation. However, at the final step, only *knowledge creation* ($\beta = .355, p < .01$) was a significant predictor.

Therefore, hypothesis 4(c) was supported and mission and strategy (*knowledge creation*) was a significant predictor of documentation

Hypothesis 4(d): Management practices explains a significant portion of the variance in documentation.

In the 4th analysis, the predictor was *management practices*. Four mission and strategy variables were significantly correlated with documentation at the $p < .01$ level (see Table 5.44). The model was significant with an R^2 of .364. As can be seen in Table 5.45, only *sharing support practices* ($\beta = -.164, p < .05$) was a significant predictors of documentation. Moreover, at the final step (9th step), *sharing support practices* ($\beta = -.165, p < .05$) was also a significant predictor.

Thus, hypothesis 4(d) was supported on documentation and management practices (*sharing support practices*) was a significant predictor.

Hypothesis 4(e): Organization structure explains a significant portion of the variance in documentation.

In the 5th analysis, the predictor was *organization structure*. The two organization structure variables were significantly correlated with documentation at the $p < .01$ level (see Table 5.44). The model was significant with an R^2 of .368. As can be seen in Table 5.45, both measures of *organization structure*, *internal alignment* and *facilitative structures*, were not significant predictors of documentation. However, at the final 9th step, *internal alignment* ($\beta = -.164, p < .05$) was a significant predictor.

Therefore, hypothesis 4(e) was supported and organization structure (*internal alignment*) was a significant predictor of documentation.

Hypothesis 4(f): Systems explains a significant portion of the variance in documentation.

In the 6th step, the predictor was systems. *Systems* was significantly correlated with documentation at the $p < .01$ level (see Table 5.44). The model was significant with an R^2 of .370. As shown in Table 5.45, *systems* was not a significant predictor of

documentation. Moreover, at the final step, *systems* also was not a significant predictor.

Thus, hypothesis 4(f) was supported but *systems* was not a significant predictor of documentation.

Hypothesis 4(g): Organizational climate explains a significant portion of the variance in documentation.

In the 7th analysis, the predictor was *organizational climate*. The two organizational climate variables were significantly correlated with documentation at the $p < .01$ level (see Table 5.44). The model was significant with an R^2 of .413. As can be seen in table 5.45, one measure of *organizational climate*, *promotive interaction* ($\beta = .283, p < .01$), was a significant predictor of documentation. However, at the final, 9th step, *organizational climate* was not a significant predictor.

Therefore, hypothesis 4(g) was supported but *organizational climate* was not a significant predictor of documentation.

Hypothesis 4(h): Motivation explains a significant portion of the variance in documentation.

In the 8th analysis, the predictor was *motivation*. *Motivation* was significantly correlated with documentation at the $p < .01$ level (see Table 5.44). The model was significant with an R^2 of .427. As can be seen in table 5.45, *motivation* ($\beta = .250, p < .01$) was a significant predictor. However, at the final, 9th step, *motivation* was not a significant predictor.

Thus, hypothesis 4(h) was supported on documentation and *motivation* was a significant predictor.

Hypothesis 4(i): Learning outcomes explains a significant portion of the variance in documentation.

In the next analysis, the predictor was *learning outcomes*. All learning outcomes

variables, *experiential learning*, *team learning*, and *generative learning* were significantly correlated with documentation at the $p < .01$ level (see Table 5.44). The model was significant with an R^2 of .480. As can be seen in Table 5.45, only *team learning* ($\beta = .187, p < .01$), was a significant predictor of documentation.

Therefore, hypothesis 4(i) was supported and learning outcomes (*team learning*) was a significant predictor of documentation.

Summary for Hypothesis 4: The knowledge sharing variables and learning organization outcomes explain a significant portion of the variance in documentation.

The final model for documentation with all independent knowledge sharing variables included explained 48 % (adjusted $R^2 = 45.2\%$) of the variance in documentation with four significant predictors. The significant predictors, based on relative influence, were *mission and strategy* (knowledge creation) ($\beta = .355^{**}$), *management practices* (sharing support practices) ($\beta = -.165^*$), *organization structure* (internal alignment) ($\beta = -.164^*$) and *learning organization outcome* (team learning) ($\beta = .187^{**}$)

As shown in Table 5.46, hypothesis 4 was fully supported. The five hypotheses of 4a (leadership), 4b (culture), 4f (systems), 4g (organizational climate) and 4h (motivation), were supported and the four hypotheses of 4c (mission and strategy), 4d (management practices) 4e (organization structure) and 4i (learning outcome) were significant predictors of documentation.

Table 5.46 Summary for Hypothesis 4: Results for Hypothesized Variables Explaining Documentation

Variables	Pearson Correlation	Multiple Regression	Hypothesis Conclusion
	(r)	Adj-R ² = 45.2	
(V1) Leadership	0.309	.075	Supported
(V2) Culture			Supported
(V2.1) Learning latitude	0.341	-.081	
(V2.2) Knowledge Indeterminacy	0.359	-.058	
(V2.3) Organizational unity	0.451	-.045	
(V3) Mission and strategy			Supported and significant predictor
(V3.1) System thinking	0.447	.059	
(V3.2) External monitoring	0.465	.113	
(V3.3) Knowledge creation	0.552	.355**	
(V4) Management practices			Supported and significant predictor
(V4.1) Sharing support practices	0.372	-.165*	
(V4.2) Sharing motivation practices	0.466	.037	
(V4.3) Performance effectiveness practices	0.481	.109	
(V4.4) Sharing advice practices	0.420	-.040	
(V5) Organization structure			Supported and significant predictor
(V5.1) Internal alignment	0.376	-.164*	
(V5.2) Facilitative structures	0.421	-.045	
(V6) Systems	0.407	.008	Supported
(V7) Organizational climate			Supported
(V7.1) Generative sharing climate	0.477	.016	
(V7.2) Promotive interaction	0.529	.148	
(V8) Motivation	0.519	.156	Supported
Learning organization outcome			Supported and significant predictor
(O1) Experiential learning	0.450	.066	
(O2) Team learning	0.515	.187**	
(O3) Generative learning	0.472	.093	

*P< .05

**P< .01

HYPOTHESIS 5: The knowledge sharing variables and learning organization outcomes explain a significant portion of the variance in dissemination as follows.

- a. *Leadership* explains a significant portion of the variance in dissemination.
- b. *Culture* explains a significant portion of the variance in dissemination.
- c. *Mission and strategy* explains a significant portion of the variance in dissemination.
- d. *Management practices* explains a significant portion of the variance in dissemination.
- e. *Organization structure* explains a significant portion of the variance in dissemination.
- f. *Systems* explains a significant portion of the variance in dissemination.
- g. *Organizational climate* explains a significant portion of the variance in dissemination.
- h. *Motivation* explains a significant portion of the variance in dissemination.
- i. *Learning outcomes* explains a significant portion of the variance in dissemination.

Hypothesis 5: The Knowledge sharing variables and learning organization outcomes explain a significant portion of the variance in dissemination

Hypothesis five suggested that knowledge sharing variables would explain a significant portion of the variance in dissemination (Mean = 5.73, SD = 1.07). The results for the correlation and multiple regression analysis of dissemination can be found in tables 5.47 and 5.48.

Table 5.47 Correlation between Knowledge Sharing Variables and Dissemination

Variables	Dissemination	Sig.
(V1) Leadership	0.423	**
(V2) Culture		
(V2.1) Learning latitude	0.448	**
(V2.2) Knowledge Indeterminacy	0.445	**
(V2.3) Organizational unity	0.591	**
(V3) Mission and strategy		
(V3.1) System thinking	0.579	**
(V3.2) External monitoring	0.526	**
(V3.3) Knowledge creation	0.536	**
(V4) Management practices		
(V4.1) Sharing support practices	0.537	**
(V4.2) Sharing motivation practices	0.582	**
(V4.3) Performance effectiveness practices	0.617	**
(V4.4) Sharing advice practices	0.571	**
(V5) Organization structure		
(V5.1) Internal alignment	0.656	**
(V5.2) Facilitative structures	0.635	**
(V6) Systems	0.721	**
(V7) Organizational climate		
(V7.1) Generative sharing climate	0.721	**
(V7.2) Promotive interaction	0.726	**
(V8) Motivation	0.753	**
Learning organization outcome		
(O1) Experiential learning	0.469	**
(O2) Team learning	0.478	**
(O3) Generative learning	0.484	**

*P< .05

**P< .01

Table 5.48 Standardized Coefficients for Independent Variables in Multiple Regression for Dissemination

Variables	Entry Step							8	Final
	1	2	3	4	5	6	7		
(V1) Leadership	.423**	.175**	.142**	.037	.017	.004	.029	.050	.038
(V2) Culture									
(V2.1) Learning latitude		.048	-.005	-.052	-.004	-.010	-.100	-.053	-.056
(V2.2) Knowledge		.056	-.057	-.092	-.227**	-.163**	-.113	-.119*	-.104*
(V2.3) Organizational		.448**	.216**	.200**	.225**	.214**	.176**	.157**	.157**
(V3) Mission and strategy									
(V3.1) System thinking			.228**	.156*	.109	.106	.051	.072	.058
(V3.2) External			.098	.012	-.027	-.046	-.025	-.042	-.046
(V3.3) Knowledge			.178**	.053	.067	.054	-.010	.044	.019
(V4) Management									
(V4.1) Sharing support				.061	.032	-.055	-.100	-.110*	-.090
(V4.2) Sharing				.131	.107	.063	.070	.034	.011
(V4.3) Performance effectiveness practices				.202**	.126	.140	.119*	.066	.076
(V4.4) Sharing advice				.097	-.087	-.040	-.047	-.082	-.078
(V5) Organization									
(V5.1) Internal alignment					.318**	.105	.050	.006	.023
(V5.2) Facilitative					.186**	.064	-.014	.012	-.012
(V6) Systems						.423**	.295**	.297**	.289**
(V7) Organizational									
(V7.1) Generative							.181**	.117	.113
(V7.2) Promotive							.321**	.146*	.146*
(V8) Motivation								.315**	.295**
Learning organization									
(O1) Experiential									.008
(O2) Team learning									-.016
(O3) Generative learning									.124**
R-Square	.179	.385	.439	.483	.557	.602	.666	.688	.698
Adj. R-Square	.177	.379	.429	.468	.541	.587	.651	.673	.681

*P< .05
 **P< .01

Hypothesis 5(a): Leadership explains a significant portion of the variance in dissemination.

In the analysis, the predictor was *leadership*. *Leadership* was significantly correlated with dissemination ($r = 0.423, p < .01$) as shown in Table 5.47. The model was significant with an R^2 of .179. As can be seen in Table 5.48 from the 1st step, leadership was a significant predictor of dissemination ($\beta = .423, p < .01$). However, at the final step (9th step), *leadership* was not a significant predictor.

Therefore, hypothesis 5(a) was supported on dissemination but *leadership* was not a significant predictor of dissemination.

Hypothesis 5(b): Culture explains a significant portion of the variance in dissemination.

In the next analysis, the predictor was *culture*. Three culture variables were significantly correlated with dissemination at the $p < .01$ level (see Table 5.47). The model was significant with an R^2 of .385. As can be seen in Table 5.48, only one measures of culture, *organizational unity* ($\beta = .448, p < .01$), was significant predictors of dissemination. However, at the final step (9th step), two measures of culture, *knowledge indeterminacy* ($\beta = -.104, p < .05$) and *organizational unity* ($\beta = .157, p < .01$) were significant predictors.

Hence, hypothesis 5(b) was supported on dissemination and culture (*knowledge indeterminacy* and *organizational unity*) was a significant predictor of dissemination.

Hypothesis 5(c): Mission and strategy explains a significant portion of the variance in dissemination.

In the next analysis, the predictor was *mission and strategy*. Three mission and strategy variables were significantly correlated with dissemination at the $p < .01$ level (see Table 5.47). The model was significant with an R^2 of .439. As can be seen in Table 5.48, two measures of mission and strategy, *system thinking* ($\beta = .228, p < .01$) and *knowledge creation* ($\beta = .178, p < .01$) were significant predictors. However, at the final step (9th step), *mission and strategy* was not a

significant predictor.

Therefore, hypothesis 5(c) was supported but *mission and strategy* was not a significant predictor of dissemination.

Hypothesis 5(d): Management practices explains a significant portion of the variance in dissemination.

In the next analysis, the predictor was *management practices*. Four management practices variables were significantly correlated with dissemination at the $p < .01$ level (see Table 5.47). The model was significant with an R^2 of .483. As can be seen in Table 5.48, only one measure of management practices, *performance effectiveness practices* ($\beta = .202, p < .01$), was a significant predictor of dissemination. At the final step (9th step), *management practices* was not a significant predictor.

Hypothesis 5(d) was supported on dissemination but *management practices* was not a significant predictor of dissemination.

Hypothesis 5(e): Organization structure explains a significant portion of the variance in dissemination.

In the next analysis, the predictor was *organization structure*. The two organization structure variables were significantly correlated with dissemination at the $p < .01$ level (see Table 5.47). The model was significant with an R^2 of .557. As can be seen in Table 5.48, both measures of organization structure, *internal alignment* ($\beta = .318, p < .01$) and *facilitative structures* ($\beta = .186, p < .01$), were significant predictors of dissemination. However, at the final step (step 9th), *organization structure* was not a significant predictor.

Hypothesis 5(e) was supported but *organization structure* was not a significant predictor of dissemination.

Hypothesis 5(f): Systems explains a significant portion of the variance in dissemination.

In the next analysis, the predictor was *systems*. *Systems* was significantly correlated with dissemination at the $p < .01$ level (see Table 5.47). The model was significant with an R^2 of .602. As can be seen in Table 5.48, *systems* ($\beta = .423, p < .01$) was a significant predictor of dissemination. Moreover, at final 9th step, *systems* ($\beta = .289, p < .01$) was also a significant predictor.

Thus, hypothesis 5(f) was supported and *systems* was a significant predictor of dissemination.

Hypothesis 5(g): Organizational climate explains a significant portion of the variance in dissemination.

In the next analysis, the predictor was *organizational climate*. The two organizational climate variables were significantly correlated with dissemination at the $p < .01$ level (see Table 5.47). The model was significant with an R^2 of .666. As can be seen in Table 5.48, both measures of organizational climate, *generative sharing climate* ($\beta = .181, p < .01$) and *promotive interaction* ($\beta = .321, p < .01$), were significant predictors of dissemination. However, at the final step (step 9th), only *promotive interaction* ($\beta = .146, p < .05$) was significant predictors.

Hence, hypothesis 5(g) was supported and organizational climate (*promotive interaction*) was a significant predictor of dissemination.

Hypothesis 5(h): Motivation explains a significant portion of the variance in dissemination.

In the next analysis, the predictor was *motivation*. *Motivation* was significantly correlated with dissemination at the $p < .01$ level (see Table 5.47). The model was significant with an R^2 of .688. As can be seen in Table 5.48, *motivation* ($\beta = .315, p < .01$) was a significant predictor of dissemination. At the final 9th step, as can be seen in Table 5.44, *motivation* ($\beta = .295, p < .01$) was also a significant predictor.

Hence, hypothesis 5(h) was supported and *motivation* was a significant predictor of dissemination.

Hypothesis 5(i): Learning outcomes explains a significant portion of the variance in dissemination.

In the next analysis, the predictor was *learning outcomes*. All three learning outcomes variables, experiential learning, *team learning* and *generative learning* were significantly correlated with dissemination at the $p < .01$ level (see Table 5.47). The model was significant with an R^2 of .698. As can be seen in Table 5.48, only one learning outcomes, *generative learning* ($\beta = .124, p < .01$), was significant predictors of dissemination.

Therefore, hypothesis 5(i) was supported and learning outcomes (*generative learning*) was a significant predictor of dissemination.

Summary for Hypothesis 5: The knowledge sharing variables and learning organization outcomes explain a significant portion of the variance in dissemination as follows:

The final model for dissemination with all independent knowledge sharing variables included explained 69.8 % (adjusted $R^2 = 68.1\%$) of the variance in dissemination with six significant predictors, *knowledge indeterminacy* ($\beta = -.104^*$), *organizational unity* ($\beta = .157^{**}$), *systems* ($\beta = .289^{**}$), *promotive interaction* ($\beta = .146^*$), *motivation* ($\beta = .295^{**}$) and *generative learning* ($\beta = .124^{**}$).

As shown in Table 5.49, hypothesis 5 was fully supported. The four hypotheses of 5a (leadership), 5c (mission and strategy), 5d (management practices) 5e (Organization structure), were supported and the five hypotheses of 5b (culture), 5f (systems), 5g (organizational climate), 5h (motivation) and 5i (learning organization outcome) were significant predictors of dissemination.

Table 5.49 Summary for Hypothesis 5: Results for Hypothesized Variables Explaining Dissemination

Variables	Pearson Correlation	Multiple Regression	Hypothesis Conclusion
	(r)	Adj-R ² = 68.1	
(V1) Leadership	0.309	.038	Supported
(V2) Culture			Supported and significant predictor
(V2.1) Learning latitude	0.341	-.056	
(V2.2) Knowledge Indeterminacy	0.359	-.104*	
(V2.3) Organizational unity	0.451	.157**	
(V3) Mission and strategy			Supported
(V3.1) System thinking	0.447	.058	
(V3.2) External monitoring	0.465	-.046	
(V3.3) Knowledge creation	0.552	.019	
(V4) Management practices			Supported
(V4.1) Sharing support practices	0.372	-.090	
(V4.2) Sharing motivation practices	0.466	.011	
(V4.3) Performance effectiveness practices	0.481	.076	
(V4.4) Sharing advice practices	0.420	-.078	
(V5) Organization structure			Supported
(V5.1) Internal alignment	0.376	.023	
(V5.2) Facilitative structures	0.421	-.012	
(V6) Systems	0.407	.289**	Supported and significant predictor
(V7) Organizational climate			Supported and significant predictor
(V7.1) Generative sharing climate	0.477	.113	
(V7.2) Promotive interaction	0.529	.146*	
(V8) Motivation	0.519	.295**	Supported and significant predictor
Learning organization outcome			Supported and significant predictor
(O1) Experiential learning	0.450	.008	
(O2) Team learning	0.515	-.016	
(O3) Generative learning	0.472	.124**	

*P< .05

**P< .01

HYPOTHESIS 6: The knowledge sharing variables, learning organization outcomes, and tacit and explicit knowledge variables explain a significant portion of the variance in financial performance as follows:

- a. *Leadership* explains a significant portion of the variance in financial performance.
- b. *Culture* explains a significant portion of the variance in financial performance.
- c. *Mission and strategy* explains a significant portion of the variance in financial performance,
- d. *Management practices* explains a significant portion of the variance in financial performance.
- e. *Organization structure* explains a significant portion of the variance in financial performance.
- f. *Systems* explains a significant portion of the variance in financial performance.
- g. *Organizational climate* explains a significant portion of the variance in financial performance.
- h. *Motivation* explains a significant portion of the variance in financial performance.
- i. *Learning outcomes* explains a significant portion of the variance in financial performance.
- j. *Tacit and Explicit knowledge* explains a significant portion of the variance in financial performance.

Hypothesis 6: The knowledge sharing variables, learning organization outcomes, and tacit and explicit knowledge variables explain a significant portion of the variance in financial performance.

Hypothesis six suggested that knowledge sharing variables would explain a significant portion of the variance in financial performance (Mean = 5.28, SD = 0.70). The results for the correlation and multiple regression analysis of dissemination can be found in tables 5.50 and 5.51.

