

**LEARNING ORGANIZATION, ORGANIZATIONAL
INNOVATIVENESS AND THE PERFORMANCE OF
SMALL AND MEDIUM ENTERPRISE
IN BANGKOK, THAILAND**

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DBA 2014

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BY

WORALUCK LALITSASIVIMOL

**Dissertation Submitted to
Othman Yeop Abdullah Graduate School of Business,
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in Fulfillment of the Requirement for the Degree of Doctor of Business Administration**

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ABSTRACT

This study investigated the relationship between learning organization, organizational innovativeness and the performance of small and medium enterprise (SME) in Bangkok, Thailand. Previous research found the learning organization and performance of large, medium and small firms to have significant positive relationships. However, little is known about the mediating effects of organizational innovativeness on learning organization and organizational performance relationships. Therefore, a gap remains in the empirical confirmation. In this study, the independent variables of learning organization included seven observed variables, namely continuous learning, inquiry and dialogue, team learning, embedded systems, system connection, empowerment and strategic leadership. The dependent variable was organizational performance. Organizational innovativeness acts as the mediator between learning organization constructs and organizational performance. The method of quantitative data collection was conducted by using mail surveys. A response rate of 39.2 per cent was obtained for the analysis of Thai SMEs throughout Bangkok. Structural Equation Modeling (SEM) was used with the Analysis of Moment Structures (AMOS) 18.0 to analyze the data. This study found four dimensions, namely continuous learning, embedded system, system connection and strategic leadership to have significant impacts on organizational innovativeness. Two dimensions, namely inquiry and dialogue, and team learning were found to have significant impacts on organizational performance. Organizational innovativeness has a significant impact on organizational performance. At the same time, organizational innovativeness also acts as the mediator between four dimensions of learning organization and organizational performance. The findings will assist SME owners and managers and government policy makers in learning efforts and in fostering innovativeness leading to superior performance.

Keywords: learning organization, organizational innovativeness, organizational performance, small and medium enterprise

ABSTRAK

Kajian ini mengkaji tentang hubungan antara organisasi pembelajaran, inovasi organisasi dan prestasi perusahaan kecil dan sederhana (PKS) di Bangkok, Thailand. Kajian sebelum ini mendapati bahawa organisasi pembelajaran dan prestasi perusahaan besar, sederhana dan kecil mempunyai hubungan positif yang ketara. Walau bagaimanapun, hanya sedikit sahaja yang diketahui tentang kesan pengantara inovasi kepada organisasi pembelajaran dan hubungan prestasi organisasi. Oleh itu, jurangnya masih kekal dalam pengesahan yang empirikal. Dalam kajian ini, pembolehubah bebas bagi organisasi pembelajaran termasuk tujuh pembolehubah bersandar yang diperhatikan iaitu, pembelajaran berterusan, siasatan dan dialog, pasukan pembelajaran, sistem terbenam, sambungan sistem, kepimpinan kuasa dan strategik. Pembolehubah bersandar ialah prestasi organisasi. Inovasi organisasi bertindak sebagai pengantara di antara membina organisasi pembelajaran dan prestasi organisasi. Kaedah pengumpulan data kuantitatif telah dijalankan dengan menggunakan kaedah kaji selidik mel elektronik. Kadar tindak balas sebanyak 39.2 peratus telah diperolehi bagi analisis PKS Thailand di seluruh Bangkok. Kaedah *Structural Equation Modeling (SEM)* telah digunakan dengan Analisis Struktur Moment (AMOS) 18.0 untuk menganalisis data. Kajian ini mendapati bahawa empat dimensi iaitu pembelajaran berterusan, sistem terbenam, sambungan sistem dan kepimpinan strategik mempunyai kesan ketara ke atas inovasi organisasi. Manakala dua dimensi iaitu siasatan dan dialog, dan pasukan pembelajaran didapati mempunyai impak yang ketara ke atas prestasi organisasi. Inovasi organisasi juga mempunyai impak yang ketara ke atas prestasi organisasi. Pada masa yang sama, inovasi organisasi juga bertindak sebagai pengantara di antara empat dimensi organisasi pembelajaran dan prestasi organisasi. Hasil kajian akan membantu pemilik dan pengurus PKS dan pembuat dasar kerajaan dalam usaha pembelajaran dan memupuk inovasi yang membawa kepada prestasi yang unggul.

Kata kunci: organisasi pembelajaran, inovasi organisasi, prestasi organisasi, perusahaan kecil dan sederhana

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LIST OF ABBREVIATIONS

| | |
|-------|-------------------------------------------------------|
| SMEs | Small and Medium Enterprises |
| OSMEP | Office of Small and Medium Enterprises Promotion |
| ISMED | Institute of Small and Medium Enterprise Development |
| DLOQ | Dimensions of the Learning Organization Questionnaire |
| LO | Learning Organization |
| OI | Organizational Innovativeness |
| OP | Organizational Performance |
| CL | Continuous Learning |
| ID | Inquiry and Dialogue |
| TL | Team Learning |
| ES | Embedded System |
| EM | Empowerment |
| SC | System Connection |
| SL | Strategic Leadership |

CHAPTER ONE

INTRODUCTION

1.0 Background of the Study

The small and medium enterprises (SMEs) of Thailand are significant to its economy, which account, in total, for 99 percent of all enterprises. Therefore, it can be understood how critical they are in sustaining the development of the country and acting as a fundamental mechanism in promoting the revitalization and progress of the country's economy as well as contributing towards poverty alleviation (OSMEP, 2012). Moreover, most SMEs have systems and procedures which are relatively simple and flexible providing immediate response, a short decision-making process, better understanding and faster response to the needs of customers. In spite of these supporting characteristics, the SMEs face significant challenges in maintaining their competitiveness both domestically and globally. It is vital that SMEs leverage their competitive advantages against large multinational companies, whether they compete in existing markets or attempt to expand into new global markets (Porter, 1985).

In the 1990s, the Thai government came to the realization that for economic development, SMEs played a critical role with their potential to contribute toward improving the distribution of income, creating greater employment, reducing poverty, expanding exports and developing rural economy entrepreneurship and industry. Additionally, after the 1997, economic downturn revealed that SMEs

had greater flexibility than big enterprises. The Thai government seriously started to focus on reviewing and launching new policies for small and medium businesses. As a result, the Institute for Small and Medium Enterprises Development (ISMED) was established in 1999 to encourage Thai SMEs. Several key initiatives began to develop infrastructure, increase capacity and capabilities, and assist with distribution of financing for SMEs. This has provided an opportunity for the SMEs to be creative and innovative in producing quality products and services to compete globally. At this time, 36.6 percent of the gross domestic product (GDP) derived from SMEs; SMEs' contribution to GDP in 2011 is still greatly related to the service, manufacturing, trade and maintenance sectors. The service sector is the most important economic activity with 33 percent of GDP, while the second is the manufacturing sector with 31.2 percent, the third, the trade and the maintenance sector which has a share of 28 percent. Concerning the country's GDP, the service and manufacturing sectors represent the most significant economic activity in Thailand. As to the contribution of export and import values towards the GDP by SMEs, the export value of SMEs accounts for 53.6 percent while the import value of SMEs comprises 80.97 percent (OSMEP, 2012). Levy, Berry, and Nugent (1999) stated, "There is no doubt that the performance of SMEs is extremely important for the economic development of most less developed countries" (p.1). Therefore, government support of SMEs has been extensive with subsidized credit schemes being one of the main elements of government assistance programs.

Even though the continuous performance improvement of SMEs must be considered in order to keep pace with the rapidly changing economic conditions and global competition. Nowadays, the shifting from a labor-based economy to a knowledge-based economy, such as knowledge, which is an intangible asset, becomes an important weapon of organizations for competition. One challenge for the management of knowledge is the organization's learning. Chen (2006) described "a process that gathers information from both the external and the internal environments of organizations. Organization members assimilated this information through collective struggle behavior which produces shared visions that can be utilized to cause changes to lead to an organization's success". Therefore, being a learning organization of SMEs, it is considered an important scheme in maintaining benefits and enhancing the performance of organizations (Buhler, 2002; Davis & Daley, 2008; Korth, 2007; Weldy, 2009). When defining a learning organization, such concepts as 'continuous learning' (Senge, 1990), 'improvement' (Gephart, Marsick, Van Buren, & Spiro, 1996; Griego, Geroy, & Wright, 2000; Rowden, 2001), 'construction, attainment and transition of knowledge' (Garvin, 2000; Lewis, 2002), 'the learning of each person, group as well as organization is attached to solid worth, perceptions and ambitions' (Moilanen, 2005; Senge, 1990), 'alteration' (Nevis, DiBella, & Gould, 1995) and 'changeover' (Pedler, Burgoyne, & Boydell, 1997) are usually cited. In addition, a learning organization signifies an intricate inter-connectedness of systems comprised of people, practices, advances in information and communication technology, and tools all dedicated towards embracing new information (Hanna, 2010; Simon, 1999). According to Grant (2005) indicated that organizations

continue the process of seeking strategies which will provide them competitive benefits. To deal with the current external opportunities and menaces, new knowledge and skills for improving their existing and future performances must be provided for the organizations (Child, Faulkner, & Tallman, 2005; Ortenblad, 2001). Similarly, Wickramasinghe & Schaffer (2005), learning involves a firm's capacity to adjust itself to fast-changing situations. Important to the process of learning is the acquisition and expansion of relevant knowledge. With their ability to learn, organizations are capable of responding more quickly and taking full advantage of each circumstance. As a result, they are able to remain superior and competitive. It is essential for organizations to pay more attention to the construction of a learning organization.

Many previous studies also show that the learning organization consists of certain behaviors and activities in order to achieve a positive result in organizational performance (Chajnacki, 2007; Davis, 2005; Demers, 2009; Herrera, 2007; Kumer & Idris, 2006; Lien, Hung, Yang, & Li, 2008; Song, 2008; Tseng, 2010; Weldy & Gillis, 2010). Yang, Watkins, and Marsick (2004) identified seven aspects of the learning organization: continuous learning, inquiry and dialogue, team learning, embedded system, empowerment, system connection and strategic leadership. Continuous learning signifies the effort of an organization toward creating an environment for continuous learning by all of the organization's members. Inquiry and dialogue points out the attempt by an organization to create a culture for asking questions, giving responses and experimenting. Team learning refers to collaboration and it is the collaborative skills of the individuals that make for an effective team. Embedded system involves an effort to take in and share

knowledge through the systems that have been established. Empowerment indicates the capacity of an organization to create and distribute a shared idea which was derived from its members who make a comparison between the present condition and the new perspective. System connection signifies the capability for universal thinking and the organization's action to remain in connection with its surroundings. Strategic leadership means leaders' planning on how to utilize learning to create changes and to allow their organizations to progress in the new ways. Implementing all of these seven aspects provides the supportive organizational system and strategic management roles of the learning organization (Yang et al., 2004).

Interest in the learning organization persists to encourage an increase of literature which suggests that, in order to reach their highest performances, organizations must enhance their learning ability (Marquardt, 2002) by obtaining new knowledge, developing skills and also finding proper solutions for problems concerning the organization's principles, values and assumptions (Argyris & Schon, 1996). Furthermore, Keiser and Koch (2008) demonstrated that new knowledge and skills are gained through studying the company's innovative abilities because an increase in the level of company's competitiveness and performance is required for improvement. Innovation is connected to the concepts of generation, agreement, and utilization of new ideas, processes, products and services specified by the firm's learning direction (Calantone, Cavusgil, & Zhao, 2002; Drucker, 2002). Hult, Hurley, and Knight (2004) accentuate that the ability to introduce new ideas can be considered an exposure to innovation and an organization's ability to create new things. Obviously, innovation is connected to

the ideas of creating, acknowledging and employing new thoughts, products, services and procedures (Drucker, 2002; Tidd, Bessant, & Pavitt, 2001), which is frequently decided by the organization's learning ability (Baker & Sinkula, 2002, Calantone et al., 2002; Chirico, 2008; Garcia-Morales, Ruiz Moreno, & Liorens-Montes, 2006). It is generally understood that learning companies are more able than their competition to respond more quickly and more effectively when facing critical changes given new data and circumstances (Tippins & Sohi, 2003). Therefore, it has been noted that learning is a stimulus increasing an organization's innovative capacity (Calantone et al., 2002; Hult et al., 2004). In other words, the learning process directly promotes innovation (Hunt & Morgan, 1996). As learning culture and innovative ideas are expended in an organization to apply new thoughts, products or methods to the organization's capability for creating innovation is increased, the capability of new products, marketing plans and technological progress for new products is improved (Brockman, Beverly, Morgan, & Robert, 2003; Drucker, 2002; Hult et al., 2004; Tidd et al., 2001).

Many researchers also agree that a solid capability to innovate results from the new knowledge and skills obtained through learning. In this way, both the levels of performance and competitiveness are improved (Baker & Sinkula, 2002; Keiser & Koch, 2008). One of the main driving forces for the enduring success of an organization in today's marketplace is innovation (Baker & Sinkula, 2002; Balkin, Markaman, & Gomez-Mejia, 2000; Darroch & McNaughton, 2002; Lyon & Ferrier, 2002; Utterback, 2001). Because of the importance of innovation given for the competitive position of the organization, various research studies have

attempted to determine the key factors of an organization's innovativeness (Calantone et al., 2002; Wang & Ahmed, 2004).

Additionally, past studies have discovered that the relationship between learning and innovativeness has a positive significant effect, and the relationship between innovativeness and performance also has a positive significant impact (Calantone et al., 2002; Eshlaghy & Maatofi, 2011; Hult et al., 2004; Jimenez-Jimenez, Valle & Hernandez-Espallardo, 2008; Keskin, 2006; Lin, 2006; Lin, Peng, & Kao, 2008; Rhee, Park, & Lee, 2010; Salim & Sulaiman, 2011; Suliyanto & Rahab, 2012; Ussahawanitchakit, 2008). However, their research does not include the intervening position of innovativeness. It can only be found in one study, reported by Dhamadasa (2009), in which the mediating effect of innovation measures the difference in the dimensions between learning and performance found in SMEs (Dhamadasa, 2009). Lacking mediating effects, this present study requires more evidence to determine innovativeness for the results.

Even if the foundation of this study is built upon the studies of Yang, Watkins, and Marsick (2004), many characteristics related to a rich learning environment have been identified and have been determined in defining a true learning organization through integrating: (a) the system viewpoint of Senge (1990) which is the mixture of many different elements of learning organization into a set of organized strategies that bring the development of organizations into an integral concept of which research is still ongoing; (b) the viewpoint of organizational learning developed by Pedler, Burgoyne, & Boydell (1997); (c) the viewpoint of organizational structure suggested by Garvin (2000) and Goh (1998); and (d) the

more integrable viewpoint presented by Watkins and Marsick (1996). Even so, the academic works which explore the connection between the seven aspects of learning organization and innovativeness are still inadequate in Thai SMEs. This is an under-researched area; therefore, there is a need for more empirical evidence in examining these relationships.

The study of strategic management has an emphasis on the comprehension of the sources of supporting competitive benefit (Flint & Van Fleet, 2005; King, 2007b; Ma, 2004). According to the Resource-based view (RBV), the sources and drivers which are essential to competitive strategies and outstanding results are frequently related to the qualities of their exclusive supplies and abilities (Barney, 2001; Mills, Platts, & Bourne, 2003; Peteraf & Bergen, 2003). There are many researchers who have pointed out the examples of resources that a company can have (Hall, 1992; Penrose, 1959; Wernerfelt, 1984). Wernerfelt (1984) indicates brands, internal technological knowledge, skillful staff, business agreements, equipment, effective processes and assets, while Hall (1992) suggests that the organization's culture, the employees' knowledge and skills, suppliers and dispensers contribute to a company's competitiveness. A learning organization recognizes and develops needed resources and capabilities - such resources as managers, employees, knowledge, capabilities as well as those assets that are the basis for superior performance and sustainability (Eisenhardt & Martin, 2000). In academic works which involve strategic management, it is argued that it is possible for companies to gain competitive benefit by improving existing capabilities as well as encouraging the company's future capacities (Prahalad & Hamel, 1990) and also by obtaining and improving vital, precious and exclusive

resources that cannot be replaced (Barney, 2001). In addition to these approaches, innovation has created an increase in competition, a ceaseless turbulence and change. Uncertainty has forced organizations to accept that a vital aspect of their corporate strategy is continual innovation. Innovation also requires existing knowledge to be transformed and fully utilized; thus, the necessity for the sharing of information and knowledge by all company members. Nonaka (1994) proposes that innovation happens when members of an organization exchange their knowledge and experience, which leads to the creation of new, diverging and converging perspectives (Leonard-Barton & Sensiper, 1998), allowing the emergence of new major capacities (Kogut & Zander, 1992; Leonard-Barton, 1995) which encourage innovation even more.

This study, therefore, aims at the empirical examination of the relationship of those seven dimensions or aspects of the learning organization with organizational innovativeness and organizational performance regarding Thai SMEs in Bangkok, Thailand. This study is intended to make a significant contribution both to academics and practitioners, both of whom are capable of promoting learning and are able to create within an organization a culture of innovation that maintains a competitive position and enhances individual and organizational performance. There is the possibility that the effect of these seven aspects, which can be witnessed on the performance of a learning organization, is both direct and indirect. Therefore, this fact can support the hypothesis which states that a major connection exists between the seven aspects of the learning organization, innovativeness and performance of organizations.

1.1 Problem Statement

Organizational performance is the business's accomplishment in the market. It is a study of factors affecting business achievement, SMEs natures, management and skills, including products and services, customers and market, the method of running a business and coordination, resources and finance, strategy, and external environment of SMEs in Thailand (Chittithaworn, Islam, Keawchana, & Yusuf, 2011). The objective is to provide a notion of people's business onset by considering all factors to reduce the risk of failure and increase opportunities for the attainment (Chittithaworn et al., 2011).

The largest numbers of small and medium enterprises are located in Bangkok, Thailand's economic center, where 20 percent of all of the 2,646,549 SMEs are situated (OSMEP, 2012). According to the promotion of SMEs in 2011, it was found that the organizational performance of 70 percent of SMEs in Bangkok was low and that their profits were less than 20 percent per year (OSMEP, 2012). OSMEP (2012) indicated that 43,194 enterprises in Bangkok registered with Office of Small and Medium Enterprises Promotion (OSMEP) have the efficiency and potentiality in enhancing and developing in their businesses. All this 43,194 SMEs have followed the family-style business management whereby accurate decisions both at the policy and operational level by the business owners, resulting in a lack of continuous learning, inquiry and dialogue, team learning, embedded system, system connection, and strategic leadership (OSMEP, 2012). This management style did not pay attention to the importance of the aggregation or the connection with other businesses. Moreover, the entrepreneurs hardly

realized the significance of personnel development. Therefore, these SMEs lacked the mechanism development which would have allowed their personnel to continually gain greater knowledge and additional skills for the management (OSMEP, 2012). It can be commended that 43,194 SMEs in Bangkok failed to become learning organizations, which are important factors to enhance organizational performance of SMEs.

Additionally, in terms of the innovative capability of SMEs in Bangkok, it was found that less than 50 percent of these 43,194 SMEs used technology or experienced personnel who were equipped with knowledge about technology for business (OSMEP, 2012). This indicated that there was limited use of technology. The technologies could be used to support management related to production, accountancy and finance because these are basic activities for business operation (OSMEP, 2012). OSMEP (2012) indicated that 43,194 SMEs in Bangkok had failed in terms of organizational innovativeness concerning the personnel's knowledge and ability to learn continually, exchange of information, teamwork, embedded system, authorization, accordance of technology and work, connection between information networks and development of executives' and organizations' ability. They could enhance the innovative potentiality and capability as well as the organizational result of operation to compete with competitors in the market. Therefore, it can be commended that the organizational innovativeness and learning organization relate to the SMEs enhancement for their future organizational development.

Based on the issue related above, the use of technology is an important tool for learning organization. It helps respond to change and increases working effectiveness which eventually leads to well respond to the customer's and employee's needs (Thianthai, 2007). Wannapaibool (2009) conducted research on impact of technology on organizational culture in Thailand found that technology used in office effects on organizational culture, enhancing the power of decision making effectively, reducing communication between office itself, changing ways of working toward faster and more thoroughly performance. Consequently, the implementation of technology creates a web board for employees to share their working knowledge and to post new useful articles which improve their work and promote learning organization. This innovative capability is constantly developed and self-learning and personnel development of members of the organization to search for solutions to problems on a daily basis which, in turn, strengthens the organizational performance (Bharadwaj, 2000; Koonsri, 2005; Lin, 2006).

SME efficiency is a basic feature of SME continuation and sustainability because effective factors such as learning and innovativeness or innovation have been found to activate business growth, technological advance, and creativity for both new and existing firms (Chittithaworn et al., 2011; Covin & Slevin, 1989). Keizer, Halman, and Song (2002) confirmed that the effects of organization's learning on SME efficiency are direct and indirect because SMEs were required to integrate innovation into their strategies obtaining market share, competitive prices, and the organization tends to be flexible and durable.

Many studies had investigated the factors affecting the performance of SMEs that used learning and innovativeness or innovation, such as Calantone et al., 2002, Dhamadasa, 2009, Hult et al., 2004, Keskin, 2006, Lin, 2006, Lin et al., 2008, Rhee et al., 2010, Salim and Sulaiman, 2011, and Suliyanto and Rahab, 2012, and confirmed the learning as significantly impacting on innovativeness or innovation. Therefore, learning and innovativeness or innovation played a vital role in increasing the performance of SMEs. Besides, one study had investigated the mediating effect of innovation between the dimensions of learning and performance confirmed that innovation act as a mediator between learning and performance of SMEs (Dhamadasa, 2009). However, little research on learning organization related to SMEs has been identified in Thailand. In addition, there has been little research identified on the effect of learning organization dimensions on organizational innovativeness and performance in Thai SMEs. Therefore, this study provides empirical research regarding learning organization dimensions, organizational innovativeness and the performance of SMEs in Bangkok, Thailand.

1.2 Research Questions

In view of the background of the study as well as the research problem which was raised in the section above, this study proposes to empirically investigate the follow research questions:

1. What are the relationship between learning organization dimensions and organizational innovativeness of SMEs in Bangkok, Thailand?

2. What are the relationship between learning organization dimensions and organizational performance of SMEs in Bangkok, Thailand?
3. What is the relationship between organizational innovativeness and organizational performance of SMEs in Bangkok, Thailand?
4. What are the mediating effects of organizational innovativeness in the relationship between learning organization dimensions and organizational performance of SMEs in Bangkok, Thailand?

1.3 Research Objectives

The objectives of this research are

1. To investigate the relationship between learning organization dimensions and organizational innovativeness of SMEs in Bangkok, Thailand.
2. To investigate the relationship between learning organization dimensions and organizational performance of SMEs in Bangkok, Thailand.
3. To determine the relationship between organizational innovativeness and organizational performance of SMEs in Bangkok, Thailand.
4. To investigate the mediating effects of organizational innovativeness on the relationship of learning organization dimensions and organizational performance of SMEs in Bangkok, Thailand.

1.4 Significance of the Study

The significant results of the study would be applicable for both the practitioners and academicians in a number of ways:

First, this study sets out to examine the relationship between aspect of the dimensions of SMEs in Bangkok of Thailand as learning organizations, their innovativeness, and their performance. Organizational innovativeness act as the mediating effects on the relationship between the dimensions of a learning organization including continuous learning, team learning, inquiry and dialogue, empowerment, embedded system, system connection, and strategic leadership and organizational performance. Meanwhile, learning organization dimensions are also used for the first time as the factors affecting organizational innovativeness. The new methods used in this study have a significantly positive impact on the study of the performance of Thailand's SMEs.

Second, the theoretical part of this study utilizes the dimensions of learning organization questionnaire (DLOQ) aiming to examine organizational innovativeness and organizational performance which has not previously been used by SMEs.

Third, the results of this study have integral in determining the best strategies to enhance the SMEs of Thailand especially whenever the Thai government and policy-makers consider infrastructure, regulations, and determine funding and grants for the development of Thai SMEs as well as to assist owners to compete and survive in today's dynamic market.

1.5 Scope and Limitations of the Study

There are several limitations that need to be acknowledged.

First, this research study utilizes a cross-sectional study approach and looks at companies at only one specific point in time.

Second, this study was confined to only Small and Medium Enterprises (SMEs) whereby the majority (20 percent) of businesses are in the Bangkok area of Thailand (OSMEP, 2012). The replication of the study of different areas throughout Thailand would enable better generalizability of the findings of the study.

Third, the key informants of this study comprise 392 owner/managers of the SMEs from the manufacturing and service sector. Therefore, a significantly larger sampling would be needed to appropriately generalize the findings of the study.

Finally, the research framework of the study was developed consistent with the important premise of a learning organization in practical terms and organizational innovativeness in sustaining organizational performance.

According to this research study, these three themes were examined for their interrelationship: a) Dimensions of a Learning Organization Questionnaire (DLOQ) created by Yang, Watkins, and Marsick (2004) was the tool used for measuring the seven dimensions; continuous learning, inquiry and dialogue, team learning, empowerment, embedded system, system connection, and strategic

leadership, b) an instrument entitled Organizational Innovativeness which had been developed by Hurley and Hult (1998), Wang and Ahmed (2004), and c) Organizational Performance was used to measure the non-financial metrics (subjective measures) developed by Lee and Tsai (2005), Lin (2006), and Yang, Watkins, & Marsick (2004).

1.6 Organization of the Study

This study consists of five chapters and with the following structure:

Chapter 1 introduces the background of the study, providing a statement of the problem, objectives of this research, specific research questions, outlines the significance and possible applications of the study, scope and limitations of the study, and delineates organization of the study.

Chapter 2 incorporates the following topics: overview of small and medium enterprises in Thailand, conceptualization of learning organization, conceptualization of organizational innovativeness, conceptualization of organizational performance, review of what is meant by learning organization and also organizational performance, and the inter-relationship that exists between learning organization, organizational innovativeness and organizational performance. This chapter also reveals gaps in the literature and provides suggestions for this study.

Chapter 3 provides a detailed discussion of the research framework, underpinning theory, hypotheses development, research design, operational definitions of variables, measurement of variables, data collection, pilot study, and technique of data analysis.

Chapter 4 is a presentation of both the analysis and findings within this study. This chapter discusses non-response bias test, data screening and outliers. The later part of this chapter discusses goodness of fit measures, confirmatory factor analysis, goodness of fit analysis of hypothesized model, goodness of fit analysis of modified model, and mediating variable results for the structural equation modeling (SEM).

Chapter 5 summarizes the conclusions of learning organization dimensions, organizational innovativeness and performance, and the mediating effects of organizational innovativeness affecting the dimensions of learning organization and organizational performance of SMEs in Bangkok, Thailand. The final part of this chapter outlines implications of the study, specific recommendations for possible future research, and conclusions.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The objectives of this study are to investigate the Small and Medium Enterprises of Thailand, the relationship between learning organization dimensions, organizational innovativeness, and the impacts on performance of the organization. In exploring each of these components, literature relevant to these research components has been reviewed. This chapter has nine sections. Section 2.1 presents overview of small and medium enterprises in Thailand. Section 2.2 sheds light on the conceptualization of learning organization. Section 2.3 presents conceptualization of organizational innovativeness while Section 2.4 presents conceptualization of organizational performance. Section 2.5 offers literature review pertaining to learning organization and performance while Section 2.6 offers literature that examines the relationship involving learning, innovativeness and performance. Section 2.7 presents Underpinning Theory and finally Section 2.8 provides a brief summary of the chapter.

2.1 Overview of Small and Medium Enterprises in Thailand

Rahman (2001) suggests that small and medium enterprises (SMEs) are the foundation of a country's economic development in that they provide

opportunities for work, as well as supply both goods and services for larger companies and organizations. SMEs are usually defined in terms of employee number, volume of sales, asset value, and extent of ownership of innovation and technology. The role played by SMEs is vital to Thailand's economy. For more than 20 years, globalization has been spreading throughout the world resulting in an increased level of national independence in terms of society, culture, politics, finance, economy, marketplace and environment. The term "globalization" is defined as the continuous integration of finance, products, supplies, scientific knowledge, ideas, and humans moving freely across country borders (Jones, 2002; Turri, Maniam, & Leavell, 2006). It is generally acknowledged that it is accompanied by activities which involve international companies and investors which expand globally to gain greater benefits (Graham, 1999). Successful SMEs contribute to the development of small communities and rural populations through activities involving construction, transportation, manufacturing, finance, and also by supplying consumer and agricultural related products and services. SMEs contribute to economic prosperity at all levels whether at the national, regional or community levels. All governments, in order to promote economic growth, give significant attention to the SME sector (Chenungsuvadee, 2006).

Thailand's SMEs are classified into three sectors including manufacturing, service, wholesale and retail. They are divided into two enterprises: small-based and medium-based, depending on the number of employees and amount of assets (OSMEP, 2012) as tabulated in Table 2.1.

Table 2.1

Definition of SMEs in Thailand

| | Number of Employees | Fixed Assets |
|--------------------|----------------------------|----------------------------|
| Small Enterprises | Less than 51 persons | Less than Baht 50 million. |
| Medium Enterprises | 51- 200 persons | Baht 50 – 200 million. |

Source: Office of Small and Medium Enterprises Promotion 2012. The white paper on small and medium enterprises of Thailand in 2011 and trends 2012, annual report 2012.

The total number of enterprises in Thailand in 2011 were 2,652,854, of which SMEs included 2,634,840 small enterprises, 11,709 medium enterprises and 6,305 large enterprises. SMEs accounted for 99.76 percent of all enterprises. When classified by economic activity, there were 997,664 SMEs in the service sector, or 99.81 percent of the overall enterprises, and 472,195 enterprises, or 99.52 percent of the overall enterprises, in the manufacturing sector. Concerning the employment generated by SMEs in 2011, the number of employees by enterprises of all sizes was 13,107,263, of which large enterprises employed 2,111,229 people and SMEs employed 10,996,034 people, which was considered 83.89 percent of the overall employment. At 75.42 percent, small companies comprise the largest proportion of all enterprises, and also the highest proportion of SMEs at 89.90 percent. When considering employment by key economic activities in 2011, the sectors of wholesale, retail trade, and repair of motor vehicles employed 3,822,415 employees of the SMEs employment. Further, the service sector accounted for the most employment at 3,920,118 employees of the SMEs employment, while the manufacturing sector employed 3,253,501 employees of the SMEs employment (OSMEP, 2012).

The Thai government has promoted SMEs under the SME Promotion Plan, which is aimed at ameliorating the negative effects resulting from economic crisis and at stimulating the revival of SMEs with an aim to achieve a greater level of performance. SMEs which have limited budgets and inadequate infrastructure for management are different from big enterprises because they frequently depend less on expensive research and development (R&D) as well as innovative investment (Jones & Craven, 2000; Lim & Klobas, 2000; Nootboom, 1993). For SMEs to gain advantage in the marketplace, innovativeness and introducing new products and services are vitally important (Rudder, Ainsworth, & Holgate, 2001). Today's leaders of small business enterprises, just like those in medium and large business enterprises, face numerous challenges. For instance, they may be required to accomplish more with limited financial resources, and are constantly adapting to the unrelenting pressures of changing technology and consumer demands. There is significant pressure to manage quality and to innovate in order to survive in a very competitive business environment. This pressure often serves to focus vision of business leaders to strive to develop one's enterprise as a learning organization as a key strategy in order to manage change (Marquardt, 2002). Learning occurs in individuals and groups within the organization and even within those communities that interact with the organization (Watkins & Golembiewski, 1995). For Argyris (1999), the learning inside an organization originated from two conditions. Firstly, it was believed that learning process happened when an intended plan was achieved. Secondly, in the event that the action was not successful, learning took place when the flaws were identified and rectified. One definition of a learning organization states that it is an organization

in which employees are excellent at the creation, acquisition, and transference of new theories and practices (Garvin, Edmondson, & Gino, 2008). As cognitive entities, organizations have the capacity to observe and reflect on their actions, experiment to determine the results of different plans and, afterwards, modify the actions so as to achieve their objectives and goals (Fiol & Lyles, 1985). Marsick and Watkins (2003) summed up that, at present, learning organizations play a major role in determining work atmosphere because employees usually get new jobs or are reluctant to share their knowhow because sharing knowledge could negatively affect their desire to achieve individual work success.

2.2 Conceptualization of Learning Organization

The term ‘learning organization’ achieved wide popularity in 1990s. A learning organization is a business value and an approach for the modern organization that purposefully aims at achieving full utilization of the potentialities of all organizational members for innovation and change, in order to survive and succeed in an ever changing business environment and in order to achieve a sustainable advantage (Baker & Sinkula, 1999a; Buhler, 2002; Davis & Daley, 2008; Korth, 2007; Pedler et al., 1997). The concept of a learning organization is an integration of very different aspects of human behavioral science and organizational science. It is rooted in such areas as organizational theory, organizational learning, system theory, strategic planning, strategic management, change management, and quality management.

2.2.1 Learning Prescriptions by the Organizational Scholars

This section provides a discussion regarding the fundamental notions and concepts of learning organization which are created by top organizational specialists. It is crucial for readers and practitioners to comprehend their ideas in order to have a clear understanding of modern approaches regarding being a learning organization. These scholars included DiBella and Narvis (1998), Garvin (2000), Pedler, Burgoyne, and Boydell (1997), Senge (1990), Watkins and Marsick (1996); and all of these people have offered great contribution of knowledge and discipline which encourages learning organizations' improvement.

2.2.1.1 Senge's Prescription

Senge (1990) is a well-known scholar who is broadly regarded as a leading contemporary specialist in learning organization and the author of *The Fifth Discipline: The Art and Practice of the Learning Organization*. This seminal work encapsulated the early enthusiasm of organizations experimenting with organizational learning in developing competitive advantage. The central ideas within his model were not considered new but rather they integrated concepts involving organizational learning and management practices. Senge (1990) indicated that organizations, wishing to excel, may wish to discard specific "learning disabilities" and become more effective in learning by mastering the five disciplines. The "fifth discipline" is systems thinking as a conceptual framework, which is the basis and combines all the other disciplines. Only through systems thinking can organizational learning occur. Each of these

disciplines occurs at four levels: individual, team, organizational, and inter-organizational. Senge's (1990) five disciplines of the learning organization consist of the following:

- Personal Mastery – Expanding personal capacity to create the desired results, and building an environment within the organization in which all are encouraged to develop themselves toward achieving the goals and objectives of their own choosing.
- Mental Models – Continual reflection, clarification, and improvement of internal mental images of the world and understanding of how our actions and decisions are molded through them.
- Team Learning – Elevating skills in communication and encouraging members to think collectively so that the entire group will be able to gain greater level of intellect and capacity which exceeds the combination of each member's talent.
- Shared Vision – Generating group commitment through the development of a shared image of the future, and identifying those attitudes and guidances that will lead to such future.
- Systems Thinking –Thinking about and using language that describes and understands those driving forces and interrelationships that determine how systems behave. This discipline indicates how systems can be more effectively changed and how our actions can be more aligned with the more efficient procedures of the world.

The research of this study comprises a comprehensive review of literature based on Senge's (1990) concepts and eleven years of having developed and conducted

workshops for almost 4,000 managers focusing on developing the skills relative to creating common viewpoint and individual capacity.

2.2.1.2 Watkins and Marsick's Prescription

Watkins and Marsick (1996) formulated six imperatives of action which aid individuals and groups to see the organization through a learning lens identifying those practices that contribute to learning and to identify and change obstacles that prevent or retard learning within the organization. Later, while revising their model, a seventh imperative was added indicating the need for leadership in the process of learning (Marsick & Watkins, 2003). Watkins and Marsick (1996) and Marsick and Watkins (2003) learning organization concept identifies the following seven action imperatives:

- Continuous Learning Opportunities – Continuous learning processes can be enhanced through learning how to learn, more effectual design for unofficial learning and instant learning. Constant learning is tactful; conducting tests is required in order to train executives of the organization to be coaches and facilitators.
- Promotion of Inquiry and Dialogue – Open minds and open communication is needed for effective dialogues. Inquiry requires the ability to question and even challenge basic assumptions without attacking other individuals.
- Collaboration and Team Learning – When team members develop the ability to frame and reframe, conduct experiments, go beyond borders and construct a unifying viewpoint, the learning of the entire team is significantly enhanced.

Through working in such groups, people can develop the ability to work cooperatively and collaboratively through which the organization's capacity in achieving unity in action on shared goals is greatly enhanced.

- **Systems to Capture and Share Learning** – The capability of organizations to reflect in new ways can be engendered which, then, in turn, can be systematized and shared with others. Ways are found that are conducive to sustaining learning even with today's highly mobile, short-term employees.
- **People Empowerment Toward a Collective Vision** – The organization's members are able to view the entire picture, know how to effect action, have a budget available allowing them to act, and know how others can be influenced. Information about planning, learning and the capacity to assess their specific needs compared with organizational needs is accessible by all.
- **Connectivity of the Organization to its Community and Environment** – Organization's reliance on its environment is identified and developed. Relationship with the internal environment responds to the necessity of other organizational members. External stakeholders include, very broadly, the physical environment, their society, and those communities around the organization.
- **Strategic Leadership for Learning** – Leaders provide a model as well as foster learning process; business managers will apply tactical learning to achieve better outcomes. To be a true learning organization, leaders are needed who can direct, facilitate and create dynamism. Leadership should be able to think strategically regarding the effective use of the learning process, to change or redirect the entire organization into a new direction or market.

The research base of Watkins and Marsick's (1996) concept was developed through profound case studies which were carried out at organizations such as Tel-Labs Inc., Air Products and Chemicals, General Electric, International Business Machines (IBM), Johnsonville Foods, Coopers & Lybrand, and Whirlpool. A review of their study consists of 12 earlier researches on subjects such as action-reflection learning, team learning, collective learning, development of employees, unofficial and casual learning as well as how to improve learning in working environment.

2.2.1.3 Pedler, Burgoyne, and Boydell's Prescription

Pedler et al. (1997) developed the concept of applying the "learning company" to "learning organization". They combined and integrated the functions of organizational plans with management of human resources in order to raise work-life standard for the achievement of greater organizational performance. These are the eleven elements of Pedler et al.'s (1997) concept of the learning organization:

- **Learning Approach to Strategy** – The learning process is consciously structured to reflect on the policy of the company and strategy formation as well as on implementation, evaluation, and improvement. The plans to attain constant development based on experience are intentionally small-scale experimentations and reaction loops.
- **Participative Policy Making** – Opportunities are developed for the involvement, discussion and contributions of all in formulating major policy decisions.

- **Informing** – In order to inform and empower people, information technology is used for widely disseminating data and layouts for better understanding of information. Records of data are used for empowerment whereby a person is capable of questioning or conversing with other members in exciting and pleasurable ways which lead to greater learning.
- **Formative Accounting and Control** – Systems of budget checking, bookkeeping and report submitting should be established in order to assist the learning process, and to bring delight to one's internal customers.
- **Internal Exchange** – Within the company, all divisions should think of themselves as clients and contractors when they work with one another in a partially regulated market economy and interact collaboratively rather than competitively.
- **Reward Flexibility** – Introduce, share, and examine alternative reward systems in order to determine whether participants agree with the fundamental principles.
- **Enabling Structures** – Loosely structure roles according to the requirements of internal customers, suppliers, allowing for personal growth and experimentation. View departmental boundaries as flexible, responsive to changes in the future.
- **Environmental Scanning** – Every member who must deal with consumers, purchasers, suppliers, partners, etc. should read the environment. Such boundary workers should systematically gather and share information that is processed and distributed to others.

- **Inter-Company Learning** – Participation in learning activities which offer mutual benefit, for example, multiparty training, co-investment, research and development, exchanges of positions, etc., may allow members of an organization to understand their competitors and other businesses.
- **Learning Climate** – A manager's primary task is to facilitate learning and experimentation of the members, to provide time for obtaining feedback, and to obtain data that will create better understanding.
- **Self-Development Opportunities for All Members** – Company members, including all employees as well as external stakeholders, may avail themselves of resources and facilities. All people are encouraged and guided in assuming responsibility for their own development and learning.

Pedler et al.'s (1997) research was based on 15 years of experience conversing with executives and dealing with working organizations in Britain such as British Steel, Procter & Gamble, the Iron & Steel Industry Training Board, the Workers' Educational Association, and Sheffield Polytechnic.

2.2.1.4 DiBella and Nevis's Prescription

Learning organizations of DiBella and Nevis (1998) were viewed from 3 viewpoints: standardizing, advancing and potential. There are ten elements in the learning organization concept of DiBella and Nevis:

- **Scanning Imperative** – Members of the organization search for data concerning the knowledge and methods beyond their group; they collect information about external factors.

- Performance Gap – Members share their perceived understanding of the gap contrasting the current situation with the performance conditions they desire.
- Concern for Measurement – Members invest considerable time and effort in determining and evaluating main factors. Discussion about assessment is one of the learning activities.
- Organizational Curiosity – Interest in practices and conditions, cultivation of innovative concepts, usage of state-of-the-art technologies and curiosity in trialing are encouraged.
- The climate of Openness – Candid communication between all members of the organization; issues, errors and lessons are exchanged.
- Continuous Education – A strong commitment by the organization to the provision of quality learning resources.
- Operational Variety – High value and appreciation is placed on different methods, procedures, and diversity of thought and opinion.
- Multiple Advocates – Members at all organizational levels can advance new ideas and methods; a variety of advocates and champions are acceptable at all levels.
- Involved Leadership – The personal and active involvement of leaders in learning initiatives that fosters and maintains a learning environment.
- Systems Perspective – The interdependence among organizational teams and departments is recognized; recognition of the time delay between actions and their results is also recognized.

The studies upon which Dibella and Nevis (1998) based their concept resulted from a profound study of 7 organizations from America and Europe as well as a diversity of field-based opportunities of 25 Fortune 500 firms. The researchers concluded that building organizational learning capability has an objective to maintain or develop the team and/or organization's performances.

2.2.1.5 Garvin's Prescription

Garvin (2000) focused on business needs applying learning theory to concrete discussions concerning policies, programs, and procedures needed for implementing a successful learning organization. Garvin's (2000) notion of a learning organization comprised these five aspects and their meanings:

- Establish a Learning Environment – The following conditions were determined as critical in creating an environment that fosters learning: recognizing and accepting variant opinions; providing frank and timely feedback; pursuing new approaches of thinking and unexploited sources of information; and allowing that the price for improvement means accepting errors, missteps, and occasional failures.
- Gather Intelligence – Through search, inquiry, and observation, data should be collected. The search process includes analysis and the research of open sources or papers. Query means creating framework and raising perceptive questions during the process of carrying out interviews and surveys. Inspection requires direct communication with those who use that service or product; primary skills required for observation are to look and listen attentively.

- Learn from Experience – Learning can be fostered through repetition and exposure. Through repetition, the same tasks can be carried out more efficiently given time. Exposure to new environments or assuming new duties and responsibilities can heighten the development of new talents and skills.
- Provide Experimentation Opportunities – Opportunity for experimentation through exploration and the testing of hypothesis should be provided. Focused but open-ended searching can create a clearer map of the unknown by means of exploration. Hypothesis testing can discriminate among alternative explanations confirming or discounting variant viewpoints.
- Develop Learning Leaders – The responsibility of organizational leaders can be said to be three major tasks. First, by planning proper settings and compulsory activities, the leaders are able to create opportunities for learning. Second, by fostering desirable values, behaviors, and procedures, they cultivate an atmosphere conducive to greater learning and experimentation. Third, leaders of organizations must themselves lead discussions, frame ongoing debate, generate meaningful questions, listen with attention, and provide feedback as well as closure.

The research base of Garvin's (2000) concept was conceived and developed from a broad range of case studies which involved interviews, observations, and reviews of internal documents that were collected from these six companies: L.L. Bean, Xerox Corporation, General Electric, Allegheny-Ludlum Steel, Timken, and the United States Army.

2.2.1.6 Comparison of Learning Organization Experts' Prescriptions

This subdivision concentrates on a concise comparison between each researcher's prescription regarding organizational learning. The similarities and differences between the prescriptions are underlined. Even though learning approach of each scholar could be different, many common standards that learning organizations share can be notified.

Nevertheless, each method has its strengths and weaknesses. For example, Senge's (1990) method includes the notion of the culture of the organization which influences the structures of learning, a systems approach in making decisions, and collaborative leadership directing organizational change. Pedler et al.'s (1997) takes the approach of emphasizing personal relationships, having fewer hierarchical structures, and all employees having greater accessibility. Garvin's (2000) approach enlarges on three kinds of organizational learning with the use of a subjective viewpoint: compilation of brainpower, learning from past experiences and arrangement of experimental opportunities. Watkins and Marsick (1996) and Marsick and Watkins (2003) approach is more integrative; incorporating personal and team learning into the mission of the organization and its performance outcomes. The approach of Dibella and Nevis' (1998) indicates that the main purpose of organizational learning is the development of organizational performance and the acknowledgment of the latent value and involvement of every single member of the organization.