Table 5.50 Correlation between Knowledge Sharing Variables and Finance Performance

Variables	Finance Performance	Sig.
(V1) Leadership	0.277	**
(V2) Culture		
(V2.1) Learning latitude	0.220	**
(V2.2) Knowledge Indeterminacy	0.309	**
(V2.3) Organizational unity	0.347	**
(V3) Mission and strategy		
(V3.1) System thinking	0.290	**
(V3.2) External monitoring	0.265	**
(V3.3) Knowledge creation	0.390	**
(V4) Management practices		
(V4.1) Sharing support practices	0.275	**
(V4.2) Sharing motivation practices	0.361	**
(V4.3) Performance effectiveness practices	0.303	**
(V4.4) Sharing advice practices	0.283	**
(V5) Organization structure		
(V5.1) Internal alignment	0.298	**
(V5.2) Facilitative structures	0.335	**
(V6) Systems	0.311	**
(V7) Organizational climate		
(V7.1) Generative sharing climate	0.300	**
(V7.2) Promotive interaction	0.381	**
(V8) Motivation	0.324	**
Learning organization outcome		
(O1) Experiential learning	0.420	**
(O2) Team learning	0.432	**
(O3) Generative learning	0.516	**
Tacit & explicit knowledge		
(D1) Documentation	0.407	**
(D2) Dissemination	0.373	**

*P< .05

**P< .01

Table 5.51 Standardized Coefficients for Independent Variables in Multiple Regression for Finance Performance

Variables	Entry Step									Final
	1	2	3	4	5	6	7	8	9	10
(V1) Leadership	.277**	.140*	.121*	.138*	.135*	.134*	.138*	.139	.082	.073
(V2) Culture										
(V2.1) Learning		-.105	-.128	-.104	-.082	-.082	-.128	-.126	-.142*	-.131
(V2.2) Knowledge		.153*	.060	.051	.008	.015	.063	.063	.110	.121
(V2.3)		.257**	.159*	.164*	.169*	.167*	.140	.139	.118	.116
(V3) Mission and										
(V3.1) System			.014	.004	-.009	-.010	-.058	-.057	-.090	-.099
(V3.2) External			-.014	-.031	-.050	-.052	-.028	-.029	-.034	-.043
(V3.3) Knowledge			.265**	.268**	.270*	.269**	.235**	.237	.146*	.110
(V4) Management										
(V4.1) Sharing				-.151	-.171*	-.180*	-.182*	-.183	-.107	-.086
(V4.2) Sharing				.145	.135	.130	.110	.108	.040	.036
(V4.3) Performance				.016	.002	.003	.010	.008	.052	.038
(V4.4) Sharing				-.023	-.064	-.059	-.053	-.054	-.042	-.035
(V5) Organization										
(V5.1) Internal					-.001	-.024	-.037	-.039	.019	.034
(V5.2) Facilitative					.146	.133	.093	.094	-.024	-.019
(V6) Systems						.045	.043	.043	.042	.028
(V7) Organizational										
(V7.1) Generative							-.117	-.120	-.166	-.172
(V7.2) Promotive							.281**	.274**	.273**	.252**
(V8) Motivation								.012	-.103	-.132
Learning organization outcome										
(O1) Experiential									.141	.134*
(O2) Team learning									.050	.032
(O3) Generative									.328**	.313**
Tacit & explicit										
(D1) Documentation										.098
(D2) Dissemination										.046
R-square	.077	.152	.183	.195	.203	.203	.228	.228	.359	.336
Adj. R-square	.075	.143	.168	.171	.175	.173	.195	.193	.324	.327

*P< .05

**P< .01

Hypothesis 6(a): Leadership explains a significant portion of the variance in financial performance.

In the analysis, the predictor was *leadership*. *Leadership* was significantly correlated with financial performance ($r = 0.277, p < .01$) as shown in Table 5.50. The model was significant with an R^2 of .077. As can be seen in Table 5.51 from the 1st step, *leadership* was a significant predictor of financial performance ($\beta = .277, p < .01$). However, at the final step (10th step), *leadership* was not a significant predictor.

Therefore, hypothesis 6(a) was supported on financial performance but *leadership* was not a significant predictor of dissemination.

Hypothesis 6(b): Culture explains a significant portion of the variance in financial performance.

In the 2nd analysis, the predictor was *culture*. Three culture variables were significantly correlated with financial performance at the $p < .01$ level (see Table 5.50). The model was significant with an R^2 of .152. As can be seen in Table 5.51, two measures of culture, *knowledge indeterminacy* ($\beta = .153, p < .05$) and *organizational unity* ($\beta = .257, p < .01$), were significant predictors of financial performance. However, at the 10th step, *culture* was not a significant predictor.

Hence, hypothesis 6(b) was supported on financial performance but *culture* was not a significant predictor.

Hypothesis (6c): Mission and strategy explains a significant portion of the variance in financial performance.

In the 3rd analysis, the predictor was *mission and strategy*. Three mission and strategy variables were significantly correlated with financial performance at the $p < .01$ level (see Table 5.50). The model was significant with an R^2 of .183. As shown in Table 5.51, only one measure of mission and strategy, *knowledge creation* ($\beta = .265, p < .01$), was a significant predictor of financial performance. However, at the 10th step, *mission and strategy* was not a significant predictor.

Thus, hypothesis 6(c) was supported on financial performance but *mission and strategy* was not a significant predictor.

Hypothesis 6(d): Management practices explains a significant portion of the variance in financial performance.

In the next analysis, the predictor was *management practices*. Four management practices variables were significantly correlated with financial performance at the $p < .01$ level (see Table 5.50). The model was significant with an R^2 of .195. As can be seen in Table 5.51, all four measures of management practices were not significant predictors of financial performance.

Therefore, hypothesis 6(d) was supported on financial performance but *management practices* was not a significant predictor.

Hypothesis 6(e): Organization structure explains a significant portion of the variance in financial performance.

In the 5th analysis, the predictor was *organization structure*. The two structure variables were significantly correlated with financial performance at the $p < .01$ level (see Table 5.50). The model was significant with an R^2 of .203. As can be seen in Table 5.51, both measures of *organization structure* were not significant predictors of financial performance.

Therefore, hypothesis 6(e) was supported on financial performance but *organization structure* was not a significant predictor.

Hypothesis 6(f): Systems explains a significant portion of the variance in financial performance.

In the 6th analysis the predictor was *systems*. *Systems* was significantly correlated with financial performance at the $p < .01$ level (see Table 5.50). The model was significant with an R^2 of .203. As shown in Table 5.51, *systems* was not a significant predictor of financial performance. At the final 10th step, *systems* also was not a significant predictor.

Therefore, hypothesis 6(f) was supported on financial performance but *systems* was not a significant predictor of financial performance.

Hypothesis 6(g): Organizational climate explains a significant portion of the variance in financial performance.

In the next analysis the predictor was *organizational climate*. The two organizational climate variables were significantly correlated with financial performance at the $p < .01$ level (see Table 5.50). The model was significant with an R^2 of .228. As table 5.51 shows, one measure of organizational climate, *promotive interaction* ($\beta = .281, p < .01$) was a significant predictor of financial performance. In addition, at the final step, *promotive interaction* ($\beta = .252, p < .01$) was a significant predictor.

Thus, hypothesis 6(g) was supported on financial performance and organizational climate (*promotive interaction*) was a significant predictor of financial performance.

Hypothesis 6(h): Motivation explains a significant portion of the variance in financial performance.

In the 8th analysis, the predictor was *motivation*. *Motivation* was significantly correlated with financial performance at the $p < .01$ level (see Table 5.50). The model was significant with an R^2 of .228. The result from Table 5.51 shows that *motivation* was not a significant predictor.

Hence, hypothesis 6(h) was supported on financial performance but *motivation* was not a significant predictor of financial performance.

Hypothesis 6(i): Learning outcomes explains a significant portion of the variance in financial performance.

In the 9th analysis, the predictor was *learning outcomes*. All three learning outcomes variables, experiential learning, team learning and generative learning were significantly correlated with financial performance at the $p < .01$ level (see Table 5.50). The model was significant with an R^2 of .359. As can be seen in Table 5.51, only learning outcomes *generative learning* ($\beta = .328, p < .01$), was significant

predictors of financial performance. Moreover, at the final step (10th step), *experiential learning* ($\beta = .134, p < .05$) and *generative learning* ($\beta = .313, p < .01$) were significant predictors.

Hypothesis 6(i) was supported and learning outcomes (*generative learning*) was a significant predictor of financial performance

Hypothesis 6(j): Tacit and explicit knowledge explains a significant portion of the variance in financial performance.

In the final analysis, the predictor was *tacit and explicit knowledge*. The two *tacit and explicit knowledge processes, documentation and dissemination*, were significantly correlated with financial performance at the $p < .01$ level (see Table 5.50). The model was significant with an R^2 of .336. As can be seen in Table 5.51, both of the *tacit and explicit Knowledge processes* were not significant predictors of financial performance.

Thus, hypothesis 6(j) was supported on financial performance but *tacit and explicit knowledge* was not a significant predictor of financial performance.

Summary for Hypothesis 6: The knowledge sharing variables, learning organization outcomes, and tacit and explicit knowledge variables explain a significant portion of the variance in financial performance.

The final model for financial performance with all independent knowledge sharing variables included explained 33.6% (adjusted $R^2 = 32.7\%$) of the variance in financial performance with three significant predictors. The significant predictors, based on relative influence were *organizational climate* (promotive interaction) ($\beta = .252^{**}$); *learning organization outcome* (experiential learning ($\beta = .134^*$) and *generative learning* ($\beta = .313^{**}$)).

As shown in Table 5.52, hypothesis 6 was fully supported. Eight hypotheses of 6a (leadership), 6b (culture), 6c (mission and strategy), 6d (management practices) 6e (organization structure), 6f (systems), 6h (motivation) and 6j (tacit and explicit knowledge) were supported and two hypotheses of 6g (organizational climate) and 6i

(learning organization outcome) were also significant predictors of financial performance.

Table 5.52 Summary for Hypothesis 6: Results for Hypothesized Variables Explaining Financial Performance

Variables	Pearson Correlation	Multiple Regression	Hypothesis Conclusion
	(r)	Adj-R ² = 32.7	
(V1) Leadership	0.277	.073	Supported
(V2) Culture			Supported
(V2.1) Learning latitude	0.220	-.131	
(V2.2) Knowledge Indeterminacy	0.309	.121	
(V2.3) Organizational unity	0.347	.116	
(V3) Mission and strategy			Supported
(V3.1) System thinking	0.290	-.099	
(V3.2) External monitoring	0.265	-.043	
(V3.3) Knowledge creation	0.390	.110	
(V4) Management practices			Supported
(V4.1) Sharing support practices	0.275	-.086	
(V4.2) Sharing motivation practices	0.361	.036	
(V4.3) Performance effectiveness practices	0.303	.038	
(V4.4) Sharing advice practices	0.283	-.035	
(V5) Organization structure			Supported
(V5.1) Internal alignment	0.298	.034	
(V5.2) Facilitative structures	0.335	-.019	
(V6) Systems	0.311	.028	Supported
(V7) Organizational climate			Supported and significant predictor
(V7.1) Generative sharing climate	0.300	-.172	
(V7.2) Promotive interaction	0.381	.252**	
(V8) Motivation	0.324	-.132	Supported
Learning organization outcome			Supported and significant predictor
(O1) Experiential learning	0.420	.134*	
(O2) Team learning	0.432	.032	
(O3) Generative learning	0.516	.313**	
Tacit & explicit knowledge			Supported
(D1) Documentation	0.407	.098	
(D2) Dissemination	0.373	.046	

*P< .05

**P< .01

HYPOTHESIS 7: The knowledge sharing variables, learning organization outcomes, and tacit and explicit knowledge, variables explain a significant portion of the variance in knowledge performance as follows:

- a. *Leadership* explains a significant portion of the variance in knowledge performance.
- b. *Culture* explains a significant portion of the variance in knowledge performance.
- c. *Mission and strategy* explains a significant portion of the variance in knowledge performance.
- d. *Management practices* explains a significant portion of the variance in knowledge performance.
- e. *Organization structure* explains a significant portion of the variance in knowledge performance.
- f. *Systems* explains a significant portion of the variance in knowledge performance.
- g. *Organizational climate* explains a significant portion of the variance in knowledge performance.
- h. *Motivation* explains a significant portion of the variance in knowledge performance.
- i. *Learning outcomes* explains a significant portion of the variance in knowledge performance.
- j. *Tacit and explicit knowledge* explains a significant portion of the variance in knowledge performance.

Hypothesis 7: The Knowledge sharing variables, Learning organization outcomes, and tacit and explicit knowledge, variables explain a significant portion of the variance in knowledge performance.

Hypothesis seven suggested that knowledge sharing variables, learning organization, learning outcomes, and tacit and explicit knowledge variables would explain a significant portion of the variance in knowledge performance (Mean = 5.61, SD = 0.93). The results for the correlation and multiple regression analysis of dissemination can be found in tables 5.53 and 5.54.

Table 5.53 Correlation between Knowledge Sharing Variables and Knowledge Performance

Variables	Knowledge performance	Sig
(V1) Leadership	0.281	**
(V2) Culture		
(V2.1) Learning latitude	0.245	**
(V2.2) Knowledge Indeterminacy	0.303	**
(V2.3) Organizational unity	0.310	**
(V3) Mission and strategy		
(V3.1) System thinking	0.190	**
(V3.2) External monitoring	0.226	**
(V3.3) Knowledge creation	0.334	**
(V4) Management practices		
(V4.1) Sharing support practices	0.267	**
(V4.2) Sharing motivation practices	0.312	**
(V4.3) Performance effectiveness practices	0.291	**
(V4.4) Sharing advice practices	0.339	**
(V5) Organization structure		
(V5.1) Internal alignment	0.349	**
(V5.2) Facilitative structures	0.367	**
(V6) Systems	0.294	**
(V7) Organizational climate		
(V7.1) Generative sharing climate	0.354	**
(V7.2) Promotive interaction	0.261	**
(V8) Motivation	0.302	**
Learning organization outcome		
(O1) Experiential learning	0.448	**
(O2) Team learning	0.577	**
(O3) Generative learning	0.590	**
Tacit & explicit knowledge		
(D1) Documentation	0.412	**
(D2) Dissemination	0.371	**

*P< .05

**P< .01

Table 5.54 Standardized Coefficients for Independent Variables in Multiple Regressions for Knowledge Performance

Variables	Entry Step									Final
	1	2	3	4	5	6	7	8	9	10
(V1) Leadership	.281**	.149**	.152**	.160*	.152*	.155*	.167**	.175**	.085	.069
(V2) Culture										
(V2.1) Learning		-.025	-.027	-.035	.002	.003	-.001	.016	-.016	.003
(V2.2) Knowledge		.144	.116	.120	.039	.025	-.001	-.003	.043	.064
(V2.3)		.170*	.188*	.176*	.187*	.190*	.200*	.193*	.156*	.144*
(V3) Mission and										
(V3.1) System			-.175*	-.221**	-.248**	-.247**	-.223**	-.216**	-.250**	-.266**
(V3.2) External			.010	-.040	-.071	-.066	-.083	-.090	-.098	-.109
(V3.3) Knowledge			.177	.161**	.168*	.171*	.169*	.189*	.039	-.016
(V4) Management										
(V4.1) Sharing				-.147	-.175*	-.156	-.184*	-.188*	-.017	.019
(V4.2) Sharing				.025	.008	.018	.049	.036	-.043	-.050
(V4.3) Performance				.048	.013	.009	-.013	-.033	.035	.010
(V4.4) Sharing				.206**	.114	.103	.090	.077	.084	.099
(V5) Organization structure										
(V5.1) Internal					.082	.130	.109	.092	.183*	.204*
(V5.2) Facilitative					.205*	.233*	.229*	.239**	.031	.040
(V6) Systems						-.095	-.181	-.180	-.172*	-.210**
(V7) Organizational climate										
(V7.1) Generative							.274**	.251*	.181*	.165*
(V7.2) Promotive							-.133	-.198*	-.190*	-.230**
(V8) Motivation								.116	-.056	-.116
Learning organization outcome										
(O1) Experiential									.025	.015
(O2) Team learning									.286**	.261**
(O3) Generative									.420**	.391**
Tacit & explicit										
(D1) Documentation										.149**
(D2) Dissemination										.124
R-square	.079	.132	.157	.183	.208	.210	.277	.230	.492	.512
Adj. R-square	.077	.123	.142	.159	.180	.180	.194	.195	.464	.482

*P< .05

**P< .01

Hypothesis 7(a): Leadership explains a significant portion of the variance in knowledge performance.

In the analysis the predictor was *leadership*. *Leadership* was significantly correlated with knowledge performance ($r = 0.281, p \leq .01$), as shown in Table 5.53. The model was significant with an R^2 of .079. As can be seen in Table 5.54 of step one, *leadership* was a significant predictor of knowledge performance ($\beta = .281, p \leq .01$). However, at the final step (10th step), *leadership* was not a significant predictor.

Therefore, hypothesis 7(a) was supported on knowledge performance but *leadership* was not a significant predictor of knowledge performance.

Hypothesis 7(b): Culture explains a significant portion of the variance in knowledge performance.

In the 2nd analysis, the predictor was *culture*. All three culture variables were significantly correlated with knowledge performance at the $p < .01$ level (see Table 5.53). The model was significant with an R^2 of .132. As can be seen in Table 5.54, only *organizational unity* ($\beta = .170, p < .05$) was a significant predictor of knowledge performance. Moreover, at the final step (10th step), *organizational unity* ($\beta = .144, p < .05$) was also a significant predictor.

Thus, hypothesis 7(b) was supported on knowledge performance and culture (*organizational unity*) was a significant predictor of knowledge performance.

Hypothesis 7(c): Mission and strategy explains a significant portion of the variance in knowledge performance.

In the 3rd analysis, the predictor was *mission and strategy*. The three mission and strategy variables were significantly correlated with knowledge performance at the $p < .01$ level (see Table 5.53). The model was significant with an R^2 of .157. As can be seen in Table 5.54, only one measures of mission and strategy, *system thinking* ($\beta = .175, p < .05$), was a significant predictor of knowledge performance. Moreover, at the final step (10th step), *system thinking* ($\beta = -.266, p < .01$), was also a significant predictor of knowledge performance.

Hypothesis 7(c) was supported on knowledge performance and mission and strategy (*system thinking*) was a significant predictor of knowledge performance.

Hypothesis 7(d): Management practices explains a significant portion of the variance in knowledge performance.

In the 4th analysis, the predictor was *management practices*. All four management practices variables were significantly correlated with knowledge performance at the $p < .01$ level (see Table 5.53). The model was significant with an R^2 of .183. As can be seen in Table 5.54, only sharing advice ($\beta = .206, p < .01$) shows that the measures of *management practices*, was a significant predictor of knowledge performance. However, at the final 10th step, *management practices* was not a significant predictor.

Hypothesis 7(d) was supported on knowledge performance but *management practices* was not a significant predictor of knowledge performance.

Hypothesis 7(e): Organization structure explains a significant portion of the variance in knowledge performance.

In the 5th analysis, the predictor was *organization structure*. Both organization structure variables were significantly correlated with knowledge performance at the $p < .01$ level (see Table 5.53). The model was significant with an R^2 of .208. As can be seen in Table 5.54, *facilitative structures* ($\beta = -.205, p < .05$) was a significant predictor of knowledge performance. However, at the final step, *internal alignment* ($\beta = .204, p < .05$) was a significant predictor.

Therefore, hypothesis 7(e) was supported and organization structure (*internal alignment*) was a significant predictor of knowledge performance.

Hypothesis 7(f): Systems explains a significant portion of the variance in knowledge performance.

In the 6th analysis, the predictor was *systems*. *Systems* was significantly correlated with knowledge performance at the $p < .01$ level (see Table 5.53). The model was

significant with an R^2 of .210. As can be seen in Table 5.54, *systems* was not a significant predictor of knowledge performance. However, at the final step, *systems* ($\beta = -.210, p < .01$) was a significant predictor.

Thus, hypothesis 7(f) was supported and *systems* was a significant predictor of knowledge performance.

Hypothesis 7(g): Organizational climate explains a significant portion of the variance in knowledge performance.

In the 7th analysis, the predictor was *organizational climate*. The two organizational climate variables were significantly correlated with knowledge performance at the $p < .01$ level (see Table 5.53). The model was significant with an R^2 of .277. As shown in Table 5.54, the *organizational climate* measure of *generative sharing climate* ($\beta = .274, p < .01$) was a significant predictor of knowledge performance. At the final step, *generative sharing climate* ($\beta = .165, p < .05$) and *promotive interaction* ($\beta = -.230, p < .01$) were both significant predictors.

Hence, hypothesis 7(g) was supported and organizational climate (*generative sharing climate* and *promotive interaction*) was a significant predictor of knowledge performance.

Hypothesis 7(h): Motivation explains a significant portion of the variance in knowledge performance.

In the 8th analysis, the predictor was *motivation*. *Motivation* was significantly correlated with knowledge performance at the $p < .01$ level (see table 5.53). The model was significant with an R^2 of .230. As can be seen in table 5.54, *motivation* was not a significant predictor of knowledge performance. Moreover, at the final, 10th step, as can be seen in table 5.54, *motivation* was not a significant predictor.

Therefore, hypothesis 7(h) was supported on knowledge performance but *motivation* was not a significant predictor of knowledge performance.

Hypothesis 7 (i): Learning outcomes explains a significant portion of the variance in knowledge performance.

In the 9th analysis, the predictor was *learning outcomes*. All three learning outcomes variables, *experiential learning*, *team learning* and *generative learning* were significantly correlated with knowledge performance at the $p < .01$ (see Table 5.53). The model was significant with an R^2 of .492. As can be seen in Table 5.54, two of the *learning outcomes*: *team learning* ($\beta = .286, p < .01$) and *generative learning* ($\beta = .420, p < .01$) were significant predictors of knowledge performance. Moreover, at the final step, *team learning* ($\beta = .261, p < .01$) and *generative learning* ($\beta = .391, p < .01$) were significant predictors.

Hence, hypothesis 7(i) was supported and learning outcomes (*team learning* and *generative learning*) was a significant predictor of knowledge performance.

Hypothesis 7(j): Tacit and explicit knowledge explains a significant portion of the variance in knowledge performance.

In the final analysis, the predictor was *tacit and explicit knowledge*. The two Tacit and Explicit Knowledge processes of *documentation* and *dissemination* were significantly correlated with knowledge performance at the $p < .01$ level (see Table 5.53). The model was significant with an R^2 of .512. As can be seen in Table 5.54, only *documentation* ($\beta = .149, p < .01$) was a significant predictor of knowledge performance.

Therefore, hypothesis 7(j) was supported and tacit and explicit knowledge (*documentation*) was a significant predictor of knowledge performance.

Summary for Hypothesis 7: The knowledge sharing variables, learning organization outcomes, and tacit and explicit knowledge, variables explain a significant portion of the variance in knowledge performance.

The final model for knowledge performance with all independent knowledge sharing organization variables included explained 51.2% (adjusted $R^2 = 48.2\%$) of the

variance in knowledge performance with nine significant predictors. The significant predictors, based on relative influence, were *culture* (organizational unity) ($\beta = .144^*$), *mission and strategy* (system thinking) ($\beta = -.266^{**}$), *organization structure* (internal alignment) ($\beta = .204^*$), *systems* ($\beta = -.210^*$) *organizational climate* (generative sharing climate) ($\beta = .165^*$), *promotive interaction* ($\beta = -.203^{**}$), *learning organization outcome* (team learning) ($\beta = .261^{**}$), (generative learning) ($\beta = .391^{**}$) and *tacit & explicit knowledge* (documentation) ($\beta = .149^{**}$) .

As shown in Table 5.55, Hypothesis 7 was fully supported. The three hypotheses of 7a (leadership), 7d (management practices) and 7h (motivation) were supported and the seven hypotheses of 7b (culture), 7c (mission and strategy), 7e (organization structure), 7f (systems), 7g (organizational climate), 7i (learning organization outcome) and 7j (tacit and explicit knowledge) were also significant predictors of knowledge performance.

Table 5.55 Summary for Hypothesis 7 : Results for Hypothesized Variables Explaining Knowledge Performance

Variables	Pearson Correlation	Multiple Regression	Hypothesis Conclusion
	(r)	Adj-R ² = 48.2	
(V1) Leadership	0.281	.069	Supported
(V2) Culture			Supported and significant predictor
(V2.1) Learning latitude	0.245	.003	
(V2.2) Knowledge Indeterminacy	0.303	.064	
(V2.3) Organizational unity	0.310	.144*	
(V3) Mission and strategy			Supported and significant predictor
(V3.1) System thinking	0.190	-.266**	
(V3.2) External monitoring	0.226	-.109	
(V3.3) Knowledge creation	0.334	-.016	
(V4) Management practices			Supported
(V4.1) Sharing support practices	0.267	.019	
(V4.2) Sharing motivation practices	0.312	-.050	
(V4.3) Performance effectiveness	0.291	.010	
(V4.4) Sharing advice practices	0.339	.099	
(V5) Organization structure			Supported and significant predictor
(V5.1) Internal alignment	0.349	.204*	
(V5.2) Facilitative structures	0.367	.040	
(V6) Systems	0.294	-.210**	Supported and significant predictor
(V7) Organizational climate			Supported and significant predictor
(V7.1) Generative sharing climate	0.354	.165*	
(V7.2) Promotive interaction	0.261	-.230**	
(V8) Motivation	0.302	-.116	Supported
Learning organization outcome			Supported and significant predictor
(O1) Experiential learning	0.448	.015	
(O2) Team learning	0.577	.261**	
(O3) Generative learning	0.590	.391**	
Tacit & explicit knowledge			Supported and significant predictor
(D1) Documentation	0.412	.149**	
(D2) Dissemination	0.371	.124	

*P< .05

**P< .01

5.4 Summary

This chapter presented and described the demographic characteristics of the research sample, as well as information concerning with the respondents' profiles. The respondents were generally young, well educated and in middle management positions. The response rates were sufficient to perform SEM, as a recommended minimum sample size of 100-150 is considered as stable for maximum likelihood estimation. Seven hypotheses with eight knowledge sharing variables (variable sets) were analyzed in an attempt to explain the variance of the following learning organization outcomes tacit and explicit knowledge and organization performance. The result of the hypotheses testing found that all of hypothesizes were fully supported. The results found that;

1. the knowledge sharing variables such as leadership, culture, mission and strategy, management practices, structure, systems, organizational climate and motivation, explain a significant portion of the variance in learning organization outcomes as experiential learning, team learning and generative learning of Thai organizations(see hypothesis 1-3) ;

2. the knowledge sharing variables and learning outcomes explain a significant portion of the variance in tacit and explicit knowledge of Thai organizations (see hypothesis 4-5) ;

3. the knowledge sharing variables, learning outcomes and tacit and explicit knowledge explain a significant portion of the variance in finance and knowledge performance improvement as financial and competitive advantage of Thai organizations (see hypothesis 6-7).

Structural equation modeling is presented in the following Chapter 6. Further analysis using SEM with AMOS is also presented in relation to assessing the relationship between the variables.

CHAPTER 6

MODEL DEVELOPMENT AND ANALYSES

The previous chapter presented the findings obtained from the qualitative and quantitative study analyses. The analysis, which addressed hypotheses 1 through to 7 were presented and explained. This chapter presents a discussion of structural equation modeling (SEM) and the empirical testing of hypothesis 8. The model is developed incrementally and the advantages and the shortcomings of the method of analysis are presented.

6.1 Discussion of Structural Equation Modeling

Structural equation modeling (SEM) (sometimes called covariance structure analysis) includes various modeling methods that explain linear (or sometimes non linear) relationships among variables by analyzing correlations or covariance among them (Blunch 2008; Bollen 1989; Hair 2006). SEM provides estimates of the strength of the relationships between variables. Each of the relationships is expressed in a type of equation called a structural equation. Thus, structural models express the dependent relationship between the variables. The relationship between the constructs is often assumed to be a causal relationship (Fornell & Bookstein 1982; Kline, R.B. 2005; Lee, S.-Y. 2007).

One of the most important characteristics of SEM is that it can analyze the independent relationships of more than one set of variables. For example, one SEM can encompass several linear regression equations, which are not related to each other. Because of this nature, SEM can deal with very complex relationships between variables, which usually require, say, several multiple regression equations to be more fully described. SEM is a very flexible design and researchers can easily describe their theoretical or hypothetical models as a SEM. Thus, researchers can develop more complex and situational oriented models with which they can confirm and explain their theories or hypotheses (Mueller 1996; Pugesek & Tomer 2003). The model can be developed exclusively based on the researcher's insight. SEM is fundamentally employed for verifying hypothesized models, which and this is why more appropriate as a confirmatory method rather than exploratory one (Schumacker & Lomax 2004).

Although it deals with measured relationships between variables, SEM is not only a means of prediction. Because it expresses the relationship of variables in one model, SEM can equip itself with predictive power. In addition, SEM can deal with sets of independent variable relationships simultaneously and consequently it is not confounded by multicollinearity among the variables. Considering the fact that the variables handled in a real social science research situation are often highly correlated, SEM seems to be an effective tool for those who study complex sociocultural phenomena (Mueller 1996).

For the purpose of this study, structural equation modeling (SEM) is used to explore the statistical relationships among the items of each variable and between variables.

6.2 Statistical Packages Used in the Analyses

In this study, SPSS was employed for data editing and coding, and for the preliminary and the descriptive analysis presented in Chapter 5. For the structuring and analysis of the general model and its subsets in this study, a computer statistical package named AMOS was applied. The latest version of AMOS is it has the facility to read data from SPSS.

6.3 Structural Equation Modeling Analysis of the Hypotheses

Since this study intended to confirm the theory (reliability and validity) of the overview conceptual framework (see Figure 3.1), SEM is appropriate for this study. As Tabachnick and Fidell (1996) noted, SEM allows the researcher to combine exploratory factor analysis with multiple regression. Furthermore, SEM can be measured in multiple groups of confirmatory factor analysis (CFA) where CFA is the test to confirm the theory and multiple group analysis, and is sometimes called factorial invariance (Kline, R.B. 2005). Kline (2005) stated that factorial invariance is whether a set of indicators assesses the same latent variables in different groups. In this study, factorial invariance is the difference between before and after downsizing of three-factor commitment, work effort or absenteeism.

HYPOTHESIS 8: The learning outcomes and tacit and explicit knowledge influenced by knowledge sharing variables in turn influence financial and knowledge performance.

By adopting a structural equation modeling approach we can think of learning organization variables, learning outcomes, tacit and explicit knowledge, and performance improvement as "latent constructs" identified in the model, which are not directly measurable, although they can be indirectly identified by a set of measurable indicators,

The structural equation model (see Figure 3.1) is based on scale scores (N= 386) is and grounded in the following assumptions: (a) the latent variables have a mean of zero, (b) the structural relationships are linear, (c) the structural errors have a mean of zero and a constant variance across observations, they are independent, i.e., uncorrelated across observations, they are uncorrelated with the latent constructs; (d) the relationships between indicators and their associated latent constructs are linear, and (e) the measurements have a mean of zero and a constant variance across observations, are independent, are uncorrelated with the latent constructs; and are uncorrelated with each other.

In this model, the latent construct "knowledge sharing variables" is identified by seven independent variables: leadership, culture, mission and strategy, management practices, organization structure, organizational climate and motivation.

The latent construct "learning outcomes" is identified by three learning dependent variables: experiential learning, team learning and generative learning.

The latent construct "tacit and explicit knowledge" is identified by two dependent variables: documentation and dissemination.

The latent construct "performance" is identified by financial performance and knowledge performance.

In order to assess the influences suggested by the research question as well as to investigate the contributions of each of the indicators of the "knowledge sharing variables", "learning outcomes", "tacit and explicit knowledge", and "performance improvement", a linear structural analysis of the overall model fit was performed using AMOS.

"AMOS modeling was chosen in the analysis of structural relationships between these latent constructs because such covariance-based structural modeling allows

one to systematically check model identification, estimate parameters simultaneously, and provides overall measures of goodness-of-fit” (McGrath & MacMillan 1995, p. 260).

A four-step approach was followed to assess the structural relationships or “influences” suggested by the research question, and to adjust the model in order to attain a satisfactory fit.

6.3.1 Normality and Bollen-stine’s Bootstrap

As structural equation modelling requires variables to be normality distributed, it was necessary to check the distribution of variables to be utilized in the analysis. In order to check the actual deviation from normality for this study, two methods including univariate skewness and univariate kurtosis were conducted using SPSS. Distribution is considered within a normal range when indicators of the univariate skewness and univariate kurtosis values are less than 2 and 3, respectively (Tabachnick & Fidell 2007; Yamane 1973).

Table 6.1 Normality Distribution

Variables	Univariate Skewness	Univariate Kurtosis
Knowledge sharing variables		
(V1) Leadership	-1.038	0.732
(V2) Culture	-1.134	2.176
(V3) Mission and strategy	-1.520	3.291
(V4) Management practices	-0.834	0.918
(V5) Organization structure	-1.251	3.376
(V6) Systems	-0.823	0.758
(V7) Organizational climate	-1.504	4.447
(V8) Motivation	-0.588	0.132
Learning organization outcome		
(O1) Experiential learning	-0.806	0.691
(O2) Team learning	-0.938	1.899
(O3) Generative learning	0.762	0.274
Tacit and explicit		
(D1) Documentation	-1.195	2.284
(D2) Dissemination	-0.666	0.662
Performance		
(P1) Financial performance	0.441	-0.030
(P2) Knowledge performance	-0.666	0.662

As the univariate skewness and univariate kurtosis values of the questionnaires were more than 2 (see Table 6.1), this indicates that the univariate skewness and univariate kurtosis values were not considered to be normally distributed. In such cases of multivariate non-normality, Bollen-stine's bootstrap was invoked (Blunch 2008; Kline, R.B. 2005; Lee, S.-Y. 2007; Pugesek & Tomer 2003).

When normality assumptions are violated, Bollen-Stine chi-square correction generates a correct value (Blunch 2008; Schumacker & Lomax 2004). For the present study where issues with multivariate non-normality were evident, the

researcher requested AMOS to perform a bootstrap on 140 and 204 samples.

6.3.2 Full model testing

In this step, the full model was tested with a threefold objective: (1) to analyze factor loadings; to capture the direct and/or indirect directional structural relationships between latent constructs; and (3) to analyze the goodness-of-fit statistics and modify the model according to modification indices.

Objective 1 Analyze factor loadings (AMOS standardized estimates/maximum likelihood) in order to assess statistical significance by their p -value ($|p| > 1.965 \Rightarrow$ statistically significant) and to ascertain their actual contributions to their respective latent construct (see Table 6.2).

Table 6.2 AMOS Standardized Estimates for Independent (Bollen-stine’s bootstrap) Factor Loadings

Indicators	Knowledge sharing variables	Learning outcomes	Tacit and explicit knowledge	Performance
Leadership	0.636***			
Culture	0.735***			
Mission and strategy	0.786***			
Management practices	0.807***			
Organization structure	0.827***			
Systems	0.792***			
Organizational climate	0.702***			
Motivation	0.726***			
Experiential learning		0.755***		
Team learning		0.781***		
Generative learning		0.746***		
Documentation			0.739***	
Dissemination			0.788***	
Financial performance				0.589***
Knowledge performance				0.760***

*P< .05
**P< .01
*** P<.000

As a rule of thumb for large samples, such as the one in the present study, *p*-values greater than or equal to 1.965 are taken to indicate statistical significance(Wellington & Szczerbinski 2007). Thus, all the loadings shown in Table 6.2 are significantly different from zero; therefore all of them contribute meaningfully to their respective latent constructs. Table 6.2 also shows the completely standardized solution for interpretation of component fit. The maximum value they could have is 1.0 due to the fact that they are derived from a correlation matrix. As can be seen, their value is relatively high and homogeneous.

Objective 2 Capture the direct and/or indirect directional structural relationships between latent constructs (see Figure 3.1). Table 6.3 shows the structural relationship coefficients beta between latent variables as well as their individual *p*-

values. The same cut-off value (p -value < 0.05) was used to assess for statistical significance.

Table 6.3 AMOS Structural Relationship Coefficients

Indicators	Learning outcomes	Tacit and explicit knowledge	Performance
Knowledge sharing variables	0.601***	0.932***	-0.339 (p -value =0.445)
learning outcomes		0.042 (p -value =0.449)	0.897***
Tacit and explicit knowledge			0.303 (p -value =0.507)

* $P < .05$

** $P < .01$

*** $P < .000$

As can be seen in Table 6.3, the p -values for the structural coefficients are higher than 1.965 and positive except for knowledge sharing variables and performance (p -value = 0.445), learning outcomes and performance (p -value = 0.449) and tacit and explicit knowledge and P\performance (p -value = 0.507). Therefore, it is unbiased to say that there are no direct structural relationships between them.

Table 6.4 Goodness of Fit Statistics: Conceptual Framework Model

Measurement	Abbreviation ^(a)	Value	Acceptable level ^(b)
Chi- square/df	CMIN/DF	3.230	A value below 2.5 falls within the most conservative estimate
Goodness of Fit index	GFI	0.941	GFI > 0.95 (Value between 0.90-0.95 may also indicate satisfactory fit)
Root Mean Square Error of Approximation	RMSEA	0.076	Values less than <0.05 indicate good fit, between 0.05 and 0.08 indicate mediocre fit and > 0.08 indicate poor fit
Comparative Fit Index	CFI	0.941	CFI > 0.95 (Value between 0.90-0.95 may also indicate satisfactory fit)
Tucker-Lewis Index or Non-nomad Fit Index	TLI	0.926	TLI > 0.95 (Value between 0.90-0.95 may also indicate satisfactory fit. Value greater than 1 indicate over fit)
Bollen-Stine <i>p</i> – value		0.005	<i>p</i> >0.05

Source : (a) and (b) adapted from Poomontre (2005).

To examine this model, indices of model fit, model comparison and model parsimony were calculated. Of the approximately 40 possible goodness-of-fit indices now available in structural equation modeling, four indices have been calculated and include: chi- square / df (CMIN/DF), goodness of fit index (GFI), root mean square error of approximation (RMSEA), comparative fit index (CFI), tucker-lewis index or non-nomad fit index (TLI) (Byrne 1998; Poomontre 2005).

To interpret these indices, the following rules of interpretation, which are generally accepted in structural equation modeling literature, were employed (see Table 6.4). Chi- square / df CMIN/DF value should below 2.5 falls within the most conservative estimate. Goodness of Fit index (GFI) more than 0.95 may also indicate satisfactory fit. Root Mean Square Error of Approximation (RMSEA) values should less than 0.05 indicate good fit, between 0.05 and 0.08 indicate mediocre fit and more than 0.08 indicate poor fit. Comparative Fit Index (CFI) value between 0.90-0.95 may also

indicate satisfactory fit. Tucker-Lewis Index or Non-nomad Fit Index (TLI) value between 0.90-0.95 may also indicate satisfactory fit. Value greater than 1 indicate over fit and Bollen-Stine value should be more than 0.05 (Poomontre 2005).

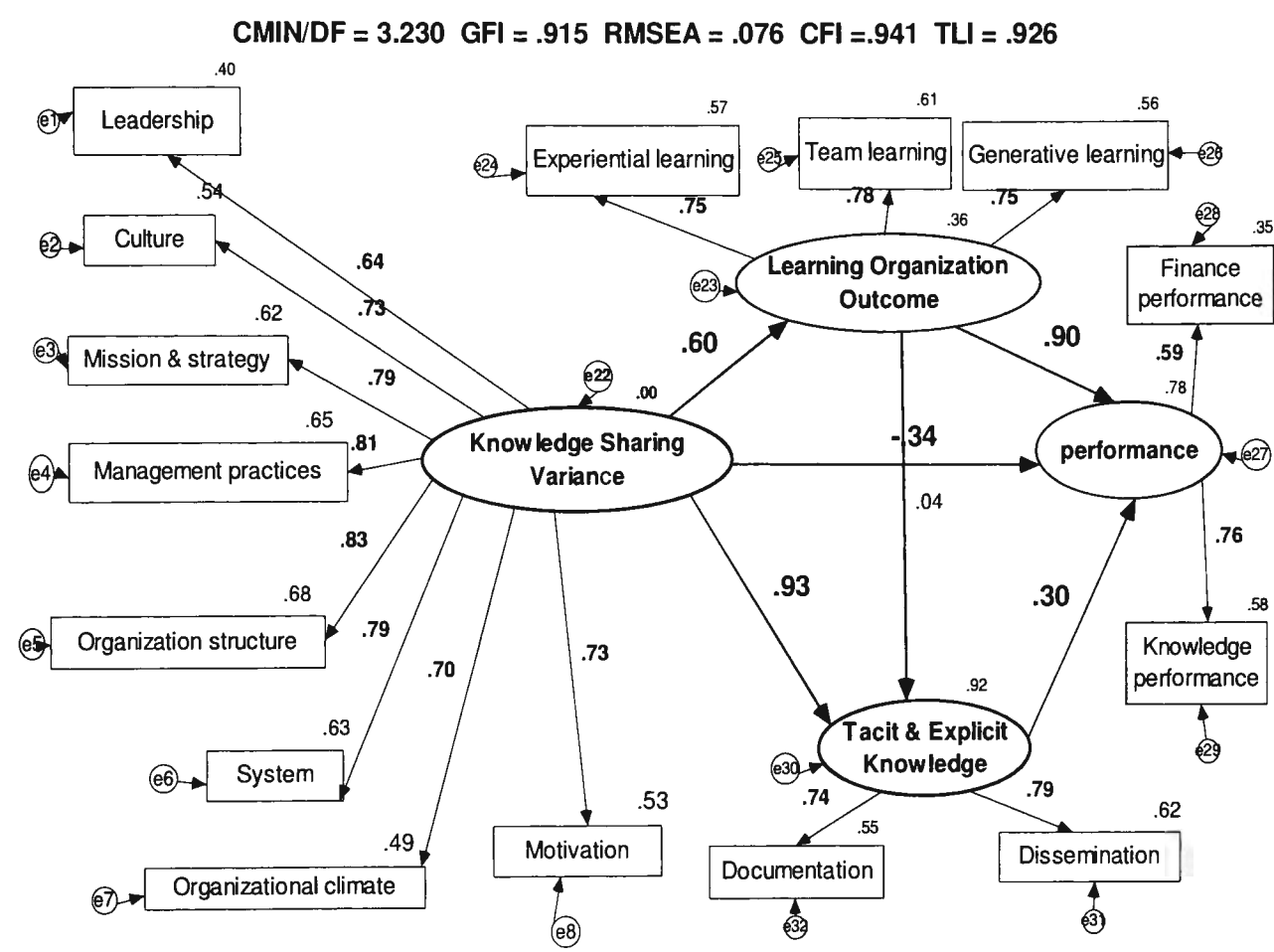


Figure 6.1 Conceptual Framework Structural Equation Model

Overall, the model demonstrated fit. However, chi-square/df (CMIN/DF) is higher than the acceptable level and three structural relationships between latent variables in Table 6.4 were not significant.

6.3.3 Refined Structural Equation Model

Table 6.4 indicated that chi-square/df (CMIN/DF) is higher that Acceptable level. Also Table 6.3 shows that the three structural relationships between latent variables were not significant. It was revised in order to improve fit. The model was revised by:

- dropping the non-significant factor according to multiple regressions (method: stepwise); and
- excluding the two previously structural paths that were not significant (see Table 6.3).