The above ideas regarding learning organizations have been demonstrated chronologically, showing how some important components were kept and adjusted by the next researcher. For instance, Senge's (1990) idea of "individual skills" can also be witnessed in other scholars' academic works but in different wording like "individual's dedication to learning" (DiBella & Nevis, 1998), "opportunity for people to improve themselves" (Pedler et al., 1997), and "continuous learning" (Watkin & Marsick, 1996). Similarly, the concept of "system thinking" of Senge was later primarily termed as the interdependencies which exist within the system of an organization and later labeled as complex interrelationships that exist between a company and its surroundings (DiBella & Nevis, 1998; Watkins & Marsick, 1996). Watkins and Marsick (1996) consciously present seven action essentials (Marsick & Watkins, 2003). It should be noted that they have selected optimum components that strongly support the studies of Senge (1990) and of Pedler et al. (1997).

2.2.2 Defining Learning Organization Process

Generally, a number of scholars have divided the procedures in learning organizations into two phases (Argyris & Schon, 1996; Duncan & Weiss, 1979; Fiol & Lyles, 1985; Hedberg, 1981; Kim, 1993; March, 1991; Senge, 1990; Slater & Narver, 1995)

Duncan and Weiss (1979) defined the learning process as "Learning at Behavioral Level" and "Learning at Strategy Level". Learning at Behavioral Level is the control exercised by an organization when adjusting to the environment, and its

ability to make decisions that affect its regular work routine. As for Strategy-Level Learning, it leads to the overall development and the adjustment of values and regulations of the organization.

Hedberg (1981) defined learning process as “Learning at Primary Level” and “Learning at Meta Level”. Primary Level is the occurrence of merely adjusting parameters within a set structure to varying on-going demands, and Meta Level occurs when changing the norms, values, and views of how the world is operating.

Fiol and Lyles (1985) defined the learning process as “Learning at Lower Level” and “Learning at Higher Level”. The lower level means impermanent, surface learning and recurrence of manners. On the other hand, the higher level takes place when more complicated regulations and relations, as well as innovative acts which have an effect on the whole organization, have been developed.

Senge (1990) and Slater and Narver (1995) defined the learning process as “Adaptive Learning” and “Generative Learning”. Adaptive learning represents learning within routines already existent or activities within the normal scope of the organization. Generative learning represents new approaches of viewing the world, and questioning traditional assumptions and regular routines.

March (1991) defined learning process as “Exploitation” and “Exploration”. Exploitation is focused on learning which may utilize, develop, or refine those competencies that already exist. Exploration, on the other hand, is learning that occurs while pursuing new knowledge and experimenting with different approaches.

Kim (1993) defined learning process as “Operational Learning” and “Conceptual Learning”. The former is the gaining of skills and knowledge which entail the capacity to generate physical outcomes or acts. Conceptual learning is the acquisition of knowledge and understanding, implying the cognitive capability to express an abstract comprehension of what had occurred.

For Argyris and Schon (1996), learning processes are Single-looped and Double-looped. The former arises when mistakes are noted and rectified without changing the underlying governing policies or the organization’s values. However, the latter happens not only when mistakes are detected and corrected, but also when, at a higher level, the organization examines and modifies existing values, procedures, policies, and objectives.

Generally, within organizations and important to the process of learning, are both forms—learning in regular and recurring circumstances (lower-level/adaptive/single-looped), and learning in situations of more complexity (higher-level/generative/double-looped) (Argyris, 1993). Adaptive and other types of learning are representative of improvement resulting from incremental changes in the structures of knowledge. This learning form reflects an improvement or incremental change inside the existing system of processes, regulations, patterns, and psychological representations. Levitt and March (1988) suggested that adaptive learning happens in two directions: the first is a haphazard process of trial-and-error whereby routines that are successful are determined and then applied; the second is a purposeful organizational search adopting from a range of alternate routines which are in harmony with their current behavior and similar to

those habits which appear to gain accomplishment. Generative learning involves a different approach due to a major change in knowledge structures. Questioning, altering, or radical departure from the regular system of thinking characterizes this form of learning. Dodgson (1993) suggests what compels an organization towards generative learning is dissatisfaction derived from “indecisive scientific advancement and market situations” (p. 378) as well as a real concern for their capability in responding effectively to competitive challenges.

2.2.3 Levels of Learning Organization Process

The procedure of learning organization could happen at different stages: personal, team and organizational. Each employee is intellectual and has a tendency to intentionally obtain new knowhow while working. Such quality is crucial for the procedure of learning organizations. Team level is the next stage which generates the procedure of organizational learning.

2.2.3.1 Individual Learning Level

Many scholars consider learning of individuals as the foundation for the process of the learning organization (Argyris & Schon, 1996; Marsick & Watkins, 2003; Senge, 1990; Simon, 1991). However, according to Argyris and Schon (1996), "learning at individual level is important, but it is inadequate for the procedure of learning organizations" (p.20). Marsick and Watkins (2003) define individual learning as a spontaneous procedure when an individual confronts inconsistencies or challenging situations in his environment and makes use of his intelligence to

implement a possible strategy, evaluate its effectiveness, and then begins the cyclical process once more. Simon (1991) indicates that learning process takes place in each human brain: an organization only gains comprehension in two manners: (1) by its members' learning; (2) by an addition of new human resources who possess new knowledge that the organization never had before (p.176). Senge (1990) also indicates that learning by personnel is the major factor which contributes to the learning of organizations. "Even though the learning of individuals cannot assure the learning of organizations, no organizations can learn without it" (p.236).

For individual learning, "intuiting" is the cognitive means of developing new understanding. Individual competencies can be job specific, and possibly not applicable to another context. Generic competencies, however, important for the learning of individuals, have also been identified; competencies such as the ability to admit pessimistic reaction positively and not to be self-protective (Argyris & Schon, 1996), the bias in favor of self-improvement (Pedler et al., 1997), the acquisition of outside knowledge (Bertini & Tomassini, 1996), and the possession of an inspecting essential (Nevis et al., 1995).

2.2.3.2 Group or Team Learning Level

Many scholars consider group learning to involve the capacity of individuals to share individual understanding in order to develop a collective understanding (Argyris & Schon, 1996; Senge, 1990; Watkins & Marsick, 1996). Senge (1990) stated that team learning is very crucial because of the fact that teams, not

individuals, are the essential learning unit in every organization. It is the most important point; if teams cannot learn; neither does the organization (p.10). Argyris and Schon (1996) and Watkins and Marsick (1996) described group learning occurring when members of groups engage in discussion and share ideas and information. A fundamental element of the integrative process is engaging in dialogue.

At the group or team learning level, the key element is the process of integration. Certain competencies likewise are required such as efficiency in working as part of a team, organizing creative conferences, choosing the right man for the right job, addressing pertinent issues, and ensuring key aspects of dialogue are involved such as sharing successes and failures, maintaining unity with a diversity of views, and resolving conflict effectively.

2.2.3.3 Organizational Learning Level

Scholars have expressed various opinions regarding how to view organizational learning. Some consider a firm to be a compilation of individual staff; some consider learning part of the systems, structures, or procedures inherent to the organization. For example, Crossan, Lane, and White (1999) suggest that at the organizational level, learning is more than large-scale sharing of understanding. Organizational learning level is the transformation and embodiment of common comprehension while innovative products, progression, courses of action, formation of strategies which, as an abstract asset of the organization, endures although individuals may leave the organization. In addition, at the organizational

level, learning will help to align elements within organizational strategy. Eventually, if the learning of organizations is intended to encourage a supporting competitive benefit (DeGeus, 1988), its link to an efficient principle must be identified. Because of the fact that global competition is in a state of constant flux, organizations must acquire the capability to renew themselves strategically (Quinn, 1992).

The level of organizational learning requires translating a shared understanding into products, procedures, structures, systems, and strategies. Organizational learning, as a concept, has remained widespread (Dodgson, 1993) and the most relevant research studies appear to agree that the learning of organizations is the consequence of each member's learning (Argyris & Schon, 1996; Dixon, 1994; Kim, 1993). Argyris and Schon (1996) suggested that organizational learning is not only the sum of individual learning but that it is a result of the know-how and deeds of individual members. Dixon (1994) and Kim (1993) indicated that individuals are involved in processing cognitive maps within their working environment. When these maps are articulated and shared, then the fruits of individual learning are transformed to the level of organizational learning.

2.2.3.4 Dimensions of the Learning Organization Questionnaire (DLOQ)

Watkins and Marsick's (1996) first definition of a learning organization is an organization that engages in continuous learning for continuous improvement and possesses the capacity for continual transformation. Their instrument, Dimensions of the Learning Organization Questionnaire, (DLOQ) is an instrument whose

seven action dimensions distinguish organizations that are making efforts to become learning organizations: 1) continuous learning, 2) team learning, 3) inquiry and dialogue, 4) empowerment, 5) system connection, 6) embedded system, and 7) strategic leadership. Initially, these interconnected elements of organizational transformation and development were for all levels whether individual, team, and organization (Watkins & Marsick, 1997; Yang et al., 2004). The DLOQ learning organization assessment tool facilitates organizational members to determine the degree to which their organizations follow those practices and principles identified by the seven dimensions (Marsick & Watkins, 2003). Marsick and Watkins (2003) advanced the argument that climate and cultural aspects are composed of complex components, such as learning process, leadership, and similar supportive systematic dimensions. Specifically, the DLOQ consists of seven dimensions of a supportive learning organization that are fundamental contributing to a culture of enhancing a progressive process of organizational learning at the levels of organizational structure and collaborative learning of individuals. The DLOQ is an integration of two concepts: learning organization and organizational learning. Such sub-dimensions of the DLOQ which include continuous learning, system connection, and embedded system are integrally connected with mechanisms that gives rise to that entity becoming a learning organization. Team learning, dialogue and inquiry, strategic leadership, and empowerment are more involved with processes within the organization. Originally, DLOQ was composed of 43 items measuring the seven dimensions; at a later stage, Yang (2003) and Yang et al. (2004) further developed the DLOQ, based on empirical validation of the instrument, and devised a shorter version

consisting of 21 items which did not diminish the basic value of the original theoretical structure.

2.3 Conceptualization of Organizational Innovativeness

The notion of innovativeness of organizations was initially utilized to describe a process of opportunities when adopted in practice (Schumpeter, 1934; Tidd et al., 2001). It provides flexibility for firms to choose different alternatives to please their clients on a supportable foundation that will ensure the firm's survival (Banbury & Mitchell, 1995). Organizational innovativeness is an indication of the extent to which an organization may accept and implement change and innovation.

Organizational innovativeness has different definitions when used in different contexts. Schumpeter's study (1934) offers a variety of possible innovative alternatives, such as the development of new products or services, adopting new production methods, determining new markets, finding new resources, and developing new organizational forms. Levitt (1966) suggests that industrial and business level criteria are the basis of organizational innovativeness. He considers organizational innovativeness from two vantages: (1) newness in the sense that it is the first time something is being done, and (2) newness in that it is the first time being done by the company or by the industry. Urabe (1988) defines innovativeness a new idea being generated and implemented into a new product, process, or service, thus resulting in dynamic national economic growth, increased employment and also giving rise to pure profit for that innovative business

organization. Davis, Morris, and Allen (1991) defined innovativeness as “searching for creative, unusual, or unique methods of addressing challenges and needs that results in new products and services, and also new processes and technologies that carry out such entrepreneurial functions that may include sales promotion, production, packaging, delivery, and administration (p.44). Ali, Krapfel, and Labahn (1995) argue that innovativeness can be considered as a construct of the market and is the product’s uniqueness or novelty to the market. Lumpkin and Dess (1996) view organizational innovativeness as reflecting organization’s propensity to seek new ideas that can lead to the development of new products.

Various studies have many different indicators or dimensions to measure organizational innovativeness (Anderson & Ortinau, 1988; Capon, Farley, Hulbert, & Lehmann, 1992; Ettlie, Bridges, & O’Keefe, 1984; Hage, 1980; Han, Kim, & Srivastava, 1998; Hurley & Hult, 1998; Lawton & Parasuraman, 1980; Miller & Friesen, 1983; Robertson, 1967; Wang & Ahmed, 2004).

Miller and Friesen (1983) pointed out four major aspects which are product or service innovations, production methods or the provision of services, executives taking risks, and searching out unique and unusual solutions.

Ettlie, Bridges, and O’Keefe (1984) and Hage (1980) distinguish between two levels of innovativeness: radical and incremental innovations. Radical innovations include products new to the adopting business and departures from existing

production patterns. Incremental innovations include adjustments to existing products and production patterns.

Anderson and Ortinau (1988) and Robertson (1967) identify three categories of innovations: continuous innovations, dynamically continuous innovations, and discontinuous innovations. These categories represent different levels of innovativeness. Continuous innovations involve alterations to existing products. Dynamically continuous innovations involve the development of new products without altering existing production patterns. Discontinuous innovations involve the development of new products and new production patterns.

Lawton and Parasuraman (1980) base their scale on two dimensions of innovativeness: (1) the degree of change in the user consumption pattern necessitated by adoption, and (2) the degree of difference between the new product and those already on the market.

Capon, Farley, Hulbert, and Lehmann (1992) suggested that there are three aspects of organizational innovativeness: marketplace novelty, strategic partiality to initiation, and advanced technology.

Han, Kim, and Srivastava (1998) assessed organizational innovativeness on the basis of two components: technical and administrative innovation.

Hurley and Hult (1998) introduced two innovation constructs: innovativeness and the capacity to innovate. They indicated that innovativeness is the concept of being open to new approaches and ideas as a dimension of organization's cultural

orientation. Cultural innovativeness then reflects the extent to which an organization is oriented toward innovations. The innovative capacity is the organization's capability to accept and implement new ideas, products, or processes successfully.

Wang and Ahmed (2004) indicated five important dimensions which verify organizational creativity: the newness of (1) product, (2) market, (3) process, (4) behaviour, and (5) strategy. Product innovativeness is considered "the innovativeness and value of new merchandises launched to the marketplace at the right time". Product novelty can be distinguished from other inventive features that will come later. Therefore, innovativeness of product may be considered as a determining factor. Innovativeness of market is considered "new-fangled methods that firms implement to make an entrance into their targeted market and gain profit from it". Although innovativeness of product is primarily the newness of the product, innovativeness of market emphasizes the unusualness of the market approach. Even though they may be considered as distinct factors, nevertheless, they are integrally connected. Innovativeness of process means "the launch of new ways of production, management and technologies utilized in improving processes of both production and management". Process innovativeness is "vital for innovative capacity in general since the potential of an organization to make efficient use of its resources and capabilities, and its capacity to merge and organize its resources and abilities to once again to keep up with market requirements, is important for the accomplishment of the organization". Behavioral innovativeness can be seen at different levels in the companies: individual, group and managerial. This is a reflection of "the continual change of

the organization's behavior towards modernization, which is behavioral obligation, and allows the configuration of a new culture, the general in-house receptiveness to new concepts and novelty". Meanwhile, strategic innovativeness depicts the ability of the organization to pinpoint outside opportunities at appropriate time and meet such opportunities with inner capacities either by delivering new products or discovering new marketplaces or business segments.

2.4 Conceptualization of Organizational Performance

Organizational performance is the concept that an organization can be conceived as an association of productive resources, including human, physical, and capital, in order to achieve a common objective (Alchian & Demsetz, 1972; Barney, 2002; Jensen & Meckling, 1976; Simon, 1991). Organizational performance indicates to what extent an enterprise is able to achieve its purposes (Hamon, 2003; Venkatraman & Ramanujam, 1986). An organization can assess organizational performance according to how efficiently and effectively it achieves its goals (Robbins & Coulter, 2002). The term 'organizational performance' is interchangeable and synonymous with 'effectiveness' (Anderson, 2006; Hancott, 2005; Montanari, Morgan, & Bracker, 1990). Anderson (2006) suggests that the notion of effectiveness can be considered as a ratio: two entities are needed for effectiveness to be defined and measured. He also regards effectiveness as the degree of the achievement of profitability goals. Hancott (2005) indicates that since the mid-1900's, various indicators have been selected in order to measure organizational performance, such as rate of growth of profits, net or total rate of

growth of assets, financial return on sales, financial return to shareholders, expansion of market share, increase in new products, net asset return, etc. Montanari, Morgan, and Bracker (1990) also pointed out that measurement of organizational effectiveness can be done through financial, operational and behavioral means. First, the scholars indicated that financially, financial performance can indicate the profitability and growth of an organization. Second, such aspects as productivity, efficiency, resource acquisition, and employee reaction – all operational activity - can assist in determining the effectiveness of the work activity of organizations. Third, individual performance which indicates behavioral effectiveness can be measured by aspects such as absence of strain, satisfaction, adaptability, development and open communication.

Different internal measures are highlighted in various studies when focusing on the degree to which goals are achieved as the major aspect in measuring performance (Etzioni, 1964; Pfeffer, 1982; Price, 1972) and in describing organizational performance, using this to measure the health of organizations (Argyris, 1964; Bennis, 1966; Likert, 1967). Yet other researchers highlight external factors when assessing performance, examining the organizational relationship to its environment (Schermerhorn, Hunt, Jr, & Osborn, 2002; Seashore & Yuchtman, 1967). Schermerhorn, Hunt, Jr, and Osborn (2002) suggest that both the quality and quantity of the achievement of individuals or groups indicate performance. Seashore and Yuchtman (1967) indicate that organizational performance can be determined by the capability of the organization to survive, “the ability of the organization to utilize its environment by acquiring limited and beneficial resources in maintaining its operations”.

Both financial and non-financial aspects measure organizational performance. Financial aspects include return on investment (ROI), profit, growth (Smith, Bracker & Miner, 1987) and return on sales (Chong, 2008). In this context, Bucklin and Sengupta (1993) claim that financial measures of performance, such as sales and profit, may not clearly reflect the quality of the SMEs' performance. Chong's (2008) assessment of the performance should be made in a complementary way, by analyzing its effect on the non-financial aspects of various enterprises, such as size of workforce (Davidsson, 1991; Loscocco & Leicht, 1993; Mohr & Spekman, 1994; O'Farrell, 1986; Orser, Hogarth-Scott, & Riding, 2000; Robinson & Sexton, 1994), market share growth (O'Farrell, 1986), revenue growth (Miller, Willson, & Adams, 1988), revenue per employee (Johannisson, 1993), customer satisfaction (Leseure, Shaw, & Chapman, 2001), market share (Bouchikhi, 1993; O'Farrell, 1986), and revenue generation per employee (Johannisson, 1993). These various aspects require constant assessment and regular review in order to continue to be pertinent in a changing and competitive environment with fluctuating availability and variable costs of resources (McGee, Dowling, & Megginson, 1995), responding to the requirements and demands of stakeholders (Srinivasan, Woo, & Cooper, 1994), and fit into internal planning and target setting (Merz & Sauber, 1995).

Many scholars have utilized various means in the measurement of organizational performance (Huselid, Jackson, & Schuler, 1997; Keskin, 2006; Lee & Lee, 2007; Lee & Tsai, 2005; Lin, 2006; Lin & Kuo, 2007; Majid, 2011; Ruzzier, Hisrich, & Antoncic, 2006). Keskin (2006) used a multi-company and multi-industry sample, an attempt was made to control for performance differences in the nature of firms

by using relative performance measures, such as market share, growth rate, and profitability. Lee and Lee (2007) indicated that measurement of organizational performance is separable into four major areas: financial aspects, intellectual capital, physical and non-physical benefits, and a balanced scorecard. Some studies suggest using human performance indicators, such as employee retention and motivation, as well as its performance in the market including sales, profit margins, and customer satisfaction (Huselid et al., 1997; Lin & Kuo, 2007). Lee and Tsai (2005) used 11 variables to measure business performance, such as (1) cycle time of new products; (2) success rate of new products; (3) differentiation of product; (4) new products and applications reaching market first (5) rate of introducing new products; (6) customer satisfaction; (7) return on investment; (8) growth of sales; (9) share of market; (10) growth of market share; (11) profitability. Lin (2006) used such constructs in providing a definition of organizational performance. Lin suggests that organization performance can be considered the extent to which an organization, in terms of its ability, acquires and efficiently uses its available resources to achieve specific goals. Furthermore, the researcher focuses on organizational members' perceptions of the overall performance at the organizational level and is considered as an indicator of how well the organization is doing according to such criteria as efficiency, organizational flexibility, and adaptability. Majid (2011) measures SME performance in terms of the perceptions of owner/managers in the improvements of their share of the market, profitability, growth of sales, return on performance and general performance of the organization. Meanwhile, Ruzzier et al. (2006) in their study of SME internationalization proposed both sales growth and

profitability as performance indicators. Generally, performance is a measurement or indicator for the evaluation or assessment of individuals, groups, firms and organizations. It reveals the strengths and weaknesses of what one wants to measure (Lucky, 2011).

2.5 Empirical Studies on Learning Organization and Organizational Performance

This section reviews the literature of learning organizations by reporting empirical studies using the Dimensions of the Learning Organization Questionnaire (DLOQ) in assessing organizational performance from many researchers from many countries (Akhtar et al., 2011; Awasthy & Gupta, 2011; Chajacki, 2007; Davis, 2005; Demers, 2009; Ellinger, Ellinger, Yang, & Howton, 2002; Herrera, 2007; Kumar & Idris, 2006; Lien et al., 2008; Song, 2008; Tseng, 2010; Wang & Yang, 2007; Weldy & Gillis, 2010; Yang, 2003; Yang et al., 2004).

Ellinger, Ellinger, Yang, and Howton (2002) examined the general impact of the learning organization on financial performance. In this study, 208 logistics managers for profit-oriented American organizations were surveyed including manufacturers in industries such as retail, food, paper, electronics, automotive parts, and chemicals Performance was measured subjectively by such indicators as, response time for customer complaints, average productivity per employee, return on investment, and cost per business transaction whereas objectively it was measured by return on assets, return on equity, market value added and

Tobin's q. Financial data was for one year – 1998. This study used the DLOQ instrument with 43 and 21 items to determine to what degree practices and behaviors of the organization reflect a learning organization's criteria. Empirically, the results showed a high correlation between the practices of a learning organization with its financial performance both subjectively and objectively. The researchers indicated that the DLOQ dimensions could explain four indicators of financial performance that was more than 10 percent of the variance.

Yang (2003) proposed that learning culture can be adequately measured and confirmed in relation to organizational performance. The researcher studied those dimensions of a learning culture and a non-random sampling of 836 participants from a variety of organizations was questioned in order to identify the domain of measurement. The result found that of the original items (43 items), half were removed from the scale, and that the remaining 21 items constituted an abbreviated form of the instrument. The refined measures have been found to form an adequate measurement model. In another related study, Yang, Watkins, and Marsick (2004) investigated the constructs of the learning organization. They investigated correlation of the various dimensions and the correlation between learning behaviour of organizations with their performance. Again, seven dimensions of the DLOQ were the indicators of the learning organization. Subjectively, financial performance and knowledge performance were used to assess organizational performance. A non-random sampling of 836 American service, manufacturing and public organizations was used. This study improved

upon and streamlined the DLOQ and consisted of 21 items without diminishing the efficacy of the original version which had 43 items in order to measure the seven dimensions. The findings found that indirect effect on organizational outcomes were the dimensions of team learning, dialogue and inquiry, continuous learning, and empowerment; on the other hand, such dimensions as system connection, embedded system, and the provision of leadership for learning served as mediators. Even though the provision of leadership for learning was the only dimension directly influencing financial performance, other dimensions as embedded system and system connection had an indirect effect on financial performance through knowledge performance. Furthermore, the author indicated that there was a 66 percent and 74 percent in the variance of two of the perceived organizational performance variables - financial performance and knowledge performance respectively. Evidence suggests that correlations between a learning culture with perceived subjective measures of organizational performance tend to be higher than when the objective outcomes are measured (Ellinger et al., 2002). In addition, evidence also suggests that the DLOQ in its shorter form has been accepted as an instrument effective in measuring the learning organization as it relates to its organizational outcomes. The DLOQ is a very beneficial and effective instrument for researchers and practitioners of an organization's mission in creating learning organizations.

Davis (2005) explored the correlation between learning organization and organizational performance. This research employed a correlation design, with the organization as the unit of analysis. Organizational learning orientation (overall,

and of its sub-constructs) has a relationship with its corresponding performance when measured by financial and knowledge performance. The sample of 2,000 firms was obtained by identifying the marketing function and the human resources function heads of a random sample in USA. The results found that multiple regression equation for the performance variables, financial performance and knowledge performance, were determined to be significant. The researcher determined that DLOQ assesses systemic and cultural characteristics of the firm rather than individual training programs or organizational development intervention, and can help firms assess to what degree they can be considered a learning organization.

Kumar and Idris (2006) studied the connection between the dimensions of a learning organization, characteristics of their organization, and knowledge performance. There were 238 samples used of private colleges of Malaysia. This study tested the DLOQ instrument and its subjective performance. The seven dimensions of the DLOQ and perceived knowledge performance showed a positive and significant relationship in the results of their research. Strong relationships were also determined in the three dimensions of team learning, embedded learning systems, and strategic leadership. Both perceived levels of commitment to professional services and commitment to effective teaching were jointly seen as the institutional characteristics affecting knowledge performance.

Chajnacki (2007) examined the relationship between those characteristics that can be termed a learning organization and those that exhibit multi-dimensional organizational performance. This researcher used a DLOQ scale which was based on the 21 item scale developed from Marsick and Watkins (2003). His study included 259 senior and human resource managers of sizeable, publicly-owned companies with head offices or branches situated in Pennsylvania. Few empirical studies studied the relationship of organizational performance which utilized concrete financial data in spite of the learning organization being a topic of frequent study. The DLOQ along with both subjective and objective performance: operational, knowledge, financial performance was the instrument used in examining this relationship. Gross profit margin, return-on-asset, and return-on-equity data, as hard financial performance metrics, of each organization were examined over a 9-month period prior to the implementation of the survey. The researcher used six research questions which resulted in various levels of results. The learning dimensions which were most frequently observed included continuous learning, community connections, and strategic leadership. The findings indicated significant differences depending upon both size of company and particular industrial sector. Of greatest significance for small companies were the dimensions of team learning, learning systems, and a culture of empowerment. For middle-sized organizations, most prevalent were continuous learning, connection to the community, inquiry and dialogue, and strategic leadership. The results of this study support the premise that companies that wish to progress in business should continue to invest in learning and training

programs and initiatives as well as providing incentives and rewards in setting up and sustaining the vital dimensions of a learning organization.

Herrera (2007) examined those elements of the learning organization affecting how performance can be improved. In this study, the extent of orientation to learning, both overall and individually, was examined in relation to financial and knowledge performance. The DLOQ measures seven dimensions of a learning organization as well as those characteristics of an organization in terms of financial and knowledge performance (e.g. dialogue & inquiry; empowerment; continuous learning; team learning; leadership; system connection; embedded system). The researcher used a DLOQ scale which was based on the 43 item scale developed from Yang, Watkins and Marsick (2004). Those surveyed indicated the extent to which these described behaviors were followed by their organizations. All 275 managers, and operational and administrative employees within these record companies were surveyed. After measurement, these record companies were grouped as small, medium, and large within the record company industry: Indie were considered those companies with unit sales under 500,000; Major Indie as those with unit sales over 500,000, and Major Company when unit sales exceeding 1,000,000. The findings showed significant differences regarding organization size in relation to both knowledge and financial performance. The largest organization indicated best knowledge performance, but smallest in terms of financial performance; on the other hand both small and midsize companies exhibited the most positive financial performance but low knowledge performance. Results demonstrated that with the increase of size of the

organization, the relationship between knowledge performance and financial performance lessened and diverged. This phenomenon indicated strong challenges which adversely affected individual knowledge transfer to the team as the organization grew. This could be seen in that the largest organizations showing the highest knowledge performance value yet the poorest financial performance. Meanwhile, this likewise demonstrated the smaller organizations having capability in overcoming those disadvantages of the larger ones by such facets as continuous learning, connectedness to the environment, systems, and empowerment to benefit from learning that were generated within organizations that are smaller.

Wang and Yang (2007) examined the learning organization culture in both government and non-government organizations in China and its impact on perceived financial performance mediated by job satisfaction. Nine hundred and nineteen employees in 9 companies situated in Guangdong Province of China provided data were the subject of research. The DLOQ first devised by Watkins and Marsick (1997) and later refined to 21 items (Yang, 2003) was employed to determine the culture of learning organizations in these Chinese organizations. The results indicated that the culture of learning organizations does impact positively on the degree of job satisfaction of employees and also on their perceived financial performance. However, employee job satisfaction has no significant impact on perceived financial performance.

Lien, Hung, Yang, and Li (2008) investigating the psychometric learning characteristics of the Chinese, concluded that DLOQ is a valid concept in Taiwan. The researchers used a DLOQ scale which was based on the 43 item scale developed from Watkins and Marsick (2003) to identify the learning activities in organizations. The organizational performance criteria were accessed by knowledge performance and were defined as the improvement to both products and services that arose from knowledge and learning, whereas financial performance was defined as the overall financial health of the organization and availability of resources for future growth. The study of Lien et al. (2008) utilized a convenient sampling for data collection. There were five medium-to-large private corporations that participated in this study. The sample was comprised of 679 human resource directors of which 340 were from two finance/insurance companies, and 339 were from three high-tech companies. The results found that in using the DLOQ, seven dimensions of a learning organization had a high correlation with the two measures of organizational performance. Evidence also revealed the Chinese DLOQ has reasonable reliability, and that the seven-dimensional factors (e.g. continuous learning, empowerment, team learning, inquiry and dialogue, embedded system, system connection, and strategic leadership) were appropriate for the Taiwanese context.

Song's (2008) study conducted in Korea related how the learning organization, aspects of culture and the process of creating knowledge are related to perceived improvements in organizational performance. Song used a DLOQ scale which was based on the 21 item scale developed from Yang, Watkins and Marsick

(2004). The researcher collected 633 samples in five private Korean companies, which included the service, electronics, construction, insurance, and heavy industrial sectors. The survey instrument, in addition to the DLOQ, consisted of three questions for assessing each of the seven dimensions of the environment of the learning organization. The findings found that the correlation of the learning organization with culture, knowledge creation, and organizational performance was determined to be positive and significant. As to organizational performance, the scholar originally expected to assess only two different levels of performance, namely, financial and knowledge performance. Nevertheless, both independent constructs were discovered to have a more integral relationship to knowledge performance improvement than to organizational financial performance.

Demers (2009) explored the relationship between a firm's implementation of learning organization dimensions or characteristics and organizational performance. Organizational performance was measured by two profitability ratios (i.e. return-on-assets and return-on-sales). These two ratios of financial data were collected over an eleven year period, from 1995 to 2005. The researcher used a DLOQ scale which was based on the 43 item scale developed from Marsick and Watkins (2003). The sample surveyed 80 managers working in firms from public pharmaceutical companies in the USA. Results indicated that employee number as an indication of organization size was not a significant factor for organizational performance. Therefore, the firms were not categorized by size. However, the researcher gave credence to the notion that a firm's adoption and

implementation of ‘learning organization’ characteristics or dimensions was a means of continuous improvement in performance.

Tseng (2010) observed the relationship between practices of a learning organization, its commitment and effectiveness. The study was done in the context of SMEs (incubating start-ups, small and medium-sized organizations and awarded-winning small and medium-sized enterprises) in Taiwan. The researcher used a DLOQ scale which was based on the 21 item scale developed from Watkins and Marsick (2003) to identify the learning organization practices in organizations. A sample of 300 SMEs was investigated. The survey used the DLOQ which was reduced to seven factors to examine the impact of learning organization practices on SMEs’ organizational commitment and effectiveness. The scale measuring learning organization practices exhibited a suitable correlation between the suggested measurement model and the collected data. The results found that practices of a learning organization positively impacted on organizational commitment. There was positive impact of practices of a learning organization on the organization’s effectiveness and also commitment on effectiveness of the organization. Given these good results, this study found that the scales of learning organization practices, commitment, and effectiveness provided very good supporting evidence of construct validity.

Weldy and Gillis (2010) examined how managers, supervisors, and employees of various companies perceived the seven dimensions of a learning organization with the both knowledge and financial performance. This sample surveyed 143

employees from seven local organizations (medium-to-large manufacturing and service firms). In their study, the DLOQ of 43 items developed by Watkins and Marsick (1997) were utilized in determining the dimensions of the learning organization with the research results indicating that there were significant effects on the level of the dimensions of learning organization with these two performance aspects. Moreover, evidence also revealed significant differences across learning dimension levels (system connection and empowerment), and throughout organizations for all 6 learning dimensions except for continuous learning. The performance aspects were shown in terms of financial performance, by managers above the level of supervisors and employees, and on knowledge performance, by managers above the level of employees.

Akhtar, Arif, Rubi, and Naveed (2011) investigated the effect of organizational learning on organizational performance of higher education institutions in Pakistan. The sample surveyed 150 respondents from faculty and administrative staff. In their study, the dimensions of the DLOQ scale of organizational learning were employed based on the 21 items instrument developed by Yang, Watkins, and Marsick (2004). The results showed that continuous learning, team learning, empowerment, embedded system, and strategic leadership had little impact on organizational performance. Only the two dimensions of inquiry and dialogue and system connection showed a concrete and significant effect on organizational performance. In addition, empirical evidence indicated that organizational learning did indeed have a major effect on organizational performance when moderated by organizational culture. Therefore, retaining highly motivated staff is

more important for higher educational institutions as they are the provider of learning opportunities.

Awasthy and Gupta (2011) studied the learning orientation in manufacturing and service firms in India. Their research employed the abbreviated DLOQ of 21 items developed by Yang (2003) to determine the correlation between learning culture and the variables of financial and knowledge performance. Convenience sampling was collected from 235 executives working in domestic private MNCs and public sector organizations operating in India-NCR. The results indicated that the overall structural dimensions of the model (empowerment, system connection, embedded system, and strategic leadership) have a significant and greater impact on financial and knowledge performance outcomes in both the manufacturing and service sectors. But the people dimensions (inquiry and dialogue, continuous learning, and team learning) had greater influence on learning orientation in the service sectors as compared to the manufacturing sectors. In addition, empirical evidences indicated that the manufacturing sector emphasized more significantly the role of systems, effective information collection, storage mechanisms, leadership, continuous learning, shared vision, and team dynamics. On the other hand, service sector supported the importance of individual and group issues.

Table 2.2

Summary of Literature on Learning Organization and Organizational Performance

| Author/Year | Respondents | Independent Variables | Dependent Variables | Mediator/Moderator | Findings |
|---------------------------------------------------------|------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ellinger, Ellinger, Yang, and Howton (2002) | 208 logistics managers in USA | DLOQ: -Continuous learning -Inquiry and dialogue -Team learning -Embedded system -Empowerment -System connection -Strategic leadership | -Financial performance | - | - LO -> FP (+/S) |
| Yang (2003) and Yang, Watkins, and Marsick (2004) | 836 multiple organizations: service, manufacturing and public organizations in USA | -Continuous learning -Inquiry and dialogue -Team learning -Empowerment | -Financial performance -Knowledge performance | -Embedded system -System connection -Strategic leadership | -CL, ID, TL, EM (indirect) -> FP, KP (+/S) -ES (indirect)-> FP, KP (+/S) -SC -> KP (+/S), SC (indirect) -> FP (+/S) -SL ->FP (+/S), SL (indirect) -> KP (+/S) |
| Davis (2005) | 2,000 firms in USA | DLOQ: -Continuous learning -Inquiry and dialogue -Team learning -Embedded system -Empowerment -System connection -Strategic leadership | -Organizational performance | - | - LO -> OP (+/S) |

Note. (+)=Positive; S=Significant; CL=Continuous Learning; ID=Inquiry and Dialogue; TL=Team Learning; ES=Embedded System; EM=Empowerment; SC=System Connection; SL=Strategic Leadership; FP=Financial Performance; KP=Knowledge performance; MP=Mission performance.

Table 2.2 (Continued)

| Author/Year | Respondents | Independent Variables | Dependent Variables | Mediator/Moderator | Findings |
|------------------------|-----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|--------------------|------------------|
| Kumer and Idris (2006) | 238 from private colleges in Malaysia | DLOQ -Continuous learning -Inquiry and dialogue -Team learning -Embedded system -Empowerment -System connection -Strategic leadership | -Knowledge performance | - | - LO -> KP (+/S) |
| Chajnacki (2007) | 259 from large, publicly-owned companies in USA | DLOQ: -Continuous learning -Inquiry and dialogue -Team learning -Embedded system -Empowerment -System connection -Strategic leadership | -Organizational performance | - | - LO -> OP (+/S) |
| Herrera (2007) | 275 small, medium, and large levels in the record company | DLOQ: -Continuous learning -Inquiry and dialogue -Team learning -Embedded system -Empowerment -System connection -Strategic leadership | -Organizational performance | - | - LO -> OP (+/S) |

Note. (+)=Positive; S=Significant; DLOQ=The Dimension of Learning Organization Questionnaire; LO=Learning Organization; OP=Organizational Performance; KP=Knowledge performance.

Table 2.2 (Continued)

| Author/Year | Respondents | Independent Variables | Dependent Variables | Mediator/Moderator | Findings |
|---------------------------------|-----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|---------------------|-----------------------------------------------------------------------------------------|
| Wang and Yang (2007) | 919 employees in nine companies in China | DLOQ: -Continuous learning -Inquiry and dialogue -Team learning -Embedded system -Empowerment -System connection -Strategic leadership | -Financial performance | -Job satisfaction | - LO -> FP (+/S) -Job satisfaction -> FP (+/NS) |
| Lien, Hung, Yang, and Li (2008) | 679 HR directors from five medium-to-large private corporations | DLOQ: -Continuous learning -Inquiry and dialogue -Team learning -Embedded system -Empowerment -System connection -Strategic leadership | -Organizational performance | - | -LO -> OP (+/S) |
| Song (2008) | 633 from five companies in Korea | DLOQ: -Continuous learning -Inquiry and dialogue -Team learning -Embedded system -Empowerment -System connection -Strategic leadership | -Organizational performance improvement | -Knowledge creation | - LO -> OP (+/S) - LO -> Knowledge creation (+/S) -Knowledge creation -> OP (+/S) |

Note. (+)=Positive; S=Significant; NS= No Significant; DLOQ=The Dimension of Learning Organization Questionnaire; LO=Learning Organization; FP=Financial performance; OP=Organizational Performance.

Table 2.2 (Continued)

| Author/Year | Respondents | Independent Variables | Dependent Variables | Mediator/Moderator | Findings |
|-------------------------|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Demers (2009) | 80 manager firms from the public pharmaceutical companies in USA | DLOQ: -Continuous learning -Inquiry and dialogue -Team learning -Embedded system -Empowerment -System connection -Strategic leadership | -Organizational performance | - | - LO -> OP (+/S) |
| Tseng (2010) | 300 SMEs in Taiwan | DLOQ: -Continuous learning -Inquiry and dialogue -Team learning -Embedded system -Empowerment -System connection -Strategic leadership | -Organizational effectiveness | Organizational commitment | - LO -> Organizational effectiveness (+/S) - LO -> Organizational commitment (+/S) -Organizational commitment -> Organizational effectiveness (+/S) |
| Weldy and Gillis (2010) | 143 organizational members from seven local organizations (medium-to-large manufacturing and service firms) | DLOQ: -Continuous learning -Inquiry and dialogue -Team learning -Embedded system -Empowerment -System connection -Strategic leadership | -Organizational performance | - | - LO -> OP (+/S) |

Note. (+)=Positive; S=Significant; DLOQ=The Dimension of Learning Organization Questionnaire; LO=Learning Organization; OP=Organizational Performance.

Table 2.2 (Continued)

| Author/Year | Respondents | Independent Variables | Dependent Variables | Mediator/Moderator | Findings |
|---------------------------------------|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Akhtar, Arif, Rubi, and Naveed (2011) | 150 respondents from faculty and administrative staff of higher education institutes in Pakistan | -Organizational learning -Continuous learning -Inquiry and dialogue -Team learning -Embedded system -Empowerment -System connection -Leadership | -Organizational performance | Organizational culture | -CL -> OP (+/NS) -ID -> OP (+/S) -TL -> OP (-/NS) -ES -> OP (-/NS) -EM ->OP (+/NS) -SC ->OP (+/S) -Leadership->OP (-/NS) -OL ->organizational culture->OP (+/S) |
| Awasthy and Gupta (2011) | 235 executives working in domestic private, MNCs and public sector organization in India | People Level -Continuous learning -Inquiry and dialogue -Team learning Structural Level -Embedded system -Empowerment -System connection -Strategic leadership | -Financial performance -Knowledge performance | - | - People Level and Structural Level-> FP (+/S) - People Level and Structural Level-> -> KP (+/S) |

Note. (+)=Positive; (-)=Negative; S=Significant; NS= No Significant; DLOQ=The Dimension of Learning Organization Questionnaire; LO=Learning Organization; CL=Continuous Learning; ID=Inquiry and Dialogue; TL=Team Learning; ES=Embedded System; EM=Empowerment; SC=System Connection; SL=Strategic Leadership; OL=Organizational Learning; FP=Fiinancial Performance; KP=Knowledge performance; OP=Organizational Performance.

Based on Table 2.2, most studies have explored the Dimension of Learning Organization Questionnaire (DLOQ) in relation to organizational performance (Chajnacki, 2007; Davis, 2005; Demers, 2009; Herrera, 2007; Kumer & Idris, 2006; Lien et al., 2008; Song, 2008; Tseng, 2010; Weldy & Gillis, 2010), financial performance (Ellinger et al., 2002; Wang & Yang, 2007), knowledge performance (Kumer & Idris, 2006). There is a study that has tested the relationship within each Dimension of the Learning Organization Questionnaire (DLOQ) and organizational performance (Akhtar et al., 2011). Their findings found inconsistent results in the relationship between the different learning organization dimensions and performance. The relationships between empowerment, continuous learning, and organizational performance were positive but insignificant relationships, while embedded system, team learning, and providing leadership were negative but insignificant relationships (Akhtar et al., 2011). Therefore, the present study needs to investigate the results amongst the various dimensions of the learning organization and with organizational performance.

2.6 Empirical Studies concerning Learning Organization, Organizational Innovativeness and Organizational Performance

This section investigates the literature of the learning organization, organizational innovativeness and organizational performance by reporting empirical studies from many researchers from many enterprises such as Small Enterprises (Eshlaghy & Maatofi, 2011), Small and Medium Enterprises (Calantone et al., 2002; Dhamadasa, 2009; Hult et al., 2004; Keskin, 2006; Lin, 2006; Lin et al., 2008; Rhee et al., 2010; Salim & Sulaiman, 2011; Suliyanto & Rahab, 2012; Ussahawanitchakit, 2008), and Small-Medium-Large Enterprises (Eris & Ozmen, 2012; Jimenez-Jimenez et al., 2008; Lee & Tsai, 2005).

Calantone, Cavusgil, and Zhao (2002) investigated a casual interrelationship between orientation towards learning, innovative capability of firms, and its performance. The sample surveyed 187 vice presidents from service and manufacturing SME firms in USA. The sample was split into two groups based on the mean of organization age. Organizations above the mean were defined as old, and those below the mean were defined as young. The findings found that there is no significant difference between young and old organizations. Nevertheless, this research supported the moderating effect of organization age on the interrelationship of orientation towards learning and firm innovativeness. It has been suggested that the effect of learning orientation on firm innovativeness is affected by the length of time the organization has been in business. Older firms are more likely to employ knowledge learned and turn it into innovative activities. Younger firms need to establish an efficient mechanism for rapidly internalizing

knowledge. Yet, empirical evidence has not shown a moderating effect of the age of the organization on the interrelationship between learning and performance. However, learning orientation facilitates the generation of resources and skills essential for firm performance and learning orientation and is central not only for innovation but also for the organization's other activities.

Hult, Hurley, and Knight (2004) studied the relationship between market, entrepreneurial, and learning orientations as a major prerequisite to innovativeness as well as its direct relationship to business performance. The 181 marketing managers of industrial-based SME firms in USA were investigated. Three variables of performance were tested, namely growth in sales, profitability, and market share. The results found that innovativeness had a positive impact business performance. Market, learning, and entrepreneurial orientation are all positively and significantly related to innovativeness. On the other hand, learning orientation has insignificant impact on performance which suggests that learning orientation must be mediated by some other construct, such as innovativeness, in order to have an effect on business performance. The researchers stated that the occurrence of a learning orientation is primarily at the organization's cultural level when members of an organization acquire knowledge via the learning process whereby that organization acquires the ability to be innovative.

Lee and Tsai (2005) evaluated the linkages between learning orientation, market orientation, mode of business operations, business performance and innovativeness. A sampling of one hundred was used in the study from the

manufacturing and service small-medium-large firms in Taiwan. The results found that mode of business operations had a significant effect on the innovativeness of a firm. There is moderating impact of the mode of business operations on orientation to the market and to learning, and on innovativeness. Furthermore, a firm's innovativeness is very much affected by its orientation to the market, its mode of business operations, and orientation towards learning, and innovativeness significantly impacts on business performance. Meanwhile, market and learning orientation as well as the mode of business operations via innovativeness have major indirect effect on business performance. Both market orientation and learning orientation also have direct effect on business performance. The researchers stated that both market and learning orientations as well as innovativeness have been shown as significant directly and indirectly in contributing to business success. Therefore, for every organization emphasis should not only be on improving market and learning orientation as well as performance but also fostering innovativeness which also includes technical innovation, innovative management, and innovative ideas.