6.3.3.1 Multiple regressions (method: stepwise)

The multiple regressions method stepwise was adopted in order to drop the non-significant factor from the model. The results are presented in Table 6.5.

As shown in Table 6.5, the final model for performance with all independent knowledge sharing organization variables included explained 87.8% (adjusted $R^2 = 76.5\%$) of the variance in knowledge performance with seven significant predictors. The significant predictors, based on relative influence, were mission and strategy, management practices, organization structure, systems, organizational climate learning organization outcome and tacit and explicit knowledge. Only the factors which supported and were significant in standardized coefficients of independent variables in multiple regressions for performance are applied to the refining model.

Table 6.5 Standardized Coefficients for Independent Variables in Multiple Regressions for Performance

Variables	Standardized Beta	Conclusion
Leadership		Supported
Culture		Supported
Learning latitude		
Knowledge indeterminacy		
Organizational unity		
Mission and strategy		Supported and significant predictor
System thinking		
External monitoring	- 0.086 **	
Knowledge creation		
Management practices		Supported and significant predictor
Sharing support practices	0.095 **	
Sharing motivation practices		
Performance effectiveness practices		
Sharing advice practices		
Organization structure		Supported and significant predictor
Internal alignment	0.124 **	
Facilitative structures		
Systems	- 0.101 **	Supported and significant predictor
Organizational climate		Supported and significant predictor
Generative sharing climate	0.133 **	
Promotive interaction	- 0.213 **	
Motivation		Supported
Learning organization outcome		Supported and significant predictor
Experiential learning		
Team learning	0.180 **	
Generative learning	0.178 **	
Tacit & explicit knowledge		Supported and significant predictor
Documentation	0.098 **	
Dissemination		

*P< .05

**P< .01

6.3.3.2 Excluding the not significant structural paths

The three paths, knowledge sharing variables and performance (p -value = 0.445), learning outcomes and performance (p -value = 0.449) and tacit and explicit knowledge and performance (p -value = 0.507), were eliminated from the original model.

The newly modified conceptual model, which excluded the factor and which is not supported and significant, and two previously structural paths that were not significant (see Table 6.3), were tested with the purpose of assessing factor loadings and structural relationships as shown in Tables 6.6.

Table 6.6 AMOS Standardized Estimates for Refined Model (Bollen-stine’s bootstrap) Factor Loadings

Indicators	Knowledge sharing variables	Learning outcomes	Tacit and explicit knowledge	Performance
Mission and strategy	0.794***			
Management practices	0.811***			
Organization structure	0.824***			
Systems	0.781***			
Organization climate	0.704***			
Experiential learning		0.757***		
Team learning		0.783***		
Generative learning		0.745***		
Documentation			0.75***	
Dissemination			0.776***	
Financial performance				0.761***
Knowledge performance				0.589***

Table 6.7 AMOS Structural Relationship Coefficients: Redefined Model

Indicators	Learning Outcomes	Tacit and explicit Knowledge	Performance
Knowledge Sharing Variables	0.582***	0.956***	
Learning Outcomes			0.871***
Tacit and explicit Knowledge			

As in the previous model, all of the factor loadings were relatively high and homogeneous. Consequently, these structural coefficients or "influence" paths are conceptually strong and statistically significant.

The AMOS solution from this second step, as shown in Table 6.8, indicated that the redefined model has better fit than the initial model. When these fit statistics are considered together, the above results support the overall statistical and conceptual validity of the model.

Table 6.8 Goodness of Fit Statistics: Refined Structural Equation Model

Measurement	Abbreviation ^(a)	Conceptual framework model	Refined Model
Chi- square/df	CMIN/DF	3.230	2.138
Goodness of fit index	GFI	0.941	0.975
Root mean square error of approximation	RMSEA	0.076	0.054
Comparative fit index	CFI	0.941	0.975
Tucker-Lewis index or non-nomad fit index	TLI	0.926	0.968
Bollen-Stine <i>p</i> – value		0.005	0.055

CMIN/DF = 2.138 GFI = .957 RMSEA = .054 CFI = .975 TLI = .968

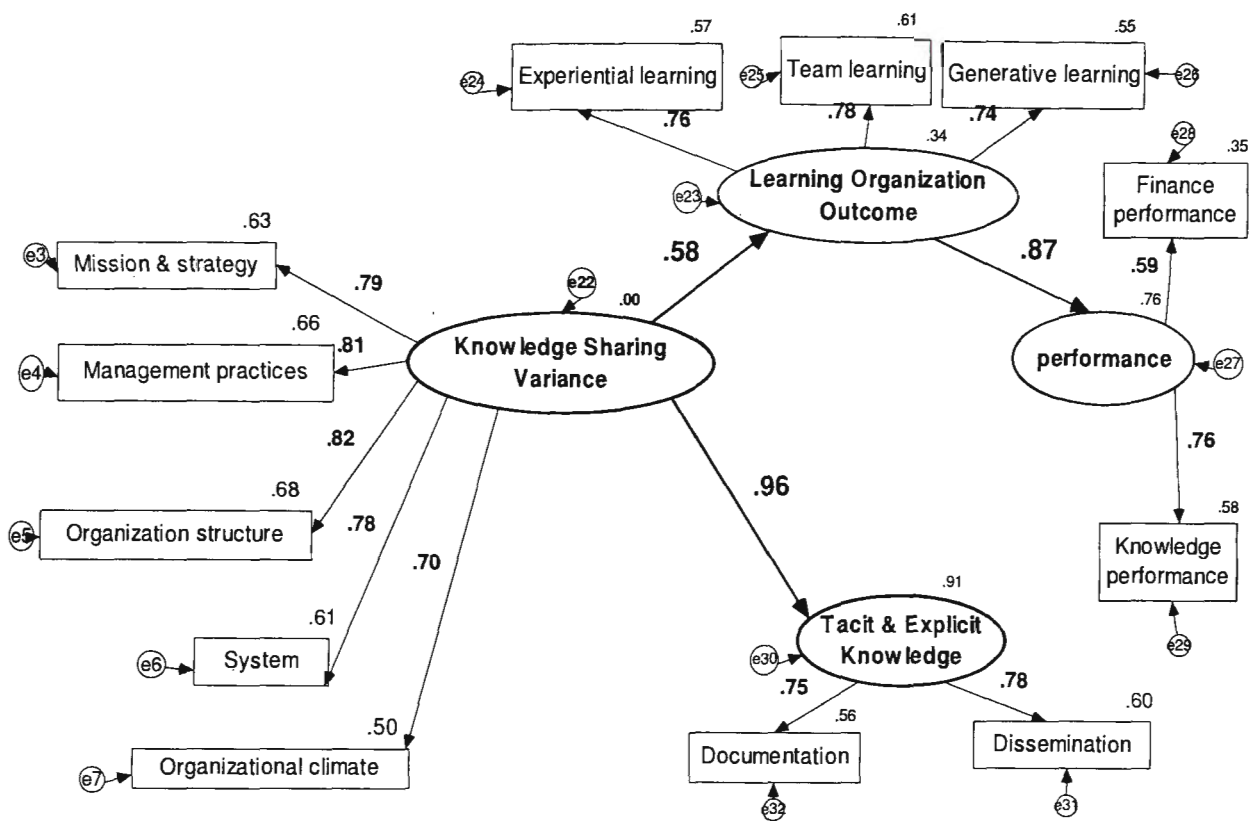


Figure 6.2 Refined Structural Equation Model

The results of the refined model are shown in Figure 6.2 and depict the factor loadings of the "learning organization variables" indicators; their values are high and homogeneous.

The significant predictors, based on the highest factor loading, were organization structure (loading = 0.82), management practices (loading = 0.81), mission and strategy (loading = 0.79), systems (loading = 0.78) and organizational climate (loading = 0.70). The results of the refined structural equation model are discussed in Chapter 7.

6.4 Summary

This chapter shows the results of the models presented in chapter 3. Structural equation modeling (SEM) was used to examine the knowledge sharing model in Thai organizations. The result from SEM showed that the refined model has a better fit than the first model. The variables that have a highly indirect effect on performance outcomes through learning organization variables are: organization structure and

management practices. This means that a focus on these variables by organizations may lead to improvements in their knowledge sharing significantly.

The next chapter will discuss the knowledge sharing variables and their relationship with the variance in learning organization outcomes, tacit and explicit knowledge and organization performance.

CHAPTER 7

IMPLICATION FOR MANAGEMENT PRACTICES, ORGANIZATIONAL LEARNING AND KNOWLEDGE SHARING IN THAILAND

7.1 Introduction

From the preceding Chapters this study demonstrates that there is a relationship between the eight *knowledge sharing variable* sets and *learning organization outcomes* including (1) experiential learning, (2) team learning and (3) generative learning, *tacit and explicit knowledge* including (4) documentation and (5) dissemination; and *organization performance* including (6) financial performance and (7) knowledge performance. Therefore, it is evident that eight categories of knowledge sharing variables contribute to the implementation of the learning organization in Thailand. Based on the findings described in Chapter 5 and the SEM model presented in Chapter 6, this chapter discusses each *knowledge sharing variable* and its relationship to the variance in *learning organization outcomes*, *tacit and explicit knowledge* and *organization performance*. Discussion will be based on the multiple regression analysis model and the structural equation model.

7.2 Knowledge Sharing and Experiential Learning

Pearson product-moment correlation coefficients between *experiential learning* and the eight *knowledge sharing variables* total scores showed that all variables were significantly correlated with experiential learning at the $p < .01$ level (see Table 5.35). The final multiple regression model explained 31.8% (adjusted $R^2 = 28.6\%$) of the variance in experiential learning. As shown in Table 5.37, hypothesis 1 was fully supported. Six hypotheses, 1a (*leadership*), 1b (*culture*) 1c (*mission and strategy*), 1d (*management practices*), 1f (*systems*) and 1g (*organizational climate*) and two hypotheses, 1e (*organization structure*) and 1h (*motivation*), were significant predictors of experiential learning.

Leadership was a significant predictor when first entered into the model but became a non-significant predictor with the addition of *management practices*. The regression model suggested several other partial and full mediation effects. The

effects of *culture* (organizational unity) were mediated by *mission and strategy*. A measure of *mission and strategy* (knowledge creation) was significant when entered into the model but became a non-significant predictor with the addition of management practices. The effect of *organization structure* (facilitative structure) appeared to be mediated by *organizational climate*, while a second measure of *organization structure* (facilitative structure) remained significant throughout the full model. The effect of *systems* was mediated with the addition of *organizational climate*. The final model for experiential learning had two significant sets of predictors: *organization structure* (facilitative structures) ($\beta = .175^*$) and motivation ($\beta = .282^{**}$) (see Figure 5.37).

As shown in Figure 5.37, *motivation* was found to have the most significant influence on *experiential learning*. *Motivation* is the second major organizational variable noted by Burke (1994). The first organizational variable in Burke's study was culture, reported to be the core component in transformational change. Motivation is thought to be the result of the dynamics originating from the transactional variables (Burke, W. & Litwin 1992). In reporting on the motivation literature, Hellriegel and Slocum (2004) stated that motivation is related to organizational effectiveness and to employee satisfaction. The cited measures of job satisfaction include interpersonal relations, group cohesiveness and task involvement. Innovative organizational climates were found to be related to task performance and to greater productivity (Frederickson 1996).

This finding reflects the fact that *motivation* in Thai organization can support members to share their knowledge. The application of *motivation* for Thai subordinates will be presented in section 7.9.3

In addition, *organization structure* especially facilitative structures play an important role in knowledge sharing. Thompson and Weiner (1996) claimed that facilitative structures in learning organizations are the ideal organizational tool for critical thinking and learning. Redding and Catalanello (1994) suggested that a suitable organization structure can support the learning organizational strategy development.

Furthermore, *organization structure* also added significantly to explaining the variance in *experiential learning*. Based on the in-depth interviews with executives and senior employees who participated in the present study, the sharing was most

evident during problem-solving episodes when the organization "got out of the way". This perception may have accounted for the influence of *motivation* and *organization structure* (specifically, facilitative structures) on *experiential learning*. *Organization structure* in Thai organizations is considered further in section 7.9.3

7.3 Knowledge Sharing and Team Learning

Pearson product-moment correlation coefficients between *team learning* and the eight *knowledge sharing variables* total scores showed that all variables were significantly correlated with *team learning* at the $p < .01$ level (see Table 5.38). The final model for *team learning* with all independent *knowledge sharing variables* added explained 38.9% (adjusted $R^2 = 36.1\%$) of the variance in *team learning* with five significant predictors.

As shown in Table 5.40, hypothesis 2 was fully supported. Three hypotheses 2b (*culture*), 2f (*systems*) and 2g (*organizational climate*) were supported. Five hypotheses: 2a (*leadership*), 2c (*mission and strategy*), 2d (*management practices*), 2e (*organization structure*) and 2h (*motivation*) were found as significant predictors of team learning.

Leadership was a significant predictor when first entered into the model and remained significant throughout the full model. The effects of *culture* (organizational unity and knowledge indeterminacy) were mediated by *mission and strategy*. Only one measure of *mission and strategy*, knowledge creation, was significant when entered into the model and remained significant throughout the full model. Also, a measure of *management practices* (sharing support practices) was significant when entered into the model and still remained significant throughout the full model. The effect of *organization structure* (facilitative structure) on *team learning* remained significant throughout the full model. The effect of *systems* was mediated with the addition of *organizational climate*. The significant predictors, based on relative influence, were *leadership* ($\beta = .144^*$), *knowledge creation* ($\beta = .188^{**}$), *sharing support practices* ($\beta = -.303^{**}$), *facilitative structures* ($\beta = .377^{**}$) and *motivation* ($\beta = .310^{**}$).

This mediation sequence suggests that for *team learning*, *leadership*, *mission and strategy*, *management practices*, *organization structure* and *motivation*, were

impacting Thai organization through sharing-related management practices.

The contribution of the variable *mission and strategy* came from measures of management sharing support practices. This positive finding related to management practices may be associated with the established use of *mission and strategy* within learning organizations in Thailand. Senior managers interviewed cited the use of *mission and strategy* as one of the learning practices already common in the organization. In this case, it may be that managers were familiar with their roles related to *mission and strategy* and to supporting sharing in teams.

It is interesting to note that the beta for *systems* had its greatest decrease (from 0.004 to - 0.110) with the addition of *organizational climate* to the regression model suggesting that *systems* might be partially mediated through *organizational climate*. It may be that for team learning, which Senge (1993) suggested involves management practices, social interaction and organization systems contribute to the exchange process, which is basic and essential to the process. Thus, a portion of *systems*' influence occurs by setting organizational climate conducive to team learning.

In context of the present study, *five knowledge sharing variables* (leadership, mission and strategy, management practices, organization structure and motivation) have significant predictors of *team learning*. Therefore, in agreement with the hypotheses of this study, questionnaire results have strongly confirmed that knowledge sharing can be achieved in Thai organization if managers aware about the five variables. Some practice in Thai culture will be developed in section 7.9.3

7.4 Knowledge Sharing and Generative Learning

Pearson product-moment correlation coefficients, between *generative learning* and the eight *knowledge sharing variables* total scores showed that all variables were significantly correlated with *generative learning* at the $p < .01$ (see Table 5.41). This relates to theory in that there are four processes commonly associated with organizational level sharing which includes: (1) information or knowledge acquisition; (2) distribution; (3) interpretation; and (4) memory and retrieval (Dixon 1999; Huber 1991; Kuchinke 1995; Slater & Narver 1995; West Daft & Huber 1987).

The final model for *generative learning* with all independent *knowledge sharing*

variables included explained 29.5% (adjusted $R^2 = 26.3\%$) of the variance in generative learning with six significant predictors. As shown in Table 5.42, hypothesis 3 was partially supported by 3a (*leadership*), 3b (*culture*), 3f (*systems*), 3g (*organizational climate*). Four hypotheses: 3c (*mission and strategy*), 3d (*management practices*), 3e (*organization structure*) and 3h (*motivation*) were found as significant predictors of *generative learning*.

Leadership became non-significant in the model. *Systems* also became non-significant with the addition of *organizational climate*. *Organizational climate* became non-significant with the addition of *motivation*. The significant predictors were *mission and strategy* (knowledge creation ($\beta = .223^{**}$)), *management practices* (sharing support practices ($\beta = -.203^*$), sharing motivation practices ($\beta = .189^*$)), *organization structure* (facilitative structures ($\beta = .227^{**}$)) and *motivation* ($\beta = .182^*$).

The set of organizational variables, which made significant contributions in the experiential and team learning models, also contributed to explaining variance in generative learning. These included: *mission and strategy*, *management practices*, *organization structure* and *motivation*. *Leadership* did not contribute to explaining variance in *generative learning* just as they did for *experiential learning*. It may be that *management practices*, which were supported by *leadership*, need to be developed so that managers and supervisors know what their roles are related to supporting *generative learning*.

The finding that *organizational climate* was not significant in explaining variance in *generative learning* seems contrary to learning organization theory. *Generative learning* is defined as the ability of an organization to share and to make core changes based on growth and new understandings that eliminate impediments to achieving organizational goals. It is important to keep in mind that the Thai learning organizations are highly hierarchy (see section 3.5). Change at the organizational level may not come as easily as in other types of organizations and it may actually deter generative learning, and in this study, the organizational climate may have been acting as a barrier to developing generative learning. It would be interesting to compare the potential for generative learning in regulated organizations, which are subject to the constraints of external controls, with that found in Thai organizations.

It is interesting to note that once again *organizational climate* did not contribute to

predicting learning outcomes. This may suggest the underdevelopment of *organizational climate* related to sharing in Thai business. It also raises an important question about the relationship of *organizational climate* to the knowledge sharing of an organization. The significant factors for Thai organizations are presented in section 7.9.3.

7.5 Knowledge Sharing and Documentation

Pearson product-moment correlation coefficients between *documentation* and the eight *knowledge sharing variables* and the three *learning outcomes* total scores showed that all variables were significantly correlated with *documentation* at the $p < .01$ level (see Table 5.44). The positive and significant relationships of the *eight knowledge sharing variables* and the *three learning outcomes* and the indicators of *tacit and explicit knowledge* (documentation and dissemination), strengthened the first part of the argument advanced in this study: the process of internal transfer of tacit and explicit knowledge is influenced by an organizational environment in which continuity of interaction, information redundancy and trust are fostered. The determinants of this environment were the eight *knowledge sharing variables* and the three *learning outcomes*. The process of *tacit and explicit knowledge* transfer was also assumed to have a direct influence on performance improvement.

The final model for documentation with all independent *knowledge sharing variables* and three *learning outcomes* included explained 48% (adjusted $R^2 = 45.2\%$) of the variance in *documentation* with five significant predictors. As shown in Table 5.46, hypothesis 4 was fully supported. The five hypotheses of 4a (*leadership*), 4b (*culture*), 4f (*systems*), 4g (*organizational climate*) and 4h (*motivation*), were supported and the four hypotheses of 4c (*mission and strategy*), 4d (*management practices*), 4e (*organization structure*) and 4i (*learning outcome*) were significant predictors of documentation.

Leadership and *culture* (organizational unity) were significant predictors when first entered into the model, but became non-significant predictors with the addition of *mission and strategy*. One measure of *mission and strategy*, knowledge creation, was significant throughout the full model. One measure of *management practices* (sharing support) was a significant predictor when entered into the model and significant throughout the full model. The effect of *organizational climate* on

documentation appeared to be mediated by *motivation*, while a measure of *organization structure (internal alignment)* remained significant throughout the full model. *Systems, organizational climate*, motivation and two learning outcomes (*experiential learning* and *generative learning*) were non-significant predictors. Only one measure of *learning outcomes (team learning)* was significant throughout the full model. The significant predictors, based on relative influence, were *mission and strategy (knowledge creation)* ($\beta = .355^{**}$), *management practices (sharing support practices)* ($\beta = -.165^{*}$), *organization structure (internal alignment)* ($\beta = -.164^{*}$) and *learning organization outcome (team learning)* ($\beta = .187^{**}$)

Four variables accounted for 48% of the total variance explained: *mission and strategy, management practices, organization structure* and *learning organization outcome*. In this model, management practices added significantly to explaining variance in documentation but accounted for only 1.5 percentage points of additional variance. While the literature suggests that management practices impact the process of knowledge sharing, the scale items were designed to top management practices related to sharing, not documentation

Mission and strategy (knowledge creation) showed the highest standardized coefficient at the full model. This finding is in harmony with the conceptual model and suggests that perhaps the strategic use of external monitoring has been emphasized in Thai organizations. As mentioned in section 3.5, Thai members expect to be told what to do by their leader. They accept a hierarchical order and value a strong leadership. As a result, a clear mission and strategy of their organization about knowledge sharing is one of the ways to achieve its goals.