Keskin (2006) studied the linkages between market orientation, learning orientation, innovativeness, and organizational performances of SMEs. The sample surveyed 157 managers of SMEs operating in Turkey. The result found that market orientation did not have major effect on the ability of an organization to be innovative and on its performance. However, the capacity of an organization to innovate impacts significantly on the SMEs' performance. Similarly, learning orientation impacts significantly on the organization's innovativeness. In addition,

learning orientation has a mediating effect upon the interrelationship between organizational innovativeness and market orientation while market orientation has a major effect on SMEs' learning orientation. Empirical evidence of this study asserts that learning orientation is an antecedent of firm innovativeness and firm performance. Aggregating and disseminating employee and management learning throughout the organization with social and environmental factors, in essence, facilitates the development of a learning organization, which has the capability to improve and use technology effectively, create a more labor efficient organization structure, generate new markets, and to become more competitive. Managers should leverage employee learning to a higher-level and advance knowledge management for organizational learning in SMEs.

Lin (2006) studied the relationship among organizational learning culture, absorptive capacity, structural organicity, organizational innovativeness, and organizational effectiveness. Data was collected from 246 SME business organizations in Taiwan. The abbreviated version of DLOQ was used to measure the learning culture discovering that organizational learning culture positively and significantly impacts absorptive capacity and structural organicity. Structural organicity positively and significantly impacts organizational innovativeness, while organizational innovativeness positively and significantly impacts organizational effectiveness. Moreover, absorptive capacity positively and significantly impacts organizational innovativeness and organizational effectiveness. Empirical evidence showed that organizational learning culture plays a crucial role in enhancing organizational innovativeness, which is critical to

organizational effectiveness. This study did not test the direct path between organizational learning culture and organizational effectiveness. The researcher stated that organizations rely on learning activities for knowledge and information. Learning culture affects organizational processes such as their ability to innovate, which subsequently has an effect on performance outcomes.

Jimenez-Jimenez, Valle, and Hernandez-Espallardo (2008) studied the relationships between organizational learning, market orientation, innovativeness, and performance. Data was gathered from 744 CEOs in the manufacturing and service sectors of small-medium-large firms in Spain. The findings found that innovativeness positively and significantly affects performance. Both market orientation and learning orientation positively and significantly affects innovativeness. However, market orientation negatively and insignificantly affects performance, while organizational learning exhibits a positive and significant effect on performance. This study also found that there is not a significant difference between the manufacturing and service firms. Researchers stated that when managers support organizational learning, it is likely to occur and is more likely when supported by a suitable learning culture and infrastructure thus facilitating creativity, a more open orientation towards new ideas, experimentation, and continual advancement of individual knowledge, risk-taking or systematic thinking.

Lin, Peng, and Kao (2008) researched the influence of orientation towards innovation of entrepreneurial, market orientation and learning orientation on business performance. The sample surveyed 333 managers from SMEs in Taiwan. The results found that entrepreneurial orientation affects positively and significantly on both market and learning orientation, while market orientation positively correlates with learning orientation. Learning orientation correlates positively and significantly on innovativeness while innovativeness affects both positively and significantly business performance. In addition, learning orientation mediates market orientation and innovativeness which has a positive and significant linkage. However, the indirect effect between entrepreneurial orientation and innovativeness via learning orientation has no significant impact. The researchers claimed that to achieve greater competitive advantage and better business performance, firms have to develop learning capabilities and employee alignment with corporate mission. Further, innovativeness may occur not only in the technology-intensive industries but also in labor-intensive industries.

Ussahawanitchakit (2008) studied the effect in Thai accounting firms of organizational learning on innovativeness and organizational efficiency. The researcher selected four organizational learning dimensions as independent variables: learning commitment, common vision, an orientation to being open to learning, and sharing of intra-organizational knowledge. The study sampled 115 senior leaders which included presidents and/or managing directors of accounting firms. The results indicated that aspects such as shared vision, open-mindedness, and intra-organizational knowledge sharing impacted significantly and positively

on innovativeness of these accounting firms, while there was no effect from commitment to learning on innovativeness. Likewise, innovativeness had a significant effect on organizational efficiency. Surprisingly, there was no significant linkage between learning commitment, shared vision, and open-mindedness with organizational efficiency; only intra-organizational knowledge sharing impacted positively and significantly on the efficiency of the company. The researchers stated that accounting firms had a greater likelihood to gain these approaches of organizational learning when innovativeness contributed towards improving organizational efficiency, providing excellent value to customers, developing greater competitive advantages, encouraging superior competitiveness, and achieving excellent performance.

Dhamadasa (2009) analyzed the linkages between organizational learning, innovation and performance. A total of 222 family and non-family manufacturing Australian SMEs were surveyed. The three aspects of organizational learning studied were commitment to learning, shared vision, and networking. Findings found that commitment to learning and shared vision had insignificant impact on innovation, while networking impacted innovation most positively and significantly. Commitment to learning and networking had no significant impact on performance, while shared vision impacted performance positively and significantly. In addition, this study tested mediation between both the independent and dependent variables. Also, innovation had an indirect but positive and significant effect on commitment to learning and performance, and similarly, innovation had an indirect but positive and significant effect on shared

vision and performance. Likewise, innovation impacted as a mediator indirectly, but positively and significantly. The results of the study demonstrated that when a family-owned SME cultivated a culture of innovation, that culture engendered better performance as a result of learning. Moreover, in family-operated SMEs more than in non-family SMEs, the impact of innovation on networking was found to be stronger.

Rhee, Park, and Lee (2010) investigated the relationships between drivers of innovativeness and performance and the mediation of learning orientation on SMEs in Korea. A sampling of 333 CEOs or senior managers of SMEs in South Korea was used. Empirical results found that for learning orientation, market orientation had a significant effect. Learning orientation was also positively influenced by entrepreneurial orientation. Both market orientation and entrepreneurial orientation were critical determiners in encouraging learning orientation. Learning orientation positively and significantly impacted innovativeness, and innovativeness positively and significantly impacted performance. In addition, innovativeness was positively influenced by market orientation via learning orientation, while the partial mediation of learning orientation positively and significantly linked entrepreneurial orientation and innovativeness. These researchers indicated that learning orientation could play an intervening variable of market orientation and entrepreneurial orientation on innovativeness.

Eshlaghy and Maatofi (2011) researched the relationship of small-sized business firms in Iran between learning orientation, innovation and performance. A sample of 82 small-sized firms was investigated. The different factors of learning orientation, commitment to learning, open-mindedness, and shared vision were measured, while three factors of performance, namely sales, profitability, and return on investment (ROI) were measured. Results found that open-mindedness, commitment to learning, and shared vision impacted positively and significantly on innovation. The effect of innovation on sales, profitability, and return on investment (ROI) of firms was positive. However, a positive and significant effect was seen in commitment to learning on sales, profitability, and ROI. In addition, the results also indicated significant and positive linkage between open-mindedness and sales, profitability, and ROI, and also shared vision having a positive and significant impact related to sales, profitability, and ROI.

Salim and Sulaiman (2011) studied the impact of innovation, organizational learning, and performance of SMEs in Malaysia. A sample of 320 SME companies of the ICT industry was investigated. Results showed that a direct and significant impact related to organizational innovation was realized from organizational learning. Organizational innovation had a positive and significant impact on organizational performance. The researchers concluded that organizational learning played a vital role in innovation being applied in understanding its environment, which also included its customers, competitors, and emerging technologies. Innovation reflected the mind-set of assimilating new ideas. This confirms that a positive learning culture is of great benefit for

organizations striving to surpass its competitors by means of various innovative processes. In addition, as performance is a critical focus for all companies, appreciating the linkage between performance and innovation would assist these companies in developing greater competitive advantages and strategies.

Eris and Ozmen (2012) examined how learning orientation, market orientation, and innovativeness impacted on organizational performance. Data was collected from 102 owners or CEOs or directors or managers from small-medium-large logistic firms in Turkey. The results determined that learning orientation was positively and significantly impacted by market orientation. Learning orientation affected innovativeness positively and significantly, while innovativeness impacted company performance positively and significantly. Moreover, learning orientation played a mediating role in the effect of market orientation on innovativeness. Meanwhile, innovativeness played a mediating role in the effect of learning orientation on organizational performance. Therefore, both learning orientation and innovativeness mediated the effect of market orientation on organizational performance. The conclusion reached was that such normative values as learning orientation, market orientation, and innovation were vital in improving service providers' performance of the logistics sector in Turkey, and that these three aspects had a combined effect on improving the performance of these service providers. It can be surmised that supply chain entities related to these logistics service providers might demonstrate similar aspects, thus engendering a synergic effect on performance.

Suliyanto and Rahab (2012) studied the impact of market orientation and learning orientation in cultivating greater innovativeness and better performance of SMEs in Indonesia. Data was collected from 150 small and medium enterprises in Indonesia. The results indicated that market orientation impacted positively and significantly on innovativeness, learning orientation, and business performance. Learning orientation influenced innovativeness positively and significantly, while innovativeness positively and significantly affected business performance. However, there appeared to be no significant influence of learning orientation on business performance.

Table 2.3

Summary of Literature concerning Learning Organization, Organizational Innovativeness, and Organizational Performance

| Author/Year | Respondents | Independent Variables | Dependent Variables | Mediator/Moderator | Findings |
|---------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Calantone, Cavusgil, and Zhao. (2002) | 187 vice presidents from manufacturing and service SMEs in USA | -Learning orientation | -Firm performance: | -Firm innovativeness -Organization age (moderator) | -LO -> Firm innovativeness (+/S) -LO -> Firm performance (+/S) -Firm innovativeness -> Firm performance (+/S) -LO->Organization age ->Firm innovativeness (+/S) -LO-> Organization age ->Firm performance (+/S) |
| Hult, Hurley, and Knight (2004) | 181 marketing managers from industrial-based SMEs in USA | -Learning orientation -Market orientation -Entrepreneurial orientation | -Business performance | -Innovativeness | -MO, LO, EO -> Innovativeness (+/S) -Innovativeness -> BP (+/S) -MO -> BP (+/S) -LO -> BP (+/NS) -EO -> BP (+/S) |
| Lee and Tsai (2005) | 100 manufacturing and service Small-Medium-Large firms in Taiwan | -Learning orientation -Market orientation | -Business performance | -Innovativeness -Business operation mode (moderator) | -Business operation mode -> Innovativeness (+/S) -MO, LO -> Innovativeness (+/S) -MO, LO ->Business operation mode -> Innovativeness (+/S) -LO -> Innovativeness -> BP (+/S) -Innovativeness -> BP (+/S) -MO, LO -> BP (+/S) -MO, LO, Business operation mode -> Innovativeness -> BP (+/S) |

Note. (+)=Positive; S=Significant; NS= No Significant; LO=Learning Orientation; EO= Entrepreneurial orientation; MO=Market Orientation; BP=Business performance.

Table 2.3 (Continued)

| Author/Year | Respondents | Independent Variables | Dependent Variables | Mediator/Moderator | Findings |
|--------------------------------------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Keskin (2006) | 157 managers from SMEs in Turkey | -Learning orientation -Market orientation | -Firm performance | -Firm innovativeness | -LO -> Firm innovativeness (+/S) -MO -> Firm innovativeness (+/NS) - MO -> Firm performance (+/NS) -Firm innovativeness -> Firm performance (+/S) -MO ->LO -> Firm innovativeness (+/S) -MO -> LO (+/S) |
| Lin (2006) | 246 SME business organizations in Taiwan | -Organizational learning culture -Structural organicity | -Organizational effectiveness | -Organizational innovativeness -Absorptive capacity | -Organizational learning culture -> OI, Absorptive capacity (+/S) -SO -> OI (+/S) -OI -> OE (+/S) -Absorptive capacity -> OI, OE (+/S) |
| Jimenez-Jimenez, Valle and Hernandez-Espallardo (2008) | 744 CEOs from manufacturing and service Small-Medium-Large firms in Spain. | -Organizational learning -Market orientation | -Performance | -Innovation | -Innovation ->Performance (+/S) -MO -> Innovation (+/S) -OL -> Innovation (+/S) -MO -> Performance (-/NS) -OL->Performance (+/S) |
| Lin, Peng, and Kao (2008) | 333 managers from SMEs in Taiwan. | -Learning orientation -Entrepreneurial orientation -Market orientation | -Business performance: | -Innovativeness | -EO -> MO (+/NS) -MO -> LO (+/S) -EO -> LO (+/NS) -LO -> Innovativeness (+/S) -Innovativeness -> BP (+/S) -MO ->LO -> Innovativeness (+/S) -EO ->LO -> Innovativeness (+/NS) |

Note. (+)=Positive; (-)=Negative; S=Significant; NS= No Significant; LO=Learning Orientation; EO= Entrepreneurial orientation; MO=Market Orientation; SC= Structural organicity; OI=Organizational Innovativeness; OE= Organizational effectiveness; OL=Organizational Learning.

Table 2.3 (Continued)

| Author/Year | Respondents | Independent Variables | Dependent Variables | Mediator/Moderator | Findings |
|----------------------------|------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|---------------------|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ussahawanitchakit (2008) | 115 top business executives of accounting firms in Thailand | -Commitment to learning - Shared vision -Open-mindedness -Intra-organizational knowledge sharing | -Firm efficiency | -Innovation orientation | -Commitment to learning -> Innovation (-/NS) -Shared vision, open-mindedness, and intra-organizational knowledge sharing -> innovation orientation (+/S) -Innovation -> Firm efficiency (+/S) - Commitment to learning, shared vision, and open-mindedness -> Firm efficiency (+/NS) -Intra-organizational knowledge sharing -> Firm efficiency (+/S) |
| Dhamadasa (2009) | 222 manufacturing comprised of family and non-family SMEs in Australia | - Commitment to learning - Shared vision - Networking | -Performance: | -Innovation | -Commitment to learning -> Innovation (+/NS) -Shared vision -> Innovation (+/NS) -Networking -> Innovation (+/S) -Commitment to learning -> Performance (+/NS) -Shared vision -> Performance (+/S) -Networking -> Performance(+/NS) -Innovation -> Performance (+/S) -Commitment to learning ->Innovation -> Performance (+/NS) -Share vision ->Innovation-> Performance (+/NS) -Networking ->Innovation-> Performance (+/S) |
| Rhee, Park, and Lee (2010) | 333 CEOs or senior managers of SMEs in Korea | -Market orientation -Entrepreneurial orientation -Learning orientation | -Performance | -Innovativeness | -MO -> LO (+/S) -EO -> LO (+/S) -LO -> Innovativeness (+/S) -LO -> Performance (+/S) -MO->LO->Innovativeness (+/S) -EO->LO-> Innovativeness (+/S) |

Note. (+)=Positive; (-)=Negative; S=Significant; NS= No Significant.

Table 2.3 (Continued)

| Author/Year | Respondents | Independent Variables | Dependent Variables | Mediator/Moderator | Findings |
|-----------------------------|-----------------------------------------------------------------------------------------------|--------------------------------------------------------------|------------------------------------------------------------------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Eshlaghy and Maatofi (2011) | 82 Small-Sized business firms in Iran | -Commitment to learning -Open-mndedness -Shared vision | Performance: -Profitability -Sale -Return on investment | -Innovation | -Commitment to learning -> Innovation (+/S) -Open-mindedness -> Innovation (+/S) -Shared vision -> Innovation (+/S) -Innovation -> Profitability (+/S) -Innovation -> Sale (+/S) -Innovation -> ROI (+/S) -Commitment to learning -> Profitability, Sale, and ROI (+/S) -Open-mindedness -> Profitability, Sale, and ROI (+/S) -Shared vision -> Profitability, Sale, and ROI (+/S) |
| Salim and Sulaiman (2011) | 320 SMEs in Malaysia | -Organizational learning | -Organizational performance | -Organizational innovation | -OL -> OI (+/S) -OI -> OP (+/S) |
| Eris and Ozmen (2012) | 102 owners or CEOs or directors or managers from Small-Medium-Large logistic firms in Turkey. | -Learning orientation -Market orientation | -Firm performance | -Innovativeness | -MO->LO->Innovativeness->Firm performance (+/S) -MO -> LO (+/S) -LO -> Innovativeness (+/S) -Innovativeness -> Firm performance (+/S) -MO -> LO -> Innovativeness (+/S) -LO -> Innovativeness -> Firm performance (+/S) |
| Suliyanto and Rahab (2012) | 150 SMEs in Indonesia | -Learning orientation -Market orientation | -Business performance | -Innovativeness | -MO -> LO (+/S) -MO -> Innovativeness (+/S) -LO -> Innovativeness (+/S) -MO -> BP (+/S) -LO -> BP (+/NS) -Innovativeness -> BP (+/S) |

Note. (+)=Positive; S=Significant; LO=Learning Orientation; MO=Market Orientation; EO= Entrepreneurial orientation; ROI=Return on Investment; OP= Organizational Performance; BP=Business Performance; OL=Organizational Learning.

As summarized in Table 2.3, the majority of studies found direct effects of learning orientation or organizational learning as positively and significantly impacting on organizational innovativeness or innovation (Calantone et al., 2002; Eris & Ozmen, 2012; Hult et al., 2004; Jimenez-Jimenez et al., 2008; Keskin, 2006; Lee & Tsai, 2005; Lin, 2006; Lin et al., 2008; Rhee et al., 2010; Salim & Sulaiman, 2011; Suliyanto & Rahab, 2012). There are three studies that have tested the different dimensions of the learning orientation: learning commitment, open-mindedness, shared vision, and intra-organizational knowledge sharing (Ussahawanitchakit, 2008); commitment to learning, shared vision, and networking (Dhamadasa, 2009); commitment to learning, open-mindedness, and shared vision (Eshlaghy & Maatofi, 2011) on innovation. However, no study has yet examined the significant impact of all seven dimensions of the learning organization: inquiry and dialogue, continuous learning, team learning, empowerment, embedded system, system connection, and strategic leadership on organizational innovativeness in SMEs. Therefore, these are to be investigated in my model.

Furthermore, the majority of studies suggested innovativeness played an intervening role in their research yet none of these researchers conducted empirical mediating tests (Calantone et al., 2002; Eshlaghy & Maatofi, 2011; Hult et al., 2004; Jimenez-Jimenez et al., 2008; Keskin, 2006; Lin, 2006; Lin et al., 2008; Rhee et al., 2010; Salim & Sulaiman, 2011; Suliyanto & Rahab, 2012; Ussahawanitchakit, 2008). One study measured innovation, using a mediating test between the various aspects of learning and performance in SMEs. The results found that innovation act as a mediator between one dimension of learning and performance (Dhamadasa, 2009). Two studies measured innovativeness, using a

mediating test between the overall aspects of learning and performance. Their results found that innovativeness act as a mediator between learning and performance (Eris & Ozmen, 2012; Lee & Tsai, 2005). This study investigated mediating test results, which so far have been lacking in previous studies in SMEs.

2.7 The Underpinning Theory

2.7.1 Resource-Based View of the Firm

Resource-Based View of the Firm (RBV) (Barney, 1991; Penrose, 1959; Wernerfelt, 1984) has become one of the most dominant and referred-to theories in the research of strategic management and is gaining more internal focus. It is often cited in explaining the internal sources of a company's competitive advantage. RBV is important in strategic management literature because it is able to explain a firm's performance (Penrose, 1959). The major domains of the RBV direct the attention of firms inwardly to assess their resources. The term "resources" refers to any type of tangible or intangible asset possessed and considered by the firm as strength (Wernerfelt, 1984). Barney (1991) clearly explained how the resources of a firm enhance its competitive advantage. He indicated that such resources should be considered of great value, exceptional, unique and irreplaceable so that any comparable substitutes may be looked at as potential sources of competitive advantage. These characteristics restrict the mobility of these resources among various firms and thus heterogeneity of a firm can be long-term. Therefore, by effectively integrating different resources within an organization, the firm is expected to find ultimate configurations that become sources of sustained

competitive advantage and gain a competitive edge. However, Helfat and Peteraf (2003) defined resources as “a tangible or intangible asset or supply for production which is possessed, managed and accessed by an organization over a relatively long time”. Meanwhile, organizational capability is defined as “an organization’s capacity to execute coordinating tasks by using its resources with an aim to accomplish a certain final outcome” (p. 999).

Both resource and capability are major features in academic works which focus on strategic management. These two concepts are viewed differently. There are some researchers who believe that resources can be anything that helps to enhance the performance of a company (Barney, 1991; Peteraf, 1993). Other researchers draw a distinction between resources and capabilities. Resources can be considered to be physical capital resources, human capital resources, organizational resources such as capabilities, culture, processes, information, attributes of the firm, or knowledge, etc. (Barney, 1991). A company’s capacity adds to the attainment of competitive gain and financial benefit (Amit & Shoemaker, 1993; Day, 1994). Day (1994) has given the definition of capability as “a complicated set of combined knowledge and skills implemented through procedures of an organization which allow a company to integrate activities and utilize their resources.” It is a challenging task to identify capabilities as they are usually implanted profoundly in the company’s procedures. A vital component of capabilities is the implicit knowhow which derives from staff’s experiences, scientific knowledge and training which helps to boost their abilities. A comparatively-easy-to-recognize capability is the knowhow which is collected in the company’s storehouse – the official processes set up inside the organization as solutions to the problems. Amit and Shoemaker (1993) have

recommended two main components which distinguish a resource from a capability. Firstly, a capability is particular to each company because it is an essential feature of the firm and its procedures while a resource does not share that characteristic (Makadok, 2001). Such quality implies that if a company is totally disbanded, so will its capabilities. On the contrary, its resources could remain under possession of another company. Secondly, capacities' major role is to encourage resources to yield higher efficiency and productivity for the company's success. Therefore, capacities are considered 'intermediate goods'. According to Amit and Shoemaker (1993) and Grant (1991), in the value creation chain, resources are considered the supply of capabilities, while the capacities are nearer to the final targets like the company's performance or creation of values.

A firm's learning assists in creating new knowledge, merging existing knowledge and skills, and adapting to emerging changes in the market. Additionally, knowledge is a major topic in many other research customs which emphasize the significance of organizational learning as well as the transmission and dispersion of innovative capabilities inside the company (Boisot, 1995; Grant, 1996; Huber, 1996; Levitt & March, 1988).

Research evidence on learning also relates to innovation (Argyris & Schon, 1996; Greve, 2005; Stata, 1989). Different learning styles and innovation activities have different impacts on organizational operations and, through the adoption of new innovations; organizations attempt to reduce production costs, increase efficiency, and improve performance (Damanpour, 1991; McKee, 1992). Stata (1989) considers innovation an outcome of human resources and their learning. It is also

the single source which contributes the most long-term benefits in an industry which requires considerable knowledge. Argyris and Schon (1996) indicate that learning can boost an organization's innovative capacity. Additionally, Greve (2005) illustrates how an organization is able to learn from the innovativeness of other companies. He introduces an outline for the learning of inter-organization which enables the research on how the features of the source and destination organizations, as well as their connection, have an impact on learning. The discoveries of all these researches show that learning and innovation are associated.

Based on the resource-based view, learning and innovation are regarded as the company's capabilities which are utilized as the foundation for competitive gain which can bring about greater performance of the company. Because the resource-based point of view regards a company's resources and capabilities as fundamental features of performance, this viewpoint was an appropriate theory for the clarification of the study's framework regarding the relationship between learning organization, innovativeness and performance of organizations.

2.8 Chapter Summary

This chapter reviewed relevant literature that contribute to the concepts of the research framework. Together with the suggested research objectives, three major areas have been discussed: the learning organization, organizational innovativeness and organizational performance together with the underpinning theory referred to as resource-based view of the firm. In surveying literature related to the learning organization, the following topics have been presented: (1) conceptualization of

learning organization; (2) definitions and levels of learning organization process; and (3) learning organization literature, with considerable focus on the seven imperative criteria presented in the instrument, Dimensions of the Learning Organization Questionnaire (DLOQ), together with organizational performance. Related topic areas also discussed included organizational innovativeness and organizational performance including the following: (1) conceptualization of organizational innovativeness; (2) conceptualization of organizational performance; and (3) review of literature concerning the learning organization, organizational innovativeness and organizational performance in small enterprises, small and medium enterprises, and small-medium-large enterprises. Finally, the underpinning theory, resource-based view of the firm was used to support the entire research framework that promotes superior performance in firms.

CHAPTER THREE

RESEARCH FRAMEWORK AND METHODOLOGY

3.0 Introduction

In this chapter, the methodology of the study and the procedures of the research are illustrated. Specifically, this chapter elaborates on issues regarding the research framework of the study and the underpinning theory. Furthermore, it states hypotheses development, research designs, operational definition, measurement of variables, data collection of sampling, data collection procedures, pilot study as well as techniques of data analysis. A summary of this chapter is provided in the last section.

3.1 Research Framework of the Study

This study is presented in a research framework. In addition, the Structural Equation Modeling (SEM) analysis, the technique for circumstances in which the hypothesized model contains more than one dependent variable and one of the dependent variables becomes the independent variable of another dependent variable, is applied. For this study, the ultimate dependent variable is organizational performance. However, organizational innovativeness is also considered as a dependent variable of the learning organization dimensions, while at the same time serving as an independent variable for organizational performance. With the SEM

analysis, these complex relationships can be comprehensively examined simultaneously.

As portrayed in Figure 3.1, the model suggests a framework that can be used for the evaluation of the relationship between learning organization, innovativeness of organizations and subsequent effects on organizational performance of SMEs. In this study, the independent variables include seven observed variables, which are continuous learning, inquiry and dialogue, team learning, embedded system, system connection, empowerment, and strategic leadership. As for the dependent variable, it is the organizational performance of the SMEs as measured by return on investment, sales growth, average productivity per employee, time to market for products and services, take care for customer complaints/needs, the cost per business transaction, market share, profit volume, and the additional capital. The organizational innovativeness acts as the mediator between learning organization dimensions and organizational performance. However, no observed variable signified organizational innovativeness or organizational performance. In this research, the variables came from an inclusive literature review which was demonstrated in Chapter 2. The connection between hidden variables is illustrated in correspondence with the Resource-Based View (RBV). Amit and Shoemaker (1993) and Barney (1991) and concluded that the primary sources of a company's profitability, as well as competitive advantage, are the supplies and the potentiality of the company. Based on the point of view which focuses on resources, learning and innovation are considered as a necessary foundation for firms to obtain a competitive advantage and create superior performance given that the RBV was discovered as an appropriate theory for the explanation of the research framework

incorporating the relationship between learning organization, organizational innovativeness and organizational performance.

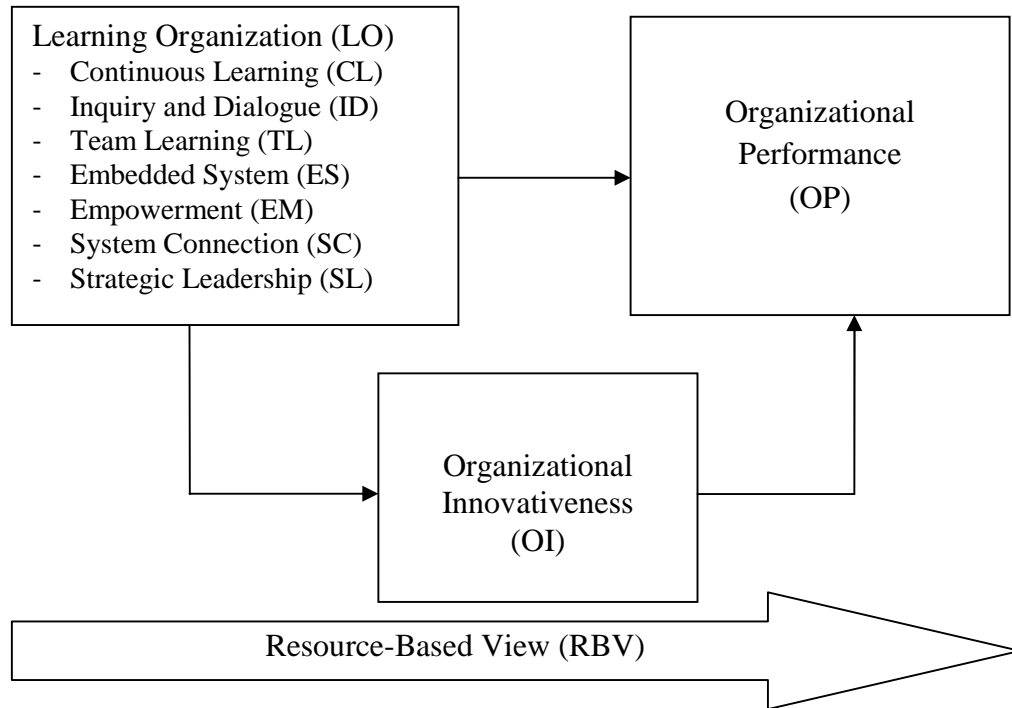


Figure 3.1
Research Framework incorporates the Relationship between Learning Organization (LO), Organizational Innovativeness (OI), and Organizational Performance (OP)

3.2 Hypotheses Development

The development of hypotheses is discussed in this section. In accordance with the questions and the purposes of the research as stated in Chapter 1, the discussion below is in regards to the hypotheses of this research, which have been tested and demonstrated in an alternative pattern.

3.2.1 Learning Organization and Organizational Innovativeness

A learning organization means the prototype which can enhance the capability of an organization to gain, create, acquire and transfer knowledge which contributes to the organizational competitiveness (Argyris, 2004; Garvin, 2000; Senge, 1990). Because learning organization has such great potentiality, it has been extensively presented in academic literature which is related to marketing, management of strategies and human resources as well as operational management. For Hurley and Hult (1998), learning leads to the establishment of a culture which encourages innovation. Similarly, Huber (1996, p. 153) suggested that “organizational adaptation and innovation, both critical in a rapidly changing world, could undoubtedly be improved if organizational designers and administrators knew more about how organizations learn and about how organizations might be guided to learn more effectively”. These statements underscore the relevance of any possible links between learning and innovation from the organization’s point of view. Both learning organization and organizational innovativeness are conceptualized as integral parts of firm culture by Hurley and Hult (1998) who believed that learning was a cultural antecedent of organizational innovativeness or innovation orientation. They also argued that learning organization functions as an antecedent to innovative culture. Going further, Hurley and Hult (1998) put forward their idea that “learning organization, if viewed from a behavior change or implementation perspective, is equivalent to innovation” (p. 47). Evidence has been provided regarding the impact that learning organization has on the innovativeness of organizations in many countries including for manufacturing and service SME firms (Calantone et al., 2002; Dhamadasa, 2009; Hult et al., 2004; Keskin, 2006;

Lee & Tsai, 2005; Lin, 2006; Lin et al., 2008; Rhee et al., 2010; Salim & Sulaiman, 2011; Suliyanto & Rahab, 2012; Ussahawanitchakit, 2008). However, there are no researches which study the effect of learning organization, especially in the dimensions of continuous learning, inquiry and dialogue, team learning, embedded system, empowerment, system connection, and strategic leadership on the SMEs' organizational innovativeness. Therefore, based on these facts the following hypotheses can be formulated:

Hypothesis 1: There is a significant positive relationship between continuous learning and organizational innovativeness.

Hypothesis 2: There is a significant positive relationship between inquiry and dialogue and organizational innovativeness.

Hypothesis 3: There is a significant positive relationship between team learning and organizational innovativeness.

Hypothesis 4: There is a significant positive relationship between embedded system and organizational innovativeness.

Hypothesis 5: There is a significant positive relationship between empowerment and organizational innovativeness.

Hypothesis 6: There is a significant positive relationship between system connection and organizational innovativeness.

Hypothesis 7: There is a significant positive relationship between strategic leadership and organizational innovativeness.

3.2.2 Learning Organization and Organizational Performance

Empirical researches have been carried out in order to investigate the relationships between learning organization and performance of organizations (Chajnacki, 2007; Davis, 2005; Demers, 2009; Herrera, 2007; Lien et al., 2008; Song, 2008; Tseng, 2010; Weldy & Gillis, 2010). The results of previous studies have shown that the effect of learning organization had been on performance of organizations was positively significant. Yet, only one research has observed learning organization's impact, especially in the dimensions of continuous learning, inquiry and dialogue, team learning, embedded system, empowerment, system connection as well as strategic leadership on performance of organizations (Akhtar et al., 2011). Akhtar et al. (2011) found the effects between inquiry and dialogue, system connection and organizational performance have positive significant impact on relationships. Based on these results and because of the inadequation of studies on the impact of the seven different aspects of learning organization on the performance of the SMEs, the following hypotheses can be formulated:

Hypothesis 8: There is a significant positive relationship between continuous learning and organizational performance.

Hypothesis 9: There is a significant positive relationship between inquiry and dialogue and organizational performance.

Hypothesis 10: There is a significant positive relationship between team learning and organizational performance.

Hypothesis 11: There is a significant positive relationship between embedded system and organizational performance.

Hypothesis 12: There is a significant positive relationship between empowerment and organizational performance.

Hypothesis 13: There is a significant positive relationship between system connection and organizational performance.

Hypothesis 14: There is a significant positive relationship between strategic leadership and organizational performance.

3.2.3 Organizational Innovativeness and Organizational Performance

As defined by Hurley and Hult (1998), innovation is central to organizational competitiveness and effectiveness. Companies with better innovative capabilities have a greater tendency to gain a competitive advantage and to attain higher levels of firm performance. In other word, increasing innovative capability leads to greater competitiveness and higher performance. Several researches have proven the strong relationship between innovativeness and performance of the SMEs (Calantone et al., 2002; Hult et al., 2004; Keskin, 2006; Lin, 2006; Lin et al., 2008; Salim & Sulaiman, 2011; Suliyanto & Rahab, 2012). Specifically, when firms frequently try innovative ideas, explore new methods of doing things, develop and launch new products/services, and try to be creative in their methods of operation, they become more profitable, gain a greater market share, and growth rate. Additionally, to enhance business performance, it is not enough for a company to

focus solely on the betterment of its learning organization. It is also important to develop its innovativeness. Therefore, the above explanations lead to the hypothesis below:

Hypothesis 15: There is a significant positive relationship between organizational innovativeness and organizational performance.

3.2.4 Learning Organization, Organizational Innovativeness, and Organizational Performance

Organizational innovativeness is the mediator between learning organization and organizational performance. Many previous studies have not conducted mediating empirical testing of innovativeness and the effect on SMEs (Calantone et al., 2002; Eshlaghy & Maatofi, 2011; Hult et al., 2004; Jimenez-Jimenez et al., 2008; Keskin, 2006; Lin, 2006; Lin et al., 2008; Rhee et al., 2010; Salim & Sulaiman, 2011; Suliyanto & Rahab, 2012; Ussahawanitchakit, 2008). Their findings suggested that the relationships between learning and innovativeness supported positive significance, and also the relationships between innovativeness and performance gave positive significant results. Lee and Tsai (2005) and Eris and Ozmen (2012) proposed a framework in which the relationship between learning orientation and performance is mediated through innovativeness. Their results also presented positive significance. However, one study showed positive significant results for the relationship between different aspects of learning orientation and performance through innovation in SMEs (Dhamadasa, 2009). Therefore, due to the lack of mediating tests, the following hypotheses can be formulated:

Hypothesis 16: Organizational innovativeness mediates the relationship between continuous learning and organizational performance.

Hypothesis 17: Organizational innovativeness mediates the relationship between inquiry and dialogue and organizational performance.

Hypothesis 18: Organizational innovativeness mediates the relationship between team learning and organizational performance.

Hypothesis 19: Organizational innovativeness mediates the relationship between embedded system and organizational performance.

Hypothesis 20: Organizational innovativeness mediates the relationship between empowerment and organizational performance.

Hypothesis 21: Organizational innovativeness mediates the relationship between system connection and organizational performance.

Hypothesis 22: Organizational innovativeness mediates the relationship between strategic leadership and organizational performance.

3.3 Research Design

This study adopts quantitative research using a cross-sectional survey research technique to examine the relationship between independent variables and dependent ones. Casebeer and Verhoef (1997) regarded quantitative research as the arithmetical illustration and handling of examinations with an aim to explain the happenings which are reflected by those examinations. Quantitative research methods are extremely helpful for the analysis or verification of theories, the discovery of major variables for future study as well as related variables which are created by question, hypotheses, and statistical procedures (Creswell, 2003). Singleton and Straits (1999) defined survey research as a flexible research method because it can be adapted to suit a wide range of topics and purposes. In addition, Lin (2006) stated that the survey method provides the most suitable way to collect data from organizations and questionnaires were used as the primary instrument for data collection from respondents selected at one point in time.

Therefore, in this study, learning organization dimensions, organizational innovativeness and organizational performance are analyzed through the gathering of quantitative method via evaluation of participants' opinions as it is often carried out with correlation between variables. The method of quantitative data collection was conducted using mail surveys. Using the survey method has several advantages: (1) it is commonly used in similar kinds of research (Jaworski & Kohli, 1993; Narver & Slater, 1990), (2) it can be considered an effective and cost-efficient way to collect large samples within a short time period (Singleton & Straits, 1999), and (3) it is possible to develop surveys so that they include adequate

items to present the topic of interest and scale items which lead to better reliability of measurement and validity (Majid, 2011; Mason & Bramble, 1989; Snow & Thomas, 1994).

3.4 Operational Definitions of Variables

The operational definition of variables offers particular terms which are utilized to illustrate variables as indicators. According to this research, the nine variables are continuous learning, inquiry and dialogue, team learning, embedded system, empowerment, system connection, strategic leadership, organizational innovativeness and organizational performance as shown in Table 3.1.

Table 3.1
Operational Definition of Variables

| Variables | Operational Definition | Authors |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| Continuous Learning | The organization provides opportunities for their employees to learn and develop; tasks at work encourage the learning process. | Watkins & Marsick (1997) |
| Inquiry and Dialogue | The organization allows their employees to ask questions, give feedback and experiment so that they can obtain useful reasoning skills to share their opinions and the ability to ask questions and learn from other people's viewpoints. | Watkins & Marsick (1997) |
| Team Learning | At work, various ways of thinking are accessed through teamwork; work culture appreciates and rewards cooperation; teamwork helps everyone learn. | Watkins & Marsick (1997) |

Table 3.1 (Continued)

| Variables | Operational Definition | Authors |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| Embedded System | Compulsory systems for the sharing of learning are established, sustained and linked with work; these systems can be accessed by the employees. | Watkins & Marsick (1997) |
| Empowerment | People take part in creating and putting a common vision into operation; they are aware of their responsibilities so that they are encouraged to learn from their own tasks. | Watkins & Marsick (1997) |
| System Connection | The organization and the communities are connected; people comprehend their surroundings and utilize information to make adjustments to their ways of working; people realize how their work impacts the entire organization. | Watkins & Marsick (1997) |
| Strategic Leadership | Learning is purposefully used to improve business results; managers and role models encourage learning. | Watkins & Marsick (1997) |
| Organizational Innovativeness | A firm inclines towards innovativeness by vigorously encouraging new thoughts, innovation, testing of ideas and inventive ways to solve problems (Lumpkin & Dess, 1996). In this research, innovativeness means the capacity, intention and openness towards novelty depending on the perceptions of the organization's members. | Calantone et al. (2002), Hurley & Hult (1998), Wang & Ahmed (2004) |
| Organizational Performance | Organizational performance refers to the degree to which an organization, in terms of its ability, acquires and efficiently uses its available resources to achieve specific goals. | Steers & Black (1993) |

3.5 Measurement of Variables

All constructs in this particular study were measured using established methods used in past studies. Although the scales employed in this study are previously reported from the literature, a scale validation procedure was performed using confirmatory factor analysis (CFA) and coefficient alpha. The scale reliabilities related to these measures are reported elsewhere from the literature. Therefore, the results of this study will confirm and support earlier findings.

3.5.1 Measurement of Learning Organization

The various aspects for the measurement of learning organization were derived from The Dimensions of the Learning Organization Questionnaire (DLOQ); a tool for the measurement of learning organization's combining features which consist of seven aspects: (1) continuous learning, (2) inquiry and dialogue, (3) team learning, (4) embedded system, (5) empowerment, (6) system connection, and (7) strategic leadership. In this study, an abbreviated scale version with 21 items was adopted from Yang, Watkins, and Marsick (2004) because their items separate into different dimensions. This makes it easier to see the impact of each dimension on organizational innovativeness and organizational performance which depends upon the experimental proof of confirmed literatures. Their outcomes indicate that the measures of the DLOQ are reliable (Yang et al., 2004). The items were measured on a five (5) point Likert scale ranging from 1 to 5 (absolutely disagree to absolutely agree).

3.5.2 Measurement of Organizational Innovativeness

Organizational innovativeness was measured by an 11-item scale adapted from Hurley and Hult (1998), and Wang and Ahmed (2004) with a focus on the general perception of the behavioral, process, and product aspects of organizational innovativeness. Such items were evaluated by a five (5) point Likert scale ranging from 1 to 5 (absolutely disagree to absolutely agree).

3.5.3 Measurement of Organizational Performance

The items which were used for the evaluation of organizational performance came from a review of academic literature. According to this research, organizational performance was assessed using 9 items adapted from Lee and Tsai (2005), Lin (2006), and Yang et al. (2004). These items were also measured on a five (5) point Likert scale ranging from 1 to 5 (absolutely disagree to absolutely agree).

3.6 Data Collection

3.6.1 Population

The population could be defined as the complete collection of the subject of interest to be studied in a research (Cavana, Delahaye, & Sekaran, 2001). Importantly, the target population of interest for this current study is small and medium enterprises in Bangkok areas. In Thailand, business infrastructures in metropolitan areas are much more developed than those in provincial areas. Bangkok is the capital city of Thailand and has the most developed business infrastructures and the highest

number of SMEs. The numbers of SMEs in Bangkok is approximately 43,194 derived from the Institute of Small and Medium Enterprise Development (ISMED, 2011), a public agency which is in charge of promoting Thai SMEs. According to ISMED, a small enterprise is a company which possesses assets valued at less than 50 million Baht (based on the exchange rate on December, 30, 2011, Baht 31 = US\$1) or which has fewer than 51 full-time employees. As for a medium enterprise, ISMED defines it as a company which possesses assets valued at between 50 and 200 million Baht (approximately between US\$1.60 and 6.40 million) or which has 51 to 200 full-time employees (OSMEP, 2012). This research defines small enterprises and medium enterprises as firms with full-time employees.

Thai SMEs' owners and managers were the unit of analysis and were given the questionnaire surveys because they are the most knowledgeable regarding their business and organizational activities. Covin and Slevin (1989) stated that business owners or high-level managers are primarily the decision makers setting the strategic orientation of the organization.

3.6.2 Sampling

3.6.2.1 Sample Size

The sample size relies on many factors which are the similarity of sampling unit, assurance, accuracy, statistical efficacy, analytical process, expenditure, time and workforce (Davis, 2000; Malhotra, 1999). However, opinions differ as to the

suggested sample size. For example, Roscoe (1975) indicates a sample size of over 30 but below 500 is suitable for the majority of researches. At the same time, many researchers have indicated that a sample size of less than 100 is regarded as small, sample size between 100 and 200 as medium, while a sample size of more than 200 is large (Hair, Black, Babin, & Anderson, 2010; Kline, 1998).

However, the structural equation modeling (SEM) is the technique of data analysis which is planned for this research. This method is highly responsive to sample size and is not very stable when applied with small samples (Tabachnick & Fidell, 2001). Hair et al. (2010) indicated that SEM is suitable for data analysis with a sample size of 200+.

For this reason, the sample size of this research was estimated by Yamane's (1967) equation;
$$n = \frac{N}{1 + N(e)^2}$$
 which revealed that where n = sample size; N = elements of the population (43,194 samples), e = error of sampling, which, in this study, was 5 percent or 0.05 proportions. This study intends to obtain the targeted usable sample size of 396 to ensure the solution for the final structural model.

3.6.2.2 Sampling Procedure

Sampling is the procedure of selecting a sample from the entire population for a research (Leary, 2004). As generally discussed among researchers, the process of sampling can be largely divided into probability and non-probability sampling (Sekaran, 2005). Probability sampling has four general strategies which are simple random, systematic, stratified random and cluster samplings. Probability sampling is the finding of the middle ground between the precision of the discoveries and the

quantity of time and budget that are used in the data compilation, examination and analysis (Saunders, Thornhill, & Lewis, 2007).

This study used a systematic random sampling technique of SMEs (Aziz, 2010). Systematic sampling is a procedure which engages the random selection of a starting point. Therefore, every part of the sampling frame is chosen (Hair, Celsi, Money, Samouel, & Page, 2011).

3.6.3 Questionnaire Translation

The questionnaire was originally prepared in English. However, because the respondents were Thai, a Thai version of the questionnaire was also needed. Therefore, the researcher translated the English questionnaire into Thai. In order to ensure the accuracy and the quality of the Thai questionnaire, two university lecturers who spoke both Thai and English and did not know the phrasing that was used in the original English version were asked to translate the Thai questionnaire back into English. Then, ambiguous texts and dissimilarities that were found were corrected, and minor changes were made. The Thai version and the English version of the questionnaire were then intended to be alike. This research is conducted following the instructions from the translation instrument which is suggested by several researchers (Lin, 2006; Song, 2008; Tseng, 2010).

3.6.4 Pilot Study

The data compilation was tested for content validity and reliability. This ensures correct and trusted results. This study conducted a pilot test with the use of 50 convenience samples from business owners and managers of Thai SMEs located in Songkhla province. The purpose of the pilot study was to: (1) estimate the reaction of the potential respondents to the length, format, and content of the instruments, (2) ask the participants to comment on the clarity of the scales, (3) improve the reliability and validity of the instruments. The pilot is designed to test the devices and decided order in advance to ensure that the respondents clearly understand all of the questions. Afterwards, the measurement and the wording of the questionnaire have their accuracy verified. (Sekaran, 2005). Saunders et al. (2007) also argue that questionnaire needs to be tested in order to refine any difficulties regarding answering the questionnaire, recording data, and assessing the questions validity and reliability and to ensure that the data collected could answer the research questions.

The pilot test was conducted from May 2011 until July 2011. To ensure the reliability of the instruments, a pilot test was conducted with 50 owners/managers of Thai SMEs located in Songkhla province. The data collected from the pilot study was gathered using personal administered survey by mean of the face-to-face interview. Of the 50 questionnaires that were collected from the respondents, 41 used. Therefore, the response rate was about 82 percent used for data analysis. The analysis of the instrument's quality was then conducted.

3.6.4.1 Reliability Test

The Cronbach's alpha coefficient was used to test the reliability of the survey. This method specifies that the proportion of the items in the measure is systematically assessed using the same constructs. In fact, there is no solid answer or arbitrary rules on the acceptable level of a reliability coefficient. According to Nunnally (1978), the following minimum standards: Cronbach's alpha 0.7 is to be used for exploratory studies, 0.8 for basic studies and 0.9 for highly critical studies and they have specific scores of measurement.

Additionally, Byrne (2010) and Hair et al. (2010) indicate that a major criteria for selecting past instruments is their individual internal consistency obtained through the calculations of Cronbach's alpha. Accordingly, for this study the results of reliability test were performed separately for the items of each construct, and revealed that the coefficients were greater than 0.7, which implies a satisfactory level of reliability (Nunnally & Bernstein, 1994).

Table 3.2
Reliability Analysis of the Pilot Study

| Constructs | No. of original items | Cronbach's alpha | Item deleted* | Cronbach's alpha if item deleted |
|----------------------|-----------------------|------------------|---------------|----------------------------------|
| Continuous Learning | 3 | 0.857 | nil | 0.857 |
| Inquiry and Dialogue | 3 | 0.757 | nil | 0.757 |
| Team Learning | 3 | 0.812 | nil | 0.812 |
| Embedded System | 3 | 0.881 | nil | 0.881 |
| Empowerment | 3 | 0.789 | nil | 0.789 |

Note. *number of the item as sequenced in the questionnaire

Table 3.2 (Continued)

| Constructs | No. of original items | Cronbach's alpha | Item deleted* | Cronbach's alpha if item deleted |
|-------------------------------|------------------------------|-------------------------|----------------------|-----------------------------------------|
| System Connection | 3 | 0.824 | nil | 0.824 |
| Strategic Leadership | 3 | 0.890 | nil | 0.890 |
| Organizational Innovativeness | 13 | 0.849 | 2,13 | 0.890 |
| Organizational Performance | 12 | 0.827 | 3,6,11 | 0.873 |

Note. *number of the item as sequenced in the questionnaire

Table 3.2 depicts a detailed list of results of reliability as obtained from the pilot study. The reliability actual estimates range from 0.757 to 0.890, greater than 0.7 cutoff value (Nunnally & Beinstein, 1994) that is generally regarded as sufficient for empirical research. However, further analysis is required. If the corrected item-total correlation is less than 0.3, the cutoff value should be removed (Nunnally & Beinstein, 1994). Therefore, item no. 2 and no. 13 of organizational innovativeness, and no. 3, no. 6, and no. 11 of organizational performance were removed from the questionnaire set (refer to Appendix H).

3.6.4.2 Validity Test

Content validity would be the extent that a measure generally appears to evaluate what it is expected to evaluate. A construct should be valid when there are items of measurement which envelop every major dimension of the measured constructs. Moreover, in order to determine the questions for this research, a detailed discussion with many scholars and practitioners was carried out. Additionally, two Thai SME owners from Songkhla province evaluated every question. They were

engaged to validate the comprehension of each questionnaire item in this study and it was considered to have good content validity.

3.6.5 Data Collection Procedure

After doing the pilot study, the questionnaire was corrected and the collection data were done using the survey questionnaire sent by mail, along with a cover letter and a stamped, self-addressed return envelope. A total of 1,000 questionnaires were sent to Thai SMEs' owners and managers from the list of 43,194 companies located in Bangkok are considered to be the best sources regarding the outlook of the learning organization, organizational innovativeness and performance implementation. A cover letter indicated the purpose of the study and assurance of confidentiality was attached to the questionnaire (refer to Appendix B).

The respondents were selected through a systematic random sampling technique (Aziz, 2010). Under this technique, every 43rd firm was selected from the list of the Institute of Small and Medium Enterprise Development (ISMED, 2011). The questionnaire surveys were administered and answered within seven months, from September 2011 until March 2012. The distribution was purposely staggered over seven months because the researcher wanted to observe the respondents' feedback and have time to follow up because mail surveys takes longer period to receive responses (Sekaran, 2005).

Therefore, beginning at the end of September 2011 a total of 1,000 questionnaires were mailed to Thai SMEs throughout Bangkok. By the end of December 2011,

only 160 questionnaires had been returned to the researcher. This signifies 16 percent reply rate. Because the rate of response by mail was low, the researcher adopted another strategy which was electronic mail link with questionnaire online in January 2012. The researcher decided to appoint a research assistant to help conduct phone together with electronic mail. Using this strategy, the researcher collected an additional 250 questionnaires received through electronic mail by the end of March 2012. Overall, 410 questionnaires were collected. Twelve of 250 received via electronic mail were found to be incomplete. Only 398 usable questionnaires were obtained resulting in a response rate of 39.8 percent for further analysis, which is demonstrated in Table 3.3.

Table 3.3
Summary of Survey Response Rate

| Descriptives | Numbers | Percentage |
|---------------------------------------------------|----------------|-------------------|
| Total questionnaires sent via mail | 1000 | |
| Total questionnaires received via mail | 160 | 16.0 |
| Total questionnaires received via electronic mail | 250 | 25.0 |
| Total questionnaires collected | 410 | 41.0 |
| Total questionnaires rejected | 12 | 1.2 |
| Total usable questionnaires | 398 | 39.8 |

3.6.6 Questionnaire Design

In this research, a quantitative research design is used for the examination of the effect of learning organization on SMEs' innovativeness and performance. With the permission from Karen Watkins and Victoria Marsick, the researcher is allowed to use the Dimensions of the Learning Organization Questionnaire (DLOQ) (Watkins

& Marsick, 1997) for this research (refer to Appendix A). Regarding the survey, there are three presented tools which are derived from academic and experimental bases; learning organization dimensions (Yang et al., 2004), organizational innovativeness (Hurley & Hult, 1998; Wang & Ahmed, 2004), and organizational performance (Lee & Tsai, 2005; Lin, 2006; Yang et al., 2004). As for the questionnaire, it is divided into four parts and consists of questions regarding related constructs. The first section involves demographic data such as gender, type of business, work experience, position, number of employees, age of business, and international business. The second section relates to learning organization by using the dimensions of DLOQ. There are 21 items in this section. The third section relates to the organizational innovativeness. It consists of 11 items. The final section asks respondents about their organizational performance. It consists of 9 items. The English questionnaire's contents have undergone some changes and are translated into Thai for Thai SME firms. Both versions of the questionnaire are demonstrated in Appendix C.

A five point Likert scale is applied to measure the constructs. According to Harrison and McLaughlin (1993), Likert-type scales have the tendency to sway the response of the participants toward the scale's center as the respondents generally presume that the center point represents the standard. Consequently, the researcher applied the five point Likert scale over the entire questionnaire. The scales of response range from 1 to 5 (absolutely disagree to absolutely agree).

3.7 Technique of Data Analysis

3.7.1 Examining Data

Data examination is the initial step in any analysis that researchers often overlook. The objective of the data examination task is to disclose hidden information and reveal the actual data. This is because concealed impacts can be easily ignored (Hair et al., 2010). Here, this study evaluated the initial data screening including outlier checking and missing data.

3.7.2 Descriptive Statistic

There are a variety of techniques used to describe a quantitative study in descriptive analysis. Therefore, this study used a general descriptive analysis conducted by applying SPSS version 20 to obtain a summary of the respondents' demographic characteristics; mean, standard error of mean, median, standard deviation, minimum and maximum and demographic profile; frequency and percentage.

3.7.3 Normality Test

In multivariate analysis, the most basic assumption is normality. The univariate and the multivariate statistical methods were evaluated in this study based on the assumption of univariate normality, with the multivariate methods also assuming multivariate normality (Hair et al., 2010). For this study, the assessment of normality is described using three measures; kurtosis statistics, skewness statistics and multicollinearity test.

3.7.4 Reliability and Validity Test

This study uses measurement variables to develop the latent variables: learning organization, organizational innovativeness, and organizational performance. To determine if the variables can generate accurate data in accordance with the measurement objective, a validity test was conducted to evaluate two kinds of validity: content and construct validities. In addition, a reliability test was also needed to determine internal consistency or reliability of the measured results. Reliability measures were used for all scales employed. Alpha coefficient is one of the tests of reliability because it evaluates the ratio of the overall variance of the scale which comes from a normal source, which is probably the actual score of the hidden variable (Cronbach, 1951).

3.7.5 Factor Analysis

Exploratory factor analysis (EFA) was not considered suitable for this research. According to Hair et al. (2010), EFA is not needed when the dimension is conceptualized with the theoretical concept as measurement theory and confirmatory factor analysis (CFA) is an extraordinary kind of factor analysis. It is also the first part of a complete test of a structural model. Therefore, in this study, CFA was considered necessary for the measurement of various variables which are parts of the constructs (Hair et al., 2010) using the AMOS software package 18.0.

3.7.6 Structural Equation Modeling (SEM)

Structural equation modeling (SEM) was selected in this study. SEM is a powerful quantitative data analysis technique which estimates and tests theoretical relationships between latent variables (Tabachnick & Fidell, 2001). SEM is also an analytical method for handling multiple relationships and assessing relationships from exploratory analysis to confirmatory analysis (Hair et al., 2010). In this research, the relationship between learning organization, organizational innovativeness, and organizational performance variables was tested empirically using the AMOS software version 18.0. SEM is used as a significant tool for testing the hypothesized and modified models in Chapter 4.

3.8 Chapter Summary

This section discussed about the research model, the hypotheses development, and methodology of the study. The research framework was generated with a foundation on the seven different aspects of the learning organization questionnaire (DLOQ), organizational innovativeness as well as organizational performance. The research framework of the study follows the resource-based view. This study is a correlational study. Small and Medium Enterprises in Bangkok areas of Thailand were selected as the unit of analysis, and the respective owners or managers were chosen as the appropriate respondents. In addition to the population, the sampling structure and the validation of the research's sample size was explained in this chapter. The systematic random sampling technique was used for the sampling procedure and it also explains the data collection method, design, format,

translation, and testing of the questionnaire. Forty-one SME firms became part of the pilot study. Additionally, the reliability and validity were analyzed. Afterwards, the questionnaire's items were taken out so that the research instruments were theoretically and statistically accurate and consistent.

CHAPTER FOUR

ANALYSIS AND FINDINGS

4.0 Introduction

In this chapter, the findings based on the analysis of data collected using Structural Equation Modeling (SEM) are indicated. There are nine sections. Section 4.1 presents the non-response bias test. Data Screening and Outliers are presented in Section 4.2. Section 4.3 presents the goodness of fit measures while Section 4.4 presents confirmatory factor analysis (CFA) variables. The findings of the study are presented using statistical packages, Analysis of Moment Structures (AMOS) and Statistical Package for the Social Sciences (SPSS). Section 4.5 presents the test of hypothesized model. Section 4.6 presents the modified model. Section 4.7 presents the mediating variable and Finally, a summary of the chapter is present in Section 4.8.

4.1 Non-Response Bias Test

This type of test was undertaken because this type of bias affects the interpretation of the variables and subsequently affects the overall conclusions resulting from the data analysis. Among the academic works, there is evidence which indicates that, at times, non-respondents are systematically different from respondents in terms of perspectives, manners, character, inspirations, personal data and/or lifestyles, which

may have an impact on the findings of the research (Malhotra, Hall, Shaw, & Oppenheim, 2006).

In this research, the assessment of non-response bias was done by the comparison of the responses in the questionnaires between the timely and delayed returns (Armstrong & Overton, 1977, Churchill & Brown, 2004, Malhortra et al., 2006). T-test has been used to test non-response bias in order to examine the resemblances of mean, standard deviation as well as standard error mean of the demographic data of the last 60 percent of the respondents (number of cases = 238) to the data of the first 40 percent of the respondents (number of cases = 160). According to the results, which are demonstrated in Table 4.1, the responses indicate no major dissimilarities between each group. Therefore, non-response bias has no significant impact in this research.

Table 4.1
Test of Non-Response Bias between Group Differences of Early 40 percent and Late 60 percent

| Variable | Response | Number of Cases | Mean | Standard Deviation | Standard Error Mean |
|---------------------------|-----------------|------------------------|-------------|---------------------------|----------------------------|
| 1. Gender | Early | 160 | 1.280 | 0.451 | 0.036 |
| | Late | 238 | 1.300 | 0.458 | 0.030 |
| 2. Type of Business | Early | 160 | 1.430 | 0.497 | 0.039 |
| | Late | 238 | 1.470 | 0.500 | 0.032 |
| 3. Experience | Early | 160 | 3.140 | 0.759 | 0.060 |
| | Late | 238 | 2.990 | 0.787 | 0.051 |
| 4. Position | Early | 160 | 1.310 | 0.465 | 0.037 |
| | Late | 238 | 1.300 | 0.460 | 0.030 |
| 5. Number of Employee | Early | 160 | 1.900 | 0.301 | 0.024 |
| | Late | 238 | 1.890 | 0.307 | 0.020 |
| 5. Age of Business | Early | 160 | 2.530 | 0.501 | 0.040 |
| | Late | 238 | 2.550 | 0.499 | 0.032 |
| 7. International Business | Early | 160 | 1.510 | 0.502 | 0.040 |
| | Late | 238 | 1.450 | 0.498 | 0.032 |

4.2 Data Screening and Outliers

This section considers each part of the data screening and investigates the root cause of data error that may impact the final outcome. The data screening examines the position of the data for all existing information. The entire data is inserted into SPSS version 20 and evaluated by AMOS version 18.0. Outlier examination, missing information, descriptive statistics, univariate normality, multicollinearity, reliability, and validity testing are included in data screening.

4.2.1 Outlier Checking (Mahalanobis Distance)

According to Bryne (2010), outliers are the observations that have numerical distance when measured up to the rest of the information. There are studies that apply different means of identifying outliers that exist among the data points which are built on an observed (Mahalanobis) distance from anticipated values of the study (Hair et al., 2010; Hau & Marsh, 2004). The productive discussion in support of outlier handling established on Mahalanobis distance is that it can be used as an efficient way to discover outliers via the settings of certain preset thresholds that will help to define if a point can be considered outlier.

This study also used chi-square statistics to decide the research's maximum values. This determination is in accordance with the dispute of Hair et al. (2010), which stressed the importance of the necessity to construct a new variable in the SPSS with 'No.' label, counting from the start to the finish of every variable. It is possible to achieve the Mahalanobis simply by applying linear regression through the choice

of the recently made response number to be the dependent variable and choosing all measurement articles to be the independent variables. Consequently, a new output is created called Mahalanobis1 (Mah1), upon which a comparison was made between the chi-square value and a maximum of Mahalanobis distance value in Table 4.2, which also includes the new Mahalanobis output.

Table 4.2
Outlier Detection (Mahalanobis Distance)

| | Min. | Max. | Mean | Standard Deviation | Number of Cases |
|-----------------------------------|-------------|-------------|-------------|---------------------------|------------------------|
| Predicted Value | -6.32 | 451.63 | 199.50 | 77.192 | 398 |
| Standard Predicted Value | -2.666 | 3.266 | .000 | 1.000 | 398 |
| Standard Error of Predicted Value | 5.899 | 59.259 | 28.507 | 6.600 | 398 |
| Adjusted Predicted Value | -31.67 | 463.81 | 198.32 | 78.266 | 398 |
| Residual | -253.756 | 193.111 | .000 | 85.293 | 398 |
| Standard Residual | -2.817 | 2.144 | .000 | .947 | 398 |
| Deleted Residual | -270.853 | 226.881 | 1.179 | 94.793 | 398 |
| Mahal. Distance | .706 | 170.845 | 40.897 | 18.576 | 398 |

Note. Min. = minimum; Max. = maximum

Mahalanobis Distance (D^2) has higher value than a critical value. It is utilized as the threshold level for the measuring of D^2/df which ought to be at a conservative level with significance of 0.005 or 0.001 for the description of outliers (Hair et al., 2010). D^2 is known as the Mahalanobis distance and is the distance between each observation in multidimensional space from the mean centre of all the observations. Df is the degree of freedom, or the number of variables involved (Hair et al., 2010).

For this research, the highest Mahalanobis distance is 170.845 as illustrated in Table 4.2 as exceeding the critical value. The critical value that is referred to in chi-square value is 74.745 at $df=41$, $p=0.001$ (refer to Appendix D). This means there are 6 respondents of the total of 398 respondents that were deleted. The screening data of such outliers and the ultimate regression in this research was conducted by using the 392 samples that are left over in the information set.

4.2.2 Missing Data

After collecting the questionnaire, the first thing to do in the screening of data is to recognize the information's inaccuracy. The degree of missing information has a negative effect on the results of the data analysis. In general, less than 10% of missing data is acceptable unless the absent information happens in a particular intentional way; for example, strong focus on certain questions and abrasion later in the questionnaire (Hair et al., 2010). In this research, not every questionnaire contains absent data (as in Appendix E). Consequently, this research verifies the amount of cases with no absent variables, which offer the sample size variable for remedies of information analysis.

4.2.3 Descriptive Statistic

The profile below was discovered during the procedure of data screening. Normally, the expressive latent constructs contain mean, minimum, maximum, standard deviation, mode, and median, continuous learning (CL), inquiry and dialogue (ID), team learning (TL), embedded system (ES), empowerment (EM),

system connection (SC), strategic leadership (SL), organizational innovativeness (OI), and organizational performance (OP), which are the nine latent constructs, are illustrated in Table 4.3 below.

Table 4.3
Descriptive Statistics of Variables

| | Number of Cases | Missing Data | Mean | Standard Deviation |
|-------------------------------|----------------------------|-------------------------|-------------|-------------------------------|
| Continuous Learning | 392 | 0 | 3.169 | 1.263 |
| Inquiry and Dialogue | 392 | 0 | 3.379 | 1.147 |
| Team Learning | 392 | 0 | 3.304 | 1.223 |
| Embedded system | 392 | 0 | 3.401 | 1.134 |
| Empowerment | 392 | 0 | 3.480 | 1.129 |
| System Connection | 392 | 0 | 3.098 | 1.294 |
| Strategic Leadership | 392 | 0 | 3.361 | 1.174 |
| Organizational Innovativeness | 392 | 0 | 3.342 | 0.945 |
| Organizational Performance | 392 | 0 | 2.998 | 1.037 |

The mean value of the nine constructs is based on 41 questions. Organizational performance (OP) has the lowest mean value of 2.998. Meanwhile, the maximum mean is empowerment (EM = 3.480). For standard deviation, system connection (SC) has the highest value (1.294), continuous learning (CL) is 1.263, team learning (TL) is 1.223, strategic leadership (SL) is 1.174, inquiry and dialogue (ID) is 1.147, embedded system (ES) is 1.134, empowerment (EM) is 1.129, and organizational performance (OP) is 1.037, but the lowest value is the organizational innovativeness (OI) with 0.945.

4.2.3.1 Demographic Profile of the Respondents

The demographic information of the participant SMEs comprises the following seven major features: (1) gender, (2) type of business, (3) experience, (4) position, (5) number of employees, (6) age of business, and (7) international business. The findings of the analysis of the aforementioned variables are presented in Table 4.4 and Appendix F. The frequency and percentage of the findings are demonstrated.

Table 4.4

The Demographic Profile of the Respondents consist of the Seven Major Items

| Demographics | | Frequency | Percentage |
|---------------------------------------------|--------------------------------------|------------------|-------------------|
| 1. Gender | Male | 280 | 71.4 |
| | Female | 112 | 28.6 |
| 2. Type of business | Manufacturing | 216 | 55.1 |
| | Service | 176 | 44.9 |
| 3. Experience of work (in this business) | More than 5 but less than 7 years | 109 | 27.8 |
| | More than 7 but less than 9 years | 153 | 39.0 |
| | More than 9 years | 130 | 33.2 |
| 4. Position | Owner | 272 | 69.4 |
| | Manager | 120 | 30.6 |
| 5. Number of employees | 1-50 | 40 | 10.2 |
| | 51-200 | 352 | 89.8 |
| 6. Age of business | 6-10 years | 180 | 45.9 |
| | More than 10 years | 212 | 54.1 |
| 7. International business | Yes | 207 | 52.8 |
| | No | 185 | 47.2 |

Table 4.4 shows the demographic information of 392 respondents. According to Sekaran (2005) a minimum of 10 percent response from the sample justifies the

rationale to start and perform the analysis. In this study, the business owners and managers were identified as the key informants. They are considered the most appropriate as they are the best positioned personnel to have the broadest knowledge of the overall issues under investigation.

Based on the data from Table 4.4, most respondents were men, which totaled 280 respondents (71.4 percent), while female respondents accounted for 28.6 percent (112 respondents) from the total sample. The business type of manufacturing had the highest number of respondents with 216 (55.1 percent) while other types (service businesses) with 176 respondents accounted for 44.9 percent.

130 respondents or 33.2 percent indicated that they have had more than 9 years experience in business, whereas the highest level of business experience was over 7 years but not longer than 9 years with 153 respondents or 39.0 percent. 109 respondents or 27.8 percent indicated that they have had over 5 years but shorter than 7 years experience in business.

272 or 69.4 percent of the respondents were owners, while 120 respondents or 30.6 percent were managers. According to such analyses, it can be summed up that most respondents were from the manufacturing and service businesses; they were owners or managers and had sufficient knowledge to be in this industry.

89.9 percent or 352 respondents were of a medium size business with between 51 and 200 employees, whereas 10.2 percent or 40 respondents were of a small size business with less than 50 employees.

212 respondents or 54.1 percent indicated that their businesses had been established for more than 10 years, 180 respondents or 45.9 percent had been established from between 6 to 10 years.

Finally, 207 respondents or 52.8 percent are international businesses, and 185 respondents or 47.2 percent are domestic businesses.

4.2.4 Univariate Normality

Univariate normality calculation is carried out by z-scores, standard error of skewness and also kurtosis statistics to analyze the dataset. Over 3 z-scores of skewness need transformation because they are not normal data (Hair et al., 2010). This study found that the absolute of minimum and a maximum skewness value indicated normal distribution because the value z-score is below 3 (refer to Appendix G). Therefore, data distribution is individually normal.

4.2.5 Multicollinearity Tests

The variance inflation factor (VIF) and tolerance value are applied to inspect the multicollinearity. The finding of VIF and tolerance for every variable in the research, as illustrated in Table 4.5, found that VIF values were ranged between 1.586 to 2.239 that were below the threshold value of ten (<10), and tolerance values of all variables were ranged between 0.447 to 0.631, which is significantly over 0.10 (Hair et al., 2010). The VIF and tolerance of the variables indicated that there was no evidence of severe collinearity between the independent variables.

Table 4.5

Multicollinearity Test - Variance Inflation Factor (VIF) and Tolerance

| Variables | Collinearity Statistics | |
|----------------------|-------------------------|---------------------------------|
| | Tolerance | Variance Inflation Factor (VIF) |
| Continuous Learning | .561 | 1.784 |
| Inquiry and Dialogue | .536 | 1.865 |
| Team Learning | .575 | 1.738 |
| Embedded System | .598 | 1.671 |
| Empowerment | .524 | 1.909 |
| System Connection | .608 | 1.644 |
| Strategic Leadership | .494 | 2.024 |

4.2.6 Reliability Test

In this study, Cronbach's alpha reliability analysis is used for the testing of internal steadiness to different dimensions. Nunnally (1978) and Shih and Fang (2004) indicated that the minimum value of Cronbach's alpha of reliability should be above 0.6 for the research's early phase.

Table 4.6

Descriptive Statistic of Reliability

| Variables | Number of items | Cronbach's alpha | Composite reliability |
|-------------------------------|-----------------|------------------|-----------------------|
| Continuous Learning | 3 | 0.871 | 0.975 |
| Inquiry and Dialogue | 3 | 0.889 | 0.981 |
| Team Learning | 3 | 0.917 | 0.983 |
| Embedded System | 3 | 0.923 | 0.984 |
| Empowerment | 3 | 0.865 | 0.978 |
| System Connection | 3 | 0.923 | 0.984 |
| Strategic Leadership | 3 | 0.929 | 0.984 |
| Organizational Innovativeness | 11 | 0.934 | 0.991 |
| Organizational Performance | 9 | 0.920 | 0.989 |

As shown in Table 4.6 and Appendix H, every construct is Cronbach's alpha interpreting with special characteristics to a correlated range between 0.865 and 0.934.

Listed in Table 4.6 is composite reliability, the agreeable value which designates a feasible internal consistency exists. The computation of composite reliability is founded on the consistent factor loading which is the result of the ultimate customized structural representation (as in Appendix H). Demonstrated below is the formula of composite reliability:

$$\text{Composite reliability} = \frac{(\text{standardized loading})^2}{(\text{standardized loading})^2 + \epsilon_j}$$

With respect to composite reliability and Cronbach's Alpha value, George and Mallery (2003) pointed out that the reliability which is higher than 0.9 is regarded as excellent, higher than 0.8 is fine, higher than 0.7 is adequate, higher than 0.6 is doubtful, and lower than 0.5 is substandard. Additionally, Sekaran (2005) indicated that the closer of reliability gets to 1.0 the better it is. Therefore, with a value between 0.983 and 0.991, the composite reliability of constructs are of an excellent standard. It is considered that any scores above 0.60 are of an acceptable standard (Nunnally, 1978). In this research, all reliabilities are higher than the acceptable level.

4.2.7 Validity Test

Validity means the evaluation's correctness, whether the theoretical and practical meanings are the real manifestation of the fundamental concept to be evaluated or not (Burns & Bush, 1995; Neuman, 2003). Three types of validity exist: content, construct and criterion validity.

(a) Content Validity

Content validity was used to represent the degree of accuracy between a set of measures and the concepts of interest (Cronbach & Meehl, 1955; Hair et al., 2010). Prior to launching the survey, the questionnaire was pretested and pilot tested to validate content validity and was generated first in an English version and then translated into Thai. The process for the pilot test as described in Chapter 3 (refer to page 107) included two lecturers and two owners from a sample in the pilot test. Their role was to ensure the clarity of each question. As a result, five questions were modified and included in the final questionnaire.

(b) Construct Validity

Construct validity was used to confirm that the indicators aligned with the factors as they are measuring instrument adequacy (Cronbach & Meehl, 1955; O'Leary-Kelly & Vokurka, 1998; Schwab, 1980). This research presented construct validity for 9 evaluation constructs that signify the conceptual latent, which consist of continuous learning, inquiry and dialogue, team learning, embedded system, empowerment, system connection, strategic leadership, organizational

innovativeness, and organizational performance. Convergent, discriminant and nomological validity are used to assess construct validity.

(1b) Convergent Validity

According to Schwab (1980), convergent validity is created by high factor loadings and considerably high levels of the indicator variable. In order to assess convergent validity, it is essential to analyze the estimated parameters' statistical significance between constructs and their items. Confirmatory Factor Analysis (CFA) (refer to Table 4.7) is applied in this research to estimate the values of the factor loading between indicators and the factor. The factor loadings indicate the correlation between the indicators and the factor. The factor loading's values ought to be over 0.50 for each factor's indicator (Hair et al., 2010). A single-factor CFA is performed only when it is possible to do so because CFA requires a minimum of four items for each latent variable in order to gain levels of freedom. In case that it was impossible to meet such requirements, the corresponding construct could connect with a different construct for the acquisition of factor loadings (Anderson & Gerbing, 1988). As a result, a model of single factor was done for organizational innovativeness and organizational performance, while continuous learning, inquiry and dialogue, team learning, embedded system, empowerment, system connection, and strategic leadership, which were the learning organization factors, were compared.

Table 4.7

Convergent Validity – Confirmatory Factor Analysis (CFA)

| Exogenous Variables | Code | Indicators | Factor Loading |
|---------------------------------------|-------------|--------------------------------------------------------------------------------------------------------------|-----------------------|
| Continuous Learning (CL) (3 items) | CL1 | In my organization, people help each other to learn. | 0.818 |
| | CL2 | In my organization, people take time to support learning. | 0.849 |
| | CL3 | In my organization, people are rewarded for learning. | 0.828 |
| Inquiry and Dialogue (ID) | ID1 | In my organization, people give open and honest feedback to each other. | 0.910 |
| | ID2 | In my organization, whenever people state their view, they also ask what others think. | 0.800 |
| | ID3 | In my organization, people spend time building trust with each other. | 0.859 |
| Team Learning (TL) | TL1 | In my organization, people have the freedom to adapt their goals as needed. | 0.876 |
| | TL2 | In my organization, people revise thinking as a result of organization discussions or information collected. | 0.939 |
| | TL3 | In my organization, we are confident that the organization will act on our recommendations. | 0.845 |
| Embedded System (ES) (3 items) | ES1 | My organization creates systems to measure gap between current and expected performance. | 0.899 |
| | ES2 | My organization makes its lessons learned available to all employees. | 0.897 |
| | ES3 | My organization measures the results of the time and resources spent on training and learning. | 0.886 |
| Empowerment (EM) (3 items) | EM1 | My organization recognizes people for taking initiative. | 0.854 |
| | EM2 | My organization gives people control over the resources they need to accomplish their work. | 0.862 |
| | EM3 | My organization supports members who take calculated risks. | 0.769 |

Table 4.7 (Continued)

| Exogenous Variables | Code | Indicators | Factor Loading |
|---------------------------------------------|-------------|------------------------------------------------------------------------------------------------------------------|-----------------------|
| System Connection (SC) (3 items) | SC1 | My organization encourages people to think from a global perspective. | 0.888 |
| | SC2 | My organization works together with the outside community or other outside resources to meet mutual needs. | 0.918 |
| | SC3 | My organization encourages people to get answers from multiple locations and perspectives when solving problems. | 0.877 |
| Strategic Leadership (SL) (3 items) | SL1 | In my organization, leaders mentor and coach those they lead. | 0.869 |
| | SL2 | In my organization, leaders continually look for opportunities to learn. | 0.930 |
| | SL3 | In my organization, leaders ensure that the organization's actions are | 0.912 |
| Organizational Innovativeness (11 items) | OI1 | Management team dynamically searches for new ideas. | 0.809 |
| | OI2 | Program or project management eagerly accepts innovation. | 0.751 |
| | OI3 | Scientific innovation derived from study results is enthusiastically agreed to. | 0.762 |
| | OI4 | In this organization, innovation is considered excessively uncertain and is therefore denied. | 0.761 |
| | OI5 | Our firm is usually the first in the market to introduce new products and services. | 0.734 |
| | OI6 | Our customers always regard our newly-launched products and services as highly innovative. | 0.745 |
| | OI7 | In the past five years, our firm has launched more new products and services than our competitors. | 0.771 |
| | OI8 | Compared to our competitors, our firm gains less achievement in the introduction of new products and services. | 0.773 |
| | OI9 | We continue to better our business procedures. | 0.719 |

Table 4.7 (Continued)

| Exogenous Variables | Code | Indicators | Factor Loading |
|----------------------------------------------|-------------|---------------------------------------------------------------------------------------------------|-----------------------|
| Organizational Performance (OP) (9 items) | OI10 | Compared with our competitors, our firm alters the techniques of production more rapidly. | 0.711 |
| | OI11 | Our firm has improved several new approaches in management in the past five years. | 0.707 |
| | OP1 | The investment return of my company is higher than that of the previous year. | 0.780 |
| | OP2 | The sales growth of my company is better than the year before. | 0.769 |
| | OP3 | Average productivity per staff of my company exceeds that of last year. | 0.648 |
| | OP4 | Time to market for products and services of my company is shorter than that of the previous year. | 0.773 |
| | OP5 | My company takes better care of customers' protests and requests than the year before. | 0.764 |
| | OP6 | The cost of each business transaction of my company is lower than that of the previous year. | 0.680 |
| | OP7 | Market share of my company is higher than that of the year before. | 0.811 |
| | OP8 | My company gains better profit volume than last year. | 0.773 |
| | OP9 | The additional fund of my company is higher than that of the previous year. | 0.752 |

As shown in Table 4.7, the results found that the factor loadings of every manifesting observed variable are acceptable as they ranged between 0.648 and 0.939. Hair et al. (2010) pointed out that the value of factor loadings of latent to an observed variable ought to exceed 0.50. Such findings show that every construct matches the test of construct convergent validity. After the modification indices

(MI) were applied for the deletions as suggested by the remaining items for each constructs are as follows: continuous learning (2 items of 3), inquiry and dialogue (2 items of 3), team learning (2 items of 3), embedded system (3 items-no deletion), empowerment (3 items-no deletion), system connection (3 items-no deletion), strategic leadership (2 items of 3), organizational innovativeness (5 items of 11), and organizational performance (3 items of 9).

(2b) Discriminant Validity

Discriminant validity can be estimated through SEM (Anderson & Gerbing, 1988). It should reflect the difference among dimensions in a model. The importance of discriminant validity is also measured by at least two and more interrelated. In order to evaluate discriminant validity, the existing average variance extracted (AVE) in two aspects has to be higher than the square of the relationship between the dimensions in order to satisfy the requirements of discriminant validity (Fornell & Larcker, 1981; Holmes-Smith, 2007). The values of AVE for all constructs ought to be higher than 0.50 (Fornell & Larcker, 1981, Hair et al., 2010). The formula for calculating the variance extracted is:

$$\text{Variance Extracted (VE)} = \frac{(\text{standardized SMC}^2)}{(\text{standardized SMC}^2) + \epsilon^2}$$

Where SMC = Squared Multiple Correlation

= Summation

ϵ^2 = Standard Error

The calculation of variance extracted (VE) is summarized through the Squared Multiple Correlation (SMC) and standard error (SE) (refer to Appendix I).

Table 4.8
Average Variance Extracted (AVE) of Variables

| Variables | CL | ID | TL | ES | EM | SC | SL | OI | OP |
|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| CL | 1.000 | | | | | | | | |
| ID | 0.933 | 1.000 | | | | | | | |
| TL | 0.939 | 0.947 | 1.000 | | | | | | |
| ES | 0.943 | 0.951 | 0.957 | 1.000 | | | | | |
| EM | 0.926 | 0.934 | 0.941 | 0.944 | 1.000 | | | | |
| SC | 0.938 | 0.946 | 0.952 | 0.956 | 0.940 | 1.000 | | | |
| SL | 0.944 | 0.952 | 0.958 | 0.962 | 0.945 | 0.957 | 1.000 | | |
| OI | 0.921 | 0.929 | 0.936 | 0.939 | 0.923 | 0.934 | 0.940 | 1.000 | |
| OP | 0.914 | 0.922 | 0.929 | 0.932 | 0.916 | 0.927 | 0.933 | 0.911 | 1.000 |

Note. CL = Continuous Learning; ID = Inquiry and Dialogue; TL = Team Learning; ES = Embedded System; EM = Empowerment; SC = System Connection; SL = Strategic Leadership; OI = Organizational Innovativeness; OP = Organizational Performance.

As Table 4.8 demonstrated, AVE varies from 0.911 to 0.962, in the Correlation Square Matrix in Table 4.9 variables ranges from 0.144 to 0.558. In order to uphold discriminant validity, AVE's value has to exceed correlation square. For instance, when making a comparison between continuous learning and embedded system in the Average Variance Extracted and Correlation Square Matrix Tables, AVE is 0.943, while correlation square matrix is 0.236 at significant of the 0.01 level. Therefore, AVE is greater than the correlation square matrix, or continuous learning discriminates from embedded system. Consequently, discriminant validity is supported by every construct that is used in this research.

Table 4.9

Correlation Square Matrix between Variables

| Variables | CL | ID | TL | ES | EM | SC | SL | OI | OP |
|-----------|----------|----------|----------|----------|----------|----------|----------|----------|-------|
| CL | 1.000 | | | | | | | | |
| ID | 0.279*** | 1.000 | | | | | | | |
| TL | 0.340*** | 0.209** | 1.000 | | | | | | |
| ES | 0.236** | 0.350*** | 0.221** | 1.000 | | | | | |
| EM | 0.384*** | 0.360*** | 0.294*** | 0.316*** | 1.000 | | | | |
| SC | 0.336*** | 0.236** | 0.310*** | 0.144** | 0.238** | 1.000 | | | |
| SL | 0.274*** | 0.384*** | 0.345*** | 0.325*** | 0.383*** | 0.272*** | 1.000 | | |
| OI | 0.208** | 0.237** | 0.183** | 0.264*** | 0.264** | 0.238** | 0.376*** | 1.000 | |
| OP | 0.309** | 0.331*** | 0.266*** | 0.270*** | 0.270** | 0.225** | 0.361*** | 0.558*** | 1.000 |

Note. CL = Continuous Learning; ID = Inquiry and Dialogue; TL = Team Learning; ES = Embedded System; EM = Empowerment; SC = System Connection; SL = Strategic Leadership; OI = Organizational Innovativeness; OP = Organizational Performance.

*** Correlation is Significant of the 0.001 level (2-tailed)

**Correlation is Significant of the 0.01 level (2-tailed)

*Correlation is Significant of the 0.05 level (2-tailed)

(3b) Nomological Validity

Due to Hair's theory stipulated (Hair et al., 2010), nomological validity scrutinizes if the relationships between constructs in the theory of evaluation are reasonable in positive or negative ways. It has been detected that all causes of relationships (as in Appendix I) are in accord with the hypotheses and the theory. Therefore, it can be concluded that nomological validity provides sufficient evidence to prove all measures that are applied in this research.

(c) Criterion Validity

Criterion validity is involved to the extent that a tool is connected with an independent evaluation of the related principles. It scrutinizes if the use of cluster analysis is possible or not. According to Hair et al. (2010), clusters have a capacity

to reveal the anticipated dissimilarity of a variable that is not applied for the formation of the clusters. Besides, cluster analysis is respected from factor analysis, which is related to the combination of variables. Therefore, criterion validity of the seven learning organizations was originally assessed by the examination of the factor analysis (refer to Table 4.7). The results were, in all cases, above 0.50, providing strong evidence for criterion validity.

4.3 Goodness of Fit measures

To conduct a model assessment of the structural equation modeling (SEM), it is necessary to use goodness of fit (GOF) tests. GOF indicates how well the specified model reproduces the covariance matrix among the indicator variables (Hair et al., 2010). There are several GOF measures for assessing a structural model but it is not recommended to report on them all (Hair et al., 2010; Jaccard & Wan, 1996; Kline, 1998). According to Hair et al. (2010), at least one GOF measure from each type of measure should be selected. Jaccard and Wan (1996) suggest that at least three GOF measures be selected for the model assessment; while Kline (1998) recommends that at least four GOF measures be selected. This study uses eight GOF measures (refer to Table 4.10) selected from both absolute fit and incremental fit indices to assess the model fit based upon Chi-square (χ^2), Df, χ^2/df ratio, P-value, the Goodness of Fit Index (GFI), the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), and the root mean square error of approximation (RMSEA) as the requirements. If all GOF measurement requirements are not met,

model modifications are necessary to ensure the model can adequately explain the data.

This study sets up the guidelines for model modification to ensure any changes were carefully undertaken. Therefore, each step was carefully applied to reduce the potential for errors in the model (Byrne, 2005; Hair et al., 2010; Ullman, 2001) as follows:

- 1) Factor loadings are values that indicate how an item can accurately explain a factor. The factor loadings of the latent variable should be greater than 0.5, otherwise they will be dropped because they cannot sufficiently explain the factors (Hair et al., 2010).
- 2) P-value of each observed variable is the value that represents the significance of an item in the model. $P > 0.05$ for an observed variable means that it is not significant, and that it will be deleted excepting unreliable items from the model (Hair et al., 2010; Ullman, 2001).
- 3) Modification indices (MI) are values representing the highest covariance values, which suggest that the particular indicator relates to misspecification (Byrne, 2005; Hair et al., 2010) between two variables and such values will be subject to deletion after careful consideration. Thus, the factor loadings will be used together with MI values to justify which particular indicator will be deleted.
- 4) GOF cutoff values were set at Chi-square (Better Smaller), $Df > 0$, χ^2/df ratio < 2 , $p > 0.05$, GFI > 0.90 , CFI > 0.90 , TLI > 0.90 , RMSEA < 0.08 , which represent a good model fit and that the model can adequately explain the survey data when the requirements for all of these indices have been met (refer to Table 4.10).

Table 4.10

Goodness of Fit Indices and Acceptable of Cutoff Value

| Assessment Index | Model Fit Index | Cutoff Value | References |
|-----------------------|-----------------|----------------|-----------------------------------|
| Absolute Fit Index | Chi-square | Better Smaller | Byrne (2005) |
| | Df | >0.00 | Byrne (2005) |
| | 2/df ratio | <2.00 | Hair et al. (2010) |
| | P-value | >0.05 | Hair et al. (2010); Ullman (2001) |
| | GFI | >0.90 | Byrne (2005); Hair et al. (2010) |
| | RMSEA | <0.08 | Byrne (2005) |
| Incremental Fit Index | CFI | >0.90 | Byrne (2005); Hair et al. (2010) |
| | TLI | >0.90 | Byrne (2005); Hair et al. (2010) |

Note. Df = Degree of Freedom; GFI = the Goodness of Fit Index; CFI = the Comparative Fit Index; TLI = the Tucker-Lewis Index; RMSEA = the root mean square error of approximation.

4.4 Confirmatory Factor Analysis (CFA)

In a structural equation modeling (SEM) approach, it was suggested that a two-step procedure be adopted by the analysis of the measurement model through confirmatory factor analysis (CFA), followed by the analysis of the structural model (Anderson & Gerbing, 1988). CFA and SEM, a covariance matrix was analyzed and maximum likelihood estimation procedure was used.

4.4.1 Measurement of the Model using Confirmatory Factor Analysis

4.4.1.1 Confirmatory Factor Analysis of Learning Organization

Confirmatory Factor Analysis (CFA) used patterns in correlations or covariance matrices to assign weights to values of observed variables. Mathematically, the minimal number of observed variables required to perform a CFA is three

(Hair et al., 2010). Although, learning organization dimensions have only three measurement items, they are more prone to estimation problems, this study was necessary to apply the CFA model for the seven constructs (refer to Table 4.11).

Table 4.11

Summary Finding - Confirmatory Factor Analysis of Learning Organization

| Factor | Indicators | | Standardized Loading | |
|--------|------------|--------------------------------------------------------------------------------------------------------------|----------------------|-------|
| | | | Initial | Final |
| CL | CL1 | In my organization, people help each other to learn. | 0.818 | 0.852 |
| | CL2 | In my organization, people take time to support learning. | 0.849 | - |
| | CL3 | In my organization, people are rewarded for learning. | 0.828 | 0.810 |
| ID | ID1 | In my organization, people give open and honest feedback to each other. | 0.910 | 0.874 |
| | ID2 | In my organization, whenever people state their view, they also ask what others think. | 0.800 | 0.824 |
| | ID3 | In my organization, people spend time building trust with each other. | 0.859 | - |
| TL | TL1 | In my organization, people have the freedom to adapt their goals as needed. | 0.876 | 0.869 |
| | TL2 | In my organization, people revise thinking as a result of organization discussions or information collected. | 0.939 | 0.941 |
| | TL3 | In my organization, we are confident that the organization will act on our recommendations. | 0.845 | - |
| ES | ES1 | My organization creates systems to measure gap between current and expected performance. | 0.899 | 0.899 |
| | ES2 | My organization makes its lessons learned available to all employees. | 0.897 | 0.897 |
| | ES3 | My organization measures the results of the time and resources spent on training and learning. | 0.886 | 0.887 |

Note. CL=Continuous Learning; ID=Inquiry and Dialogue; TL=Team Learning; ES=Embedded System

Table 4.11 (Continued)

| Factor | | | Standardized Loading | |
|---------------|-----|------------------------------------------------------------------------------------------------------------------|-----------------------------|--------------|
| | | | Initial | Final |
| EM | EM1 | My organization recognizes people for taking initiative. | 0.854 | 0.854 |
| | EM2 | My organization gives people control over the resources they need to accomplish their work. | 0.862 | 0.862 |
| | EM3 | My organization supports members who take calculated risks. | 0.769 | 0.770 |
| SC | SC1 | My organization encourages people to think from a global perspective. | 0.888 | 0.885 |
| | SC2 | My organization works together with the outside community or other outside resources to meet mutual needs. | 0.918 | 0.920 |
| | SC3 | My organization encourages people to get answers from multiple locations and perspectives when solving problems. | 0.877 | 0.878 |
| SL | SL1 | In my organization, leaders mentor and coach those they lead. | 0.869 | - |
| | SL2 | In my organization, leaders continually look for opportunities to learn. | 0.930 | 0.950 |
| | SL3 | In my organization, leaders ensure that the organization's actions are | 0.912 | 0.899 |

Note. EM=Empowerment; SC=System Connection; SL=Strategic Leadership.