The model hypothesized that sharing would have a significant incremental contribution to predicting *tacit and explicit knowledge*. While the model resulted in team learning being a significant predictor of *documentation* and adding to explaining variance in *documentation*, the additional variance explained was only 5.3%. However, four variables had notable changes in their betas (for instance, the beta for *mission and strategy (knowledge creation)* changed from .355 to .434, the beta for *management practices (sharing support practices)* changed from .164 to .165 and the beta for *organization structure (internal alignment)* changed from .079 to .164), suggesting that their effects were mediated by sharing. A measure of *motivation* became a non-significant predictor with the addition of *learning*, suggesting full

mediation. Thus, the *knowledge sharing* variables were important in explaining the potential causal paths, but not as much in predicting *documentation*.

Duncan and Weiss (1979) claim that an individual brings change in the private or non-communicable knowledge of an individual. This type of knowledge is called tacit and explicit knowledge. They state that organizational learning is limited to public knowledge that is socially defined and available to every member of the organization. This is explicit knowledge. Organizational sharing occurs in a social context. This importance is captured in the weight that Senge (1990) places on the role of team learning in a learning organization. According to this study, *generative sharing* was not significant both in *documentation* and *dissemination*. The beta on *team learning* was higher than the beta of *experiential learning* on both transfers of *tacit and explicit knowledge*. Thus, the evidence confirmed the role of sharing, especially *team learning*, in knowledge transfer.

This suggests that some aspects of an organization support transfer of *tacit and explicit knowledge* as *documentation* through sharing. While sharing is important for all organizations, it may be especially important in organizations where change and knowledge transfer are desired organizational goals. The sharing literature talks about the importance of instability in the environment as a driving force for sharing, and the importance of sharing to an organization's ability to change and keep pace with the changing requirements of the work environment. It is essential to keep in mind that all documentations are not necessarily effective. It seems logical to conclude that it is important for both effective and efficient organizational performance that *documentation* be based on a knowledge foundation.

More specific solutions for implement the factors in Thai organizations will be presented in section 7.9.3.

7.6 Knowledge Sharing and Dissemination

Pearson product-moment correlation coefficients between dissemination, and the eight *knowledge sharing organization variables*, and the *three learning outcomes* total scores showed that all variables were significantly correlated with *dissemination* at the $p < .01$ (see Table 5.47).

The final model for *dissemination* with all independent learning organization variables included explained 69.8% (adjusted $R^2 = 68.1\%$) of the variance in dissemination with eight significant predictors. As shown in Table 5.49, hypothesis 5 was fully supported. The four hypotheses of 5a (*leadership*), 5c (*mission and strategy*), 5d (*management practices*) and 5e (*organization structure*), were supported and the five hypotheses of 5b (*culture*), 5f (*systems*), 5g (*organizational climate*), 5h (*motivation*) and 5i (*learning organization outcome*) were significant predictors of dissemination.

Leadership was a significant predictor when first entered into the model but became a non-significant predictor with the addition of *management practices*. Two measures of *culture* (knowledge indeterminacy and organizational unity) were significant throughout the full model while measures of *mission and strategy* appeared to be mediated by *organization structure*. One measure of *management practices* (performance effectiveness practices) was a significant predictor when entered into the model but became non-significant with the addition of *organization structure*. The effect of *organization structure* (internal alignment) and the measure of *organization structure* on *dissemination* appeared to be mediated by *systems*. *Systems*, *organizational climate*, *motivation* and one *learning outcomes* (generative learning), were significant throughout the full model. The significant predictors, based on relative influence, were *knowledge indeterminacy* ($\beta = -.104^*$), *organizational unity* ($\beta = .157^{**}$), *systems* ($\beta = .289^{**}$), *promotive interaction* ($\beta = .146^*$), *motivation* ($\beta = .295^{**}$) and *generative learning* ($\beta = .124^{**}$).

The highest standardized coefficient from the full model was *motivation*. Sharing is critical to the organization's success. Moreover, knowledge sharing still creates open channels of communication and encourages dialogue to collect and disseminate input from staff, not just a select few. It makes organization information from competitive intelligence to the tacit and explicit knowledge of skilled workers available

to everyone, so their jobs can be executed more effectively. Knowledge can be captured, shared and converted into an asset in the form of documents, systems, processes, templates, databanks and more. We can then use knowledge to improve performance (Barchan 1999). As (Watkins, K.E. & Marsick 1993, p. 183) noted: "Inquiry is a dialogue in which people mutually explore ideas, questions, and potential actions. It takes place through talk...talk reflects the way individuals think and is a key to learning through interaction with one another" In order to meet this concept motivation from the management should be developed (Ahmed, Loh & Zairi 1999; Ardichvili 2008; Argyris, Chris 1999; Barren & John 1997; Bersin 2008).

The second highest standardized coefficient from the full model is *systems*. It alludes to the *systems* that are needed for knowledge sharing. These can be "no technology" or "high technology" *systems*, and they do not necessarily have to be linked to information management technology. Some organizations share and discuss ideas and information through "no technology" channels of dissemination such as informal gatherings, regular meetings, presentations and group discussion. In addition, other organizations count on "high technology" channels. According to Marsick and Watkins (1996), learning occurs when ideas and information are accessible to individuals across the organization that can share, discuss and use them, constructing new knowledge in the process. Technology becomes a tool enabling the organization to capture the learning that occurs and share it with others.

The third highest standardized coefficient from the full model was *culture*. It was hypothesized that sharing would have a significant incremental contribution to predicting *tacit and explicit knowledge*. While the model resulted in both *experiential learning and team learning* being significant predictors of *dissemination* and adding to the explanation of variance in *dissemination*, the additional variance explained was only 2.0%. However, five variables had notable changes in their betas (for instance, the beta for *organizational climate* (promotive interaction) changed from .321 to .146), suggesting that their effects were mediated by sharing. Thus, the sharing variables were important in explaining the potential causal paths, but not as much in predicting *dissemination*. This suggests that some aspects of organization support *dissemination* through sharing. It seems logical to conclude that it is important for both effective and efficient organizational performance that dissemination of tacit and explicit knowledge be based on a knowledge sharing foundation.

Three variables accounted for 43.9% of the total variance explained: *leadership*,

culture, and mission and strategy. In this model, *management practices* added significantly to explaining variance in *dissemination* but accounted for only 4.4 percentage points of additional variance. While the literature suggests that *management practices* impact the process of knowledge transfer, the scale items were designed to top management practices related to learning, not *dissemination*.

7.7 Knowledge Sharing and Financial Performance

Pearson product-moment correlation coefficients between *financial performance*, and the eight knowledge sharing variables and the three learning outcomes total scores showed that all variables were significantly correlated with *financial performance* at the $p < .01$ (see Table 5.50).

The final model for financial performance with all independent knowledge sharing variables included explained 33.6% (adjusted $R^2 = 32.7\%$) of the variance in *financial performance* with three significant predictors. As shown in Table 5.52, hypothesis 6 was fully supported. Eight hypotheses of 6a (*leadership*), 6b (*culture*), 6c (*mission and strategy*), 6d (*management practices*) 6e (*organization structure*), 6f (*systems*), 6h (*motivation*) and 6j (*tacit and explicit knowledge*) were supported and two hypotheses of 6g (*organizational climate*) and 6i (*learning organization outcome*) were also significant predictors of *financial performance*.

Leadership was significant when first entered into the model but became a non-significant predictor with the addition of *organizational climate*. The effect of leadership appeared to be partially mediated by *organizational climate*. The effect of *culture* (organizational unity) on *financial performance* appeared to be mediated by *organizational climate* and *tacit and explicit knowledge*. The effect of *mission and strategy* (knowledge creation) on *financial performance* appeared to be mediated by *tacit and explicit knowledge*. A measure of *management practices* (sharing support) was a significant predictor when entered into the model, but became a non-significant predictor with the addition of *organizational climate*. A measure of *organizational climate* (promotive interaction) was a significant predictor when first entered into the model and was significant throughout the full model. The significant predictors, based on relative influence were *organizational climate* (promotive interaction) ($\beta = .252^{**}$) and *learning organization outcome* (experiential learning) ($\beta = .134^{*}$) and *generative learning* ($\beta = .313^{**}$).

Although the conceptual model based on Kaiser and Holton (1997) proposed in this study did not suggest a direct relationship between the eight *knowledge sharing variables* and the three *learning outcomes* and *performance*, it was decided to put this forward in order to generate some of the necessary evidence to substantiate the postulated claim that the influence of the eight *knowledge sharing variables* and three *learning outcomes* on *performance* is ultimately mediated by the transfer of *tacit and explicit knowledge*. However, hypothesis 7 showed that the influence of the eight *knowledge sharing variables* and three *learning outcomes* on *performance* was partly mediated by the transfer of *tacit and explicit knowledge*. Moreover, for hypothesis 6, the findings showed a frail composite linear relationship between *financial performance* with the addition of the two independent variables *dissemination and documentation*. A structural equation modeling approach (in hypothesis 8) was adopted to prove the conceptual model and the redefined model confirmed the conceptual model.

Leadership, culture, and mission and strategy are considered transformational variables in the Burke and Litwin model, and are thought to be influenced by the organization's external environment. The remaining organizational variables that contribute to *performance* (management practices, systems, organizational climate and motivation) are described as transactional variables and focus more on the short-term work-related exchanges between organizational members. It seems logical that variables described as transactional and thought to be more closely linked to the environment would influence the organization's performance. The ability of an organization to understand its environment typically depends on the information received through the experiences of persons in boundary spanning positions.

7.8 Knowledge Sharing and Knowledge Performance

Pearson product-moment correlation coefficients between *knowledge performance*, and the eight *knowledge sharing variables* and the three learning outcomes, total scores showed that all variables were significantly correlated with *knowledge performance* at the $p < .01$ (see Table 5.53).

The final model for *knowledge performance* with all independent *knowledge sharing variables* included explained 51.2% (adjusted $R^2 = 48.2\%$) of the variance in *knowledge performance* with nine significant predictors. As shown in Table 5.55,

hypothesis 7 was fully supported. The three hypotheses of 7a (*leadership*), 7d (*management practices*) and 7h (*motivation*) were supported, and the seven hypotheses of 7b (*culture*), 7c (*mission and strategy*), 7e (*organization structure*) and 7f (*systems*), 7g (*organizational climate*), 7i (*learning organization outcome*), 7j (*tacit and explicit knowledge*) were also significant predictors of *knowledge performance*.

Leadership was a significant predictor when first entered into the model but became a non-significant predictor with the addition of *learning organization outcome*. The effect of *culture* (organizational unity), *mission and strategy* (system thinking) was a significant predictor when first entered into the model and significant throughout the full model. Two measures of *management practices* (sharing supportive practices and sharing advice) were significant predictors when entered into the model but became non-significant with the addition of *learning organization outcome* and *organization structure*. The other variables such as *systems*, *organizational climate* (promotive interactive), *team learning* and *dissemination* were significant throughout the full model. The significant predictors, based on relative influence, were *culture* (organizational unity) ($\beta = .144^*$), *mission and strategy* (system thinking) ($\beta = -.266^{**}$), *organization structure* (internal alignment) ($\beta = .204^*$), *systems* ($\beta = -.210^*$) *organizational climate* (generative sharing climate) ($\beta = .165^*$) and *promotive interaction* ($\beta = -.203^{**}$) and *learning organization outcome* (team learning) ($\beta = .261^{**}$) and generative learning ($\beta = .391^{**}$)

In this study, the importance of *team learning* in predicting knowledge performance was demonstrated. This finding supports the concept that "team learning is the ability of members to share and build on their individual knowledge so that their collective knowledge enables them to continually improve team and organizational performance" (D'Andrea, O'Brien & Buono 1996, p. 7). Senge (1994, p. 187), for example, emphasizes: "Teams, not individuals, are the fundamental learning unit in modern organizations. This is where 'the rubber meets the road; unless teams can learn, the organization cannot learn'".

There was little empirical evidence on the importance of transfer of *tacit and explicit knowledge* and *knowledge performance*. However, Hernandez's (2000) dissertation study on the impact of the dimensions of the learning organization on the transfer of process and performance improvement within private manufacturing firms in

Colombia fully supported the finding.

At the final stage, another seven variables, *culture*, *mission and strategy*, *organization structure*, *systems*, *organizational climate*, *learning organization outcome* and *tacit and explicit knowledge* were also significant predictors of *knowledge performance*. In the Burke and Litwin model, *management practices*, *organization structure*, *systems*, *organizational climate* and *motivation* that contribute to *performance* are described as transactional variables and focus more on the short-term work-related exchanges between organizational members.

The significant factors from regression analysis will be compared with structural equation modeling and presented some guideline for adaptation in Thai organizations in section 7.9.3.

7.9 Summary and Findings

7.9.1 Summary of the Regression Models

The *organization structure* variable significantly contributed to explaining variance in the dependent variable in five multiple regression models. *Mission and strategy* contributed to explaining variance in the dependent variable in four multiple regression models. *Management practices* and *organizational climate* contributed to explaining variance in the dependent variable in three multiple regression models, while *culture* and *systems* contributed to explaining variance in the dependent variable in two multiple regression models. *Learning outcome* contributed to explaining variance in *tacit and explicit knowledge*, *financial performance* and *knowledge performance*. *Tacit and explicit knowledge* contributed to explaining variance only in *knowledge performance*. Finally, while the results of the multiple regression analyses may have provided support for some of the relationships suggested by the literature, the results cannot be interpreted as failing to support the theory.

7.9.2 Summary of Structural Equation Modeling (SEM) for Knowledge Sharing in Thai Organizations

A structural equation modeling approach was adopted with the latent construct

"*knowledge sharing variables*," which was identified by all seventeen independent variables from *leadership* (v1), *culture* (v2), *mission and strategy* (v3), *management practices* (v4), *organization structure* (v5), *systems* (v6), *organizational climate* (v7), and *motivation* (v8). The latent construct "*learning organization outcomes*" was identified by the three learning dependent variables: *experiential learning* (o1), *team learning* (o2) and *generative learning* (o3). The latent construct "*tacit and explicit knowledge*" was identified by the two *tacit and explicit knowledge* dependent variables: *documentation* (D1), and *dissemination* (D2). The latent construct "*performance improvement*" was identified by *financial performance* (P1) and *knowledge performance* (P2).

A three-step procedure was followed to assess the structural relationships or "influences" stated in the research questions and to refine the model in order to attain acceptable fit results.

The results of the refined model shown in Figure 6.2 depict the factor loadings of the "*knowledge sharing variables*" indicators; their values are high and homogeneous. The significant predictors, based on the highest factor loading, were *organization structure* (loading = 0.82), *management practices* (loading = 0.81), *mission and strategy* (loading = 0.79), *systems* (loading = 0.78) and *organizational climate* (loading = 0.70).

From the results, it was shown that '*organizational structure*' is crucial to success in the implementation of a knowledge sharing in Thai organization. This finding was one more empirical endorsement of the following statement: "The values of organizational structure, strategy values are often espoused but seldom practiced. Those who would build learning organizations find that they must make these values real." (Watkins, K.E. et al. 1997, p. 204). As shown in Figure 6.2, *organization structure* was found as having the most significant influence on experiential learning. Organization structure is the second major organizational variable noted by Burke (1994). *Organization structure* is thought to be the result of the dynamics originating from the transactional variables (Burke, W. & Litwin 1992). *Organization structure* and *management practices* played a big role in knowledge sharing in Thai organizations because, after the economic crisis, Thai firms much more concerned organization structure that could be used to improve their decision-making. Moreover, most organizations try to develop organization structure in order to support their staff for learning about external factors that could affect their organization.

In reporting on the organization structure literature, Hellriegel and Slocum (2004) stated that research has demonstrated that organization structure is related to organizational effectiveness and to employee satisfaction. The cited measures of job satisfaction include interpersonal relations, group cohesiveness and task involvement. Innovative organization structure were found to be related to task performance and greater productivity (Frederickson 1996).

In addition, the fact that all measures of *management practices* (loading=0.81), was significant to knowledge sharing is supported in the literature. The learning organization literature suggests that *management practices* should have an influential role in knowledge sharing (Addleson 2000; Barren & John 1997; Bennett, J.K. & O'Brien 1994; Bhatt 2000; DiBella, A. 1997; Dixon 1999; Garvin, D.A. 1993; Hitt 1996; Jones & Hendry 1994; Liebowitz 2000; McGill, Slocum & Lei 1992; O'Brien 1994; Senge 1990; Simon & Rugchart 2003; Watkins, E & Marsick 1992).

Furthermore, *mission and strategy* also added significantly to explaining the variance in knowledge sharing. Based on the in-depth interviews with executives and senior employees who participated in this study, this learning was most evident during problem-solving episodes when the organization "got out of the way". This perception may have accounted for the influence of *mission and strategy* on knowledge sharing.

In addition, *systems* had also played an important role in knowledge sharing because Thai employee always encourage to concerned dealing with external information and to find success and innovations so the efficiency information system can support this issue. Thompson and Weiner (1996) claimed that both goals and the information system to attain those goals must be aligned. They viewed the information system as the ideal organizational tool for critical thinking and learning about goal attainment. Redding and Catalanello (1994) suggested that in a learning organization information system can supports strategic action is not fixed in time, but has the added dimension of reflection, which enables continuous development.

Very few theories or findings exist on the relationship between the learning organization environment, learning outcomes, the transfer of tacit and explicit knowledge process, and performance improvement, as proposed in the present study. However, certain alternative theories provided a rationale for expecting such a relationship. Particularly, within the organizational learning perspective, the internal transfer of tacit and explicit knowledge has been analyzed in terms of actions taken

by individuals or organizations, and a sequence of events that identify how the process of mobilizing knowledge develops over time (Belasen 2000; Easterby-Smith, Araujo & Burgoyne 1999; Garvin, David A. 2000; Gould & Baldwin 2004; Itami, Hiroyuki & Roehl 1987; Kumar & Phrommathed 2005; Senge 1990, 1994; Watkins, K.E. & Marsick 1996).

In the structural model, the relationships among the knowledge sharing environment, *learning outcomes* and *tacit and explicit knowledge* transfer was shown to be statistically significant. The relationship between tacit and explicit knowledge transfer and performance improvement was also shown to be statistically significant. In the measurement model, *mission and strategy*, *management practices*, *organization structure*, *systems*, *organizational climate*, *experiential learning*, *team learning*, *generative learning*, *documentation*, *dissemination*, *financial performance* and *knowledge performance* were shown to be statistically significant indicators of their respective latent constructs. When put all together, the inference is that the process of internal transfer of *tacit and explicit knowledge* is determined by these *knowledge sharing variables* and *learning outcomes* and that this process has a direct influence on both *financial and knowledge performance*. Existing concepts relating to the issues treated herein are based primarily on case studies and anecdotal evidence from individual companies. In contrast, the results of this study represent one of the first attempts at empirical validation of key causal linkages in a knowledge sharing environment.

7.9.3 Implications for efficient knowledge sharing model for the implementation of learning organization in Thailand

The application of both regression analysis and structural equation modeling methods helped to identify commonalities across research findings on a suitable knowledge sharing model for the implementation of the LO in Thailand.

For the regression analysis, the knowledge sharing variables were supported and significant predictors of knowledge performance were *culture*, *mission and strategy*, *organization structure*, *systems*, *organizational climate*, *learning organization outcome* and *tacit and explicit knowledge* (see Table 5.55)

In the refined structural equation model, the knowledge sharing variables which supported and significance were *mission and strategy*, *management practices*,

organization structure, systems and organizational climate (see Figure 6.2).

The result of both methods is compare in Table 7.1. The practical implications of the findings are discussed following.

Table 7.1 The comparison of knowledge sharing variables between regression coefficients analysis and structural equation model

Knowledge Sharing Variables	Regression analysis	Structural equation model
(V1)Leadership		
(V2) Culture	√	
(V3) Mission and strategy	√	√
(V4) Management practices		√
(V5) Organization structure	√	√
(V6) Systems	√	√
(V7) Organizational climate	√	√
(V8) Motivation		

Mission and strategy, Organization structure, Systems, Organizational climate and Motivation were seen as positive factors that influence knowledge sharing in this study. All variables are significant predictors of LO outcomes in the regression analysis and the refined structural equation model.

Mission and strategy

Results of this study have confirmed that *mission and strategy* is significant for the managers intended to develop knowledge sharing in Thai local culture. The Qualitative In-depth Interview Data Analysis in section 5.2.2.1 (see table 5.6-5.8) presented that the Interviewees from Thai originations believe that the ways for increase knowledge sharing by develop mission and strategy are;

- giving change for the members to develop the strategic plans;
- including developing new products / services in the business plans;

- looking around the organization to find examples of knowledge sharing.

Organization structure

In Thai organization, *organization structure* has significant role for developing knowledge sharing. The Interviewees from Thai originations in the Qualitative In-depth Interview Data Analysis in section 5.2.2.1 (see table 5.13-5.14) mentioned that the suitable or organization structure for knowledge sharing should have the different functions in the organization work well together to help members be more competitive and helps members to share and keep in touch with the right people.

Systems

The next factors which significant for develop knowledge sharing in Thai organization are *systems*. The Qualitative In-depth Interview Data Analysis in section 5.2.2.1 (see table 5.15) presented that the Thai manager believe that *systems* can increase knowledge sharing by developing;

- the standards of measurement for the information system
- the good standard for the information system which easy to access
- the systems which help members to share their knowledge.