Table 4.12

Model Fit Results - Confirmatory Factor Analysis of Learning Organization

| Indices | Model Fit | | Cutoff Value Requirement |
|----------------|------------------|--------------|---------------------------------|
| | Initial | Final | |
| Chi-square | 268.315 | 117.784 | Better Smaller |
| Df | 168 | 98 | >0.00 |
| P-value | 0.000 | 0.085 | >0.05 |
| Ratio | 1.597 | 1.202 | <3.00 |
| GFI | 0.938 | 0.967 | >0.90 |
| CFI | 0.985 | 0.996 | >0.90 |
| TLI | 0.981 | 0.994 | >0.90 |
| RMSEA | 0.039 | 0.023 | <0.08 |

Note. Df = Degree of Freedom; GFI = the Goodness of Fit Index; CFI = the Comparative Fit Index; TLI = the Tucker-Lewis Index; RMSEA = the root mean square error of approximation.

As shown in Table 4.11, the first factor is related to continuous learning (CL) with the initial standardized loadings ranging from 0.818 to 0.849. The second factor is related to inquiry and dialogue (ID) with the initial standardized loadings ranging from 0.800 to 0.910. The third factor is related to team learning (TL) with the initial standardized loadings ranging from 0.845 to 0.939. The fourth factor is related to embedded system (ES) with the initial standardized loadings ranging from 0.886 to 0.899. The fifth factor is related to empowerment (EM) with the initial standardized loadings ranging from 0.769 to 0.854. The sixth factor is related to system connection (SC) with the initial standardized loadings ranging from 0.877 to 0.918. Finally, the seventh factor is related to strategic leadership (SL) with the initial standardized loadings ranging from 0.869 to 0.930. All factors were significant and greater than 0.5 (Hair et al., 2010). This means that all factors represent a good-fit for learning organization.

However, the initial output values of the learning organization factors did not meet the cutoff value requirements regarding indices: $\chi^2=268.315$, $df=168$, $p\text{-value}=0.000$ ($p<0.05$), $ratio=1.597$, $GFI=0.938$, $CFI=0.985$, $TLI=0.981$, $RMSEA=0.039$ as shown in Table 4.12. Therefore, this initial model was rejected and model modification was applied. Only modification indices (MIs) were considered to modify the model because all indicators were found to be significant. As a result from the final model (refer to Table 4.11), four indicators: In my organization, people take time to support learning (CL2), In my organization, people spend time building trust with each other (ID3), In my organization, we are confident that the organization will act on our recommendations (TL3), and In my organization, leaders mentor and coach those they lead (SL1) were deleted.

This demonstrated that the model was a good-fit with the new cutoff value requirement: chi-square=117.784, df=98, p-value=0.085 (p>0.05), ratio=1.202, GFI=0.967, CFI=0.996, TLI=0.994, RMSEA=0.023 as shown in Table 4.12.

4.4.1.2 Confirmatory Factor Analysis of Organizational Innovativeness

Table 4.13

Summary Finding - Confirmatory Factor Analysis of Organizational Innovativeness

| Factor | Indicators | Standardized Loading | |
|--------|--------------------------------------------------------------------------------------------------------------------|----------------------|-------|
| | | Initial | Final |
| OI | OI1 Management team dynamically searches for new ideas. | 0.809 | 0.850 |
| | OI2 Program or project management eagerly accepts innovation. | 0.751 | 0.762 |
| | OI3 Scientific innovation derived from study results is enthusiastically agreed to. | 0.762 | 0.773 |
| | OI4 In this organization, innovation is considered excessively uncertain and is therefore denied. | 0.761 | - |
| | OI5 Our firm is usually the first in the market to introduce new products and services. | 0.734 | 0.701 |
| | OI6 Our customers always regard our newly-launched products and services as highly innovative. | 0.745 | - |
| | OI7 In the past five years, our firm has launched more new products and services than our competitors. | 0.771 | 0.748 |
| | OI8 Compared to our competitors, our firm gains less achievement in the introduction of new products and services. | 0.773 | - |
| | OI9 We continue to better our business procedures. | 0.719 | - |
| | OI10 Compared with our competitors, our firm alters the techniques of production more rapidly. | 0.711 | - |
| | OI11 Our firm has improved several new approaches in management in the past five years. | 0.707 | 0.661 |

Note. OI = Organizational Innovativeness

Table 4.14

Model Fit Results - Confirmatory Factor Analysis of Organizational Innovativeness

| Indices | Model Fit | | Cutoff Value Requirement |
|----------------|------------------|--------------|---------------------------------|
| | Initial | Final | |
| Chi-square | 273.205 | 13.936 | Better Smaller |
| Df | 44 | 9 | >0.00 |
| P-value | 0.000 | 0.125 | >0.05 |
| Ratio | 6.209 | 1.548 | <3.00 |
| GFI | 0.879 | 0.988 | >0.90 |
| CFI | 0.916 | 0.996 | >0.90 |
| TLI | 0.895 | 0.993 | >0.90 |
| RMSEA | 0.115 | 0.037 | <0.08 |

Note. Df = Degree of Freedom; GFI = the Goodness of Fit Index; CFI = the Comparative Fit Index; TLI = the Tucker-Lewis Index; RMSEA = the root mean square error of approximation.

As shown in Table 4.13, the factor consisted of eleven observed indicators, organizational innovativeness (OI). The initial standardized loading of all measurement variables ranging from 0.707 to 0.809. All of the indicators were significantly and higher than 0.5 (Hair et al., 2010). This means that all indicators represent a good-fit for organizational innovativeness.

However, the initial output values of the organizational innovativeness did not meet the cutoff value requirements regarding indices: chi-square=273.205, df=44, p-value=0.000 ($p<0.05$), ratio=6.209, GFI=0.879, CFI=0.916, TLI=0.895, RMSEA=0.115 as shown in Table 4.14. Therefore, this initial model was rejected and model modification was applied. Only modification indices (MIs) were considered to modify the model because all indicators were found to be significant. As a result from the final model (refer to Table 4.13), five variables: In this organization, innovation is considered excessively uncertain and is therefore denied (OI4), Our customers always regard our newly-launched products and services as

highly innovative (OI6), Compared to our competitors, our firm gains less achievement in the introduction of new products and services (OI8), We continue to better our business procedures (OI9), and Compared with our competitors, our firm alters the techniques of production more rapidly (OI10) were deleted. This indicated that the model was a good fit with the new cutoff value requirement: chi-square=13.936, df=9, p-value=0.125 ($p>0.05$), ratio=1.548, GFI=0.988, CFI=0.996, TLI=0.993, RMSEA=0.037 as shown in Table 4.14.

4.4.1.3 Confirmatory Factor Analysis of Organizational Performance

Table 4.15

Summary Finding - Confirmatory Factor Analysis of Organizational Performance

| Factor | Indicators | | Standardized Loading | |
|--------|------------|---------------------------------------------------------------------------------------------------|----------------------|-------|
| | | | Initial | Final |
| OP | OP1 | The investment return of my company is higher than that of the previous year. | 0.780 | 0.827 |
| | OP2 | The sales growth of my company is better than the year before. | 0.769 | 0.823 |
| | OP3 | Average productivity per staff of my company exceeds that of last year. | 0.648 | 0.654 |
| | OP4 | Time to market for products and services of my company is shorter than that of the previous year. | 0.773 | 0.747 |
| | OP5 | My company takes better care of customers' protests and requests than the year before. | 0.764 | - |
| | OP6 | The cost of each business transaction of my company is lower than that of the previous year. | 0.680 | 0.634 |
| | OP7 | Market share of my company is higher than that of the year before. | 0.811 | - |
| | OP8 | My company gains better profit volume than last year. | 0.773 | - |
| | OP9 | The additional fund of my company is higher than that of the previous year. | 0.752 | 0.707 |

Note. OP = Organizational Performance

Table 4.16

Model Fit Results - Confirmatory Factor Analysis of Organizational Performance

| Indices | Model Fit | | Cutoff Value Requirement |
|----------------|------------------|--------------|---------------------------------|
| | Initial | Final | |
| Chi-square | 221.573 | 14.906 | Better Smaller |
| Df | 27 | 9 | >0.00 |
| P-value | 0.000 | 0.094 | >0.05 |
| Ratio | 8.206 | 1.656 | <3.00 |
| GFI | 0.874 | 0.987 | >0.90 |
| CFI | 0.909 | 0.994 | >0.90 |
| TLI | 0.879 | 0.991 | >0.90 |
| RMSEA | 0.136 | 0.041 | <0.08 |

Note. Df = Degree of Freedom; GFI = the Goodness of Fit Index; CFI = the Comparative Fit Index; TLI = the Tucker-Lewis Index; RMSEA = the root mean square error of approximation.

As shown in Table 4.15, the organizational performance factor consisted of nine variables. Factor loadings of all measurement variables ranged from 0.648 to 0.811. All of the indicators were significant and higher than 0.5 (Hair et al., 2010). This means that all indicators represent a good fit for organizational performance.

However, the initial output values of the organizational performance did not meet the cutoff value requirements regarding indices: chi-square=221.573, df=27, p-value=0.000 ($p < 0.05$), ratio=8.206, GFI=0.874, CFI=0.909, TLI=0.876, RMSEA=0.136 as shown in Table 4.16. Therefore, this initial model was rejected and model modification was applied. Only modification indices (MIs) were considered to modify the model because all indicators were found to be significant. As a result from the final model (refer to Table 4.15), three variables: My company takes better care of customers' protests and requests than the year before (OP5), Market share of my company is higher than that of the year before (OP7), and My company gains better profit volume than last year (OP8) were deleted. This

indicated that the model was a good-fit with the new cutoff value requirement: chi-square=14.906, df=9, p-value=0.094 ($p>0.05$), ratio=1.656, GFI=0.987, CFI=0.994, TLI=0.991, RMSEA=0.041 as shown in Table 4.16.

4.5 Hypothesized Model

4.5.1 Goodness of Fit Analysis – Hypothesized Model

Table 4.17

Goodness of Fit Analysis – Hypothesized Model

| Indices | Cutoff Value Requirement | Hypothesized Model | Criteria |
|------------|--------------------------|--------------------|----------|
| Chi-square | Better Smaller | 1729.847 | Good fit |
| Df | >0.00 | 743 | Good fit |
| P-value | >0.05 | 0.000 | Poor fit |
| Ratio | <2.00 | 2.328 | Poor fit |
| GFI | >0.90 | 0.816 | Poor fit |
| CFI | >0.90 | 0.921 | Good fit |
| TLI | >0.90 | 0.913 | Good fit |
| RMSEA | <0.08 | 0.058 | Good fit |

Note. Df = Degree of Freedom; GFI = the Goodness of Fit Index; CFI = the Comparative Fit Index; TLI = the Tucker-Lewis Index; RMSEA = the root mean square error of approximation.

As shown in Table 4.17, Goodness of fit index based on the result showed chi-square value of 1729.847 with Df of 743. This model does not support the goodness of fit results due to the p-value result of 0.000 the probability value must be greater than 0.05 ($p>0.05$). Ratio result of 2.328, which was not fit as the cutoff value must be less than 2 (Ratio<2.00). The Goodness of Fit Index (GFI) result is 0.816, is supported as the cutoff value requirement, as the value must be greater than 0.90 (GFI>0.90). There are three factors that are supported on good fit result;

Comparative of Fit Index (CFI) and Tucker Lewis of Coefficient (TLI) results at 0.921 and 0.913 respectively which were fit as the cutoff value over 0.90 (CFI>0.90, TLI>0.90). Roots Mean Square of Approximation (RMSEA) at 0.058 which was fit as the cutoff value must be less than 0.08 (RMSEA<0.08) (refer to Appendix L). Therefore, this hypothesized model must be modified, the highest modification index (MI) was done by removing indicators (Byrne, 2005; Hair et al., 2010, Ullman, 2001).

4.5.2 Direct Impact of Hypothesized Model

Table 4.18

Direct Impact of Hypothesized Model

| Hypothesis | Exogenous | Endogenous | | S.E. | C.R. | P-Value | Status |
|------------|----------------------|-------------------------------|--------|-------|--------|----------|----------|
| 1 | Continuous Learning | Organizational Innovativeness | 0.035 | 0.061 | 0.518 | 0.604 | Not Sig. |
| 2 | Inquiry and Dialogue | Organizational Innovativeness | 0.015 | 0.056 | 0.228 | 0.820 | Not Sig. |
| 3 | Team Learning | Organizational Innovativeness | -0.048 | 0.054 | -0.783 | 0.433 | Not Sig. |
| 4 | Embedded System | Organizational Innovativeness | 0.183 | 0.054 | 3.051 | 0.002** | Sig. |
| 5 | Empowerment | Organizational Innovativeness | 0.098 | 0.060 | 1.388 | 0.165 | Not Sig. |
| 6 | System Connection | Organizational Innovativeness | 0.186 | 0.047 | 3.134 | 0.002** | Sig. |
| 7 | Strategic Leadership | Organizational Innovativeness | 0.351 | 0.060 | 5.121 | 0.000*** | Sig. |
| 8 | Continuous Learning | Organizational Performance | 0.175 | 0.057 | 2.958 | 0.003** | Sig. |
| 9 | Inquiry and Dialogue | Organizational Performance | 0.195 | 0.052 | 3.435 | 0.000*** | Sig. |
| 10 | Team Learning | Organizational Performance | 0.128 | 0.050 | 2.412 | 0.016* | Sig. |
| 11 | Embedded System | Organizational Performance | -0.018 | 0.050 | -0.352 | 0.725 | Not Sig. |

Note. = Regression Coefficient; S.E.=Standard Error; C.R.=Critical Ratio; Sig. Significant. Significant Level:***p<0.001, **p<0.01, *p<0.05

Table 4.18 (Continued)

| Hypothesis | Exogenous | Endogenous | | S.E. | C.R. | P-Value | Status |
|------------|-------------------------------|----------------------------|--------|-------|--------|----------|----------|
| 12 | Empowerment | Organizational Performance | -0.049 | 0.055 | -0.816 | 0.415 | Not Sig. |
| 13 | System Connection | Organizational Performance | -0.055 | 0.043 | -1.075 | 0.282 | Not Sig. |
| 14 | Strategic Leadership | Organizational Performance | 0.046 | 0.056 | 0.772 | 0.440 | Not Sig. |
| 15 | Organizational Innovativeness | Organizational Performance | 0.551 | 0.062 | 9.577 | 0.000*** | Sig. |

Note. = Regression Coefficient; S.E.=Standard Error; C.R.=Critical Ratio; Sig. Significant.
Significant Level:***p<0.001, **p<0.01, *p<0.05

The explanation of results are related to the hypothesized model (refer to Table 4.18). The results indicate that embedded system has a significant impact on organizational innovativeness with regression coefficient ()=0.183, C.R.=3.051, p-value=0.002 (p<0.01). System connection has a significant impact on organizational innovativeness with =0.186, C.R.=3.134, p-value=0.002 (p<0.01). Strategic leadership has a significant impact on organizational innovativeness at =0.351, C.R.=5.121, p-value=0.000 (p<0.001).

The variable, continuous learning has a significant impact on organizational performance at =0.175, C.R.=2.958, p-value=0.003 (p<0.01). Similarly, inquiry and dialogue and team learning have a significant impact on organizational performance at =0.195, C.R.=3.435, p-value=0.000 (p<0.001) and =0.128, C.R.=2.416, p-value=0.016 (p<0.05) respectively. In addition, organizational innovativeness has a significant impact on organizational performance at =0.551, C.R.=9.577, p-value=0.000 (p<0.001).

Additionally, continuous learning, inquiry and dialogue, team learning, empowerment variables have had no significant impact on organizational innovativeness. Similarly, embedded system, empowerment, system connection, strategic leadership variables have had no significant impact on organizational performance.

4.6 Modified Model

4.6.1 Goodness of Fit Analysis – Modified Model

Since the measurement in the hypothesized model is not supported on criteria, the goodness of fit of the modified model is achieved for model fit. (refer to Table 4.19).

Table 4.19
Goodness of Fit Analysis – Modified Model

| Indices | Cutoff Value Requiriement | Hypothesized Model | Modified Model | Criteria |
|----------------|--------------------------------------|-------------------------------|---------------------------|-----------------|
| Chi-square | Better Smaller | 1729.847 | 189.703 | Good fit |
| Df | >0.00 | 743 | 173 | Good fit |
| P-value | >0.05 | 0.000 | 0.182 | Good fit |
| Ratio | <2.00 | 2.328 | 1.097 | Good fit |
| GFI | >0.90 | 0.816 | 0.958 | Good fit |
| CFI | >0.90 | 0.921 | 0.997 | Good fit |
| TLI | >0.90 | 0.913 | 0.996 | Good fit |
| RMSEA | <0.08 | 0.058 | 0.016 | Good fit |

Note. Df = Degree of Freedom; GFI = the Goodness of Fit Index; CFI = the Comparative Fit Index; TLI = the Tucker-Lewis Index; RMSEA = the root mean square error of approximation.

As shown in Table 4.19, the modified model returns the best results in comparison to the hypothesized model, goodness of fit index based on the result, chi-square value was reduced from 1729.847 to 189.703, and p-value increased from 0.000 to 0.182. Degree of freedom (Df) value was decreased from 743 to 173. The ratio was decreased from 2.328 to 1.097. The cutoff value requirement is satisfied as indicated by the chi-square, p-value, and ratio factor's results. Goodness of Fit Index (GFI) result of 0.958 must be greater than 0.90 (GFI>0.90) to satisfy the cutoff value, Comparative of Fit Index (CFI) and Tucker Lewis of Coefficient (TLI) results of 0.997 and 0.996 respectively which were fit as the cutoff value requirement over 0.90 (CFI>0.90, TLI>0.90). Roots Mean Square of Approximation (RMSEA) of 0.016 which was fit as the cutoff value must be less than 0.08 (RMSEA<0.08) (refer to Appendix L). From this result, the highest modification index (MI) was done by removing indicators that showed cross loading between them. Therefore, based on the overall results the modified model is considered to be a good-fit for the data (Byrne, 2005; Hair et al., 2010; Ullman, 2001).

4.6.2 Hypotheses Test

Table 4.20

Hypotheses Test of Modified Model

| Hypothesis | Exogenous | Endogenous | S.E. | C.R. | P-Value | Status |
|------------|----------------------|-------------------------------|--------|-------|---------|----------------|
| 1 | Continuous Learning | Organizational Innovativeness | 0.147 | 0.064 | 1.997 | 0.046* Sig. |
| 2 | Inquiry and Dialogue | Organizational Innovativeness | -0.012 | 0.059 | -0.177 | 0.859 Not Sig. |
| 3 | Team Learning | Organizational Innovativeness | -0.071 | 0.058 | -1.061 | 0.289 Not Sig. |

Note. = Regression Coefficient; S.E.=Standard Error; C.R.=Critical Ratio; Sig.=Significant.
Significant Level:***p<0.001, **p<0.01, *p<0.05

Table 4.20 (Continued)

| Hypothesis | Exogenous | Endogenous | | S.E. | C.R. | P-Value | Status |
|------------|-------------------------------|-------------------------------|--------|-------|--------|----------|----------|
| 4 | Embedded System | Organizational Innovativeness | 0.200 | 0.059 | 3.122 | 0.002** | Sig. |
| 5 | Empowerment | Organizational Innovativeness | 0.030 | 0.059 | 0.409 | 0.683 | Not Sig. |
| 6 | System Connection | Organizational Innovativeness | 0.192 | 0.051 | 3.011 | 0.003** | Sig. |
| 7 | Strategic Leadership | Organizational Innovativeness | 0.368 | 0.061 | 5.253 | 0.000*** | Sig. |
| 8 | Continuous Learning | Organizational Performance | 0.008 | 0.065 | 0.104 | 0.918 | Not Sig. |
| 9 | Inquiry and Dialogue | Organizational Performance | 0.337 | 0.061 | 4.615 | 0.000*** | Sig. |
| 10 | Team Learning | Organizational Performance | 0.169 | 0.059 | 2.421 | 0.015* | Sig. |
| 11 | Embedded System | Organizational Performance | 0.124 | 0.061 | 1.827 | 0.068 | Not Sig. |
| 12 | Empowerment | Organizational Performance | -0.067 | 0.059 | -0.892 | 0.372 | Not Sig. |
| 13 | System Connection | Organizational Performance | -0.114 | 0.053 | -1.703 | 0.089 | Not Sig. |
| 14 | Strategic Leadership | Organizational Performance | 0.012 | 0.064 | 0.155 | 0.877 | Not Sig. |
| 15 | Organizational Innovativeness | Organizational Performance | 0.523 | 0.077 | 6.641 | 0.000*** | Sig. |

Note. = Regression Coefficient; S.E.=Standard Error; C.R.=Critical Ratio; Sig.=Significant. Significant Level:***p<0.001, **p<0.01, *p<0.05

The result of observations hypotheses describing the influence between each variable can be seen in the modified model (refer to Table 4.20). The statistic hypotheses tested on a significance test of direct path are:

Hypotheses 1: There is a significant positive relationship between continuous learning and organizational innovativeness.

Based on the result of the hypothesis test indicated that continuous learning has a positive impact on organizational innovativeness with regression coefficient ()=0.147 at significant value of 0.046 (p<0.05). The result of the hypothesis test

shows that there is a significant relationship between continuous learning and organizational innovativeness.

Hypothesis 2: There is a significant positive relationship between inquiry and dialogue and organizational innovativeness.

Based on the result of the hypothesis test indicated that inquiry and dialogue has a negative impact on organizational innovativeness with $\beta = -0.012$ at significant value of 0.859 ($p > 0.05$). The result of the hypothesis test shows that there is no significant relationship between inquiry and dialogue and organizational innovativeness.

Hypothesis 3: There is a significant positive relationship between team learning and organizational innovativeness.

Based on the result of the hypothesis test indicated that team learning has a negative impact on organizational innovativeness with $\beta = -0.071$ at significant value of 0.289 ($p > 0.05$). The result of the hypothesis test shows that there is no significant relationship between team learning and organizational innovativeness.

Hypothesis 4: There is a significant positive relationship between embedded system and organizational innovativeness.

Based on the result of the hypothesis test indicated that embedded system has a positive impact on organizational innovativeness with $\beta = 0.200$ at significant value

of 0.002 ($p < 0.01$). The result of the hypothesis test shows that there is a significant relationship between embedded system and organizational innovativeness.

Hypothesis 5: There is a significant positive relationship between empowerment and organizational innovativeness.

Based on the result of the hypothesis test indicated that empowerment has a positive impact on organizational innovativeness with $\beta = 0.030$ at significant value of 0.683 ($p > 0.05$). The result of the hypothesis test shows that there is no significant relationship between empowerment and organizational innovativeness.

Hypothesis 6: There is a significant positive relationship between system connection and organizational innovativeness.

Based on the result of the hypothesis test indicated that system connection has a positive impact on organizational innovativeness with $\beta = 0.192$ at significant value of 0.003 ($p < 0.01$). The result of the hypothesis test shows that there is a significant relationship between system connection and organizational innovativeness.

Hypothesis 7: There is a significant positive relationship between strategic leadership and organizational innovativeness.

Based on the result of the hypothesis test indicated that strategic leadership has a positive impact on organizational innovativeness with $\beta = 0.368$ at significant value of 0.000 ($p < 0.001$). The result of the hypothesis test shows that there is a significant relationship between strategic leadership and organizational innovativeness.

Hypothesis 8: There is a significant positive relationship between continuous learning and organizational performance.

Based on the result of the hypothesis test indicated that continuous learning has a positive impact on organizational performance with $\beta=0.008$ at significant value of 0.918 ($p>0.05$). The result of the hypothesis test shows that there is no significant relationship between continuous learning and organizational performance.

Hypothesis 9: There is a significant positive relationship between inquiry and dialogue and organizational performance.

Based on the result of the hypothesis test indicated that inquiry and dialogue has a positive impact on organizational performance with $\beta=0.337$ at significant value of 0.000 ($p<0.001$). The result of the hypothesis test shows that there is a significant relationship between inquiry and dialogue and organizational performance.

Hypothesis 10: There is a significant positive relationship between team learning and organizational performance.

Based on the result of the hypothesis test indicated that team learning has a positive impact on organizational performance with $\beta=0.169$ at significant value of 0.015 ($p<0.05$). The result of the hypothesis test shows that there is a significant relationship between team learning and organizational performance.

Hypothesis 11: There is a significant positive relationship between embedded system and organizational performance.

Based on the result of the hypothesis test indicated that embedded system has a positive impact on organizational performance with $\beta=0.124$ at significant value of 0.068 ($p>0.05$). The result of the hypothesis test shows that there is no significant relationship between embedded system and organizational performance.

Hypothesis 12: There is a significant positive relationship between empowerment and organizational performance.

Based on the result of the hypothesis test indicated that empowerment has a negative impact on organizational performance with $\beta=-0.067$ at significant value of 0.372 ($p>0.05$). The result of the hypothesis test shows that there is no significant relationship between empowerment and organizational performance.

Hypothesis 13: There is a significant positive relationship between system connection and organizational performance.

Based on the result of the hypothesis test indicated that system connection has a negative impact on organizational performance with $\beta=-0.114$ at significant value of 0.089 ($p>0.05$). The result of the hypothesis test shows that there is no significant relationship between system connection and organizational performance.

Hypothesis 14: There is a significant positive relationship between strategic leadership and organizational performance.

Based on the result of the hypothesis test indicated that strategic leadership has a positive impact on organizational performance with $\beta=0.012$ at significant value of 0.877 ($p>0.05$). The result of the hypothesis test shows that there is no significant relationship between strategic leadership and organizational performance.

Hypothesis 15: There is a significant positive relationship between organizational innovativeness and organizational performance.

Based on the result of the hypothesis test indicated that organizational innovativeness has a positive impact on organizational performance with $\beta=0.523$ at significant value of 0.000 ($p<0.001$). The result of the hypothesis test shows that there is a significant relationship between organizational innovativeness and organizational performance.

Table 4.21
Summary of Hypotheses Test of Modified Structural Model

| Hypothesis | Exogenous | Endogenous | Regression Coefficient () | Modified Model | |
|--------------|----------------------|-------------------------------|-------------------------------|----------------|-------------------|
| | | | | P-value | Hypothesis Status |
| Hypothesis 1 | Continuous Learning | Organizational Innovativeness | 0.147 | 0.046* | Supported |
| Hypothesis 2 | Inquiry and Dialogue | Organizational Innovativeness | -0.012 | 0.859 | Not supported |
| Hypothesis 3 | Team Learning | Organizational Innovativeness | -0.071 | 0.289 | Not supported |
| Hypothesis 4 | Embedded System | Organizational Innovativeness | 0.200 | 0.002** | Supported |

Note. Significant Level:*** $p<0.001$, ** $p<0.01$, * $p<0.05$

Table 4.21 (Continued)

| Hypothesis | Exogenous | Endogenous | Regression Coefficient () | Modified Model | |
|-------------------------------------|-------------------------------|-------------------------------|-------------------------------|----------------|-------------------|
| | | | | P-value | Hypothesis Status |
| Hypothesis 5 | Empowerment | Organizational Innovativeness | 0.030 | 0.683 | Not supported |
| Hypothesis 6 | System Connection | Organizational Innovativeness | 0.192 | 0.003** | Supported |
| Hypothesis 7 | Strategic Leadership | Organizational Innovativeness | 0.368 | 0.000*** | Supported |
| Hypothesis 8 | Continuous Learning | Organizational Performance | 0.008 | 0.918 | Not supported |
| Hypothesis 9 | Inquiry and Dialogue | Organizational Performance | 0.337 | 0.000*** | Supported |
| Hypothesis 10 | Team Learning | Organizational Performance | 0.169 | 0.015* | Supported |
| Hypothesis 11 | Embedded System | Organizational Performance | 0.124 | 0.068 | Not supported |
| Hypothesis 12 | Empowerment | Organizational Performance | -0.067 | 0.372 | Not supported |
| Hypothesis 13 | System Connection | Organizational Performance | -0.114 | 0.089 | Not supported |
| Hypothesis 14 | Strategic Leadership | Organizational Performance | 0.012 | 0.877 | Not supported |
| Hypothesis 15 | Organizational Innovativeness | Organizational Performance | 0.523 | 0.000*** | Supported |
| Goodness of Fit Index: | | | | | |
| Chi-square | | | | | 189.703 |
| Df | | | | | 173 |
| P-value | | | | | 0.182 |
| Ratio | | | | | 1.097 |
| GFI | | | | | 0.958 |
| CFI | | | | | 0.997 |
| TLI | | | | | 0.996 |
| RMSEA | | | | | 0.016 |
| Squared Multiple Correlation (SMC): | | | | | |
| Organizational innovativeness | | | | | 48.60% |
| Organizational performance | | | | | 69.20% |

Note. Significant Level:***p<0.001, **p<0.01, *p<0.05, Df = Degree of Freedom; GFI = the Goodness of Fit Index; CFI = the Comparative Fit Index; TLI = the Tucker-Lewis Index; RMSEA = the root mean square error of approximation.

The results in Table 4.21 indicate that the four dimensions of continuous learning, embedded system, system connection, and strategic leadership have a significant positive impact on organizational innovativeness. Therefore, there is a significant positive relationship between continuous learning and organizational innovativeness (Hypothesis 1), there is a significant positive relationship between embedded system and organizational innovativeness (Hypothesis 4), there is a significant positive relationship between system connection and organizational innovativeness (Hypothesis 6), and there is a significant positive relationship between strategic leadership and organizational innovativeness (Hypothesis 7) are supported and answer the research question 1 (refer to page 13).

The two dimensions, inquiry and dialogue and team learning have a significant positive impact on organizational performance. Organizational innovativeness also has a significant positive impact on organizational performance. Therefore, there is a significant positive relationship between inquiry and dialogue and organizational performance (Hypothesis 9), there is a significant positive relationship between team learning and organizational performance (Hypothesis 10), and there is a significant positive relationship between organizational innovativeness and organizational performance (Hypothesis 15) are supported and answer the research question 2 and 3 respectively (refer to page 14).

There are no direct paths from inquiry and dialogue (hypothesis 2), team learning (hypothesis 3), empowerment (hypothesis 5) to organizational innovativeness, and there are no direct paths from continuous learning (hypothesis 8), embedded system (hypothesis 1), empowerment (hypothesis 12), system connection (hypothesis 13),

strategic leadership (hypothesis 14) to organizational performance. Therefore, the results are not supported as there is no significant impact.

Additionally, Squared Multiple Correlation (SMC) or (R^2) indicates continuous learning, inquiry and dialogue, team learning, embedded system, empowerment, system connection, and strategic leadership makeup the variance of 48.60 percent for organizational innovativeness, while 51.40 percent is unobserved.

The SMC organizational performance variance is 69.20 percent, which means that the organizational performance can be explained by continuous learning, inquiry and dialogue, team learning, embedded system, empowerment, system connection, strategic leadership, and organizational innovativeness, while 30.80 percent is unobserved.

SMC of this model is accepted, the results satisfy the standard requirements of $R^2 > 0.200$ (Zikmund, 2003).

4.7 Mediating Variable

A mediating effect is created when a third variable intervenes between two other related constructs. Mediation requires significant correlations among all three constructs (Hair et al., 2010).

4.7.1 Mediating Effects of Organizational Innovativeness on Learning Organization and Organizational Performance

As suggested by Hair et al. (2010), the initial structural model (Model 1) is developed to examine direct effects of independent variables (learning organization dimensions) on the mediator (organizational innovativeness) and the direct effects of the mediator variable on the dependent variable (organizational performance). This model would not include a path directly from the independent variables to the dependent variable when is expected to be 0 due to mediation.

Subsequently, the second structural model (Model 2) is specified to examine the relations among learning organization dimensions, organizational innovativeness, and organizational performance as well as the mediating effect of organizational innovativeness between learning organization dimensions and organizational performance simultaneously. This second structural model would include a path directly from the independent variables to the dependent variable. Comparing two models, full mediation are supported when the relation between the independent variables (learning organization dimensions) and dependent variable (organizational performance) in the second structural model are not significant.

The test was to measure whether organizational innovativeness can mediate the relationship between learning organization dimensions and organizational performance, and the indirect effect of variable interaction results are as shown in Table 4.22.

Table 4.22
Indirect Effect of Variables Interaction

| Hypothesis | Model 1 | Model 2 | Mediating Hypothesis |
|---------------|------------------------------------------|-----------------------------------|----------------------|
| | Direct Effects Estimate – No link | Direct Effects Estimate – Link | |
| Hypothesis 16 | Continuous Learning → | | |
| | Organizational Innovativeness = 0.143* | 0.147* | |
| | Organizational Innovativeness → | | Full |
| | Organizational Performance = 0.784*** | 0.523 *** | Mediation |
| | Continuous Learning → | | |
| Hypothesis 17 | Organizational Performance = 0 | 0.008 | |
| | Inquiry and Dialogue → | | |
| | Organizational Innovativeness = 0.047 | -0.012 | |
| | Organizational Innovativeness → | | Non |
| | Organizational Performance = 0.784*** | 0.523*** | Mediation |
| Hypothesis 18 | Inquiry and Dialogue → | | |
| | Organizational Performance = 0 | 0.337*** | |
| | Team Learning → | | |
| | Organizational Innovativeness = -0.041 | -0.071 | |
| | Organizational Innovativeness → | | Non |
| Hypothesis 19 | Organizational Performance = 0.784*** | 0.523*** | Mediation |
| | Team Learning → | | |
| | Organizational Performance = 0 | 0.169* | |
| | Embedded System → | | |
| | Organizational Innovativeness = 0.214*** | 0.200** | |
| Hypothesis 20 | Organizational Innovativeness → | | Full |
| | Organizational Performance = 0.784*** | 0.523*** | Mediation |
| | Embedded System → | | |
| | Organizational Performance = 0 | 0.124 | |
| | Empowerment → | | |
| Hypothesis 21 | Organizational Innovativeness = 0.017 | 0.030 | |
| | Organizational Innovativeness → | | Non |
| | Organizational Performance = 0.784*** | 0.523*** | Mediation |
| | Empowerment → | | |
| | Organizational Performance = 0 | -0.067 | |
| Hypothesis 22 | System Connection → | | |
| | Organizational Innovativeness = 0.167** | 0.192** | |
| | Organizational Innovativeness → | | Full |
| | Organizational Performance = 0.784*** | 0.523*** | Mediation |
| | System Connection → | | |
| Hypothesis 23 | Organizational Performance = 0 | -0.114 | |
| | Strategic Leadership → | | |
| | Organizational Innovativeness = 0.357** | 0.368*** | |
| | Organizational Innovativeness → | | Full |
| | Organizational Performance = 0.784*** | 0.523*** | Mediation |
| Hypothesis 24 | Strategic Leadership → | | |
| | Organizational Performance = 0 | 0.012 | |

Note. Significant Level:***p<0.001, **p<0.01, *p<0.05

Table 4.22 shows the indirect effect estimates to test the mediating effects of organizational innovativeness, learning organization dimensions and organizational performance on the seven relationships as hypothesized in Hypothesis 16 to Hypothesis 22. From the result, Hypothesis 16, Hypothesis 19, Hypothesis 21, and Hypothesis 22 are supported.

Referring to the results of Model 1 and Model 2 (refer to Table 4.22), full mediation is established when the significant relations between the independent variables and dependent variable in Model 2 have no significant impact. The indirect effect on organizational innovativeness mediates the relationship between continuous learning and organizational performance (Hypothesis 16); organizational innovativeness mediates the relationship between embedded system and organizational performance (Hypothesis 19); organizational innovativeness mediates the relationship between system connection and organizational performance (Hypothesis 21); and organizational innovativeness mediates the relationship between strategic leadership and organizational performance (Hypothesis 22).

4.8 Chapter Summary

This chapter offers specific details regarding the results of data analysis. Structural Equation Modeling (SEM) AMOS 18.0 was used in testing the measurement and the structural model. To improve the model, it was modified based on the highest modification index by deleting the indicators. The final model produced good-fit results. The results of the structural model provided support the seven hypotheses:

there is a significant positive relationship between continuous learning and organizational innovativeness (Hypothesis 1), there is a significant positive relationship between embedded system and organizational innovativeness (Hypothesis 4), there is a significant positive relationship between system connection and organizational innovativeness (Hypothesis 6), there is a significant positive relationship between strategic leadership and organizational innovativeness (Hypothesis 7), there is a significant positive relationship between inquiry and dialogue and organizational performance (Hypothesis 9), there is a significant positive relationship between team learning and organizational performance (Hypothesis 10), and there is a significant positive relationship between organizational innovativeness and organizational performance (Hypothesis 15). To test the mediating effects of organizational innovativeness on the relationship between learning organization dimensions and organizational performance. The results showed that organizational innovativeness as a mediator between continuous learning and organizational performance (Hypothesis 16), organizational innovativeness mediates the relationship between embedded system and organizational performance (Hypothesis 19), organizational innovativeness mediates the relationship between system connection and organizational performance (Hypothesis 21), and organizational innovativeness mediates the relationship between strategic leadership and organizational performance (Hypothesis 22). The results satisfied the objectives and answered all research questions.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.0 Introduction

This chapter discusses the findings of the main results presented in the previous chapter. It consists of six sections. The summary of the study is presented in section 5.1. Section 5.2 presents the recapitulation of major findings. Section 5.3 discusses the hypotheses in greater detail, as presented by the results in Chapter Four. The implications of this study are offered in Section 5.4. Section 5.5 reports the recommendations for future research. Section 5.6 concludes the findings.

5.1 Summary of the Study

The objective of this study to investigate the relationship between learning organization, organizational innovativeness and the performance of small and medium enterprises in Bangkok Thailand.

This study addresses the problem that arises due to the lack of the mechanism development to continually gain greater knowledge and additional skills for the management, and which may affect the organizational performance of Bangkok's SMEs in Thailand. 43,194 SMEs in Bangkok have followed the family-style business management whereby accurate decisions both at the policy and operational level by the owners. These reasons caused the lack of continuous learning, inquiry

and dialogue, team learning, embedded system, empowerment, system connection and strategic leadership. Therefore, it can be commended that SMEs in Bangkok failed to become a learning organization, which are important factors to enhance organizational performance of SMEs.

Additionally, in terms of the innovative capability of SMEs in Bangkok, it was found that less than 50 percent of these 43,194 SMEs used technology or had personnel who were equipped with knowledge about technology for business. OSMEP (2012) indicated that SMEs in Bangkok had failed in terms of organizational innovativeness concerning personnel's knowledge and ability to learn continually, exchange of information, teamwork, embedded system, authorization, accordance of technology and work, connection between information networks and development of executives' and organizations' ability. Therefore, it can be commended that the organizational innovativeness and learning organization are related to SMEs enhancement for their future organizational development.

Learning and innovativeness of the organization are factors affecting performance of SMEs and are important to increase their performance. Therefore, this study provides empirical research regarding the learning, innovativeness and performance of the SMEs in Bangkok, Thailand.

Based on the problem of this study and the comprehensive review of the relevant literature conducted in Chapter 1 and Chapter 2, this study aims to achieve the following objectives:

1. To investigate the relationship between learning organization dimensions and organizational innovativeness of SMEs in Bangkok, Thailand.
2. To investigate the relationship between learning organization dimensions and organizational performance of SMEs in Bangkok, Thailand.
3. To determine the relationship between organizational innovativeness and organizational performance of SMEs in Bangkok, Thailand.
4. To investigate the mediating effects of organizational innovativeness on the relationship of learning organization dimensions and organizational performance of SMEs in Bangkok, Thailand.

In order to achieve the aforementioned objectives of the study, a comprehensive review of the literature was conducted and reported throughout this study, especially in Chapter 2. The past relevant literature revealed that little attention has been devoted to investigate the relationship between learning organization dimensions (as DLOQ) and organizational performance (Akhtar et al., 2011). Additionally, no study (to the knowledge of the researches) has yet examined the significant impact of the learning organization dimensions on organizational innovativeness. Past studies suggested that organizational innovativeness played a mediating effect on the relationship between learning and organizational performance (Dhamadara, 2009; Eris & Ozmen, 2002; Lee & Tsai, 2005).

In light of the objectives of the study and the discussions that were provided in Chapter 1 and Chapter 2, the framework was formulated in Chapter 3. As argued in Chapter 3, this framework was theoretically built on the Resource-Based View of the Firm (RBV) in relation to learning organization, organizational innovativeness

and organizational performance. Additionally, Chapter 3 discussed the hypotheses development, measurement of variables and the methodology while Chapter 4 showed the statistical results. This study has answered the research questions regarding these issues, which is hopefully contribute to the owners and managers of SMEs in Thailand.

To test the hypotheses of the study, AMOS was used to analyze the relationship between learning organization dimensions, organizational innovativeness and organizational performance. The effect of seven learning organization dimensions, namely, Continuous Learning (CL), Inquiry and Dialogue (ID), Team Learning (TL), Embedded System (ES), Empowerment (EM), System Connection (SC), Strategic Leadership (SL) were examined.

The survey research method is used in SMEs because the nature of the required data to conduct this study on SME listed companies located in Bangkok. They are considered to be the best sources regarding the learning organization, organizational innovativeness and performance implementation. A total of 1,000 questionnaires were sent to Thai SMEs owners and managers from the list of 43,194 companies located in Bangkok. 410 responses were received of which 398 were useable responses of the 12 non-useable responses. The overall response rate of this study is 41 percent (410) and 392 were useable responses after sifting and rejecting through them and running an outlier test. The response rate is 39.2 percent (392).

In achieving the main objective of the study, four sets of general hypotheses were developed for this purpose. The first set was to investigate the relationship between

learning organization dimensions and organizational innovativeness. The second set of hypotheses was to capture the relationship between learning organization dimensions and organizational performance. The third set was to determine the relationship between organizational innovativeness and organizational performance. The fourth set was to investigate the mediating effects of organizational innovativeness on the relationship between learning organization dimensions and organizational performance.

The analyze showed that the effect of four learning organization dimensions, namely, continuous learning, embedded system, system connection, strategic leadership on organizational innovativeness were positively significant relationships. For the effect of two learning organization dimensions, namely, inquiry and dialogue, team learning on organizational performance were positively significant relationships. As the relationship between organizational innovativeness and organizational performance were positively significant. To test the mediating effects of organizational innovativeness on the relationship between learning organization dimensions and organizational performance. The results showed that organizational innovativeness as a mediator between continuous learning, embedded system, system connection, strategic leadership and organizational performance.

This findings of this study are considered to be of value for both academicians and practitioners, as discussed in the following sections, in addition, future research directions are provided in detailed.

5.2 Recapitulation of Major Findings

The major findings from the twenty two hypotheses tested are presented in Table 5.1 below:

Table 5.1
Summary of Major Findings

| Variables | Relationship with Organizational Innovativeness (1) | Relationship with Organizational Performance (2) | Results | P-Value |
|----------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------|------------------------|
| Continuous Learning | Positive | Positive | (1) Significant (2) Not significant | (1) 0.046 (2) 0.918 |
| Inquiry and Dialogue | Negative | Positive | (1) Not significant (2) Significant | (1) 0.859 (2) 0.000 |
| Team Learning | Negative | Positive | (1) Not significant (2) Significant | (1) 0.289 (2) 0.015 |
| Embedded System | Positive | Positive | (1) Significant (2) Not significant | (1) 0.002 (2) 0.068 |
| Empowerment | Positive | Negative | (1) Not significant (2) Not significant | (1) 0.683 (2) 0.372 |
| System Connection | Positive | Negative | (1) Significant (2) Not significant | (1) 0.003 (2) 0.089 |
| Strategic Leadership | Positive | Positive | (1) Significant (2) Not significant | (1) 0.000 (2) 0.877 |
| Organizational Innovativeness | - | Positive | Significant | 0.000 |
| Continuous Learning | Significant | Not significant | Full Mediation | - |
| Inquiry and Dialogue | Not significant | Significant | Non Mediation | - |
| Team Learning | Not significant | Significant | Non Mediation | - |
| Embedded System | Significant | Not significant | Full Mediation | - |
| Empowerment | Not significant | Not significant | Non Mediation | - |
| System Connection | Significant | Not significant | Full Mediation | - |
| Strategic Leadership | Significant | Not significant | Full Mediation | - |

5.3 Discussions to Hypotheses

Based on the results in Chapter 4, the following section discussed the findings.

5.3.1 Hypothesis 1: Relationship between continuous learning and organizational innovativeness

Continuous learning and organizational innovativeness were positively significant relationships. It means that for every increase in continuous learning, there will also be a corresponding increase in organizational innovativeness. The finding demonstrates that continuous learning is a significant characteristic relating to Thai SMEs' ability and creative opportunities for all organizational members to increase innovativeness. This is a new contribution to this area of research.

5.3.2 Hypothesis 2: Relationship between inquiry and dialogue and organizational innovativeness

Inquiry and dialogue and organizational innovativeness showed negative and insignificant relationships. This is because Thai SMEs may not gain productive reasoning skills to express their views and their capacity to listen and inquire into the views of others in the enterprise which, in turn, does not support organizational innovativeness. This is a new contribution to this area of research.

5.3.3 Hypothesis 3: Relationship between team learning and organizational innovativeness

Team learning and organizational innovativeness showed negative and insignificant relationships. This means that the different ways of thinking cannot access and work is not designed for Thai SMEs' collaboration in order to use teamwork and skills effectively to improve organizational innovativeness. This is a new contribution to this area of research.

5.3.4 Hypothesis 4: Relationship between embedded system and organizational innovativeness

Embedded system and organizational innovativeness were positively significant relationships. This means that for every increase of embedded system there will also be a corresponding increase in organizational innovativeness. The finding shows that embedded system is an important component in Thai SMEs' ability to build systems to capture and share learning in order to foster organizational innovativeness. This is a new contribution to this area of research.

5.3.5 Hypothesis 5: Relationship between empowerment and organizational innovativeness

Empowerment and organizational innovativeness were positively insignificant relationships. This means that Thai SMEs' members cannot involve in setting, owning, and implementing a joint vision, respond to the gap between the current

situation and new vision. This is because Thai SMEs' owners and managers lacked the knowledge and skill in providing the opportunity to show that they can improve good ideas and skills to reach organizational innovativeness. This is a new contribution to this area of research.

5.3.6 Hypothesis 6: Relationship between system connection and organizational innovativeness

System connection and organizational innovativeness were positively significant relationships. This means that for every increase of system connection, there will also be a corresponding increase in organizational innovativeness. The finding shows that system connection is important for Thai SMEs' accomplishment because it connects to internal and external environments in order to support organizational innovativeness. This is a new contribution to this area of research.

5.3.7 Hypothesis 7: Relationship between strategic leadership and organizational innovativeness

Strategic leadership and organizational innovativeness were positively significant relationships. This means that for every increase of strategic leadership, there will also be a corresponding increase in organizational innovativeness. It also shows that organizational innovativeness in Thai SMEs is weak without the influence of strategic leadership. The finding demonstrates that it is important for SMEs' leaders to have strategic thinking in order to create change and drive the organization in

new directions or new markets by controlling organizational innovativeness. This is a new contribution to this area of research.

5.3.8 Hypothesis 8: Relationship between continuous learning and organizational performance

Continuous learning and organizational performance were positively insignificant relationships. Therefore, continuous learning is not used to develop Thai SMEs' organizational performance. The nature of a learning organization could not be further increased to help contribution, give support, and recompense learning. This finding is in line with the study of Akhtar et al. (2011) indicated that there is no significant positive relationship between continuous learning and organizational performance. They specified that continuous learning into work processes to support the learning of employees on the job could not be done and chances for continual education and professional development to enhance organizational performance could not be provided as well.

5.3.9 Hypothesis 9: Relationship between inquiry and dialogue and organizational performance

Inquiry and dialogue and organizational performance were positively significant relationships. This indicates that contributions of inquiry and dialogue show the development of Thai SMEs' organizational performance through people to review honest feedback in order for people to form opinions for making understanding, sharing other views, and developing trust in each other. This study shows

consistency with previous study for finding a positively significant relationship between inquiry and dialogue and organizational performance (Akhtar et al., 2011). This linkage refers to the need for inquiry and dialogue for a solid foundation of interpersonal communication skills and greater capability of productive rationalizing. Therefore, it can be understood as the common ability to discover the interests of other members in order to attain better understanding and various opinions will further increase organizational performance.

5.3.10 Hypothesis 10: Relationship between team learning and organizational performance

The impact of the linkage between team learning and organizational performance are shown to be positive and significant. This implies the development of team learning in Thai SMEs' organizational performance through teams which are flexible to modify their required goals, change the way of their thoughts resulting from collective conference after reviewing new information and more confidence that their recommendations will be applied. However, Akhtar et al. (2011), who demonstrated that the linkage between team learning and organizational performance is negative and insignificant, did not support this study. They indicate that individuals do not work compatibly and learn as a team to be successful in organizational performance. There are the different with Akhtar et al. (2011) because the culture of Thai SMEs can be related to teamwork and their effective application on knowledge and skills to improve organizational performance

5.3.11 Hypothesis 11: Relationship between embedded system and organizational performance

The impact of the linkage between embedded system and organizational performance is supported both positively and insignificantly. This means that the development of embedded system has not yet been done in Thai SMEs to increase organizational performance. Gaps of such systems in the organization would not be measured between the current and expected performance, learning of lessons would not be approached within the organization, the effects of spending time and resources invested in training in the organization would not be measured. The study of Akhtar et al. (2011) supported the result that there is no significant relationship between embedded system and organizational performance. This means that high or low technology systems would not be used in embedded system to examine learning of the organization and to provide more extensive and easier method to increase organizational performance.

5.3.12 Hypothesis 12: Relationship between empowerment and organizational performance

The impact of the linkage between empowerment and organizational performance is supported negatively and insignificantly. This means that development of empowerment is not yet achieved in Thai SMEs to affect organizational performance. Further efforts are not necessary for the organization to encourage people for creativity, provide staff with full control over the resources to succeed in their work, and also support them in considering risks. The study of Akhtar et al.

(2011) supported the result that there is no significant relationship between empowerment and organizational performance. They indicate that staff should not totally relate to planning, possessing, and applying collective thought progressing to the organization's mission in order to increase organizational performance.

5.3.13 Hypothesis 13: Relationship between system connection and organizational performance

The impact of the relationship between system connection and organizational performance is supported negatively and insignificantly. This implies that development of system connection is not yet conducted with small effect on Thai SMEs' organizational performance. Encouraging people to think globally, to work with the external community in adding mutual requirements, and to find answers in the organization to resolve problems could not be operated in system connection of the organization. This study is different than that of Akhtar et al. (2011) which discovered a positively significant linkage between system connection and organizational performance. They indicated that boosting development would provide observation for staff to review impacts of their work both internally and externally in order to increase organizational performance. These different results imply that there are the differences in culture, knowledge and skill, and system of organization.

5.3.14 Hypothesis 14: Relationship between strategic leadership and organizational performance

Strategic leadership and organizational performance were positively insignificant relationships. It means that strategic leadership does not contribute to Thai SMEs' organizational performance. This means that more guidance and coaching should not be provided by leaders in order to search out learning chances, and ensure consistency of the organization with core values to improve organizational performance. The study of Akhtar et al. (2011) supported the result that there is no significant relationship between strategic leadership and organizational performance. This means that leaders of organizations are not suitable for activating organizational learning to increase organizational performance.

5.3.15 Hypothesis 15: Relationship between organizational innovativeness and organizational performance

The impact of the relationship between organizational innovativeness and organizational performance is supported positively and significantly. This means that as organizational innovativeness increases, so will organizational performance. This indicates a direct connection with organizational performance of Thai SMEs. Without the influence of organizational innovativeness, they would be weak. Thai SMEs' capability requires an atmosphere of willingness and coordination to share new ideas as a basis for improving organizational performance. This study shows consistency with previous study for finding a positively significant relationship between organizational innovativeness and the performance of SMEs (Calantone et

al., 2002; Dhamadasa, 2009; Hult et al., 2004; Keskin, 2006, Lin, 2006; Lin et al., 2008; Rhee et al., 2010; Salim & Sulaiman, 2011;Suliyanto & Rahab, 2012).

5.3.16 Hypothesis 16: Organizational innovativeness mediates the relationship between continuous learning and organizational performance

The importance of the mediating role of innovativeness between continuous learning and organizational performance can clearly be seen in the organizations that were examined. The result of the study found that organizational innovativeness is a strong relationship as a mediator between continuous learning and organizational performance. This implies that change or innovativeness plays an important role to create chances and progress for continuous learning in order to increase organizational performance of Thai SMEs. This is a new contribution of this study.

5.3.17 Hypothesis 17: Organizational innovativeness mediates the relationship between inquiry and dialogue and organizational performance

This study investigated whether organizational innovativeness plays a mediating role between inquiry and dialogue and organizational performance. The result of the study found that organizational innovativeness is not a strong relationship as a mediator between inquiry and dialogue and organizational performance. This means that adopting an idea or behavior of organizational innovativeness is not

important to show their thought or the ability for listening and inquiring into the opinions of other people in order to increase organizational performance of Thai SMEs. This is a new contribution of this study.

5.3.18 Hypothesis 18: Organizational innovativeness mediates the relationship between team learning and organizational performance

This study investigated whether a mediating role exists between organizational innovativeness between team learning and organizational performance. The results found that organizational innovativeness is not a strong relationship as a mediator between team learning and organizational performance. This means that approaching information processing of organizational innovativeness is not important for different ways of groups' thoughts to improve organizational performance of Thai SMEs. This is a new contribution of this study.

5.3.19 Hypothesis 19: Organizational innovativeness mediates the relationship between embedded system and organizational performance

The study sets out to determine whether organizational innovativeness plays an important mediating role between embedded system and organizational performance. The results found that organizational innovativeness is a strong relationship as a mediator between embedded system and organizational performance. This means that technological ability, agreement, and commitment of organizational innovativeness are important to build learning exchange and

integration of work and access to systems for the improved organizational performance of Thai SMEs. This is a new contribution of this study.

5.3.20 Hypothesis 20: Organizational innovativeness mediates the relationship between empowerment and organizational performance

This study set out to investigate whether there is a mediating role of organizational innovativeness played between empowerment and organizational performance. The results found that organizational innovativeness is not a strong relationship as a mediator between empowerment and organizational performance. This implies that innovative behavior is not important to determine, possess, and apply an exchanged vision and decision to improve organizational performance of Thai SMEs. This is a new contribution of this study.

5.3.21 Hypothesis 21: Organizational innovativeness mediates the relationship between system connection and organizational performance

This study set out to investigate whether an important mediating role exists of organizational innovativeness between system connection and organizational performance. The results found that organizational innovativeness is a strong relationship as a mediator between system connection and organizational performance. This means that newness of the organizational innovativeness is important to apply information for rearranging work practices in internal and

external environment to improve organizational performance of Thai SMEs. This is a new contribution of this study.

5.3.22 Hypothesis 22: Organizational innovativeness mediates the relationship between strategic leadership and organizational performance

The significance of a mediating role of organizational innovativeness between strategic leadership and performance of the organization was examined. The results found that organizational innovativeness is a strong relationship as a mediator between strategic leadership and organizational performance. This means that the understanding of honesty to new ideas of organizational innovativeness for confident leader, learning from mistakes and seeking continual improvements, is important to increase organizational performance of Thai SMEs. This is a new contribution of this study.

Conclusions for Research Questions:

1. What is the relationship between learning organization dimensions and organizational innovativeness of SMEs in Bangkok Thailand?"

This study found that four dimensions defining a learning organization, namely continuous learning, embedded system, system connection, and strategic leadership. They have significant impact on organizational innovativeness of SMEs in Bangkok Thailand. Three dimensions of the model showing a learning

organization; inquiry and dialogue, team learning, and empowerment have no important effect of SMEs in Bangkok Thailand regarding organizational innovativeness. It means Thai SMEs do not recognize the requirement of these dimensions for the improvement of new ideas and achieving new methods to support solutions and issues to be in line with their innovative behaviors.

2. What is the relationship between learning organization dimensions and organizational performance of SMEs in Bangkok Thailand?”

This study found that there are two dimensions, namely, inquiry and dialogue and team learning that have significant impact on organizational performance of SMEs in Bangkok, Thailand. These findings are consistent with an earlier study suggesting that those SMEs which demonstrate a high level of inquiry and dialogue will exhibit better organizational performance (Akhtar et al., 2011). Furthermore, there are five dimensions, namely continuous learning, embedded system, empowerment, system connection, and strategic leadership that showed no significant impact on organizational performance of SMEs in Bangkok, Thailand. Possible reason for these results indicates that Thai SMEs might not be related to systems learning and their effective application on knowledge and skills to improve organizational performance. It can be indicated that teamwork will be driven in an environment of learning support, discussions of errors and problems will happen, feedback will be encouraged for learning and providing an improved organizational performance.

3. What is the relationship between organizational innovativeness and organizational performance of SMEs in Bangkok Thailand?”

This study determined that organizational innovativeness has a significant effect on the organizational performance of SMEs in Bangkok Thailand. These findings are consistent with former studies which suggest that SMEs that possess a high level of organizational innovativeness will have superior organizational performance (Calantone et al., 2002; Eris & Ozmen, 2012; Hult et al., 2004; Keskin, 2006; Lee & Tsai, 2005; Lin et al., 2008; Suliyanto & Rahab, 2012). It implies that applying aggressive innovation strategies toward improved organizational performance by generating new markets and industries results in achievement of Thai SMEs leadership positions due to their organizational innovativeness.

4. What are the mediating effects of organizational innovativeness in the relationship between learning organization dimensions and organizational performance of SMEs in Bangkok Thailand?”

This study found that there are four dimensions of the DLOQ; specifically, continuous learning, embedded system, system connection, and strategic leadership have significant indirect relationships with the organizational performance through organizational innovativeness of SMEs in Bangkok Thailand. Organizational innovativeness is the full mediator of these relationships. In addition, there are three dimensions - inquiry and dialogue, team learning, and empowerment – that have no significant indirect relationships with organizational performance via organizational innovativeness of SMEs in Bangkok Thailand. A possible reason for this is due to linkage the learning organization with their environment, Thai SMEs’ ability to

accomplish organizational innovativeness and greater performance have proactive leaders in learning behaviors. Their ability and full knowledge to understand customers' needs, competitor's actions and opening markets, their strengths and weaknesses, and successes and failures greatly contribute to the increased organizational innovativeness and performance.

5.4 Implications of the Study

5.4.1 Theoretical Implications

This study provides sufficient indication a learning organization's seven dimensions of the model presented, namely, inquiry and dialogue, continuous learning, team learning, empowerment, system connection, embedded system, strategic leadership, and organizational innovativeness are effected factors to the organizational performance of SMEs and are relevant, valid and applicable in Bangkok Thailand. Previous literature has highlighted the importance of organizational innovativeness and performance from learning orientation or organizational learning perspectives (Calantone et al., 2002; Eris & Ozmen, 2012; Hult et al, 2004; Jimenez-Jimenez et al., 2008; Keskin, 2006; Lee & Tsai, 2005; Lin, 2006; Lin et al., 2008; Rhee et al., 2010; Salim & Sulaiman, 2011; Suliyanto & Rahab, 2012).

The Resource Based View suggests that a firm's performance is determined by its internal capabilities and resources (Dierickx & Cool, 1989; Grant, 1996; Teece, Pisano, & Shuen, 1997). A vital component of capabilities is the implicit knowhow

which derives from staff's experiences, scientific knowledge and training which helps to boost their abilities. A company's capabilities add to the attainment of competitive gain and financial benefit (Amit & Shoemaker, 1993; Day, 1994). Resources can be considered to be physical capital resources, human capital resources, organizational resources such as capabilities, culture, processes, information, attributes of the firm, or knowledge, etc. (Barney, 1991). Both learning and innovation are regarded as the company's capabilities which are utilized as the foundation for competitive gain which can bring about greater performance of the company. Different learning styles and innovation activities have different impacts on organizational operations and, through the adoption of new innovations; organizations attempt to reduce production costs, increase efficiency, and improve performance (Damanpour, 1991; McKee, 1992).

The findings of the study present the effect of two dimensions of learning organization (inquiry and dialogue and team learning) that are related to organizational performance. The effect of the four dimensions, i.e., continuous learning, system connection, embedded system, and strategic leadership are demonstrated only indirectly on organizational innovativeness, since they show merely insignificant direct effects on organizational performance. The effect of only one dimension (empowerment) is insignificant both directly and indirectly on organizational innovativeness and organizational performance. In addition, this study offers additional supportive confirmation of previous studies that a positive relationship exists between organizational innovativeness and organizational performance (Calantone et al., 2002; Eris & Ozmen, 2012; Hult et al., 2004; Keskin, 2006; Lee & Tsai., 2005; Lin et al., 2008; Suliyanto & Rahab, 2012).

Therefore, the evidence obtained supports the relationships that exist between learning organization, organizational innovativeness and organizational performance thus confirming the significance of the Resource Based View (RBV) of SMEs, since the key model constructs can be perceived as internal resources.

5.4.2 Practical and Policy Implications

The results of this research make a positive contribution for various SME strategy makers, particularly, to the owners or managers and government policy makers in developing policies and strategies for promoting SMEs in Thailand.

First, SMEs' owners/managers could benefit their organizations to participating in learning programs and providing training. Commitment must be clearly demonstrated in their action and decision making.

Second, a continuous culture of learning provided and promoted by SMEs' owners or managers for staff to develop new skills for their organizations are stimulated to exchange knowledge and implement innovation in their operations in order to improve their competitiveness by constantly building and selling new products and services as a consequence of innovation.

Third, SMEs' owners/managers should give careful attention to a learning organization's most important dimensions, i.e. continuous learning, system connection, embedded system, strategic leadership and organizational innovativeness. These five factors can help firms to be more committed in achieving superior organizational performance for SMEs.

Finally, the findings of this research study should be carefully considered by government policy-makers in the design of programs supporting the development of SMEs. In addition, these findings can be of benefit to government policy-makers in strengthening the cognitive environment, and thus increase the abilities of SMEs owners or managers, by offering government sponsored training programs or consulting services.

5.5 Recommendations for Future Research

This study is based on a cross-sectional research design, but has lacked sufficient time and availability of resources. Therefore, future research could consider adopting a longitudinal approach rather than a cross-sectional design to measure organizational performance in a three year period regarding the independent variables presented in this study. A longitudinal study may be more appropriate in the linkage between innovativeness and its antecedents, and the resulting organizational performance established over time.

Second, this study adopted a research framework investigating both the direct as well as the indirect impact of the dimensions of a learning organization on organizational performance via organizational innovativeness of the manufacturing and service sectors of SMEs in Thailand. It is particularly important to reassess this framework with additional business sectors of SMEs in Thailand including the wholesale and retail sectors and to determine whether it may also apply to different business contexts.

Third, the basis of the findings of this study relied on a self-reporting survey of owners/managers. This may result in certain limitations and constraints with a possibility of bias in response. Thus, future research should investigate the integrity of data that should be obtained from multiple sources in the organization and from a wider range of employees while also conducting in-depth case studies.

Fourth, the present model investigated learning organization as antecedents of organizational innovativeness and organizational performance. However, there are other variables that might affect organizational innovativeness and organizational performance such as market orientation and entrepreneurial orientation. Pursuing this possible research would be of benefit to broaden our knowledge of learning organizations and its effects on organizational innovativeness and performance of SMEs. Therefore, future research should consider these constructs and their impact on organizational innovativeness and performance of SMEs in Thailand.

Finally, future research should investigate the readiness of Thai SMEs as a member of the emerging ASEAN Economic Community (AEC). Such a study would rely on the perception of Thai SMEs. Learning organization and organizational innovativeness would play an important role as Thai SMEs are expected to face a more challenging position; thus, both being a learning organization and possessing organizational innovativeness will be a significant factor in their success in the years to come.

5.6 Conclusions

This empirical research of SMEs in Bangkok Thailand (to the knowledge of the researches) is the first of its kind with the primary objective to study the organizational performance of SMEs of Thai manufacturing and service sectors utilizing the dimensions of learning organization questionnaire (DLOQ), organizational innovativeness and organizational performance. Results suggest that four dimensions are significant indicators of organizational innovativeness due to factors of continuous learning, system connection, embedded system, and strategic leadership. This study also concludes that inquiry and dialogue, team learning and organizational innovativeness are effective factors for organizational performance. Furthermore, mediating effects find that organizational innovativeness is a full mediator between the model's four variables. This study contributes significantly to the body of knowledge of the resource based view in SMEs. Moreover, this study confirms the previous study of Akhtar et al. (2011) between the significant effect of inquiry and dialogue on organizational performance. In addition, this study also confirmed the significant effect of innovativeness on performance of many previous studies (Calantone et al., 2002; Dhamadasa, 2009; Hult et al., 2004; Keskin, 2006, Lin, 2006; Lin et al., 2008; Rhee et al., 2010; Salim & Sulaiman, 2011; Suliyanto and Rahab, 2012). Therefore, the findings have important implications for owner/managers who should pay more attention to their learning-based capabilities, in relation to creating an innovative organization, and to improve the performance of their organizations.

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Appendix A

Permission to Use the DLOQ

Dear, Prof. Watkins

I am a doctoral (DBA) student at the Universiti Utara Malaysia. I am currently working on my dissertation title "Learning Organization, Organizational Innovativeness and the Performance of Small and Medium Enterprises in Bangkok, Thailand". As I will be using the DLOQ for my dissertation, I wish to seek your permission to use the instrument of learning organization to gather survey data for my dissertation.

I would very much appreciate if you could kindly indicate your permissions by return this email.

Thank you for your considering this request and I am ready to respond to any questions you might have.

Sincerely yours,

Woraluck Lalitsasivimol
Student ID: 91361
Universiti Utara Malaysia
06010 UUM, Sintok
Kedah, Malaysia
Contract No: +6689-468-7408 (Mobile)

From:
"Karen Watkins" <kwatkins@uga.edu>
To: "jinny 2008" <jnny2008@yahoo.com>

We are happy to grant permission for you to use the DLOQ in your dissertation research. Please cite the survey as attached and include this citation in the survey you distribute. We would love to hear what you find out in your study.

Best wishes,

Karen E. Watkins, Professor
The University of Georgia
Department of Lifelong Education, Administration & Policy
406 River's Crossing
Athens, GA 30605

Dear, Prof. Marsick.

I am a doctoral (DBA) student at the Universiti Utara Malaysia. I am currently working on my dissertation title "Learning Organization, Organizational Innovativeness and the Performance of Small and Medium Enterprises in Bangkok, Thailand". As I will be using the DLOQ for my dissertation, I wish to seek your permission to use the instrument of learning organization to gather survey data for my dissertation.

I would very much appreciate if you could kindly indicate your permissions by return this email.

Thank you for your considering this request and I am ready to respond to any questions you might have.

Sincerely yours,

Woraluck Lalitsasivimol
Student ID: 91361
Universiti Utara Malaysia
06010 UUM, Sintok
Kedah, Malaysia
Contract No: +6689-468-7408 (Mobile)

From:
"Marsick, Victoria" <marsick@exchange.tc.columbia.edu>
To: "jinny 2008" <jnny2008@yahoo.com>

Hello,

We allow students to use the DLOQ without charge for their studies. I'm attaching a copy for your use. I'm also attaching the appropriate copyright information. Please let us know your study's results. Good luck with your studies.

Regards,

Prof Marsick

Appendix B

Cover Letter

Dear Respondents,

I am conducting a survey of owners or managers of SMEs in Thailand to gather the final information for my dissertation entitled "Learning Organization, Organizational Innovativeness and the Performance of Small and Medium Enterprises in Bangkok, Thailand". This research is being conducted as part of the requirements of Doctor of Business Administration at Universiti Utara Malaysia (UUM).

I would like to request your kind assistance in this academic study which endeavors to provide strategic comprehension for learning organization, organizational innovativeness and maintenance of organizational performance. I am confident that the result of my study will be beneficial for your organization and others who are interested in this topic.

I would greatly appreciate you taking the time and making the effort to carefully answer every item. There is no right or wrong answers. I assure you that you will remain completely anonymous.

Thank you very much for your kindness.

Yours sincerely,

For Universiti Utara Malaysia
Woraluck Lalitsasivimol
Student id: 91361
HP: +66894687408
Email: jnny2008@yahoo.com

Appendix C

Questionnaire

Learning Organization, Organizational Innovativeness and the Performance of Small and Medium Enterprises in Bangkok, Thailand

This questionnaire asks about your company's learning organization, innovativeness and Performance.

It should take no more than 10 to 15 minutes of your time to complete this questionnaire.

The questions have no right or wrong answers and only indicate your belief.

Please send the complete questionnaire back to the researcher by

If you have any questions about this questionnaire, please contact Woraluck Lalitsasivimol

Tel. (089) 468-7408

PART I (Demographic Information)

Please provide general information about you and your company. Please mark your response accurately.

1. Gender

Male []

Female []

2. Type of Business

Manufacturing []

Service []

Others (please indicate) []

3. Work Experience (in this organization)

Less than 5 years []

More than 5 but less than 7 years []

More than 7 but less than 9 years []

More than 9 years []

4. Position

Owner []

Manager []

Others (please indicate) []

5. Number of employees

1 - 50 []

51 - 200 []

More than 200 []

6. Age of Business

0 – 5 years []

6 – 10 years []

More than 10 years []

7. International Business

Yes []

No []

PART II (Dimensions of Learning Organization Questionnaires - DLOQ)

DLOQ is an instrument to measure the learning organization practices. For each statement below, please circle the number that indicates your agreement or disagreement about how it describes the learning organization practices of your company, ranging from 1 (Absolutely Disagree), 2 (Somewhat Disagree), 3 (Neither Agree nor Disagree), 4 (Somewhat Agree), and 5 (Absolutely Agree).

| | Questions | Absolutely Disagree | | Absolutely Agree | | |
|---|----------------------------------------------------------------------------------------|---------------------|---|------------------|---|---|
| 1 | In my organization, people help each other to learn. | 1 | 2 | 3 | 4 | 5 |
| 2 | In my organization, people take time to support learning. | 1 | 2 | 3 | 4 | 5 |
| 3 | In my organization, people are rewarded for learning. | 1 | 2 | 3 | 4 | 5 |
| 4 | In my organization, people give open and honest feedback to each other. | 1 | 2 | 3 | 4 | 5 |
| 5 | In my organization, whenever people state their view, they also ask what others think. | 1 | 2 | 3 | 4 | 5 |
| 6 | In my organization, people spend time building trust with each other. | 1 | 2 | 3 | 4 | 5 |
| 7 | In my organization, people have the freedom to adapt their goals as needed. | 1 | 2 | 3 | 4 | 5 |

| | Questions | Absolutely Disagree | | Absolutely Agree | | |
|----|------------------------------------------------------------------------------------------------------------------|---------------------|---|------------------|---|---|
| 8 | In my organization, people revise thinking as a result of organization discussions or information collected. | 1 | 2 | 3 | 4 | 5 |
| 9 | In my organization, we are confident that the organization will act on our recommendations. | 1 | 2 | 3 | 4 | 5 |
| 10 | My organization creates systems to measure gap between current and expected performance. | 1 | 2 | 3 | 4 | 5 |
| 11 | My organization makes its lessons learned available to all employees. | 1 | 2 | 3 | 4 | 5 |
| 12 | My organization measures the results of the time and resources spent on training and learning. | 1 | 2 | 3 | 4 | 5 |
| 13 | My organization recognizes people for taking initiative. | 1 | 2 | 3 | 4 | 5 |
| 14 | My organization gives people control over the resources they need to accomplish their work. | 1 | 2 | 3 | 4 | 5 |
| 15 | My organization supports members who take calculated risks. | 1 | 2 | 3 | 4 | 5 |
| 16 | My organization encourages people to think from a global perspective. | 1 | 2 | 3 | 4 | 5 |
| 17 | My organization works together with the outside community or other outside resources to meet mutual needs. | 1 | 2 | 3 | 4 | 5 |
| 18 | My organization encourages people to get answers from multiple locations and perspectives when solving problems. | 1 | 2 | 3 | 4 | 5 |
| 19 | In my organization, leaders mentor and coach those they lead. | 1 | 2 | 3 | 4 | 5 |
| 20 | In my organization, leaders continually look for opportunities to learn. | 1 | 2 | 3 | 4 | 5 |
| 21 | In my organization, leaders ensure that the organization's actions are consistent with its values. | 1 | 2 | 3 | 4 | 5 |

PART III (Organizational Innovativeness)

For each statement below, please circle the number that indicates your agreement or disagreement about how it describes the organizational innovativeness of your company, ranging from 1 (Absolutely Disagree), 2 (Somewhat Disagree), 3 (Neither Agree nor Disagree), 4 (Somewhat Agree), and 5 (Absolutely Agree).

| | Questions | Absolutely Disagree | | Absolutely Agree | | |
|----|----------------------------------------------------------------------------------------------------------------|---------------------|---|------------------|---|---|
| 1 | Management team dynamically searches for new ideas. | 1 | 2 | 3 | 4 | 5 |
| 2 | Program or project management eagerly accepts innovation. | 1 | 2 | 3 | 4 | 5 |
| 3 | Scientific innovation derived from study results is enthusiastically agreed to. | 1 | 2 | 3 | 4 | 5 |
| 4 | In this organization, innovation is considered excessively uncertain and is therefore denied. | 1 | 2 | 3 | 4 | 5 |
| 5 | Our firm is usually the first in the market to introduce new products and services. | 1 | 2 | 3 | 4 | 5 |
| 6 | Our customers always regard our newly-launched products and services as highly innovative. | 1 | 2 | 3 | 4 | 5 |
| 7 | In the past five years, our firm has launched more new products and services than our competitors. | 1 | 2 | 3 | 4 | 5 |
| 8 | Compared to our competitors, our firm gains less achievement in the introduction of new products and services. | 1 | 2 | 3 | 4 | 5 |
| 9 | We continue to better our business procedures. | 1 | 2 | 3 | 4 | 5 |
| 10 | Compared with our competitors, our firm alters the techniques of production more rapidly. | 1 | 2 | 3 | 4 | 5 |
| 11 | Our firm has improved several new approaches in management in the past five years. | 1 | 2 | 3 | 4 | 5 |

PART IV (Organizational Performance)

For each statement below, please circle the number that indicates your agreement or disagreement about how it describes the organizational performance comparison between year of 2011 and 2012 of your company, ranging from 1 (Absolutely Disagree), 2 (Somewhat Disagree), 3 (Neither Agree nor Disagree), 4 (Somewhat Agree), and 5 (Absolutely Agree).

| | Questions | <div style="display: flex; justify-content: space-between;"> Absolutely Disagree Absolutely Agree </div> | | | | |
|---|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|
| 1 | The investment return of my company is higher than that of the previous year. | 1 | 2 | 3 | 4 | 5 |
| 2 | The sales growth of my company is better than the year before. | 1 | 2 | 3 | 4 | 5 |
| 3 | Average productivity per staff of my company exceeds that of last year. | 1 | 2 | 3 | 4 | 5 |
| 4 | Time to market for products and services of my company is shorter than that of the previous year. | 1 | 2 | 3 | 4 | 5 |
| 5 | My company takes better care of customers' protests and requests than the year before. | 1 | 2 | 3 | 4 | 5 |
| 6 | The cost of each business transaction of my company is lower than that of the previous year. | 1 | 2 | 3 | 4 | 5 |
| 7 | Market share of my company is higher than that of the year before. | 1 | 2 | 3 | 4 | 5 |
| 8 | My company gains better profit volume than last year. | 1 | 2 | 3 | 4 | 5 |
| 9 | The additional fund of my company is higher than that of the previous year. | 1 | 2 | 3 | 4 | 5 |

**แบบสอบถามงานวิจัยเรื่อง: Learning Organization, Organizational Innovativeness and the
Performance of small and medium enterprises in Bangkok, Thailand.**

แบบสอบถามฉบับนี้ขอเรียนถามเกี่ยวกับการเป็นองค์กรแห่งการเรียนรู้ นวัตกรรมองค์กรรวมทั้งผลการดำเนินงานที่ผ่านมาของบริษัทท่าน

แบบสอบถามฉบับนี้จะใช้เวลาในการตอบประมาณ 10 – 15 นาที

คำถามเหล่านี้ไม่มีคำตอบที่ถูกต้องหรือผิด ผู้วิจัยเพียงต้องการทราบความคิดเห็นของท่านเท่านั้น

กรุณาตอบแบบสอบถามและส่งกลับคืนผู้วิจัยภายในวันที่ _____ จะเป็นพระคุณยิ่ง

หากท่านมีข้อสงสัยเกี่ยวกับแบบสอบถาม กรุณาติดต่อ คุณวรลักษณ์ ลลิตศศิวิมล โทรศัพท์ (089) 468-7408

ส่วนที่ 1 ข้อมูลทั่วไป

โปรดตอบคำถามเกี่ยวกับตัวท่านและบริษัทของท่าน กรุณาทำเครื่องหมายสำหรับคำตอบที่ถูกต้องที่สุด

1. เพศ

ชาย []

หญิง []

2. ประเภทของธุรกิจ

การผลิต []

บริการ []

อื่นๆ (โปรดระบุ) []

3. ประสบการณ์ทำงาน (ในองค์กรปัจจุบัน)

น้อยกว่า 5 ปี []

มากกว่า 5 ปี แต่น้อยกว่า 7 ปี []

มากกว่า 7 ปี แต่น้อยกว่า 9 ปี []

มากกว่า 9 ปี []

4. ตำแหน่งงาน

เจ้าของกิจการ []

ผู้จัดการ []

อื่นๆ (โปรดระบุ) []

5. จำนวนพนักงานบริษัท

1 – 50 คน []

51 – 200 คน []

มากกว่า 200 คน []

6. อายุของธุรกิจ

- 0 – 5 ปี ()
- 6 – 10 ปี ()
- มากกว่า 10 ปี ()

7. ประกอบธุรกิจระหว่างประเทศ

- ใช่ ()
- ไม่ใช่ ()

ส่วนที่ 2 ปัจจัยแวดล้อมที่มีผลต่อการเป็นองค์กรแห่งการเรียนรู้ (DLOQ)

DLOQ เป็นเครื่องมือวัดวิธีปฏิบัติการเป็นองค์กรแห่งการเรียนรู้
กรุณาเลือกตัวเลขที่ตรงกับความเห็นของท่านมากที่สุด ในแต่ละข้อความที่อธิบายวิธีปฏิบัติการเป็นองค์กรแห่ง
การเรียนรู้ของบริษัทท่าน ตั้งแต่ 1 (ไม่เห็นด้วยอย่างยิ่ง), 2 (ค่อนข้างไม่เห็นด้วย), 3 (เฉยๆ), 4 (ค่อนข้างเห็นด้วย),
5 (เห็นด้วยอย่างยิ่ง)

| | ข้อคำถาม | ไม่เห็นด้วย อย่างยิ่ง | | เห็นด้วย อย่างยิ่ง | | |
|---|---------------------------------------------------------------------------------------------|--------------------------|---|-----------------------|---|---|
| 1 | คนในองค์กรของฉันมักจะช่วยกันและกันในการเรียนรู้เรื่องต่างๆ | 1 | 2 | 3 | 4 | 5 |
| 2 | คนในองค์กรของฉันมักจะให้เวลากับการสนับสนุนการเรียนรู้ | 1 | 2 | 3 | 4 | 5 |
| 3 | องค์กรของฉันมักจะให้รางวัลกับคนที่มีการเรียนรู้ | 1 | 2 | 3 | 4 | 5 |
| 4 | คนในองค์กรของฉัน มักจะให้ความคิดเห็นที่จริงใจ และ ตรงไปตรงมาแก่กันและกัน | 1 | 2 | 3 | 4 | 5 |
| 5 | เมื่อคนในองค์กรของฉันแสดงมุมมองของตน เขามักจะถามความ คิดเห็นของผู้อื่นต่อเรื่องนั้นๆเสมอ | 1 | 2 | 3 | 4 | 5 |
| 6 | คนในองค์กรของฉันมักให้เวลากับการสร้างความไว้วางใจซึ่งกัน | 1 | 2 | 3 | 4 | 5 |
| 7 | คนในองค์กรของฉันมีอิสระในการปรับเป้าหมายของตนได้ตาม ความต้องการ | 1 | 2 | 3 | 4 | 5 |

| | ข้อคำถาม | ไม่เห็นด้วย อย่างยิ่ง | | เห็นด้วย อย่างยิ่ง | | |
|----|--------------------------------------------------------------------------------------------------------------------------------|--------------------------|---|-----------------------|---|---|
| 8 | คนในองค์กรของฉันพร้อมที่จะแก้ไขความคิดของตนเอง หลังจากการอภิปรายกันในภายในองค์กร หรือได้รับข้อมูลใหม่ๆ | 1 | 2 | 3 | 4 | 5 |
| 9 | คนในองค์กรของฉันมีความมั่นใจว่า องค์กรจะปฏิบัติตามคำแนะนำของเขา | 1 | 2 | 3 | 4 | 5 |
| 10 | องค์กรของฉันได้สร้างระบบประเมินผลที่สามารถเปรียบเทียบระหว่างผลการปฏิบัติงานจริงของพนักงานกับผลการปฏิบัติงานที่องค์กรคาดหวังได้ | 1 | 2 | 3 | 4 | 5 |
| 11 | องค์กรของฉันเปิดโอกาสให้พนักงานทุกคนสามารถเรียนรู้จากองค์ความรู้ขององค์กรได้ | 1 | 2 | 3 | 4 | 5 |
| 12 | องค์กรของฉันมีการประเมินความคุ้มค่าของเวลาที่ใช้ไปกับการอบรมและการเรียนรู้ของพนักงาน | 1 | 2 | 3 | 4 | 5 |
| 13 | องค์กรของฉันให้ความสำคัญกับผู้ที่มีความคิดริเริ่ม | 1 | 2 | 3 | 4 | 5 |
| 14 | องค์กรของฉันให้อำนาจแก่คนในองค์กร ในการใช้ทรัพยากรขององค์กรที่จำเป็นต่อการเรียนรู้ | 1 | 2 | 3 | 4 | 5 |
| 15 | องค์กรของฉันให้การสนับสนุนแก่ผู้ที่กล้ารับความเสี่ยงที่คาดว่าจะเกิดขึ้น | 1 | 2 | 3 | 4 | 5 |
| 16 | องค์กรของฉันสนับสนุนให้คนมองสิ่งต่างๆ อย่างรอบด้าน | 1 | 2 | 3 | 4 | 5 |
| 17 | องค์กรของฉันทำงานร่วมกับชุมชน และองค์กรอื่นๆ เพื่อให้สามารถบรรลุวัตถุประสงค์ร่วมกันได้ | 1 | 2 | 3 | 4 | 5 |
| 18 | องค์กรของฉันสนับสนุนให้คนแก้ไขปัญหา โดยหาคำตอบจากหลายแหล่ง และ หลายมุมมอง | 1 | 2 | 3 | 4 | 5 |
| 19 | ในองค์กรของฉันผู้นำ จะเป็นผู้ให้คำชี้แนะ และ สั่งสอนผู้ได้บังคับบัญชา | 1 | 2 | 3 | 4 | 5 |
| 20 | ในองค์กรของฉันผู้นำจะมองหาโอกาสในการเรียนรู้สิ่งใหม่ๆ อยู่เสมอ | 1 | 2 | 3 | 4 | 5 |
| 21 | ในองค์กรของฉันผู้นำจะทำให้มั่นใจว่ากิจกรรมต่างๆ ที่จัดขึ้นมีความเหมาะสมแก่คุณค่าขององค์กร | 1 | 2 | 3 | 4 | 5 |

ส่วนที่ 3 นวัตกรรมองค์กร

กรุณาเลือกตัวเลขที่ตรงกับความเห็นของท่านมากที่สุด ในแต่ละข้อความที่อธิบายความเป็นนวัตกรรมองค์กรของบริษัทท่าน ตั้งแต่ 1 (ไม่เห็นด้วยอย่างยิ่ง), 2 (ค่อนข้างไม่เห็นด้วย), 3 (เฉยๆ), 4 (ค่อนข้างเห็นด้วย), 5 (เห็นด้วยอย่างยิ่ง)

| | ข้อคำถาม | ไม่เห็นด้วย อย่างยิ่ง | | | | | เห็นด้วย อย่างยิ่ง | | | | |
|----|----------------------------------------------------------------------------------------------------|--------------------------|---|---|---|---|-----------------------|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 1 | การบริหารอย่างกระตือรือร้นมักค้นหาความคิดสร้างสรรค์สิ่งใหม่ๆ | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 2 | โครงการนวัตกรรมหรือการจัดการแผนงานได้ถูกยอมรับทันที | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 3 | บนพื้นฐานจากผลของการวิจัย นวัตกรรมทางวิทยาศาสตร์ได้ถูกยอมรับในทันที | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 4 | ในองค์กรของฉัน นวัตกรรมในหน่วยธุรกิจได้ถูกรับรู้ว่ามีค่า ไม่แน่นอนและมักได้รับการปฏิเสธ | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 5 | บริษัทของเรามักจะเป็นผู้นำในการออกสู่ตลาดอยู่บ่อยๆ ในการ แนะนำสินค้าหรือบริการใหม่ๆ | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 6 | ลูกค้าของเรามักจะรับรู้ถึงสินค้าและบริการใหม่ของเรา เป็นสิ่ง ที่ใหม่มากบ่อยๆ | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 7 | ใน 5 ปีที่ผ่านมา บริษัทของเรามีการแนะนำสินค้าและบริการ ที่สร้างสรรค์มากกว่าคู่แข่ง | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 8 | เมื่อเปรียบเทียบกับคู่แข่ง บริษัทของเรามีอัตราความสำเร็จ ที่ต่ำกว่าในการออกสินค้าและบริการใหม่ๆ | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 9 | เราได้มีการปรับปรุงกระบวนการทางธุรกิจของเราอย่างต่อเนื่อง | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 10 | เมื่อเปรียบเทียบกับคู่แข่ง บริษัทของเราได้เปลี่ยนแปลงวิธีการ ผลิตที่รวดเร็วดีมาก | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 11 | บริษัทของเราได้มีการพัฒนาวิธีการบริหารงานใหม่ๆมากมายใน ระหว่าง 5 ปีที่ผ่านมา | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |

ส่วนที่ 4 ผลการดำเนินงานขององค์กร

กรุณาลืออตัวเลอที่ตรงกับความเห็นของท่านมากที่สุด ในแต่ละข้อความที่อธิบายการปรับปรุงผลการดำเนินงาน
เปรียบเทียบระหว่างปี 2554 กับปี 2555 ของบริษัทท่าน
ตั้งแต่ 1 (ไม่เห็นด้วยอย่างยิง), 2 (ค่อนข้างไม่เห็นด้วย), 3 (เฉยๆ), 4 (ค่อนข้างเห็นด้วย), 5 (เห็นด้วยอย่างยิง)

| | ข้อคำถาม | ไม่เห็นด้วย อย่างยิง | | | | | เห็นด้วย อย่างยิง | | | | |
|---|---------------------------------------------------------------------------------|-------------------------|---|---|---|---|----------------------|--|--|--|--|
| 1 | ผลตอบแทนจากการลงทุนในองค์กรของฉฉในปฉนี้สูงกว่าปีที่ผ่านมา | 1 | 2 | 3 | 4 | 5 | | | | | |
| 2 | อัตราการเติบโตของยอดขายในองค์กรของฉฉในปฉนี้ดีกว่าปีที่ผ่านมา | 1 | 2 | 3 | 4 | 5 | | | | | |
| 3 | ผลิตผลต่อจำนวนพนักงานในองค์กรของฉฉในปฉนี้สูงกว่าปีที่ผ่านมา | 1 | 2 | 3 | 4 | 5 | | | | | |
| 4 | เวลาที่ใช้ในการกระจายสินค้าสู่ตลาดในองค์กรของฉฉน้อยกว่าปีที่ผ่านมา | 1 | 2 | 3 | 4 | 5 | | | | | |
| 5 | องค์กรของฉฉการดูแลเอาใจใส่ต่อคำร้องเรียน/ความต้องการของลูกค้ามากกว่าปีที่ผ่านมา | 1 | 2 | 3 | 4 | 5 | | | | | |
| 6 | ต้นทุนต่อช่องทางดำเนินธุรกิจใองค์กรของฉฉน้อยกว่าปีที่ผ่านมา | 1 | 2 | 3 | 4 | 5 | | | | | |
| 7 | ส่วนแบ่งทางการตลาดใองค์กรของฉฉสูงกว่าปีที่ผ่านมา | 1 | 2 | 3 | 4 | 5 | | | | | |
| 8 | องค์กรของฉฉได้รับปริมาณผลกำไรใการทำธุรกิจมากกว่าปีที่ผ่านมา | 1 | 2 | 3 | 4 | 5 | | | | | |
| 9 | เงินทุนที่เพิ่มขึ้นใการทำธุรกิจใองค์กรของฉฉดีกว่าปีที่ผ่านมา | 1 | 2 | 3 | 4 | 5 | | | | | |