Organizational climate

Organizational climate also is a significant factor for developing knowledge sharing in Thai culture. The Interviewees from Thai originations in the Qualitative In-depth Interview Data Analysis in section 5.2.2.1 (see table 5.16-5.17). The appropriate climate which encourage members to share their knowledge are encouraging members to explore the reasons behind the unexpected and having enough equipment for doing the work.

Motivation

One important factor which has significant with knowledge sharing factor is *motivation*. In-depth Interview Data Analysis in section 5.2.2.1 (see table 5.18) presented that Managers in Thai originations believe that the best ways for motivation members to share their knowledge is supporting members to try to work for the best situation in crisis.

7.10 Summary

This chapter discussed each knowledge sharing variable and its relationship with the variance in learning organization outcomes, tacit and explicit knowledge and organization performance. Discussion was based on a multiple regressions analysis model and structural equation model. The key findings of the chapter were:

1) the knowledge sharing variables were supported and significant predictors of knowledge performance in the regression analysis, were *culture, mission and strategy, organization structure, systems, organizational climate, learning organization outcome* and *tacit and explicit knowledge*;

2) the knowledge sharing variables which were supported and were found significant in the structural equation modeling model were *mission and strategy, management practices, organization structure, systems and organizational climate*;

3) the variables which were significant predictors of LO outcomes in the regression analysis and the refined structural equation model were *Mission and strategy, Organization structure, Systems, Organizational climate* and *Motivation*.

The next, final chapter will restate the purpose of the study, summarize the overview of this research study, present key findings and provide a discussion of the results. Strategies for building knowledge sharing in Thai organizations will be offered, along with recommendations for future research.

CHAPTER 8

SUMMARY, FINDINGS AND CONCLUSION

8.1 Introduction

For the purpose of developing a knowledge sharing model for the implementation of the learning organization in Thailand, this chapter summarizes the results according to the objectives, scope of the study, research methodology, hypothesis development, model building and strategies for building knowledge sharing in Thai organizations. Significance of the research is offered, along with limitations and future research is also discussed.

8.2 Overview of the Study

This study was undertaken to develop a knowledge sharing model for the implementation of the learning organization in Thailand. This research empirically examined the hypothesized influence of organizational factors on the learning outcomes and performance drivers as described in the learning organization literature. More specifically, the study examined the effects of *leadership, culture, mission and strategy, management, organization structure, systems, organizational climate, and motivation* on knowledge sharing, *tacit and explicit knowledge* (process to transfer), and *performance* in Thai organizations.

Seven hypotheses with eight *knowledge sharing variables* (variable sets) were analyzed in an attempt to explain the variance of the following *learning organization outcomes* comprising: (1) experiential learning, (2) team learning and (3) generative learning; *tacit and explicit knowledge* including (4) documentation and (5) dissemination; and *organization performance* including (6) financial performance and (7) knowledge performance. For hypotheses 4 and 5, multiple regression analyses were run as the variable set for *learning outcomes* was entered after the above listed independent variables. Finally, for the last two hypotheses (6 and 7), another two multiple regression analyses were run as the variable sets for *learning outcomes* and *tacit and explicit knowledge* were also entered after the above listed independent variables. For the last (8) hypothesis, structure equation modeling (SEM) was used in an attempt to confirm the theory of the conceptual framework. Chapter 4 detailed

these elements in a discussion of the methodology used for this thesis and they were analyzed and discussed in Chapters 6 and 7.

8.3 Research Methodology

Both quantitative and qualitative research approaches (Chapter 4) were used to develop a knowledge sharing model for the implementation of the learning organization in Thailand. In order to increase the depth of understanding of the current scenario of the knowledge sharing in Thai organizations and to develop a questionnaire for this research, qualitative research was used as it was argued to provide a means of gaining access to unquantifiable facts.

The quantitative part of the study also involved the collection of data from the organizations in Thailand in order to test the hypotheses and develop a model. Das (1983) pointed out that organizational phenomena could not be validly measured without using quantitative methods. By using the quantitative research method in conjunction with the qualitative method, the depth of understanding of the developing a knowledge sharing model for the implementation of the learning organization in Thailand was increased.

This study involved a two-phase data collection method including a qualitative phase and a quantitative phase. Primary data were collected in both phases. In the qualitative stage, the case study method was used and in-depth interviews were conducted among the six organizations in Thailand utilizing a structured questionnaire. Top and middle managers were interviewed in the in-depth interviews.

For the quantitative stage, in order to collect data from many respondents, a survey method was used and a reliability analysis was conducted. Chapter 4 reported that the results confirmed that the scales used for data collection in this study were reliable for use in Thailand. The survey questionnaire was pre-tested in Bangkok (Thailand) and refined before it was declared ready to use for the data collection.

The population of this study was the organizations which have adopted learning organization theory and knowledge sharing processes in Thailand. The sample size of this study was 222 Thai organizations selected from the population. Those numbers are based on the table of sample size for specified confidence limits and

precision of Yamane calculation with a 5% error (Yamane 1973). A random sampling process was applied in this study to draw a probability sample. The process allows each unit of the population to have an equal chance of being selected in the sample (Wellington & Szczerbinski 2007). The 503 organizations were sent a questionnaire to complete. A total number of 386 usable questionnaires were received, giving a response rate of 64.33 %.

Quantitative analysis was used to identify the various dimensions of learning organization and organization characteristics in the organizations' performance in different ways. Therefore the statistical methods such as person correlation, multiple regression analysis were employed to study the relationships among each independent and dependent factor.

In order to test the hypotheses of the study, a multiple regression analysis was used to test the hypotheses and the outcomes. Structural equation modeling (SEM) was used to provide parameter estimates for relationships among unobserved variables. The application of both qualitative and quantitative data analysis methods helped to identify commonalities across research findings on a suitable knowledge sharing model for the implementation of the learning organization in Thailand.

The next section summarizes the main findings from the research before moving to discuss the implications of the findings.

8.4 Hypothesis Development and Model Building

The following hypotheses were tested in this research in order to answer the four research questions.

Research Question #1

To what extent do the *knowledge sharing variables* such as leadership, culture, mission and strategy, management practices, structure, systems, organizational climate and motivation, explain a significant portion of the variance in *learning organization outcomes* as experiential learning, team learning and generative learning of Thai organizations?

H1 The knowledge sharing variables explain a significant portion of the variance in experiential learning.

The final model for experiential learning with all independent knowledge sharing variables explained 31.8% (adjusted $R^2 = 28.6\%$) of the variance in experiential learning (see Chapter 5).

Hypothesis 1 was fully supported. Six variables (*leadership, culture, mission and strategy, management practices, systems and organizational climate*) were supported and two variables (*organization structure and Motivation*) were significant predictors of experiential learning.

H2 The knowledge sharing variables explain a significant portion of the variance in team learning.

The final model for *team learning* with all independent *knowledge sharing variables* included explained 38.9% (adjusted $R^2 = 36.1\%$) of the variance in *team learning* with five significant predictors (see Chapter 5).

Hypothesis 2 was fully supported. Three variables (*culture, systems, organizational climate*) were supported. Five variables (*leadership, mission and strategy, management practices, organization structure and motivation*) were found as significant predictors of *team learning*.

H3 The knowledge sharing variables explain a significant portion of the variance in generative learning.

The final model for generative learning with all independent *knowledge sharing variables* included explained 29.5% (adjusted $R^2 = 26.3\%$) of the variance in generative learning with five significant predictors (see Chapter 5).

Hypothesis 3 was fully supported. Four variables (*leadership, culture, systems, and organizational climate*) were supported. Four variables (*mission and strategy, management practices, organization structure and motivation*) were found as significant predictors of *generative learning*.

Research Question #2

To what extent do the *knowledge sharing variables* and *learning outcomes* explain a significant portion of the variance in *tacit and explicit knowledge* of Thai organizations?

H4 The knowledge sharing variables and learning organization outcomes explain a significant portion of the variance in documentation.

The final model for documentation with all independent *knowledge sharing variables* and *learning outcomes* included explained 48% (adjusted $R^2 = 45.2\%$) of the variance in *documentation* with four significant predictors (see Chapter 5).

Hypothesis 4 was fully supported. The five variables (*leadership, culture, systems, organizational climate and motivation*) were supported and the four variables (*mission and strategy, management practices, organization structure and learning outcome*) were significant predictors of *documentation*.

H5 The knowledge sharing variables and outcomes explain a significant portion of the variance in dissemination.

The final model for dissemination with all independent *knowledge sharing variables* and *learning outcomes* included explained 69.8% (adjusted $R^2 = 68.1\%$) of the variance in *dissemination* with six significant predictors (see Chapter 5).

Hypothesis 5 was fully supported. The four variables (*leadership, mission and strategy, management practices and organization structure*) were supported and the five variables (*culture, systems, organizational climate, motivation and learning organization outcome*) were significant predictors of *dissemination*.

Research Question #3

To what extent do the *knowledge sharing variables, learning outcomes* and *tacit and explicit knowledge* explain a significant portion of the variance in *finance and knowledge performance* improvement as financial and competitive advantage of Thai organizations?

H6 The knowledge sharing variables, learning organization outcomes and tacit and explicit knowledge explain a significant portion of the variance in financial performance improvement.

The final model for *financial performance* with all independent *knowledge sharing variables, learning outcomes and tacit and explicit knowledge* included explained 33.6% (adjusted $R^2 = 32.7\%$) of the variance in *financial performance* with three significant predictors (see Chapter 5).

Hypothesis 6 was fully supported. Eight variables (*leadership, culture, mission and strategy, management practices, organization structure, systems, motivation, tacit and explicit knowledge*) were supported, and two variables (*organizational climate and learning organization outcome*) were also significant predictors of *financial performance*.

H7 The knowledge sharing variables, outcomes and tacit and explicit knowledge explain a significant portion of the variance in knowledge performance improvement.

The final model for *knowledge performance* with all independent *knowledge sharing organization variables* included explained 51.2% (adjusted $R^2 = 48.2\%$) of the variance in *knowledge performance* with nine significant predictors (see Chapter 5).

Hypothesis 7 was fully supported. The three variables of (*leadership, management practices, motivation*) were supported and the seven variables (*culture, mission and strategy, organization structure, systems, organizational climate, learning organization outcome and tacit and explicit knowledge*) were also significant predictors of *knowledge performance*.

Research Question #4

To what extent are the *learning outcomes and tacit and explicit knowledge* influenced by *knowledge sharing variables* and to what extent does this process in turn influence performance improvement as depicted in the conceptual model?

H8 The learning outcomes and tacit and explicit knowledge are influenced by knowledge sharing variables and this process in turn does influence finance and knowledge performance improvement as depicted in the conceptual model.

The results of the refined model depict the factor loadings of the "*learning organization variables*" indicators; their values are high and homogeneous. The significant predictors, based on the highest factor loading, were *organization structure* (loading = 0.82), *management practices* (loading = 0.81), *mission and strategy* (loading = 0.79), *systems* (loading = 0.78) and *organizational climate* (loading = 0.70) (see Chapter 6).

8.5 Strategies for Building Knowledge Sharing in Thai Organizations

The results from this research display a range of important factors necessary to develop knowledge sharing activity for the implementation of the learning organization in Thailand as discussed in Chapter 8

In the regression analysis, the knowledge sharing variables were supported and significant predictors of knowledge performance were *culture, mission and strategy, organization structure, systems, organizational climate, learning organization outcome* and *tacit and explicit knowledge* (see Table 5.55). The refined structural equation model, the *knowledge sharing variables* which supported and were applied significant in the structural equation modeling model were *mission and strategy, management practices, organization structure, systems* and *organizational climate* (see Figure 6.2). Four variables, *Mission and strategy, Organization structure, Systems, Organizational climate* and *Motivation*, were seen to be positive factors that *influence knowledge sharing* in this study. These are now considered in light of Thai learning organizations.

Mission and strategy

Results of this study have confirmed that *mission and strategy* is a significant variable for the managers intending to develop knowledge sharing in Thai local culture. The ways in which managers can use this information to increase knowledge

sharing in Thai organization by developing *mission and strategy* include providing opportunities for organizational members to develop strategic plans; including organizational members in developing new products and services for the business; and looking around the organization to find examples of knowledge sharing which they can profile and replicate as good practice.

Organization structure

Organization structure has significant role for developing knowledge sharing. In building a knowledge based view of the organization, organizational structures which enable the ready transfer of tacit to explicit knowledge are those which enable the development of a LO. In other words structures which are flexible enough to allow individuals in organizations to work and talk to each other, are not unduly rule-bound and allow to some extent that power is distributed more evenly than traditionally hierarchical organizations. As discussed in earlier sections, such an arrangement is likely to be challenging to managers in Thai organizational cultures which are strongly hierarchical.

Systems

The next factor which is significant for developing knowledge sharing in Thai organization is the *systems* variable. Managers can increase knowledge sharing by developing their systems by focusing on environmental matters (structure and climate for instance) and matters to do with standards of work performance such as:

- standards of measurement for the information systems
- standards for information systems to ensure they are easy to access
- systems which helps members to share their knowledge.

Organizational climate

Organizational climate also is a significant factor for developing knowledge sharing in the Thai culture. The appropriate climate which encourages members to share their knowledge is one where organizational members are encouraged to explore the reasons behind the unexpected and having enough equipment for doing the work. Managers can focus on creating an environment which increase worker's knowledge and skills and builds their confidence. In doing so, they will contribute to a climate

conducive to sharing knowledge.

Motivation

Another important factor emerging from this research which is a significant knowledge sharing factor is *motivation*. Motivation operates particularly in crisis situations where organizational members are prone to share their knowledge and support other organizational members to work out the most appropriate solutions. The findings reported in this thesis indicate that managers need to develop an extended set of tasks to develop knowledge sharing in Thai organization. In turn this will assist in gaining greater return on investment.

8.6 Significance of the Research

This study's contributions to the existing literature are multifold.

First, the study has proposed the *tacit and explicit knowledge* transfer process are determined by Thai organizational characteristics and fostered by the implementation of the knowledge sharing variables with *learning outcomes*. In turn this process has a direct impact on performance improvement. The framework provides a basis for assessing the effectiveness of *knowledge sharing*, *learning outcomes* and *tacit and explicit knowledge* transfer. The structural equation modeling technique is well suited to capturing the linkages among the *knowledge sharing variables*, *learning outcomes*, the transfer of *tacit and explicit knowledge* process, and *performance* improvement. In order to provide a foundation for additional research in this area, the measurement model was shown to be statistically significant.

In addition, the conceptual model statistics show that there is statistical validity, providing empirical evidence for the importance of the development of *knowledge sharing* to *learning outcomes*, the processes of *tacit and explicit knowledge* transfer and performance improvement in Thai organizations.

Since this is the first effort to explore the *knowledge sharing environment*, *learning outcomes*, *tacit and explicit knowledge* transfer and *performance* improvement, this research contributes to the improvement of sharing research, particularly in Thailand. The findings of this study contribute towards understanding the importance of

embracing the concept of knowledge sharing in relation to performance improvement in Thai organizations. Furthermore, this study provides a strong theoretical contribution for the development of knowledge sharing in a learning organization, especially in Thailand.

The conceptual model presented here makes a valuable contribution to the effort to move the study of *knowledge sharing* forward by incorporating transfer of *tacit and explicit knowledge* and *learning outcomes* as two of the many possible mediators of the relationship between the *knowledge sharing* variables and *performance improvement*. In addition, the findings are also expected to improve and extend the understanding of issues relating to *knowledge sharing variables*, *learning outcomes*, *tacit and explicit knowledge* transfer, and *performance* improvement in organizations, which are useful to building theory in knowledge sharing, learning organization and knowledge management studies.

Finally, the present study has provided a Thai version of the knowledge sharing questionnaire. This instrument supports organizations in generating data to assess the actual situation in Thai organizations with respect to the goal of becoming learning organizations.

8.7 Conclusion

This study empirically developed a knowledge sharing model for the implementation of the learning organization in Thailand. The relationships between the eight knowledge sharing variables and three learning outcomes, the transfer of tacit and explicit knowledge process, and performance improvement within Thai organizations were investigated. To better capture these relationships a unified conceptual model was proposed (see Chapter 6, Figure 6.2). The central premise on which the model was based was described in the following terms: the process of tacit and explicit knowledge transfer is influenced by the eight knowledge sharing variables and three learning outcomes, and this process has in turn a direct impact on financial as well as knowledge performance. There are a multitude of writings in the literature about the importance of organizational learning and the need for organizational capacity to support sharing. In addition, there are reports describing recognized knowledge sharing, their efforts and their success stories. However, as Jacobs (1995) pointed out, there is a lack of empirical research to support the theoretical claims of improved

organizational effectiveness resulting from implementation of knowledge sharing and learning organization strategies. This study is a direct response to that challenge.

This study offers empirical evidence that lends support to the conceptual model. The results suggest that the influence of the knowledge sharing variables on knowledge performance is mediated by the tacit and explicit knowledge transfer process and learning outcomes. Linear structural relations analysis revealed the significance of the "organization structure" and "management practices" in the implementation of knowledge sharing. Generative learning was found to load poorly structurally on the latent variable learning outcomes, suggesting the need for a richer conceptualization of this factor or for the development and inclusion of other indicators of organization learning. Moreover the results suggest that some aspects of learning organization theory were supported while others may not have been.

Importantly, this study lays the groundwork to propose a causal model for testing with structural equation modeling techniques. The results suggest that practitioners working to develop knowledge sharing should create organization structures and management practices which developing mission and strategy and systems to achieve knowledge sharing goals. These variables were significant predictors of organizational learning, which has been defined as the acquisition, dissemination, interpretation, and storage and retrieval of information with the purpose of affecting improved organizational effectiveness. The results also suggest that development efforts aimed at transfer of tacit and explicit knowledge and performance improvement should be given attention in the knowledge sharing processes.

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APPENDIX 1

QUALITATIVE METHOD: INTERVIEW

Definition for Interview

Knowledge Sharing

Knowledge sharing is defined as the process of encouraging members to share their knowledge with other members both within and outside the organization

Leadership

The leadership scale has been defined as measuring the perceived level of strong, visible leadership, committed to the values subscribed to in a true knowledge sharing.

Culture

Culture was identified as measures of perceptions of organizational culture. They were: knowledge indeterminacy, learning latitude, and organizational unity.

Mission and Strategy

Mission and strategy were identified as measures of organizational mission and strategy. They were: system thinking, external monitoring, and knowledge creation.

Management Practices

Management practices were identified as measures of management practices. These included: management sharing support practices, management sharing motivation practices, management performance effectiveness practices and management sharing advice practices.

Organizational Structure

Organizational structure were identified as measures of organizational structure. They included: internal alignment and facilitative structures.

Systems

Systems has been defined as measuring the perceived strength of various organizational systems in their ability to function as operative knowledge sharing support structures.

Organizational Climate

Climate is identified as measures of organizational climate.

Motivation

Motivation has been defined as measuring the perceived levels of organizational commitment and job involvement as expressed by the work effort and behaviors of employees.

Experiential Learning

Experiential learning is defined as measuring the perceived ability of an organization to learn from actual experiences, whether the experiences are considered successes or failures, and to actually draw on the knowledge learned to make better decisions or business improvements.

The Team Learning

The team learning scale has been defined as measuring the perceived ability of workgroups to acquire, interpret, and share knowledge in order to enhance the group level learning and work practices to achieve improved performance and effectiveness

The Generative Learning

The generative learning scale has been defined as measuring the perceived ability of an organization to understand business goals and problems, and the related ability to

learn and make core changes heeded to eliminate established organizational impediments to better attain stated objectives

Documentation

The Documentation scale has been defined as the extent to which tacit and explicit knowledge is coded, assembled, recorded, and comprehensively treated utilizing semantics, mechanical and/or electronic aids, and techniques of reproduction for giving documentary information maximum accessibility and usability.

Dissemination

The dissemination has been defined as the level to which tacit and explicit knowledge is shared and spread horizontally and vertically throughout the organization.

Finance Performance

The measure for finance performance has been defined as the degree of enhance of business results at the organization, process or individual level and financial results or benefits in terms of health and resources available for growth.

Knowledge Performance

The measure for knowledge performance improvement has been defined as the level of enhancement of products and services because of learning and knowledge capacity.

QUESTIONS FOR THE INTERVIEW

Date..... Time

Part 1 General Information

- 1. The name of interviewee
- 2. Company
- 3. Position
- 4. Education..... 5. Age

Part 1 Knowledge sharing in Thai organization

In terms of (Knowledge sharing variance) What are the influencing factors which inspire an employee to share their knowledge in Thai organizations?

- 1. Leadership
- 2. Culture
 - 2.1 Learning Latitude (Risk-taking)

2.2 Organizational Unity

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2.3 Knowledge Indeterminacy

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3. Mission and strategy

3.1 System thinking

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3.2 External Monitoring

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3.3 Knowledge Creation

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4. Management Practices

4.1 Management Learning Support Practices

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4.2 Management Learning Motivation Practices

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4.3 Management Performance Effectiveness Practices

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4.4 Management Learning Advice Practices

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5. Organization Structure

5.1 Internal Alignment

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5.2 Facilitative Structures

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6. Systems

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7. Organizational Climate

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8. Motivation

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2. In terms of (Tacit & Explicit knowledge) What are the influencing factors which inspire an employee to share their knowledge in Thai organizations?"

9. Documentation

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10. Distributed Information (Dissemination)

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3. *“In terms of (Learning Organization Outcome) What are the results of Knowledge sharing in Thai organizations?”*

11. Experimental Learning

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12. Team Learning

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13. Generative Learning

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4. *“In terms of (Performance) What are the results of Knowledge sharing in Thai organizations?”*

14. Finance Performance

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15. Knowledge Performance

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Additional Comments

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**VICTORIA
UNIVERSITY**

**A NEW
SCHOOL OF
THOUGHT**

Victoria University
PO Box 14428
MELBOURNE VIC 8001
Australia

Telephone:
(03) 9919 1070

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Email:
Chokchai.suwetwatanakul@research.vu.edu.au

Mr Chokchai Suwetwattanakul
School of Management

City Flinders Campus
301 Flinders Lane
Melbourne

Dear,

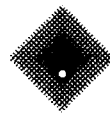
I am currently carrying out research for the degree of Doctor of Philosophy (Business Management) through the school of management at Victoria University, Melbourne, Australia. The main objective of this study is to develop a knowledge sharing model for the implementation of the Learning Organization in the Thai context

I would like to invite you to conduct my interview. The interview will be about 20-30 minutes. Your participation is completely voluntary and all information obtained will be completely anonymous and confidential. I will establish only an anonymous data file, so no individual's opinions will be identified. There will be no negative consequences to you not participating, as I will not be mentioning any individuals in the research.

Any help you can give me will be greatly appreciated.

Sincerely,

Chokchai Suwetwattanakul



INFORMATION TO PARTICIPANTS INVOLVED IN RESEARCH

You are invited to participate

You are invited to participate in a research project entitled Developing a Knowledge Sharing Model for the Implementation of the Learning Organization in Thailand .

This project is being conducted by a student researcher Mr.Chokchai suwetwattanakul as part of a Doctor of Philosophy (Business Management) degree at Victoria University under the supervision of Professor Sardar M. N. Islam (+61-3-9919 1338 or Sardar.Islam@vu.edu.au)

Project explanation

The main objective of this study is to develop a knowledge sharing model for the implementation of the Learning Organization in the Thai context

What will I be asked to do?

The participant can withdraw at any time, or skip any questions or not answer them fully'. With participant permission, the researcher would like participant to answer each question. This questionnaire is about the perceptions of Knowledge sharing and how the knowledge sharing model can be adapted to Thai local condition. It should take around 20 to 30 minutes to complete the questionnaire.

What will I gain from participating?

The participant will be provided the report of this research.

How will the information I give be used?

The information will be used to develop a model for the research.

What are the potential risks of participating in this project?

No potential risks are foreseen to arise during or as a consequence of the proposed research. The informed consent gained prior to commencement of data collection will ensure that participants are aware of their rights in relation to the project to ensure no negative sequel will result. This includes participants' right not to respond to questions and their right to withdraw from the study at any time. This will ensure that there are no adverse personal and or/ professional resultant effects.

How will this project be conducted?

An questionnaire will be sent by mail. The questions are developed from the literature review.

Who is conducting the study?

Principal Researcher: Professor Sardar M. N. Islam (+61-3-9919 1338 or Sardar.Islam@vu.edu.au)

Student Researcher: Mr.Chokchai Suwetwattanakul (+66-8-1912 4747 or chokchsu@hotmail.com)

Any queries about your participation in this project may be directed to the Principal Researcher listed above.
If you have any queries or complaints about the way you have been treated, you may contact the Secretary, Victoria University Human Research Ethics Committee, Victoria University, PO Box 14428, Melbourne, VIC, 8001 phone (03) 9919 4781.



CONSENT FORM FOR PARTICIPANTS INVOLVED IN RESEARCH

INFORMATION TO PARTICIPANTS:

We would like to invite you to be a part of a study into...

Developing a Knowledge Sharing Model for the Implementation of the Learning Organization in Thailand

CERTIFICATION BY SUBJECT

I,
of
certify that I am at least 18 years old* and that I am voluntarily giving my consent to participate in the study: Developing a Knowledge Sharing Model for the Implementation of the Learning Organization in Thailand being conducted at Victoria University by: Professor Sardar M. N. Islam.

I certify that the objectives of the study, together with any risks and safeguards associated with the procedures listed hereunder to be carried out in the research, have been fully explained to me by:

Mr. Chokchai Suwetwattanakul

and that I freely consent to participation involving the below mentioned procedures:

- Interview 20-30 minutes

I certify that I have had the opportunity to have any questions answered and that I understand that I can withdraw from this study at any time and that this withdrawal will not jeopardise me in any way.

I have been informed that the information I provide will be kept confidential.

Signed:

Date:

Any queries about your participation in this project may be directed to the researcher Professor Sardar M. N. Islam [+61-3-9919 1338]. If you have any queries or complaints about the way you have been treated, you may contact the Secretary, Victoria University Human Research Ethics Committee, Victoria University, PO Box 14428, Melbourne, VIC, 8001 phone (03) 9919 4781

APPENDIX 2

QUANTITATIVE METHOD: SURVEYS

Definition for Questionnaire

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Knowledge Performance

The measure for knowledge performance improvement has been defined as the level of enhancement of products and services because of learning and knowledge capacity.

Developing a Knowledge Sharing Model for the Implementation of the Learning Organization in Thailand.

Knowledge Sharing in this study is the process of encouraging members to share their knowledge with other members both within and outside the organization

Part 1: Knowledge sharing Variance

How does the factor influence knowledge sharing in Thai organizations?

For 1 score means strongly disagreement that the factor influence knowledge sharing

For 7 score means strongly agreement that the factor influence knowledge sharing

NO.	Factor	strongly disagreement						Strongly agreement
		1	2	3	4	5	6	7
<u>Leadership</u>								
1.	Senior Managers help others understand how sharing affects organizational progression.	1	2	3	4	5	6	7
2.	Senior Managers insist that new knowledge be shared and disseminated	1	2	3	4	5	6	7
3.	Senior Managers always spend time Sharing how to do member's jobs better	1	2	3	4	5	6	7
4.	Senior Managers actively champion new ideas for organizational development.	1	2	3	4	5	6	7
<u>Culture</u>								
<i>Learning Latitude (Risk-taking)</i>								
5	Learning from mistakes than to blame people who make them.	1	2	3	4	5	6	7
6	Encouraging to be an independent thinker	1	2	3	4	5	6	7
7	Supporting to find the best ideas regardless of the source.	1	2	3	4	5	6	7
8	Being flexible is considered essential in organization.	1	2	3	4	5	6	7
<u>Organizational Unity</u>								
9	The better solutions to problems developed when work together in groups.	1	2	3	4	5	6	7

10	Some questions about work are support Knowledge sharing.	1	2	3	4	5	6	7
11	Members trust each other enough to be honest about what they think.	1	2	3	4	5	6	7
12	A common understanding of organizational goals of the members.	1	2	3	4	5	6	7
<i>Knowledge Indeterminacy.</i>								
13	The prediction ability when things appear to be headed in organization.	1	2	3	4	5	6	7
14	The nature of work makes it essential to work and sharing their Knowledge with people in different parts of the organization.	1	2	3	4	5	6	7
15	Taking risks and try new things, as long as site and personal safety are not compromised.	1	2	3	4	5	6	7
16	Long term outcomes are just as important as short term results.	1	2	3	4	5	6	7
<i><u>Mission and strategy</u></i>								
<i>System thinking</i>								
17	Most people in the organization who give input to strategic plans have a chance to do so.	1	2	3	4	5	6	7
18	Considering how a plan in one part of the organization will have impacts in other parts of the organization.	1	2	3	4	5	6	7
19	Thinking about how today's actions can have long-term consequences members might not expect	1	2	3	4	5	6	7
20	Focusing on indicating the progress of working	1	2	3	4	5	6	7
<i>External Monitoring</i>								
21	The business plans include developing new products / services that are significantly better of different from what is on the market today.	1	2	3	4	5	6	7
22	Obtaining the earliest possible signs of inside and outside trends and forces which may have an impact organization in the future	1	2	3	4	5	6	7
23	The organization always has research and development	1	2	3	4	5	6	7

24	Establishing some key measurements against which can track progress in achieving goals.	1	2	3	4	5	6	7
<i>Knowledge Creation</i>								
25	Looking around the organization to find examples of Knowledge Sharing that member can build upon.	1	2	3	4	5	6	7
26	Gathering information on outside forces and trends that may impact the organization in the future.	1	2	3	4	5	6	7
27	Developing plans to increase the overall level of Knowledge Sharing and working skills.	1	2	3	4	5	6	7
28	Learning from failures and problems, without placing blame.	1	2	3	4	5	6	7
<i>Management Practices</i>								
<i>Management Sharing Support Practices.</i>								
29	Managers make time to share from successes and failures.	1	2	3	4	5	6	7
30	Managers provide opportunities for members to generate new creative ideas about their work.	1	2	3	4	5	6	7
31	Manager actions help valuable Knowledge Sharing to be used across the organization.	1	2	3	4	5	6	7
32	Managers allow members as much freedom as possible to set their own Knowledge Sharing goals and work processes.	1	2	3	4	5	6	7
<i>Management Sharing Motivation Practices</i>								
33	Managers help set goals that encourage members to share their knowledge.	1	2	3	4	5	6	7
34	Managers expect members to accept responsibility for their Knowledge Sharing.	1	2	3	4	5	6	7
35	Managers help members communicate with other parts of the organization to create more Sharing between team.	1	2	3	4	5	6	7
36	Managers allow as much flexibility as possible in the way members do their jobs.	1	2	3	4	5	6	7

<i>Management Performance Effectiveness Practices</i>								
37	Managers help members to develop skills they need to share and learn together effectively.	1	2	3	4	5	6	7
38	Managers assure that the assignments encourage members to develop their performance.	1	2	3	4	5	6	7
39	Managers provide feedback about member's performance that helps them be more effective in their jobs.	1	2	3	4	5	6	7
40	Managers see to it that members have the resources they need to be effective in their jobs.	1	2	3	4	5	6	7
<i>Management Sharing Advice Practices</i>								
41	Managers create situations where everyone wins when goals are achieved.	1	2	3	4	5	6	7
42	Managers provide opportunities for members to input and participation in decision.	1	2	3	4	5	6	7
43	Managers work with members and also create strategy to do for them.	1	2	3	4	5	6	7
<i>Organization Structure</i>								
<i>Internal Alignment</i>								
44	The different functions in the organization work well together to help members be more competitive.	1	2	3	4	5	6	7
45	The work processes have been designed to integrate across functions / departments and have more effective.	1	2	3	4	5	6	7
46	The organization's goals have helped units to work together and share more effectively.	1	2	3	4	5	6	7
47	The organization has revised its plan and goals quickly when something unexpected has occurred in the business environment.	1	2	3	4	5	6	7
<i>Facilitative Structures</i>								
48	The structure helps members to share and keep in touch with the right people inside the organization.	1	2	3	4	5	6	7
49	The structure helps members to know the way of coordinating between people and their jobs.	1	2	3	4	5	6	7
50	The structure helps members to know the way of	1	2	3	4	5	6	7

	coordinating between people and their jobs and sharing their knowledge.							
51	The structure helps members to interact with the right people outside the organization.	1	2	3	4	5	6	7
<u>Systems</u>								
52	The standards of measurement for measuring Knowledge sharing in each department.	1	2	3	4	5	6	7
53	Information system of organization has good standard and be easy to access.	1	2	3	4	5	6	7
54	Information system of organization can help members to share their knowledge.	1	2	3	4	5	6	7
55	The organization's information technology systems are enough to support knowledge sharing.	1	2	3	4	5	6	7
<u>Climate</u>								
<i>Generative Sharing Climate</i>								
56	Encouraging members to explore the reasons behind the unexpected when surprises occur.	1	2	3	4	5	6	7
57	Encouraging members to be pleased to share their knowledge with coworkers and members.	1	2	3	4	5	6	7
58	Encouraging members to used information for self development and sharing with coworkers and members.	1	2	3	4	5	6	7
59	Encouraging members to find new knowledge and improve their organization in the future.	1	2	3	4	5	6	7
<i>Promotive Interaction</i>								
60	Organization has the equipments enough for doing the works.	1	2	3	4	5	6	7
61	Organization supports member to find new solutions for solving problems.	1	2	3	4	5	6	7
62	Organization supports members to have active to spend time for reviewing in Knowledge sharing from the organization.	1	2	3	4	5	6	7
63	Organization supports members to be active for sharing	1	2	3	4	5	6	7

	about external environments that affect with the organization							
<u>Motivation</u>								
64	Supporting members to try to work for the best situation in crisis.	1	2	3	4	5	6	7
65	Supporting members to be enthusiastic for having high active in performance.	1	2	3	4	5	6	7
66	Supporting members to concentrate in plans and goals of organization.	1	2	3	4	5	6	7
67	Supporting members to have relationship like family when working in the organization.	1	2	3	4	5	6	7
<u>Documentation</u>								
68	Having the manual that explains about the rules of organization carefully and clearly.	1	2	3	4	5	6	7
69	Members can remember the trend and performance that organization creates well.	1	2	3	4	5	6	7
70	Having the document which collect information and study other problems for members will find when they face a problem.	1	2	3	4	5	6	7
71	Supporting to find new ideas, sharing opinions with each other by using documents in organization.	1	2	3	4	5	6	7
<u>Distributed Information (Dissemination)</u>								
72	Encouraging to learning and sharing opinions between units.	1	2	3	4	5	6	7
73	Having efficient distributed information system.	1	2	3	4	5	6	7
74	Having some tests to find expert persons for each area.	1	2	3	4	5	6	7
75	Concern quickly services for the customers.	1	2	3	4	5	6	7

Part 2: Knowledge Sharing outcome

How the following factors have results to sharing in organization?

For 1 score means strongly disagreement that the factor have results to sharing in organization.

For 7 score means strongly agreement that the factor have results to sharing in organization.

NO.	Factor	strongly disagreement						Strongly agreement
		1	2	3	4	5	6	7
<u>Experimental Learning</u>								
76	Knowledge sharing and experience from working each project support the success in development of performance of members.	1	2	3	4	5	6	7
77	Knowledge sharing and Learning from mistake supports member and organization to success in the goals	1	2	3	4	5	6	7
78	Knowledge sharing supports change threat to be opportunity by changing plan for achieving the goals when the problem was happened.	1	2	3	4	5	6	7
<u>Team Learning</u>								
79	Knowledge sharing supports workgroup members to understand strength and weakness of organization well, which understanding can get from the different attitudes.	1	2	3	4	5	6	7
80	Knowledge sharing supports workgroup members to find the causes of the problems even though the mistakes might not be happened from the team or department.	1	2	3	4	5	6	7
81	Knowledge sharing supports workgroup members to share the experience with each other.	1	2	3	4	5	6	7
82	Knowledge sharing supports workgroup members to check some feedback for developing and sharing knowledge to other groups or other departments.	1	2	3	4	5	6	7
<u>Generative Learning</u>								
83	Knowledge sharing supports organization to respond quickly to change our goals and practices when business	1	2	3	4	5	6	7

	problems or crises have indicated.							
84	Knowledge sharing supports organization to solve problems and prevent them from occurring again.	1	2	3	4	5	6	7
85	Knowledge sharing supports organization to understand in the duties of each department clearly and lead to decrease the conflict between the different departments.	1	2	3	4	5	6	7
86	Knowledge sharing supports organization to consider how short term decisions will impact long range business outcomes	1	2	3	4	5	6	7
<u>Performance abilities</u>								
<i>Finance Performance</i>								
87	Knowledge sharing supports the organization's income when to compare with the other organizations.	1	2	3	4	5	6	7
88	Knowledge sharing supports the organization's accomplishment report increase rapidly when to compare with the other organizations.	1	2	3	4	5	6	7
89	Knowledge sharing supports the organization's rewards for members increase when to compare with other organizations.	1	2	3	4	5	6	7
90	Knowledge sharing supports the organization's property increase rapidly when to compare with other organizations	1	2	3	4	5	6	7
<i>Knowledge Performance</i>								
91	Knowledge sharing supports the organization to increase performance efficiently when to compare with the financial resources for member development	1	2	3	4	5	6	7
92	Knowledge sharing supports member can manage the number of task which increase in each day.	1	2	3	4	5	6	7
93	Knowledge sharing supports a mistake in each work of members has decrease	1	2	3	4	5	6	7
94	Knowledge sharing supports the performance in each work of members is faster than the last	1	2	3	4	5	6	7

Part 3; Personal Information

95. Sender

..... (1) Male

..... (2) Female

96. Age

..... (1) 18-24 years old

.....(2) 25-29 years old

..... (3)30- 34 years old

..... (4) 35-39 years old

..... (5) 40- 44 years old

..... (6) 45 _ 49 years old

..... (7) 50-54 years old

..... (8) 50-54 years old

..... (9) 55-59 years old

97. Time with organization

..... (1) Under 1 year

.....(2) 1 - 2 years

..... (3) 3-4 years

..... (4) 5 - 6 years

..... (5) 7- 8 years

..... (6) 9 –10 years

..... (7) 11-15 years

..... (8) 16-20 years

..... (9) Over 20 years

98. Education

..... (1) Below or equivalent diploma

..... (2) Bachelors degree

..... (3) Masters degree

..... (4) Doctorate

99. Position

..... (1) Top management (Chairman/Board of Executive Director/ Managing
Director/ Deputy of Managing Director/ Assistant
Managing Director/ Consultant)

..... (2) Middle management (Director / Deputy director/Assistant Director/Manager/
Assistant Manager)

..... (3) Officer

Developing a Knowledge Sharing Model for the Implementation of the Learning Organization in Thailand.