Appendix D

Chi-square Value

| df | p=0.05 | p=0.01 | p=0.001 |
|-----------|---------------|---------------|----------------|
| 1 | 3.84 | 6.64 | 10.83 |
| 2 | 5.99 | 9.21 | 13.82 |
| 3 | 7.82 | 11.35 | 16.27 |
| 4 | 9.49 | 13.28 | 18.47 |
| 5 | 11.07 | 15.09 | 20.52 |
| 6 | 12.59 | 16.81 | 22.46 |
| 7 | 14.07 | 18.48 | 24.32 |
| 8 | 15.51 | 20.09 | 26.13 |
| 9 | 16.92 | 21.67 | 27.88 |
| 10 | 18.31 | 23.21 | 29.59 |
| 11 | 19.68 | 24.73 | 31.26 |
| 12 | 21.03 | 26.22 | 32.91 |
| 13 | 22.36 | 27.69 | 34.53 |
| 14 | 23.69 | 29.14 | 36.12 |
| 15 | 25.00 | 30.58 | 37.70 |
| 16 | 26.30 | 32.00 | 39.25 |
| 17 | 27.59 | 33.41 | 40.79 |
| 18 | 28.87 | 34.81 | 42.31 |
| 19 | 30.14 | 36.19 | 43.82 |
| 20 | 31.41 | 37.57 | 45.32 |
| 21 | 32.67 | 38.93 | 46.80 |
| 22 | 33.92 | 40.29 | 48.27 |
| 23 | 35.17 | 41.64 | 49.73 |
| 24 | 36.42 | 42.98 | 51.18 |
| 25 | 37.65 | 44.31 | 52.62 |
| 26 | 38.89 | 45.64 | 54.05 |
| 27 | 40.11 | 46.96 | 55.48 |
| 28 | 41.34 | 48.28 | 56.89 |
| 29 | 42.56 | 49.59 | 58.30 |
| 30 | 43.77 | 50.89 | 59.70 |
| 31 | 44.99 | 52.19 | 61.10 |
| 32 | 46.19 | 53.49 | 62.49 |
| 33 | 47.40 | 54.78 | 63.87 |
| 34 | 48.60 | 56.06 | 65.25 |
| 35 | 49.80 | 57.34 | 66.62 |
| 36 | 51.00 | 58.62 | 67.99 |
| 37 | 52.19 | 59.89 | 69.35 |
| 38 | 53.38 | 61.16 | 70.71 |
| 39 | 54.57 | 62.43 | 72.06 |
| 40 | 55.76 | 63.69 | 73.41 |
| 41 | 56.94 | 64.95 | 74.75 |
| 42 | 58.12 | 66.21 | 76.09 |

Appendix E

Missing Data

Missing Data

| | Cases | | | | | |
|------|-------|---------|---------|---------|-------|---------|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| CL1 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| CL2 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| CL3 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| ID1 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| ID2 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| ID3 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| TL1 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| TL2 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| TL3 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| ES1 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| ES2 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| ES3 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| EM1 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| EM2 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| EM3 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| SC1 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| SC2 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| SC3 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| SL1 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| SL2 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| SL3 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| OI1 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| OI2 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| OI3 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| OI4 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| OI5 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| OI6 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| OI7 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| OI8 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| OI9 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| OI10 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| OI11 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| OP1 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| OP2 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| OP3 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| OP4 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| OP5 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| OP6 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| OP7 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| OP8 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |
| OP9 | 398 | 100.0% | 0 | 0.0% | 398 | 100.0% |

Appendix F

Descriptive Statistics of Variables

Gender

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|------------|-----------|---------|---------------|--------------------|
| Valid Male | 280 | 71.4 | 71.4 | 71.4 |
| Female | 112 | 28.6 | 28.6 | 100.0 |
| Total | 392 | 100.0 | 100.0 | |

Type of Business

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------|-----------|---------|---------------|--------------------|
| Valid Manufacturing | 216 | 55.1 | 55.1 | 55.1 |
| Service | 176 | 44.9 | 44.9 | 100.0 |
| Total | 392 | 100.0 | 100.0 | |

Experience

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|-----------------------------------------|-----------|---------|---------------|--------------------|
| Valid More than 5 but less than 7 years | 109 | 27.8 | 27.8 | 27.8 |
| More than 7 but less than 9 years | 153 | 39.0 | 39.0 | 66.8 |
| More than 9 years | 130 | 33.2 | 33.2 | 100.0 |
| Total | 392 | 100.0 | 100.0 | |

Position

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------------|-----------|---------|---------------|--------------------|
| Valid Owner | 272 | 69.4 | 69.4 | 69.4 |
| Manager | 120 | 30.6 | 30.6 | 100.0 |
| Total | 392 | 100.0 | 100.0 | |

Number of Employees

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|----------------|-----------|---------|---------------|--------------------|
| 1 - 50 | 40 | 10.2 | 10.2 | 10.2 |
| Valid 51 - 200 | 352 | 89.8 | 89.8 | 100.0 |
| Total | 392 | 100.0 | 100.0 | |

Age of Business

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|--------------------------|-----------|---------|---------------|--------------------|
| 6 – 10 years | 180 | 45.9 | 45.9 | 45.9 |
| Valid More than 10 years | 212 | 54.1 | 54.1 | 100.0 |
| Total | 392 | 100.0 | 100.0 | |

International Business

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|----------|-----------|---------|---------------|--------------------|
| Yes | 207 | 52.8 | 52.8 | 52.8 |
| Valid No | 185 | 47.2 | 47.2 | 100.0 |
| Total | 392 | 100.0 | 100.0 | |

Appendix G

Assessment of Normality

| | N | Minimum | Maximum | Mean | Std. Deviation |
|-----------------------|-----|----------|---------|------|-------------------|
| Zscore: CL1 | 392 | -1.65532 | 1.23504 | 0E-7 | 1.00000000 |
| Zscore: CL2 | 392 | -1.64301 | 1.44601 | 0E-7 | 1.00000000 |
| Zscore: CL3 | 392 | -1.68649 | 1.35307 | 0E-7 | 1.00000000 |
| Zscore: ID1 | 392 | -1.79653 | 1.35796 | 0E-7 | 1.00000000 |
| Zscore: ID2 | 392 | -1.86912 | 1.46890 | 0E-7 | 1.00000000 |
| Zscore: ID3 | 392 | -1.86111 | 1.40312 | 0E-7 | 1.00000000 |
| Zscore: TL1 | 392 | -1.70790 | 1.35266 | 0E-7 | 1.00000000 |
| Zscore: TL2 | 392 | -1.84325 | 1.30171 | 0E-7 | 1.00000000 |
| Zscore: TL3 | 392 | -1.76319 | 1.33276 | 0E-7 | 1.00000000 |
| Zscore: ES1 | 392 | -1.85586 | 1.38828 | 0E-7 | 1.00000000 |
| Zscore: ES2 | 392 | -1.91680 | 1.38599 | 0E-7 | 1.00000000 |
| Zscore: ES3 | 392 | -1.90858 | 1.28529 | 0E-7 | 1.00000000 |
| Zscore: EM1 | 392 | -1.90925 | 1.34478 | 0E-7 | 1.00000000 |
| Zscore: EM2 | 392 | -1.94689 | 1.32506 | 0E-7 | 1.00000000 |
| Zscore: EM3 | 392 | -1.91108 | 1.30758 | 0E-7 | 1.00000000 |
| Zscore: SC1 | 392 | -1.46387 | 1.32852 | 0E-7 | 1.00000000 |
| Zscore: SC2 | 392 | -1.46312 | 1.51246 | 0E-7 | 1.00000000 |
| Zscore: SC3 | 392 | -1.63737 | 1.27022 | 0E-7 | 1.00000000 |
| Zscore: SL1 | 392 | -1.79581 | 1.24504 | 0E-7 | 1.00000000 |
| Zscore: SL2 | 392 | -1.87530 | 1.29331 | 0E-7 | 1.00000000 |
| Zscore: SL3 | 392 | -1.87973 | 1.29979 | 0E-7 | 1.00000000 |
| Zscore: OI1 | 392 | -1.90333 | 1.36906 | 0E-7 | 1.00000000 |
| Zscore: OI2 | 392 | -1.92605 | 1.29361 | 0E-7 | 1.00000000 |
| Zscore: OI3 | 392 | -1.90289 | 1.34736 | 0E-7 | 1.00000000 |
| Zscore: OI4 | 392 | -1.97785 | 1.30391 | 0E-7 | 1.00000000 |
| Zscore: OI5 | 392 | -1.87769 | 1.32952 | 0E-7 | 1.00000000 |
| Zscore: OI6 | 392 | -1.94521 | 1.32742 | 0E-7 | 1.00000000 |
| Zscore: OI7 | 392 | -1.91575 | 1.34936 | 0E-7 | 1.00000000 |
| Zscore: OI8 | 392 | -1.99262 | 1.43705 | 0E-7 | 1.00000000 |
| Zscore: OI9 | 392 | -1.90145 | 1.35699 | 0E-7 | 1.00000000 |
| Zscore: OI10 | 392 | -1.91746 | 1.44560 | 0E-7 | 1.00000000 |
| Zscore: OI11 | 392 | -1.94072 | 1.42921 | 0E-7 | 1.00000000 |
| Zscore: OP1 | 392 | -1.52437 | 1.41924 | 0E-7 | 1.00000000 |
| Zscore: OP2 | 392 | -1.57504 | 1.40046 | 0E-7 | 1.00000000 |
| Zscore: OP3 | 392 | -1.61296 | 1.51714 | 0E-7 | 1.00000000 |
| Zscore: OP4 | 392 | -1.32921 | 1.61874 | 0E-7 | 1.00000000 |
| Zscore: OP5 | 392 | -1.48989 | 1.41577 | 0E-7 | 1.00000000 |
| Zscore: OP6 | 392 | -1.50494 | 1.53989 | 0E-7 | 1.00000000 |
| Zscore: OP7 | 392 | -1.48825 | 1.60258 | 0E-7 | 1.00000000 |
| Zscore: OP8 | 392 | -1.63833 | 1.49830 | 0E-7 | 1.00000000 |
| Zscore: OP9 | 392 | -1.55068 | 1.45113 | 0E-7 | 1.00000000 |
| Valid N (listwise) | 392 | | | | |

Appendix H

Reliability Test and Composite Reliability

1. Reliability of Pilot Test (N = 41)

Reliability of Continuous Learning

| Reliability Statistics | |
|------------------------|------------|
| Cronbach's Alpha | N of Items |
| .857 | 3 |

Reliability of Inquiry and Dialogue

| Reliability Statistics | |
|------------------------|------------|
| Cronbach's Alpha | N of Items |
| .757 | 3 |

Reliability of Team Learning

| Reliability Statistics | |
|------------------------|------------|
| Cronbach's Alpha | N of Items |
| .812 | 3 |

Reliability of Embedded System

| Reliability Statistics | |
|------------------------|------------|
| Cronbach's Alpha | N of Items |
| .881 | 3 |

Reliability of Empowerment

| Reliability Statistics | |
|------------------------|------------|
| Cronbach's Alpha | N of Items |
| .789 | 3 |

Reliability of System Connection

Reliability Statistics

| Cronbach's Alpha | N of Items |
|------------------|------------|
| .824 | 3 |

Reliability of Strategic Leadership

Reliability Statistics

| Cronbach's Alpha | N of Items |
|------------------|------------|
| .890 | 3 |

Reliability of Organizational Innovativeness

Reliability Statistics

| Cronbach's Alpha | N of Items |
|------------------|------------|
| .849 | 13 |

Item-Total Statistics

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|------|----------------------------|--------------------------------|----------------------------------|----------------------------------|
| OI1 | 41.34 | 64.280 | .671 | .830 |
| OI2 | 43.24 | 82.289 | -.452 | .890 |
| OI3 | 41.46 | 63.405 | .595 | .833 |
| OI4 | 41.54 | 60.155 | .733 | .822 |
| OI5 | 41.51 | 61.006 | .719 | .824 |
| OI6 | 41.54 | 60.705 | .732 | .823 |
| OI7 | 41.49 | 60.606 | .657 | .827 |
| OI8 | 41.49 | 60.806 | .720 | .824 |
| OI9 | 42.22 | 62.826 | .570 | .834 |
| OI10 | 41.56 | 63.002 | .669 | .829 |
| OI11 | 41.46 | 61.755 | .718 | .825 |
| OI12 | 41.56 | 59.952 | .711 | .823 |
| OI13 | 43.39 | 78.994 | -.266 | .886 |

Reliability of Organizational Performance

Reliability Statistics

| Cronbach's Alpha | N of Items |
|------------------|------------|
| .827 | 12 |

Item-Total Statistics

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|------|----------------------------|--------------------------------|----------------------------------|----------------------------------|
| OP1 | 37.10 | 62.990 | .723 | .798 |
| OP2 | 37.12 | 58.910 | .753 | .790 |
| OP3 | 38.68 | 80.222 | -.271 | .873 |
| OP4 | 37.20 | 63.761 | .651 | .803 |
| OP5 | 36.83 | 63.695 | .672 | .802 |
| OP6 | 38.88 | 79.910 | -.286 | .864 |
| OP7 | 37.10 | 57.540 | .821 | .783 |
| OP8 | 37.07 | 57.970 | .736 | .790 |
| OP9 | 36.95 | 61.048 | .680 | .797 |
| OP10 | 37.20 | 59.461 | .725 | .792 |
| OP11 | 38.56 | 70.352 | .161 | .840 |
| OP12 | 37.24 | 57.839 | .712 | .792 |

2. Reliability Test Results (N = 392)

Reliability of Continuous Learning

| Reliability Statistics | |
|------------------------|------------|
| Cronbach's Alpha | N of Items |
| .871 | 3 |

Reliability of Inquiry and Dialogue

| Reliability Statistics | |
|------------------------|------------|
| Cronbach's Alpha | N of Items |
| .889 | 3 |

Reliability of Team Learning

| Reliability Statistics | |
|------------------------|------------|
| Cronbach's Alpha | N of Items |
| .917 | 3 |

Reliability of Embedded System

| Reliability Statistics | |
|------------------------|------------|
| Cronbach's Alpha | N of Items |
| .923 | 3 |

Reliability of Empowerment

| Reliability Statistics | |
|------------------------|------------|
| Cronbach's Alpha | N of Items |
| .865 | 3 |

Reliability of System Connection

Reliability Statistics

| Cronbach's Alpha | N of Items |
|---------------------|------------|
| .923 | 3 |

Reliability of Strategic Leadership

Reliability Statistics

| Cronbach's Alpha | N of Items |
|---------------------|------------|
| .929 | 3 |

Reliability of Organizational Innovativeness

Reliability Statistics

| Cronbach's Alpha | N of Items |
|---------------------|------------|
| .934 | 11 |

Reliability of Organizational Performance

Reliability Statistics

| Cronbach's Alpha | N of Items |
|---------------------|------------|
| .920 | 9 |

Composite Reliability

| Variable Name | Factor Loading | Factor Loading2 | S.E. | Composite Reliability |
|-----------------------------|----------------|-----------------|--------------|-----------------------|
| CL1 | 0.821 | | 0.054 | |
| CL2 | 0.843 | | 0.054 | |
| CL3 | 0.832 | | 0.055 | |
| Continuous Learning | 2.496 | 6.230 | 0.163 | 0.975 |
| ID1 | 0.912 | | 0.043 | |
| ID2 | 0.797 | | 0.047 | |
| ID3 | 0.861 | | 0.039 | |
| Inquiry and Dialogue | 2.570 | 6.605 | 0.129 | 0.981 |
| TL1 | 0.877 | | 0.041 | |
| TL2 | 0.939 | | 0.039 | |
| TL3 | 0.844 | | 0.043 | |
| Team Learning | 2.660 | 7.076 | 0.123 | 0.983 |
| ES1 | 0.901 | | 0.039 | |
| ES2 | 0.896 | | 0.038 | |
| ES3 | 0.886 | | 0.039 | |
| Embedded System | 2.683 | 7.198 | 0.116 | 0.984 |
| EM1 | 0.852 | | 0.046 | |
| EM2 | 0.861 | | 0.047 | |
| EM3 | 0.773 | | 0.046 | |
| Empowerment | 2.486 | 6.180 | 0.139 | 0.978 |
| SC1 | 0.887 | | 0.038 | |
| SC2 | 0.918 | | 0.037 | |
| SC3 | 0.878 | | 0.039 | |
| System Connection | 2.683 | 7.198 | 0.114 | 0.984 |
| SL1 | 0.873 | | 0.039 | |
| SL2 | 0.927 | | 0.038 | |
| SL3 | 0.912 | | 0.039 | |
| Strategic Leadership | 2.712 | 7.355 | 0.116 | 0.984 |
| OI1 | 0.817 | | 0.054 | |
| OI2 | 0.746 | | 0.055 | |
| OI3 | 0.760 | | 0.054 | |
| OI4 | 0.761 | | 0.054 | |
| OI5 | 0.741 | | 0.056 | |
| OI6 | 0.747 | | 0.054 | |
| OI7 | 0.771 | | 0.054 | |
| OI8 | 0.762 | | 0.052 | |

Composite Reliability (Continued)

| Variable Name | Factor Loading | Factor Loading2 | S.E. | Composite Reliability |
|--------------------------------------|-----------------------|------------------------|--------------|------------------------------|
| OI9 | 0.717 | | 0.055 | |
| OI10 | 0.711 | | 0.054 | |
| OI11 | 0.706 | | 0.054 | |
| Organizational Innovativeness | 8.239 | 67.881 | 0.596 | 0.991 |
| OP1 | 0.789 | | 0.057 | |
| OP2 | 0.779 | | 0.058 | |
| OP3 | 0.655 | | 0.057 | |
| OP4 | 0.767 | | 0.059 | |
| OP5 | 0.770 | | 0.059 | |
| OP6 | 0.679 | | 0.058 | |
| OP7 | 0.802 | | 0.055 | |
| OP8 | 0.762 | | 0.055 | |
| OP9 | 0.748 | | 0.058 | |
| Organizational Performance | 6.751 | 45.576 | 0.516 | 0.989 |

Appendix I

Variance Extracted and Correlation Matrix

Variance Extracted of Variables

| Variable Name | SMC | S.E. | VE |
|-----------------------------|--------------|--------------|--------------|
| CL1 | 0.674 | 0.060 | |
| CL2 | 0.711 | 0.053 | |
| CL3 | 0.692 | 0.056 | |
| Continuous Learning | 2.077 | 0.169 | 0.925 |
| ID1 | 0.831 | 0.040 | |
| ID2 | 0.634 | 0.061 | |
| ID3 | 0.741 | 0.039 | |
| Inquiry and Dialogue | 2.206 | 0.140 | 0.940 |
| TL1 | 0.768 | 0.039 | |
| TL2 | 0.881 | 0.032 | |
| TL3 | 0.712 | 0.043 | |
| Team Learning | 2.361 | 0.114 | 0.954 |
| ES1 | 0.812 | 0.032 | |
| ES2 | 0.802 | 0.031 | |
| ES3 | 0.784 | 0.035 | |
| Embedded System | 2.398 | 0.098 | 0.961 |
| EM1 | 0.726 | 0.058 | |
| EM2 | 0.742 | 0.049 | |
| EM3 | 0.597 | 0.053 | |
| Empowerment | 2.065 | 0.160 | 0.928 |
| SC1 | 0.787 | 0.045 | |
| SC2 | 0.843 | 0.036 | |
| SC3 | 0.772 | 0.043 | |
| System Connection | 2.402 | 0.124 | 0.951 |
| SL1 | 0.761 | 0.038 | |
| SL2 | 0.860 | 0.028 | |
| SL3 | 0.832 | 0.029 | |
| Strategic Leadership | 2.453 | 0.095 | 0.963 |
| OI1 | 0.668 | 0.041 | |
| OI2 | 0.557 | 0.053 | |
| OI3 | 0.578 | 0.050 | |
| OI4 | 0.579 | 0.049 | |
| OI5 | 0.549 | 0.054 | |
| OI6 | 0.558 | 0.051 | |
| OI7 | 0.594 | 0.048 | |
| OI8 | 0.581 | 0.045 | |
| OI9 | 0.514 | 0.056 | |

Variance Extracted of Variables (Continued)

| Variable Name | SMC | S.E. | VE |
|--------------------------------------|--------------|--------------|--------------|
| OI10 | 0.506 | 0.053 | |
| OI11 | 0.498 | 0.054 | |
| Organizational Innovativeness | 6.182 | 0.554 | 0.918 |
| OP1 | 0.623 | 0.056 | |
| OP2 | 0.606 | 0.057 | |
| OP3 | 0.429 | 0.070 | |
| OP4 | 0.588 | 0.060 | |
| OP5 | 0.593 | 0.062 | |
| OP6 | 0.461 | 0.071 | |
| OP7 | 0.644 | 0.049 | |
| OP8 | 0.581 | 0.054 | |
| OP9 | 0.560 | 0.061 | |
| Organizational Performance | 5.085 | 0.540 | 0.904 |

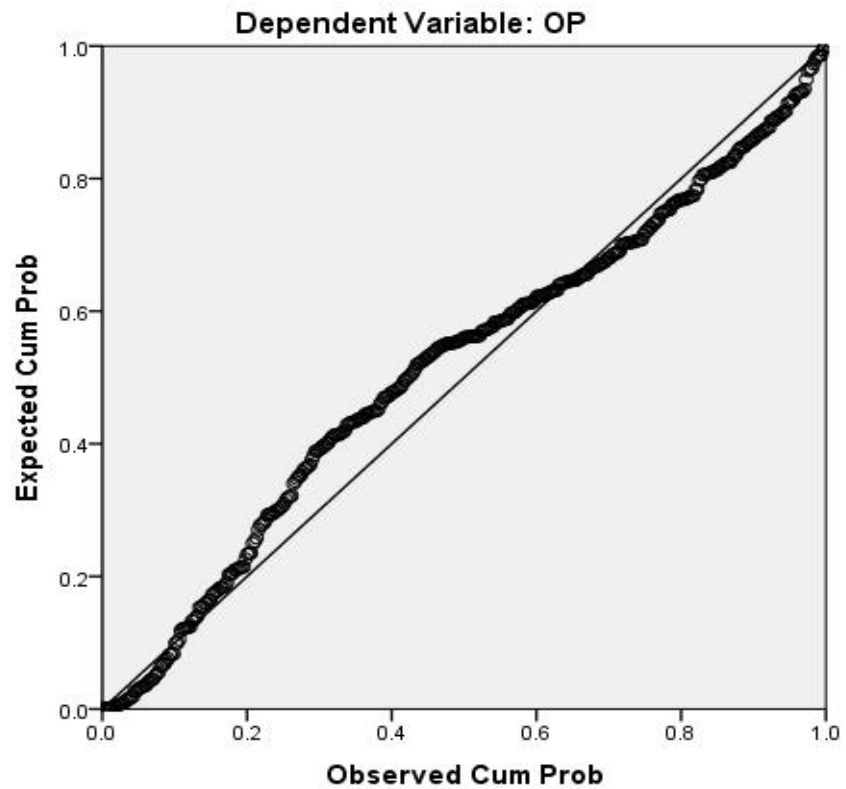
Correlation Matrix between Variables

| Variable Name | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|----------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Continuous Learning (1) | 1.000 | | | | | | | | |
| Inquiry and Dialogue (2) | 0.528 | 1.000 | | | | | | | |
| Team Learning (3) | 0.583 | 0.457 | 1.000 | | | | | | |
| Embedded System (4) | 0.486 | 0.592 | 0.470 | 1.000 | | | | | |
| Empowerment (5) | 0.620 | 0.600 | 0.542 | 0.562 | 1.000 | | | | |
| System Connection (6) | 0.580 | 0.486 | 0.557 | 0.379 | 0.488 | 1.000 | | | |
| Strategic Leadership (7) | 0.523 | 0.620 | 0.587 | 0.570 | 0.619 | 0.522 | 1.000 | | |
| Organizational Innovateness (8) | 0.456 | 0.487 | 0.428 | 0.512 | 0.514 | 0.488 | 0.613 | 1.000 | |
| Organizational Performance (9) | 0.556 | 0.575 | 0.516 | 0.502 | 0.520 | 0.474 | 0.601 | 0.747 | 1.000 |

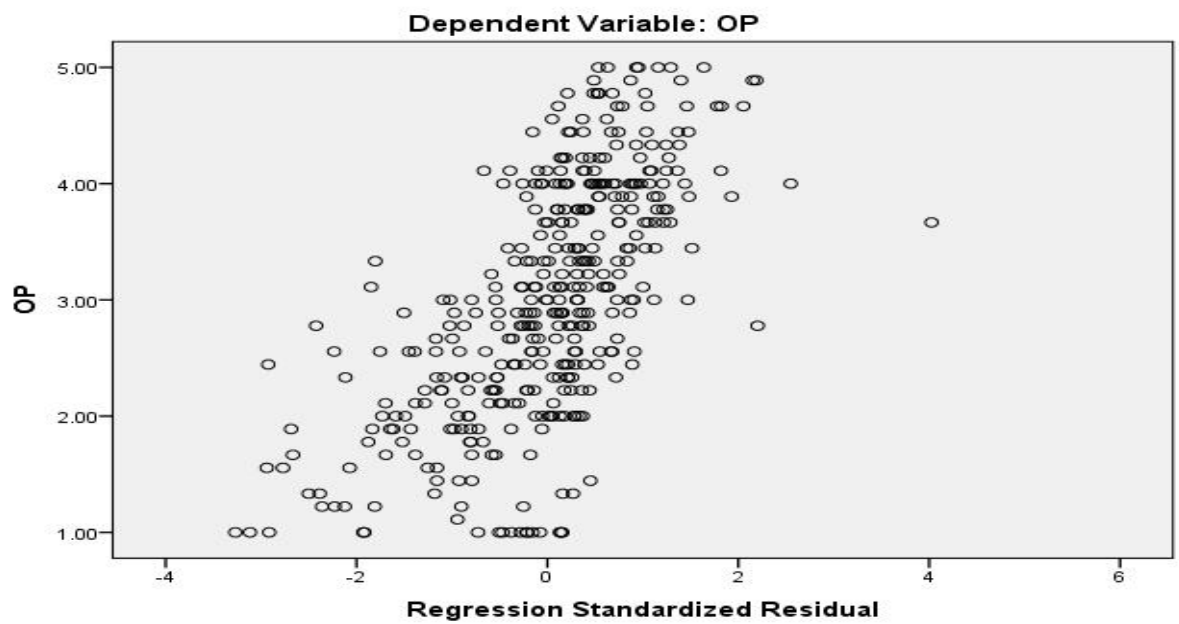
Appendix J

Normal P-P Plots and Q-Q Plots

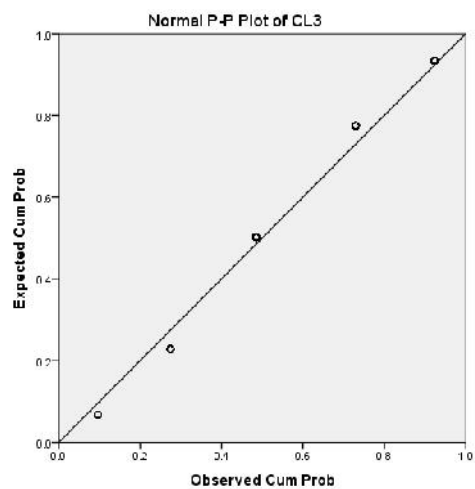
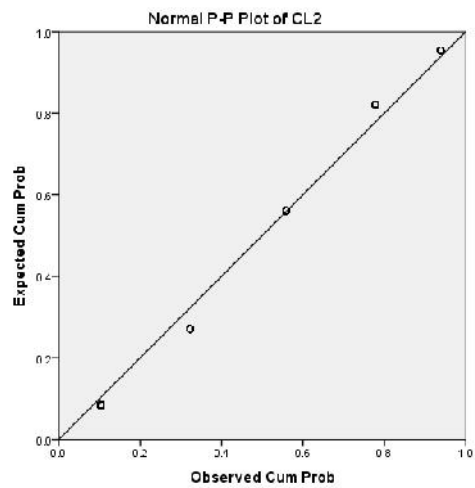
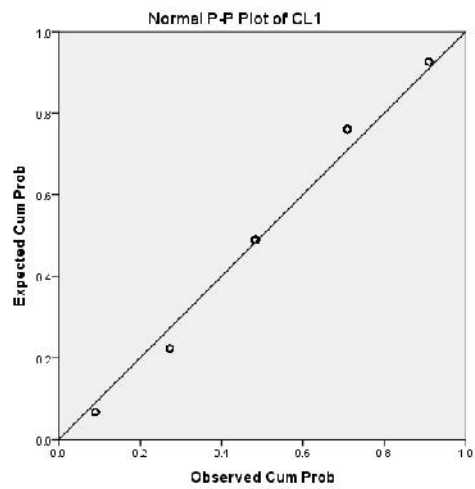
Normal P-P Plot of Regression Standardized Residual



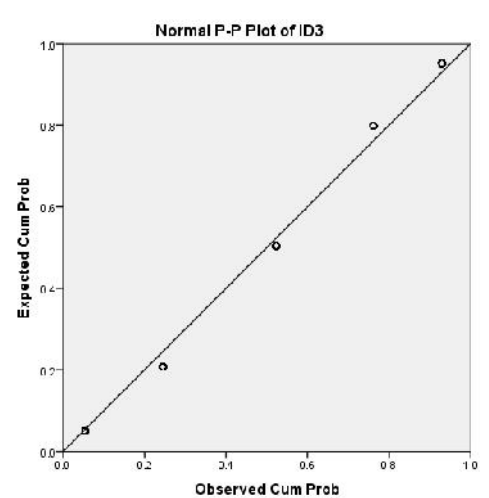
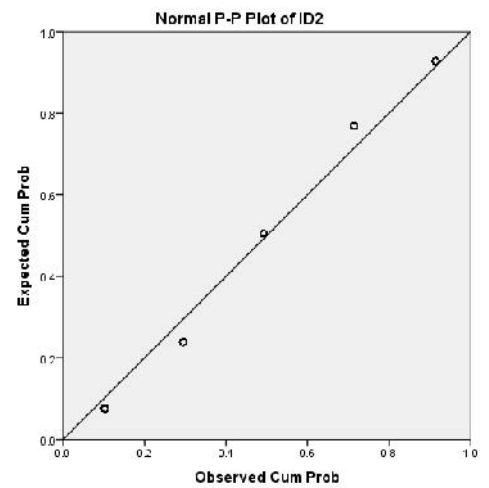
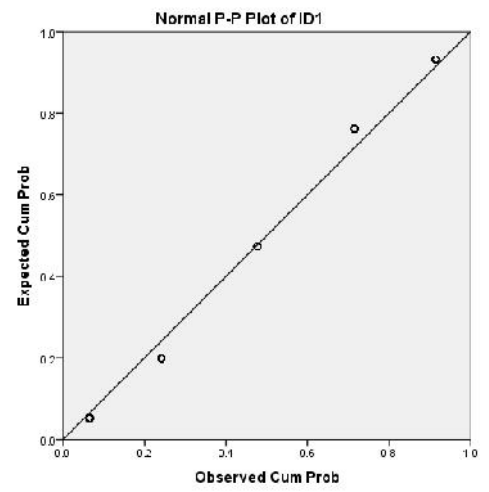
Scatterplot



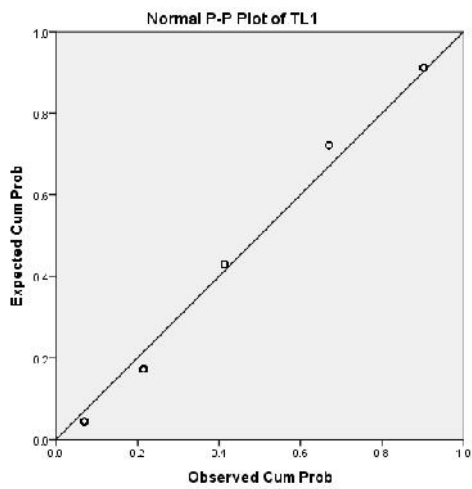
P-P Plots of Continuous Learning



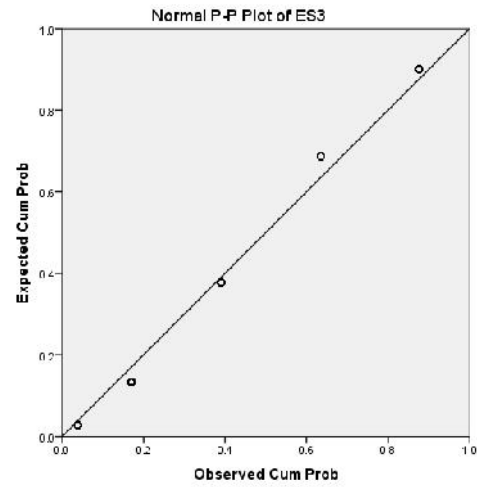
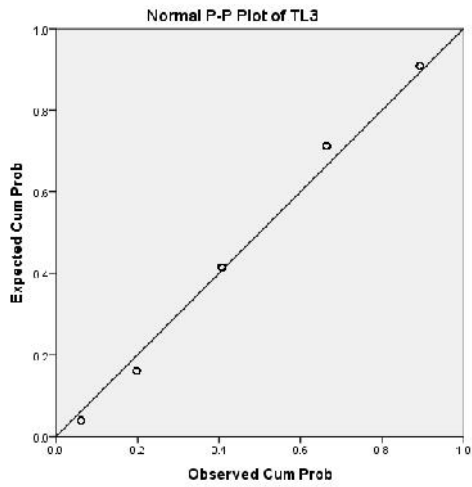
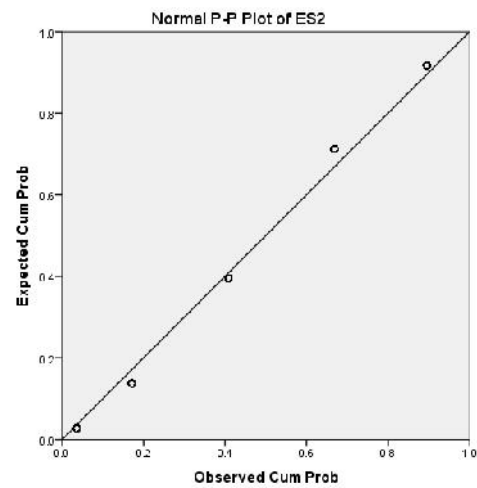
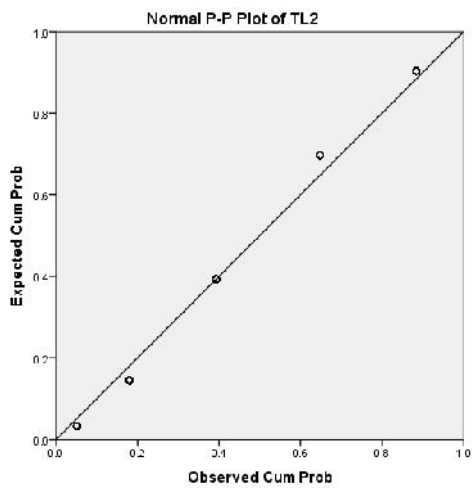
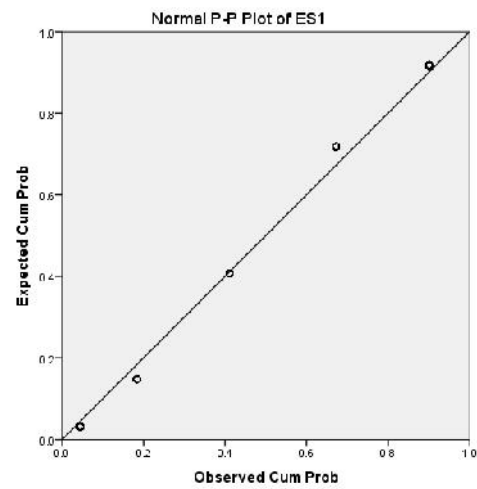
P-P Plots of Inquiry and Dialogue



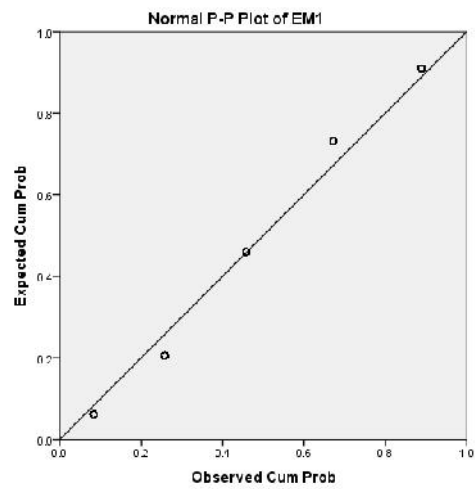
P-P Plots of Team Learning



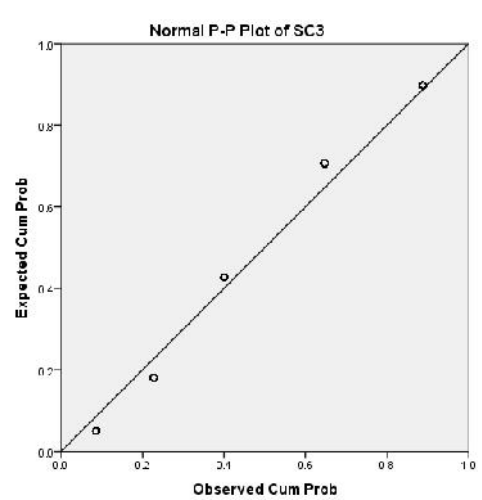
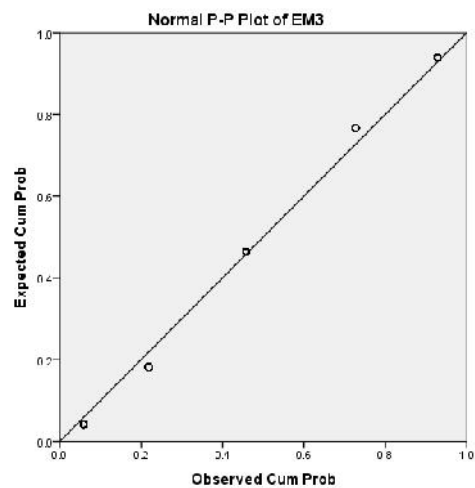
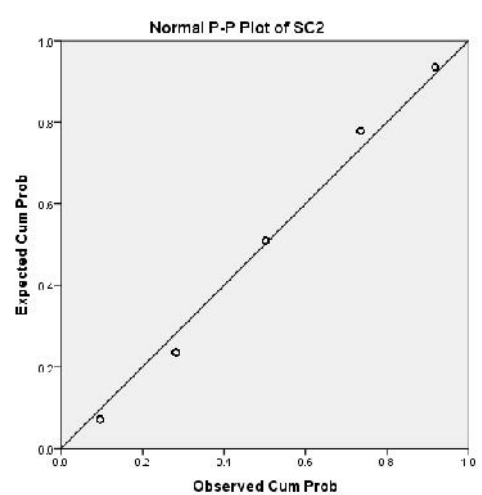
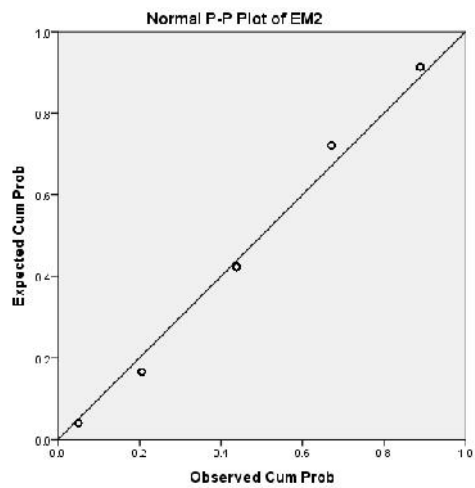
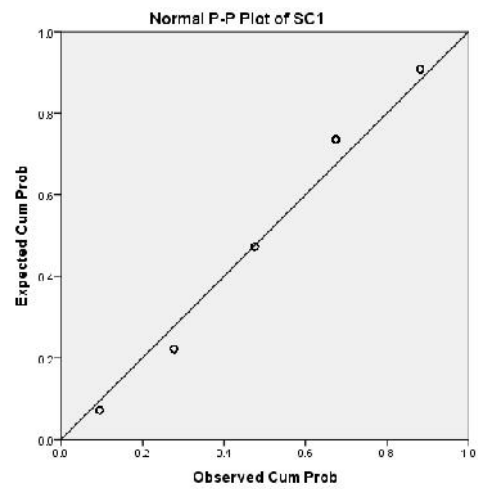
P-P Plots of Embedded System



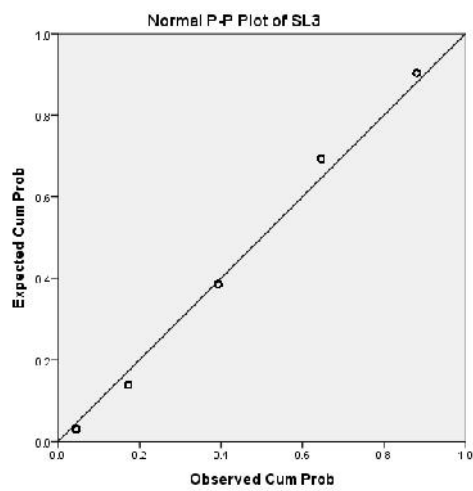
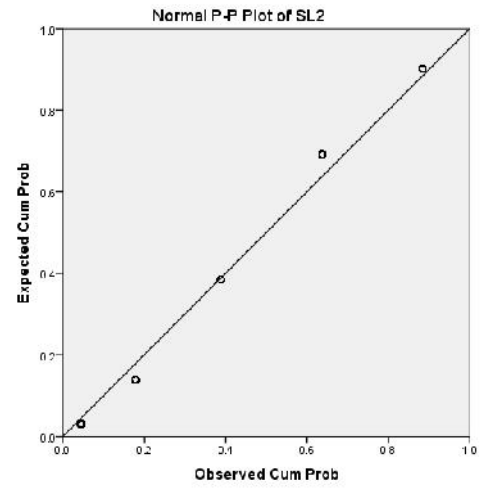
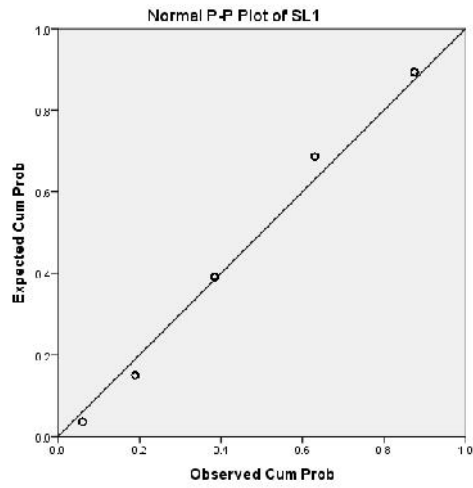
P-P Plots of Empowerment