การแบ่งปันความรู้ (Knowledge Sharing) ในการศึกษาครั้งนี้ หมายถึง ขั้นตอนในการสนับสนุนให้พนักงานในองค์กรถ่ายทอดความรู้ที่ได้จากการเรียนรู้และประสบการณ์การทำงานของตนเองให้แก่บุคคลอื่นๆ

ส่วนที่ 1 : ปัจจัยที่ส่งผลต่อกระบวนการแบ่งปันความรู้

ท่านคิดว่าปัจจัยต่อไปนี้ส่งผลต่อกระบวนการแบ่งปันความรู้ในองค์กรในระดับใด โดย

คะแนน 1 หมายถึง คุณ ไม่เห็นด้วยเลย ว่าปัจจัยนั้นจะส่งผลให้เกิดการแบ่งปันความรู้ในองค์กร

คะแนน 7 หมายถึง คุณ เห็นด้วยอย่างยิ่ง ว่าปัจจัยนั้นจะส่งผลให้เกิดการแบ่งปันความรู้ในองค์กร

ข้อ	ปัจจัย	ไม่เห็นด้วยเลย						เห็นด้วยอย่างยิ่ง
		1	2	3	4	5	6	7
ภาวะความเป็นผู้นำ								
1.	ผู้บริหารมีบทบาทอย่างสม่ำเสมอต่อการให้ความรู้ที่ว่าการแบ่งปันความรู้มีผลต่อความก้าวหน้าองค์กรอย่างไร	1	2	3	4	5	6	7
2.	ผู้บริหารแบ่งปันความรู้ใหม่ๆที่ได้มาให้แก่พนักงานอย่างสม่ำเสมอ	1	2	3	4	5	6	7
3.	ผู้บริหารใช้เวลาในการแบ่งปันความรู้ของตนให้พนักงานเพื่อพัฒนางานให้ดีขึ้นอย่างสม่ำเสมอ	1	2	3	4	5	6	7
4.	ผู้บริหารมีความกระตือรือร้นและสร้างสรรค์ความคิดใหม่ๆในการพัฒนาองค์กรอย่างสม่ำเสมอ	1	2	3	4	5	6	7
วัฒนธรรมองค์กร								
อิสระในการเรียนรู้								
5	ความเชื่อในการเรียนรู้จากสิ่งที่ผิดพลาดไม่ใช่การหาบุคคลที่กระทำผิด	1	2	3	4	5	6	7
6	การเปิดให้มีการแสดงความคิดเห็นอย่างอิสระ	1	2	3	4	5	6	7
7	การให้ความสำคัญกับการคิดค้นสินค้าและบริการใหม่ๆ อยู่ตลอดเวลาส่งผลดีต่อการแบ่งปันความรู้ในองค์กร	1	2	3	4	5	6	7
8	ความยืดหยุ่นเป็นสิ่งที่ส่งผลดีต่อการแบ่งปันความรู้	1	2	3	4	5	6	7
ความเป็นอันหนึ่งอันเดียวกันขององค์กร								

9	การร่วมกันแก้ปัญหาเป็นทีมจะส่งผลดีต่อการแบ่งปันความรู้ในองค์กร	1	2	3	4	5	6	7
10	การที่พนักงานตั้งคำถามในระหว่างการทำงานเป็นสิ่งที่ดีต่อการแบ่งปันความรู้ในองค์กร	1	2	3	4	5	6	7
11	การมีความเชื่อว่าเพื่อนร่วมงานแสดงความคิดด้วยความจริงใจส่งผลดีต่อการแบ่งปันความรู้ในองค์กร	1	2	3	4	5	6	7
12	พนักงานทุกคนมีความเชื่อร่วมกันเกี่ยวกับเป้าหมายของการแบ่งปันความรู้ในองค์กร	1	2	3	4	5	6	7
ความรู้ในองค์กร								
13	ความสามารถในการคาดการณ์ถึงปัญหาที่อาจเกิดขึ้นในอนาคต	1	2	3	4	5	6	7
14	การวางระบบทำงานภายในองค์กรที่สนับสนุนให้มีการแบ่งปันความรู้จากบุคคลอื่น	1	2	3	4	5	6	7
15	การเปิดโอกาสให้มีการลงเสียงกับการทำงานใหม่ๆ	1	2	3	4	5	6	7
16	การให้ความสำคัญต่อความสำเร็จในระยะยาวขององค์กร	1	2	3	4	5	6	7
พันธกิจและยุทธศาสตร์								
ระบบวิธีคิด								
17	การเปิดโอกาสให้ผู้ที่เสนอความเห็นในแผนกลยุทธ์มีโอกาสได้ลงมือทำตามแผนที่ตัวเองเสนอ	1	2	3	4	5	6	7
18	ความเข้าใจว่าแผนงานย่อยของแผนกหนึ่งจะส่งผลต่อแผนกอื่นๆในองค์กร	1	2	3	4	5	6	7
19	ความเชื่อว่าการกระทำใดๆของพนักงานมีผลต่อเนื่องต่อองค์กรในระยะยาว	1	2	3	4	5	6	7
20	การกำหนดให้มีเครื่องมือในการวัดผลการทำงานเป็นระยะ	1	2	3	4	5	6	7
การปรับเปลี่ยนตามสถานการณ์								
21	แผนธุรกิจที่ให้ความสำคัญกับการพัฒนาผลิตภัณฑ์ใหม่ๆอย่างต่อเนื่อง	1	2	3	4	5	6	7
22	การมีระบบการให้ข้อมูลที่เกี่ยวข้องกับองค์กรทั้งข้อมูลภายในภายนอกที่สะดวกและรวดเร็ว	1	2	3	4	5	6	7
23	การให้ความสำคัญกับการวิจัยและพัฒนาอย่างต่อเนื่อง	1	2	3	4	5	6	7
24	การสร้างมาตรฐานในการตรวจสอบและติดตามอย่างสม่ำเสมอว่าการทำงานของพนักงานสอดคล้องกับเป้าหมายขององค์กร	1	2	3	4	5	6	7
ความคิดสร้างสรรค์ในงาน								

25	การมีตัวอย่างที่ประสบความสำเร็จในการแบ่งปันความรู้เพื่อให้พนักงานปฏิบัติตาม	1	2	3	4	5	6	7
26	การติดตามข้อมูลข่าวสารจากภายนอกที่อาจส่งผลต่อการทำงานอย่างสม่ำเสมอ	1	2	3	4	5	6	7
27	การกำหนดแผนในการพัฒนาทักษะการแบ่งปันความรู้และทักษะการทำงาน	1	2	3	4	5	6	7
28	การเรียนรู้จากความผิดพลาดในการทำงานโดยไม่กล่าวโทษผู้กระทำผิดพลาด	1	2	3	4	5	6	7
การดำเนินการด้านการจัดการ								
การสนับสนุนของฝ่ายบริหารให้มีการแบ่งปันความรู้								
29	ผู้บริหารให้เวลาในการแบ่งปันความรู้จากประสบการณ์และความสำเร็จและความล้มเหลว	1	2	3	4	5	6	7
30	ผู้บริหารให้การสนับสนุนพนักงานในการแบ่งปันความรู้ใหม่ๆ	1	2	3	4	5	6	7
31	ผู้บริหารสนับสนุนให้พนักงานแบ่งปันความรู้และนำความรู้ใหม่ๆ ไปใช้ในหน่วยงานอื่นขององค์กร	1	2	3	4	5	6	7
32	ผู้บริหารให้อิสระแก่พนักงานในการแบ่งปันความรู้ การตั้งเป้าหมายในการทำงาน รวมทั้งการวางแผนการงานต่างๆ	1	2	3	4	5	6	7
การจูงใจให้เกิดการแบ่งปันความรู้ของฝ่ายบริหาร								
33	ผู้บริหารมีส่วนร่วมในการตั้งเป้าหมายในการทำงาน ซึ่งเป็นเป้าหมายที่กระตุ้นให้พนักงานแบ่งปันความรู้	1	2	3	4	5	6	7
34	ผู้บริหารคาดหวังให้พนักงานมีหน้าที่ความรับผิดชอบเกี่ยวกับการแบ่งปันความรู้ของตน	1	2	3	4	5	6	7
35	ผู้บริหารช่วยประสานงานกับทีมอื่นๆในองค์กร เพื่อให้มีการแบ่งปันความรู้ระหว่างทีมมากขึ้น	1	2	3	4	5	6	7
36	ผู้บริหารอนุญาตให้พนักงานมีการยืดหยุ่นในการทำงานตามหน้าที่ของตน	1	2	3	4	5	6	7
ความสามารถของผู้บริหารในการปรับปรุงคุณภาพของพนักงาน								
37	ผู้บริหารมีส่วนช่วยในการพัฒนาพนักงานให้มีทักษะในการแบ่งปันความรู้และเรียนรู้จากผู้อื่นอย่างมีประสิทธิภาพ	1	2	3	4	5	6	7
38	ผู้บริหารให้งานที่ท้าทายความสามารถแก่พนักงาน เพื่อเป็นการพัฒนาความสามารถ	1	2	3	4	5	6	7

39	ผู้บริหารให้คำชี้แนะการทำงานของพนักงานเพื่อปรับปรุงคุณภาพของงาน	1	2	3	4	5	6	7
40	ผู้บริหารเห็นถึงความสามารถและประสิทธิภาพการทำงานของพนักงาน	1	2	3	4	5	6	7
ความสามารถในการให้คำแนะนำของผู้บริหาร								
41	ผู้บริหารมีการสร้างสถานการณ์ที่จะกระตุ้นพนักงานให้ทำงานบรรลุเป้าหมาย	1	2	3	4	5	6	7
42	ผู้บริหารให้โอกาสพนักงานได้มีส่วนร่วมในการตัดสินใจ	1	2	3	4	5	6	7
43	ผู้บริหารทำงานร่วมกันพนักงานพร้อมกับร่วมสนับสนุนให้พนักงานพัฒนากลยุทธ์ในการทำงาน	1	2	3	4	5	6	7
โครงสร้างองค์กร								
โครงสร้างสนับสนุนการแบ่งปันความรู้ในองค์กร								
44	แผนกต่างๆ ในองค์กรทำงานร่วมกันได้ดีและช่วยสร้างองค์กรให้ได้เปรียบในการแข่งขัน	1	2	3	4	5	6	7
45	กระบวนการทำงานที่มีการประสานงานกันอย่างมีประสิทธิภาพ	1	2	3	4	5	6	7
46	เป้าหมายขององค์กรทำให้หน่วยงานต่างๆทำงานร่วมกันและแบ่งปันความรู้กันอย่างมีประสิทธิภาพ	1	2	3	4	5	6	7
47	องค์กรสามารถปรับตัวกับความเปลี่ยนแปลงต่างๆ ที่เกิดขึ้นได้อย่างรวดเร็ว	1	2	3	4	5	6	7
โครงสร้างสนับสนุนการแบ่งปันความรู้ภายนอกองค์กร								
48	โครงสร้างองค์กรอำนวยความสะดวกในเรื่องของการแบ่งปันความรู้กับบุคคลหรือหน่วยงานนอกองค์กร	1	2	3	4	5	6	7
49	โครงสร้างขององค์กรเอื้ออำนวยต่อการตรวจสอบ	1	2	3	4	5	6	7
50	โครงสร้างระหว่างหน่วยงานในองค์กรช่วยให้การติดต่อประสานงานและแบ่งปันความรู้เป็นไปอย่างสะดวก	1	2	3	4	5	6	7
51	รูปแบบโครงสร้างองค์กรเปิดโอกาสให้มีการติดต่อแบ่งปันความรู้อย่างสม่ำเสมอจากภายนอก	1	2	3	4	5	6	7
ระบบขององค์กร								
52	เกณฑ์ในการวัดการดำเนินกิจกรรมการแบ่งปันความรู้ของพนักงานในองค์กรที่ชัดเจน มีมาตรฐาน	1	2	3	4	5	6	7
53	ระบบข้อมูลขององค์กรมีมาตรฐานและเข้าถึงได้ง่าย	1	2	3	4	5	6	7

54	ระบบเทคโนโลยีสารสนเทศถูกออกแบบมาเพื่อเอื้อต่อการแบ่งปันความรู้	1	2	3	4	5	6	7
55	ระบบเทคโนโลยีสารสนเทศมีเพียงพอที่จะสนับสนุนการแบ่งปันความรู้	1	2	3	4	5	6	7
<u>บรรยากาศในการทำงาน</u>								
การสร้างบรรยากาศในการเรียนรู้								
56	การส่งเสริมให้พนักงานมุ่งมั่นในการหาที่อยู่ที่แท้จริงของปัญหาเมื่อเกิดปัญหาขึ้นในองค์กร	1	2	3	4	5	6	7
57	การส่งเสริมให้พนักงานความเต็มใจในการแบ่งปันความรู้ให้แก่เพื่อนพนักงานในองค์กร	1	2	3	4	5	6	7
58	การส่งเสริมความสามารถในการเข้าถึงข้อมูลข่าวสารเพื่อนำมาพัฒนาตนเองและแบ่งปันให้คนอื่น	1	2	3	4	5	6	7
59	การส่งเสริมให้มีการหาความรู้เพื่อพัฒนาทักษะการทำงานของตนเองอย่างต่อเนื่อง	1	2	3	4	5	6	7
การส่งเสริมการเรียนรู้								
60	การสนับสนุนให้มีอุปกรณ์ช่วยในการทำงานอย่างเพียงพอ	1	2	3	4	5	6	7
61	การสนับสนุนให้มีการหาทางแก้ไขปัญหาวิธีใหม่ๆ อย่างสม่ำเสมอ	1	2	3	4	5	6	7
62	การสนับสนุนให้มีเวลาในการทบทวนการแบ่งปันความรู้ที่ได้จากการเรียนรู้ในองค์กร	1	2	3	4	5	6	7
63	การสนับสนุนให้มีความกระตือรือร้นในการเรียนรู้ปัจจัยภายนอกที่ส่งผลต่อองค์กร	1	2	3	4	5	6	7
<u>การจูงใจ</u>								
64	การสนับสนุนให้พนักงานร่วมมือกันหาทางออกที่ดีที่สุดเพื่อแก้ไขปัญหาในเวลาเกิดภาวะวิกฤต	1	2	3	4	5	6	7
65	การสนับสนุนให้พนักงานมีความกระตือรือร้นในการพัฒนาศักยภาพของตน	1	2	3	4	5	6	7
66	การสนับสนุนให้พนักงานมุ่งมั่นต่อแผนงานและเป้าหมายขององค์กร	1	2	3	4	5	6	7
67	การสนับสนุนให้รู้สึกถึงความรู้สึกผูกพันเป็นครอบครัวในการทำงานกับองค์กร	1	2	3	4	5	6	7
<u>การหาเอกสารมาประกอบ</u>								
68	การมีคู่มือการปฏิบัติงานที่อธิบายถึงหลักการในการทำงานขององค์กรอย่างละเอียดและชัดเจน	1	2	3	4	5	6	7

<u>การเรียนรู้ร่วมกันเป็นทีม</u>								
79	การแบ่งปันความรู้ช่วยส่งเสริมให้ทีมงานเข้าใจจุดอ่อนจุดแข็งขององค์กรมากขึ้นอันเป็นผลมาจากการมององค์กรในทัศนคติที่ต่างกัน	1	2	3	4	5	6	7
80	การแบ่งปันความรู้ช่วยให้ทีมงานหาสาเหตุของปัญหาได้แม้ว่าความผิดพลาดนั้นไม่ได้เกิดจากกลุ่ม/หน่วยงาน/แผนกของตน	1	2	3	4	5	6	7
81	การแบ่งปันความรู้จะช่วยให้ทีมงานมีการแบ่งปันประสบการณ์เมื่อมีการทำงานร่วมกัน	1	2	3	4	5	6	7
82	การแบ่งปันความรู้ช่วยให้สมาชิกภายในทีมงานมีการตรวจสอบการพัฒนางานตนเองอย่างสม่ำเสมอและแบ่งปันไปสู่กลุ่มอื่นหรือหน่วยงานอื่นอย่างต่อเนื่อง	1	2	3	4	5	6	7
<u>การเรียนรู้ขององค์กร</u>								
83	การแบ่งปันความรู้ช่วยให้องค์กรสามารถเปลี่ยนแปลงตามสถานการณ์/วิกฤตต่างๆที่เกิดขึ้นได้อย่างรวดเร็วทันที่	1	2	3	4	5	6	7
84	การแบ่งปันความรู้ช่วยให้องค์กรป้องกันปัญหาต่างๆไม่ให้เกิดซ้ำ	1	2	3	4	5	6	7
85	การแบ่งปันความรู้ช่วยให้แผนกต่างๆเข้าใจหน้าที่ของตัวเองอย่างชัดเจนส่งผลให้ความขัดแย้งลดน้อยลง	1	2	3	4	5	6	7
86	การแบ่งปันความรู้ช่วยให้แผนการทำงานในองค์กรมุ่งเน้นการใช้แผนซึ่งคำนึงถึงผลกระทบของธุรกิจในระยะยาว	1	2	3	4	5	6	7
<u>ความสามารถในการทำงานขององค์กร</u>								
การเงินและวิสัยทัศน์								
87	การแบ่งปันความรู้ช่วยให้องค์กรมีรายได้สูงขึ้นเมื่อเทียบกับองค์กรอื่นๆ	1	2	3	4	5	6	7
88	การแบ่งปันความรู้ช่วยให้ผลการดำเนินงานโดยรวมดีขึ้นเมื่อเทียบกับองค์กรอื่น	1	2	3	4	5	6	7
89	การแบ่งปันความรู้ช่วยให้องค์กรจ่ายโบนัสให้กับพนักงานได้เพิ่มขึ้นเมื่อเทียบกับองค์กรอื่น	1	2	3	4	5	6	7

90	การแบ่งปันความรู้ช่วยให้องค์กรมีสินทรัพย์เพิ่มขึ้นเมื่อเทียบกับองค์กรอื่น	1	2	3	4	5	6	7
ทักษะและความรู้								
91	การแบ่งปันความรู้ส่งผลให้องค์กรมีศักยภาพในการทำงานเพิ่มขึ้นเมื่อเทียบกับเงินลงทุนที่องค์กรใช้ในการพัฒนาพนักงาน	1	2	3	4	5	6	7
92	การแบ่งปันความรู้ช่วยให้พนักงานสามารถจัดการกับจำนวนงานที่เพิ่มขึ้นในแต่ละวันได้	1	2	3	4	5	6	7
93	การแบ่งปันความรู้ช่วยให้ความผิดพลาดในการทำงานลดน้อยลง	1	2	3	4	5	6	7
94	การแบ่งปันความรู้ช่วยให้พนักงานใช้เวลาในการทำงานลดลง	1	2	3	4	5	6	7

ส่วนที่ 3 ข้อมูลผู้ตอบแบบสอบถาม

95. เพศ
..... (1) ชาย (2). หญิง

96. อายุ
..... (1) 18-24 ปี (2) 25-29 ปี (3) 30-34 ปี
..... (4) 35-39 ปี (5) 40-44 ปี (6) 45-49 ปี
..... (7) 45-49 ปี (8) 50-54 ปี (9) 55-59 ปี

97. อายุงานโดยเฉลี่ย
..... (1) ต่ำกว่า 1 ปี (2) 1-2 ปี (3) 3-4 ปี
..... (4) 5-6 ปี (5) 7-8 ปี (6) 9-10 ปี
..... (7) 11-15 ปี (8) 16-20 ปี (9) สูงกว่า 20 ปี

98. คุณวุฒิการศึกษา

- (1) ต่ำกว่าหรือเทียบเท่า ปวช/ปวส

..... (2)ปริญญาตรี
- (3)ปริญญาโท

..... (4)ปริญญาเอก

99. ตำแหน่งงาน

- (1) ผู้บริหารระดับสูง (ประธานกรรมการบริษัท/กรรมการบริษัท/รองกรรมการบริษัท/กรรมการผู้จัดการ/รองผู้จัดการ/ผู้ช่วยกรรมการผู้จัดการ/ที่ปรึกษา)

..... (2) ผู้บริหารระดับกลาง (ผู้อำนวยการฝ่าย/รองผู้อำนวยการฝ่าย/ผู้ช่วยผู้อำนวยการฝ่าย/ผู้จัดการแผนก/รองผู้จัดการแผนก)

..... (3) เจ้าหน้าที่

ขอบคุณในความร่วมมือ



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Mr Chokchai Suwetwattanakul
School of Management

Information for Participants in the Developing Knowledge Sharing Model Survey

Dear Potential Participant,

We would like to invite you to be part of a study into:

Developing a Knowledge Sharing Model for the Implementation of the Learning Organization in Thailand.

This study is part of a Doctor of Philosophy (Business Management) degree. The main objective of this study is to develop a knowledge sharing model for the implementation of the Learning Organization in the Thai context. Your participation is completely voluntary and all information obtained will be completely anonymous and confidential. We will establish only an anonymous data file, so no individual's opinions will be identified. There will be no negative consequences to you not participating, as we will not be mentioning any individuals in the thesis.

With your permission we would like you to answer each question as reliably as you can. There are no right or wrong answers. This questionnaire is about your perceptions of Knowledge sharing and how the knowledge sharing model can be adapted to Thai local condition. It should take you around 15 to 20 minutes to complete the entire questionnaire.

Thank you for considering participating in this research. If you have any questions in relation to our study please contact Professor Sardar M. N. Islam (+61-3-9919 1338 or Sardar.Islam@vu.edu.au) or myself at the contact details above. Should you have any concerns with the operation of survey please contact the secretary of the Victoria University Human Research Ethics Committee, Mr Daniel Loton, (daniel.loton@vu.edu.au or +61-3-9919 4461).

Thank you for your assistance in this research,

Chokchai Suwetwattanakul
Doctor of Philosophy Candidate

INFORMATION TO PARTICIPANTS INVOLVED IN RESEARCH

You are invited to participate

You are invited to participate in a research project entitled Developing a Knowledge Sharing Model for the Implementation of the Learning Organization in Thailand .

This project is being conducted by a student researcher Mr.Chokchai suwetwattanakul as part of a Doctor of Philosophy (Business Management) degree at Victoria University under the supervision of Professor Sardar M. N. Islam (+61-3-9919 1338 or Sardar.Islam@vu.edu.au)

Project explanation

The main objective of this study is to develop a knowledge sharing model for the implementation of the Learning Organization in the Thai context

What will I be asked to do?

The participant can withdraw at any time, or skip any questions or not answer them fully'. With participant permission, the researcher would like participant to answer each question. This questionnaire is about the perceptions of Knowledge sharing and how the knowledge sharing model can be adapted to Thai local condition. It should take around 20 to 30 minutes to complete the questionnaire.

What will I gain from participating?

None

How will the information I give be used?

The information will be used to develop a model for the research.

What are the potential risks of participating in this project?

No potential risks are foreseen to arise during or as a consequence of the proposed research. The informed consent gained prior to commencement of data collection will ensure that participants are aware of their rights in relation to the project to ensure no negative sequel will result. This includes participants' right not to respond to questions and their right to withdraw from the study at any time. This will ensure that there are no adverse personal and or/ professional resultant effects.

How will this project be conducted?

The questionnaires will be sent to companies by mail without asking for identifying details of employees and including a self-addressed envelope. The company can then distribute the survey and information forms to the relevant person who can complete them if they voluntarily consent, and send the survey back to the researchers independently of the company.

The questions are developed from the literature review and interviews.

Who is conducting the study?

Principal Researcher: Professor Sardar M. N. Islam (+61-3-9919 1338 or Sardar.Islam@vu.edu.au)

Co-Principal Researcher: Assoc Prof. Bernadine VanGramberg (+61 3 9919 4489 or Bernadine.VanGramberg@vu.edu.au)

Student Researcher: Mr.Chokchai Suwetwattanakul (+66-8-1912 4747or chokchsu@hotmail.com)

Any queries about your participation in this project may be directed to the Principal Researcher listed above.

If you have any queries or complaints about the way you have been treated, you may contact the Secretary, Victoria University Human Research Ethics Committee, Victoria University, PO Box 14428, Melbourne, VIC, 8001 phone (03) 9919 4781.