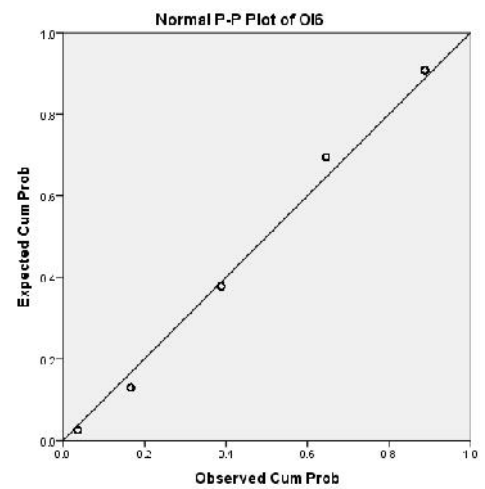
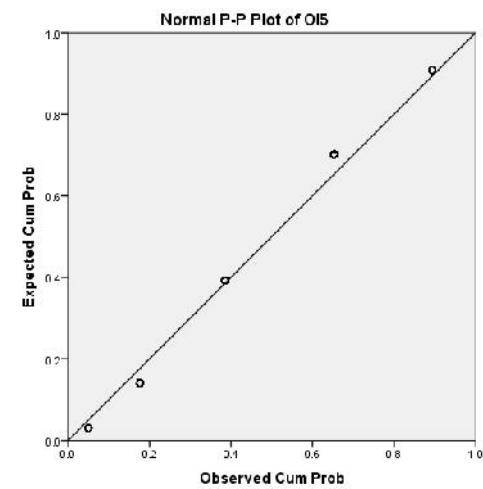
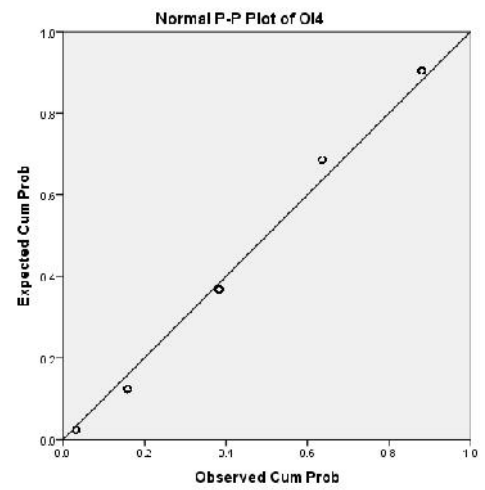
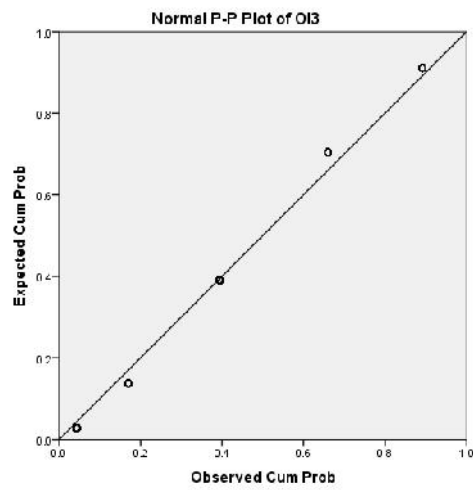
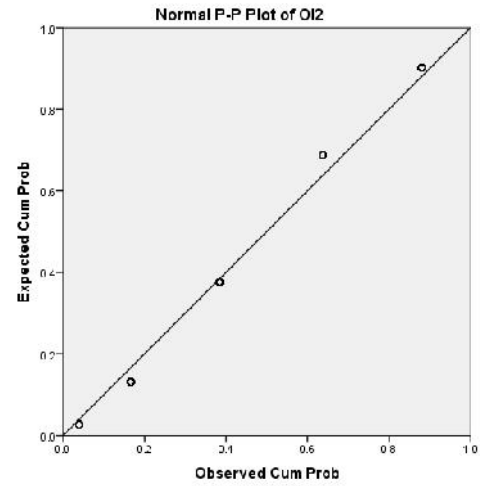
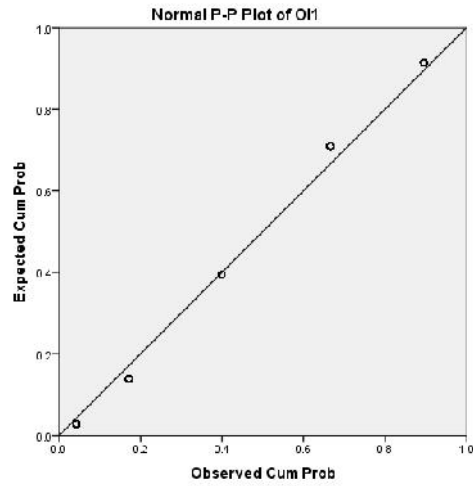
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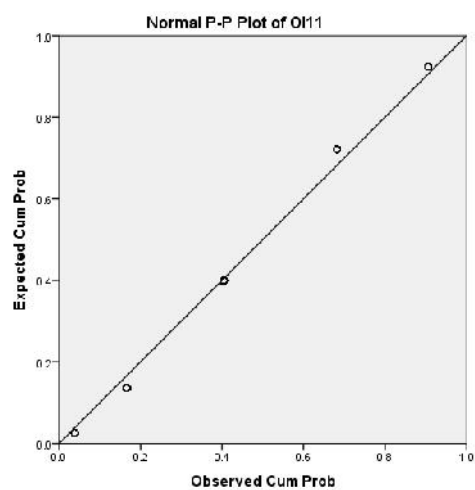
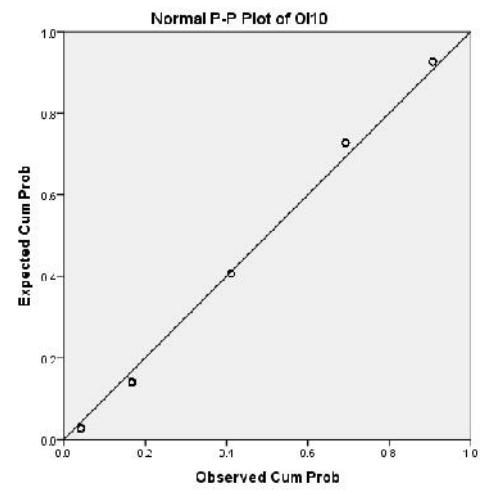
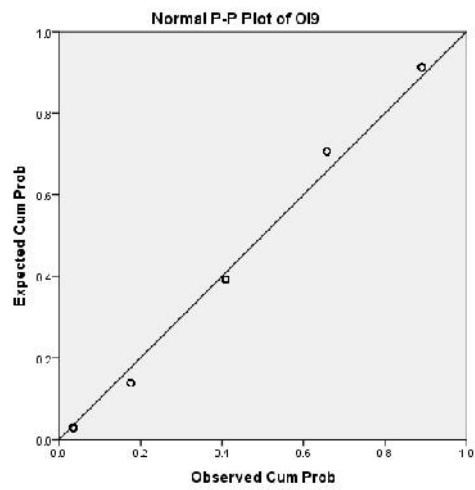
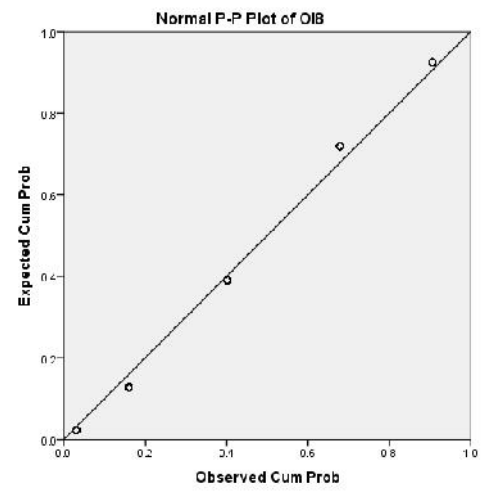
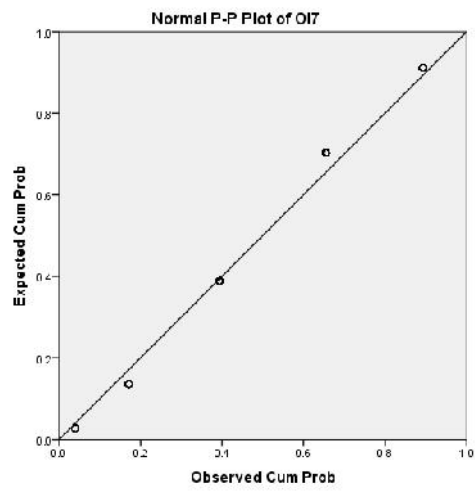


P-P Plots of Strategic Leadership

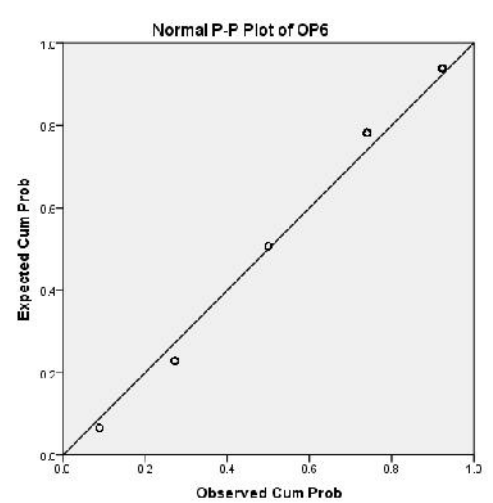
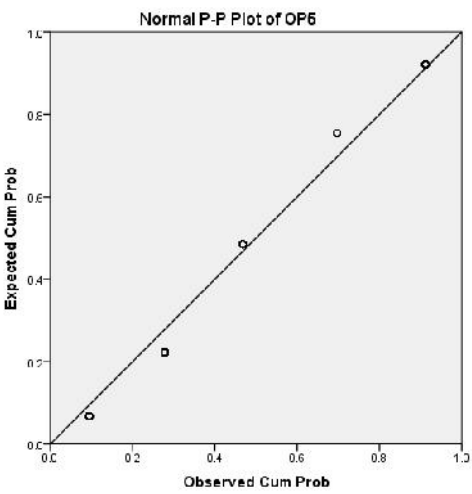
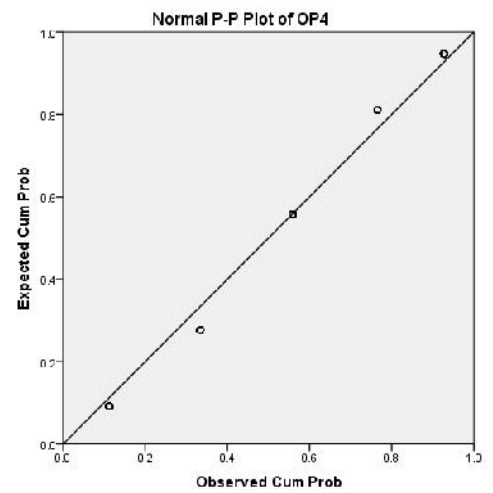
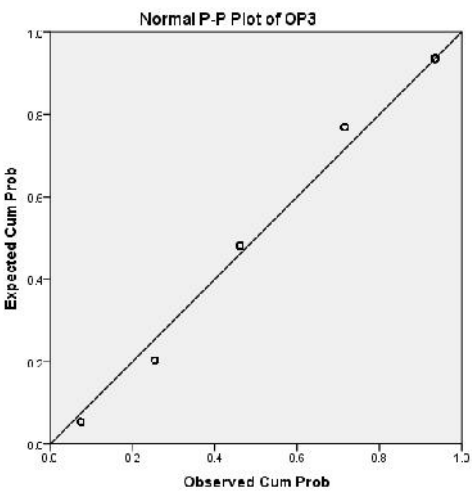
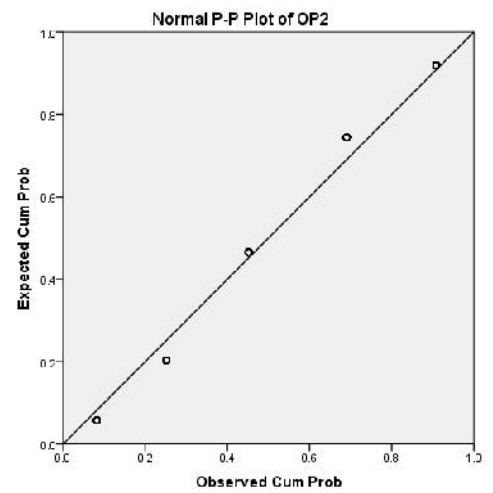
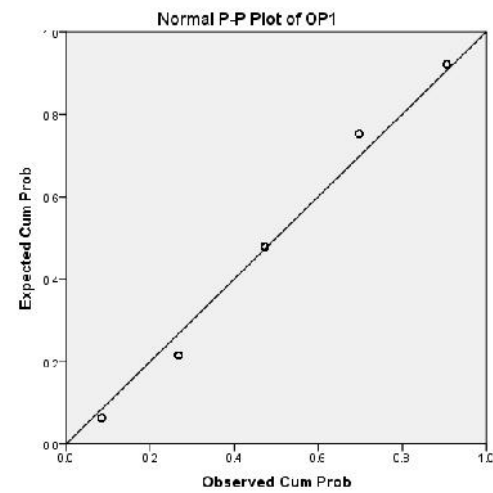


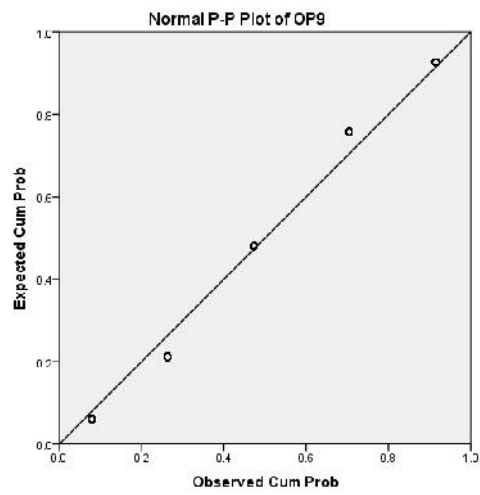
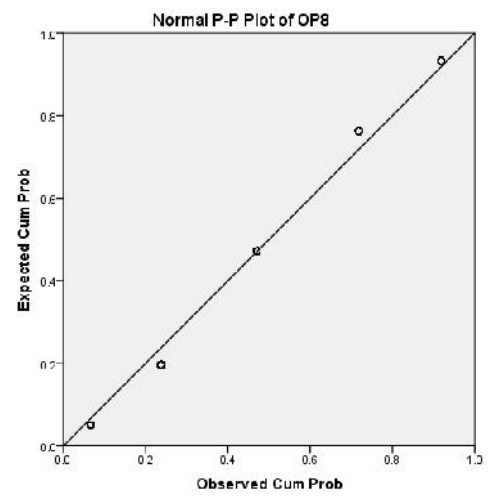
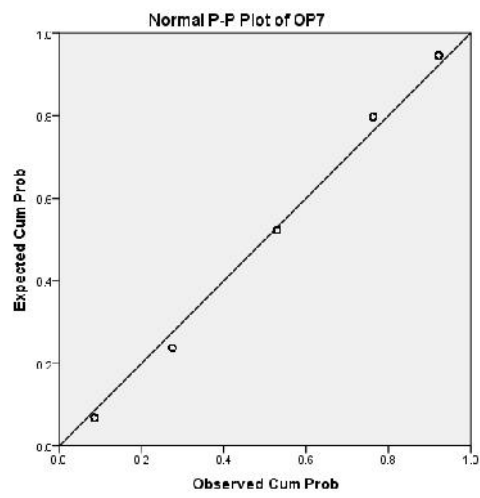
P-P Plots of Organizational Innovativeness



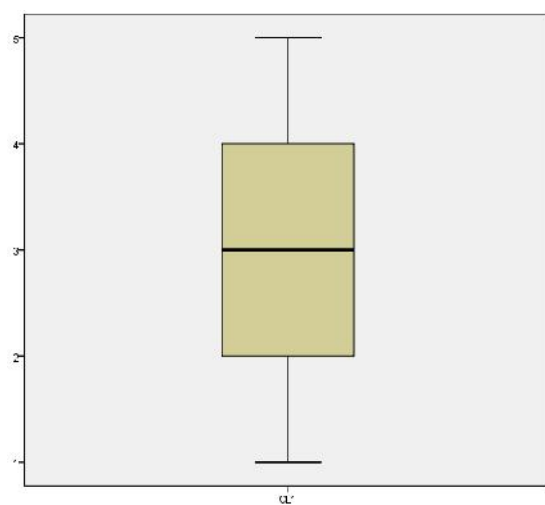


P-P Plots of Organizational Performance

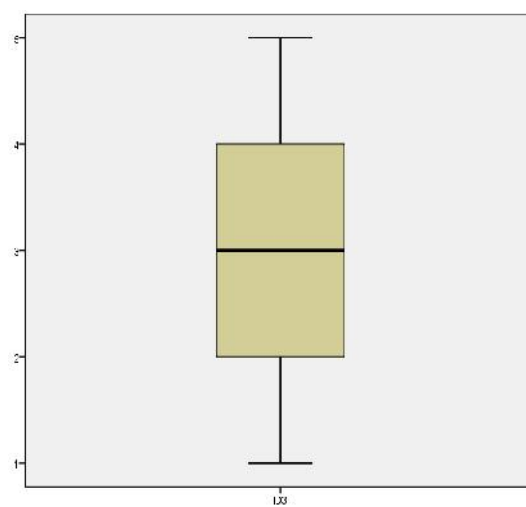
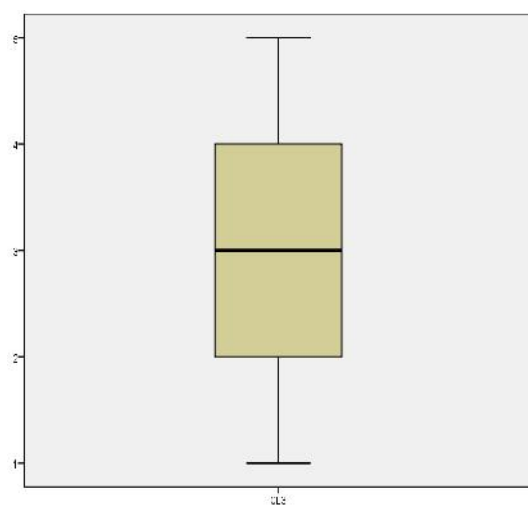
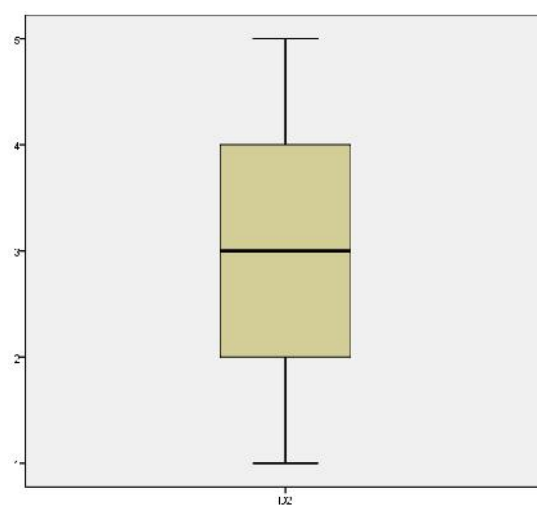
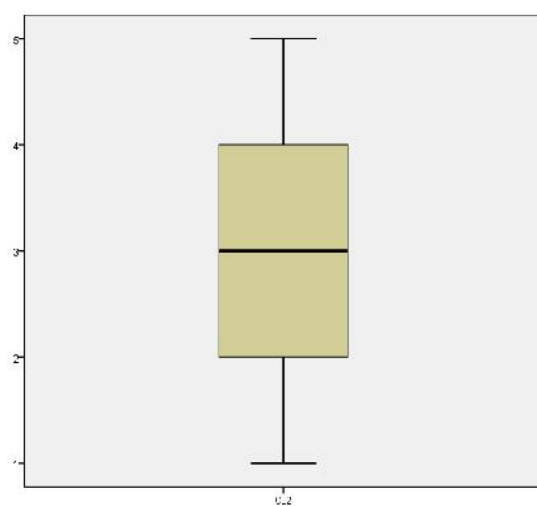
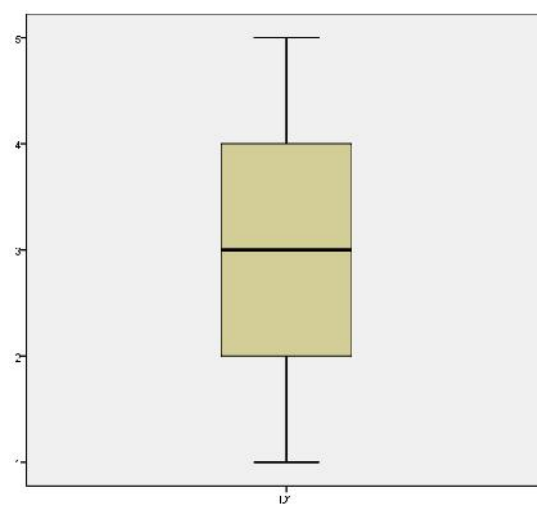




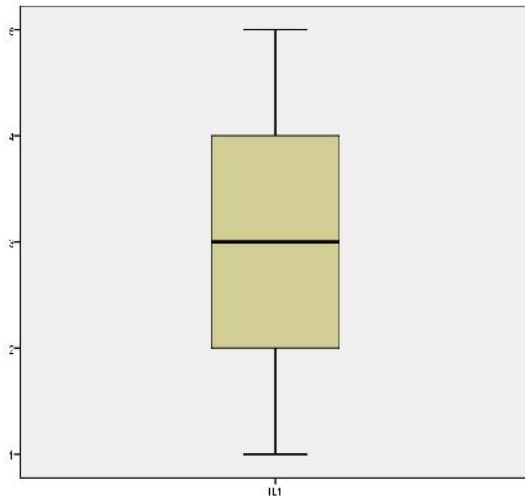
Q-Q Plots of Continuous Learning



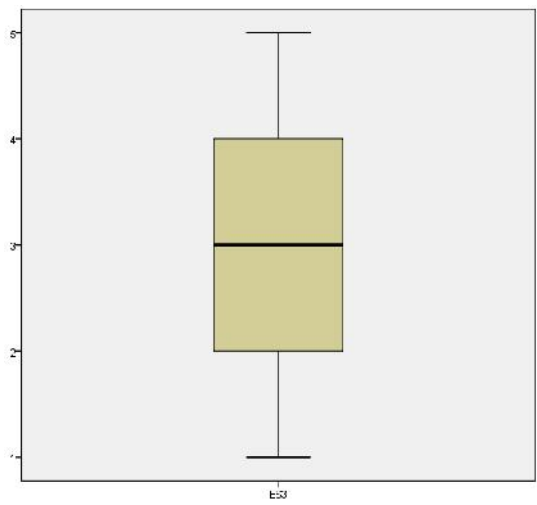
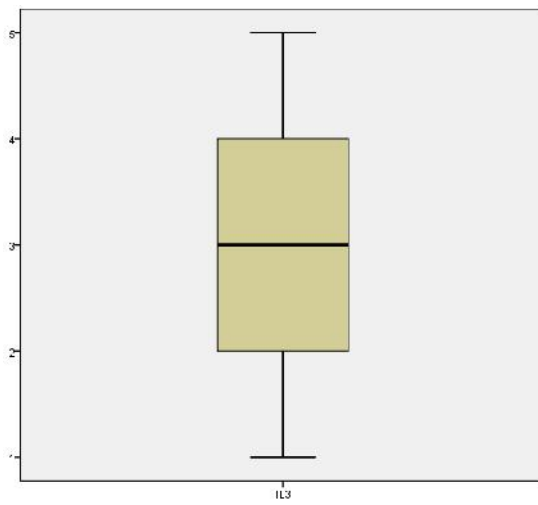
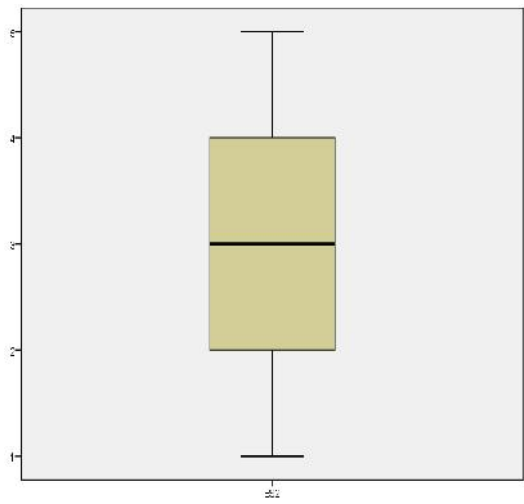
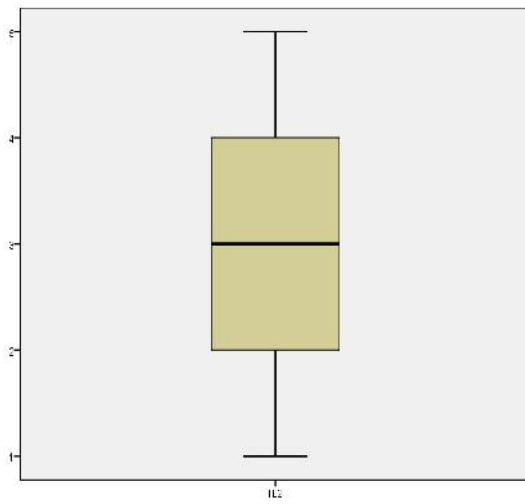
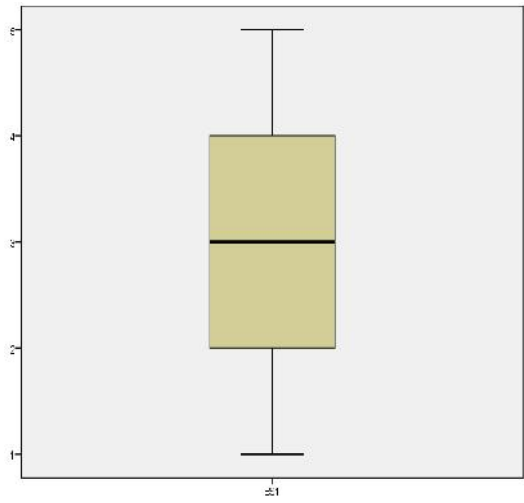
Q-Q Plots of Inquiry and Dialogue



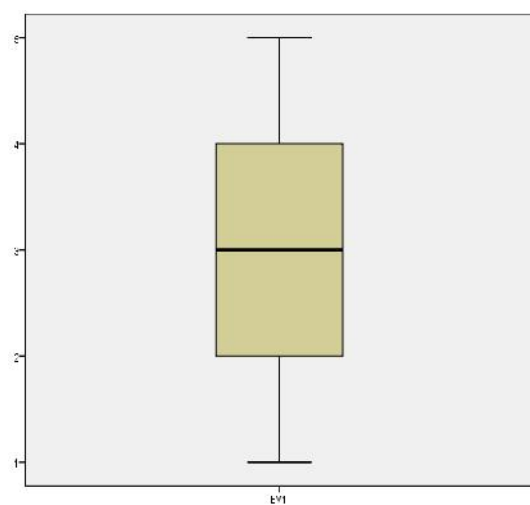
Q-Q Plots of Team Learning



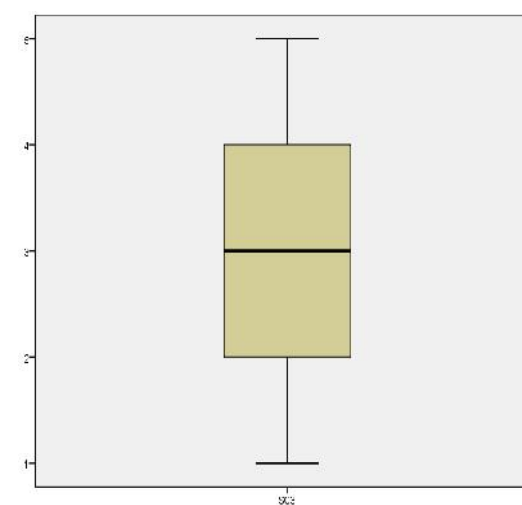
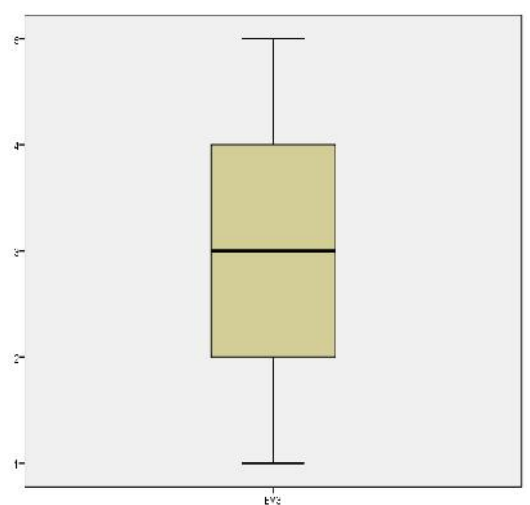
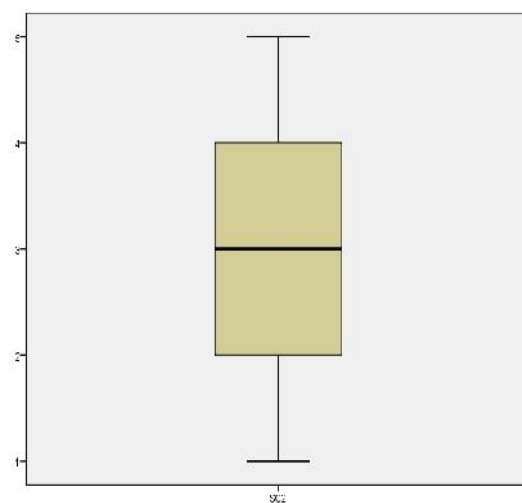
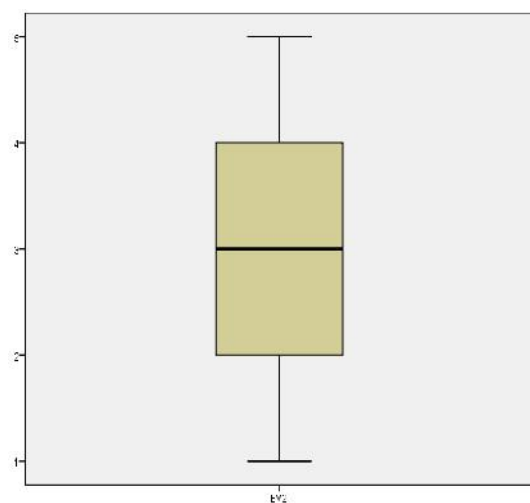
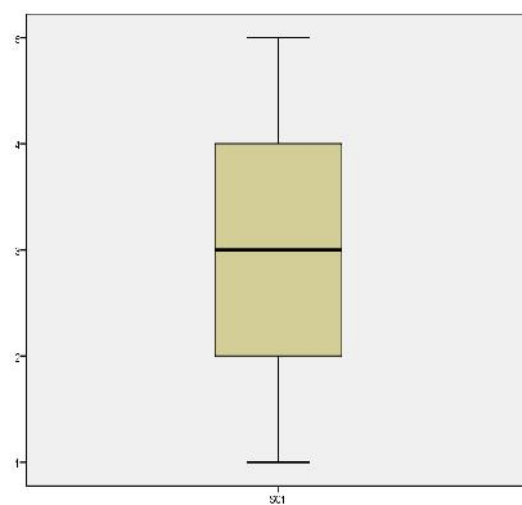
Q-Q Plots of Embedded System



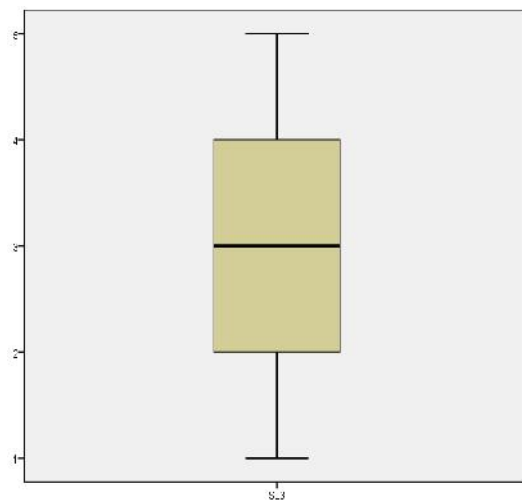
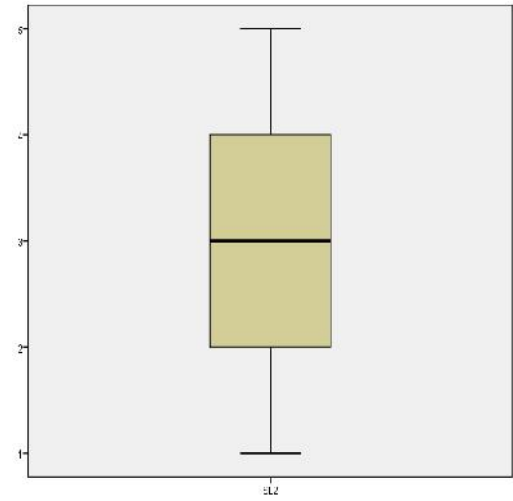
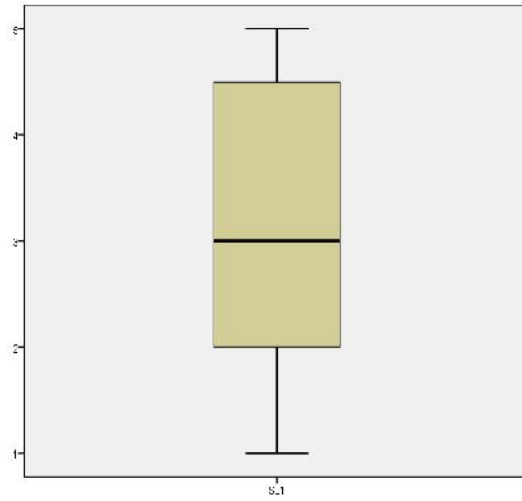
Q-Q Plots of Empowerment



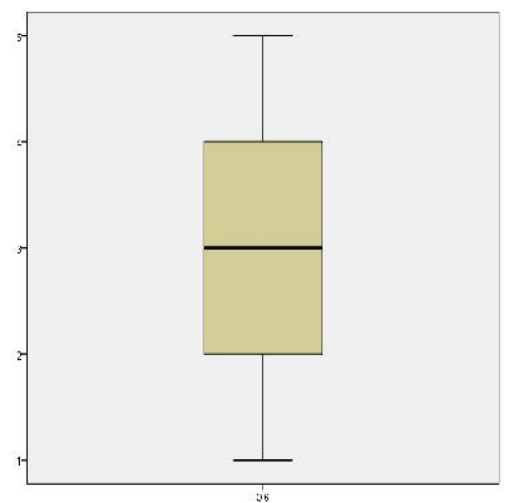
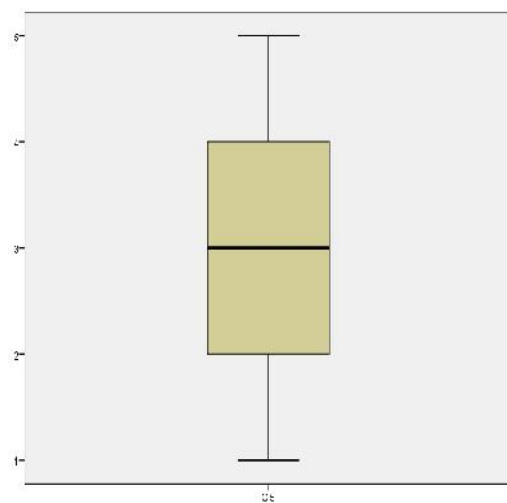
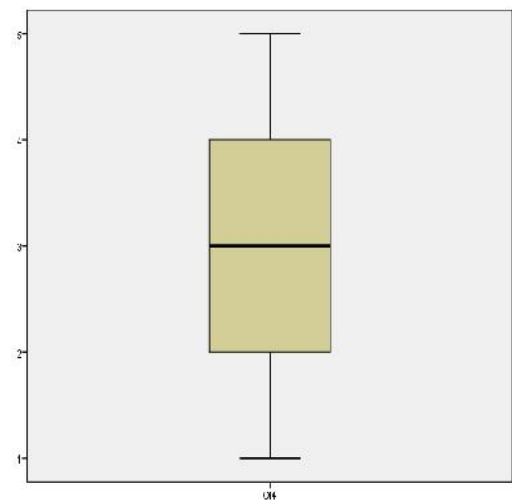
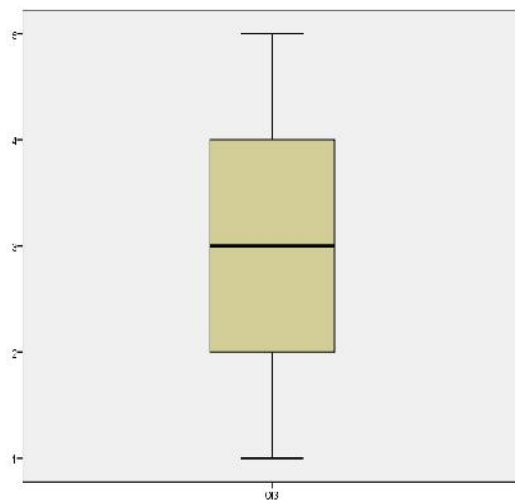
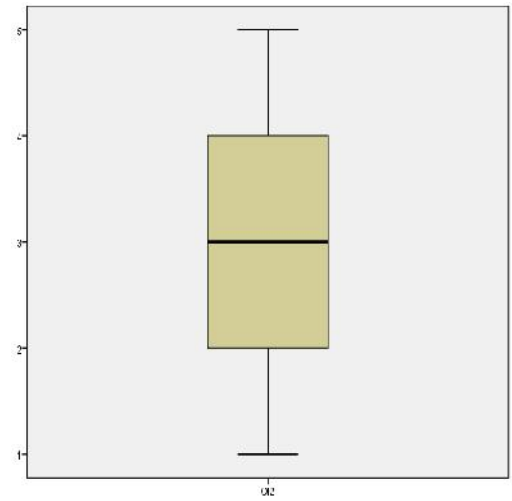
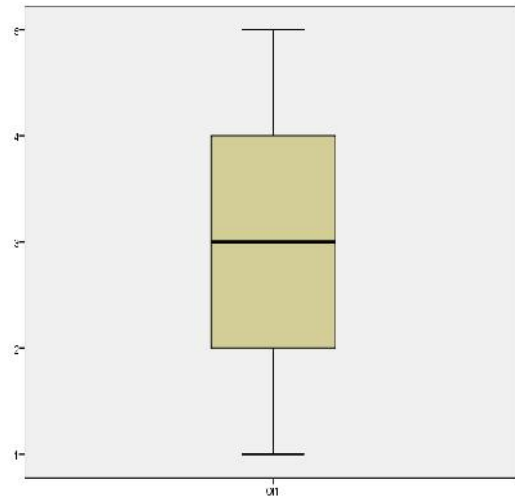
Q-Q Plots of System Connection

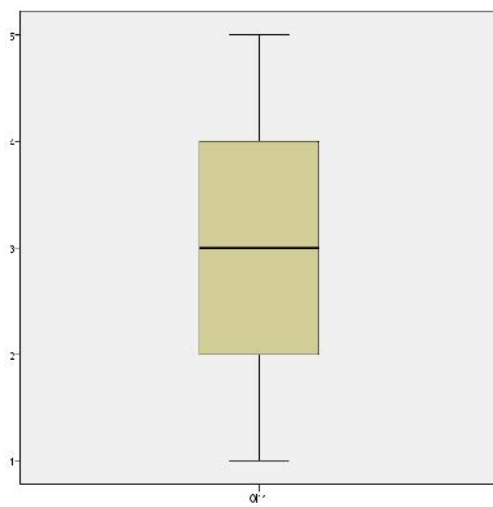
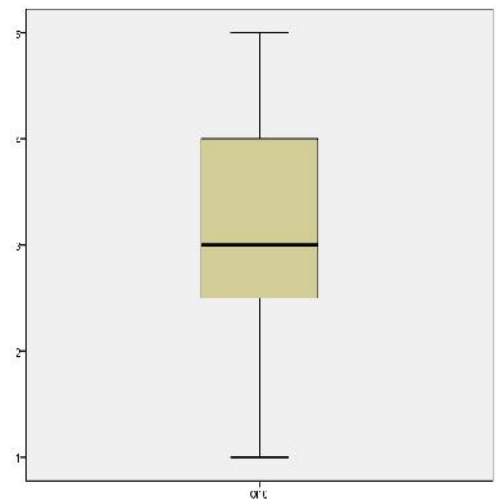
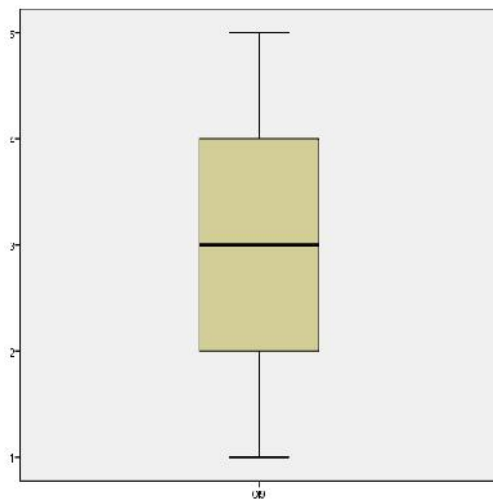
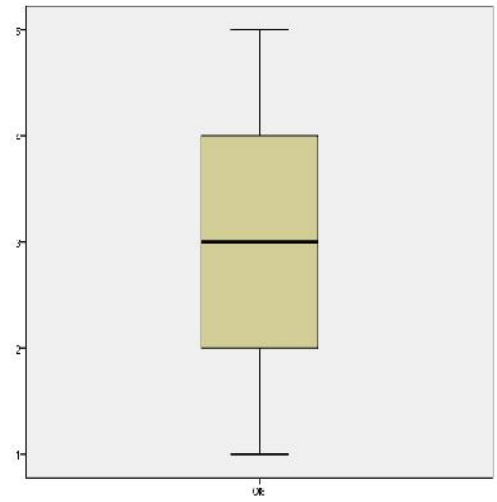
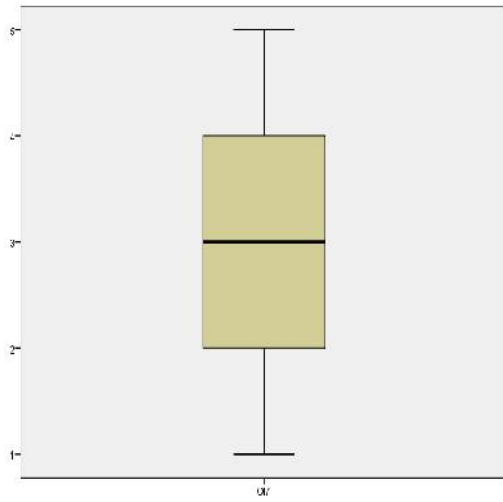


Q-Q Plots of Strategic Leadership

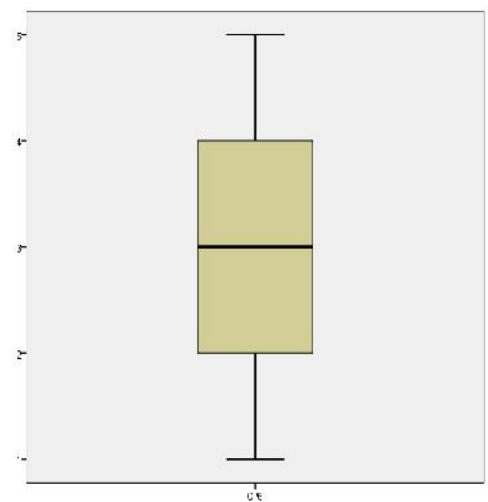
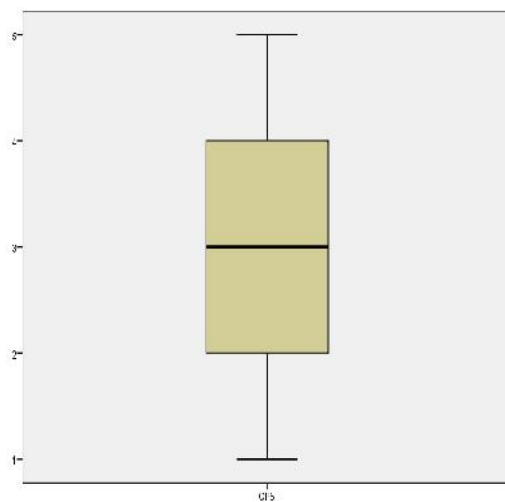
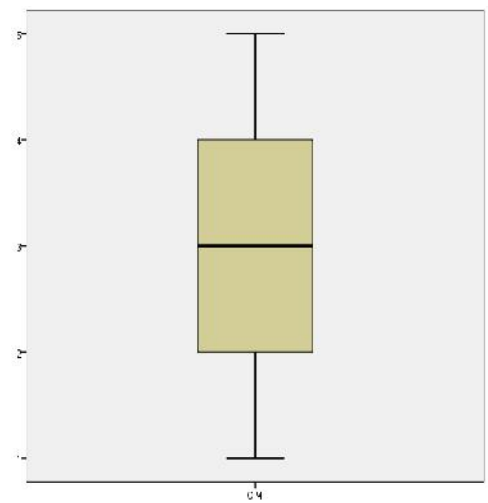
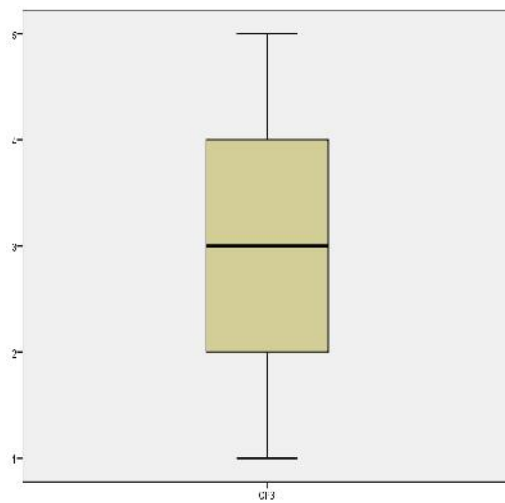
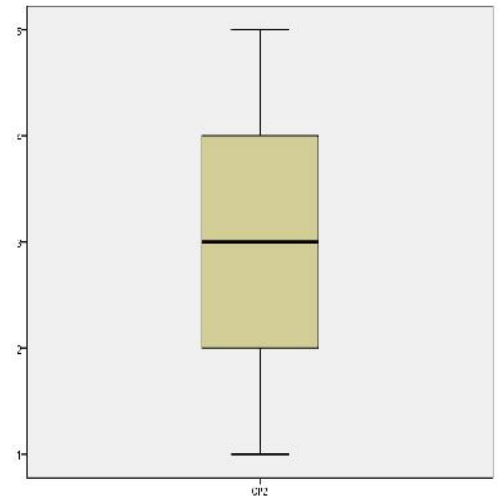
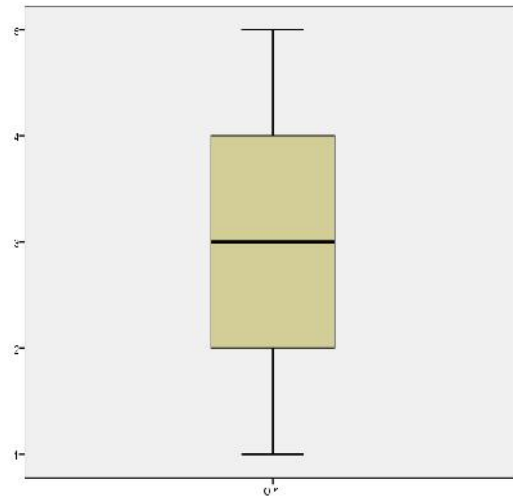


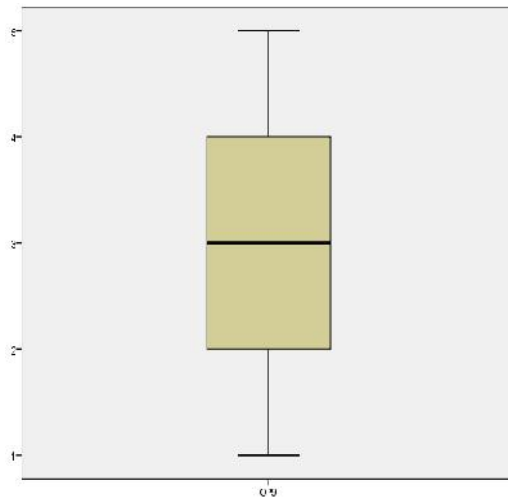
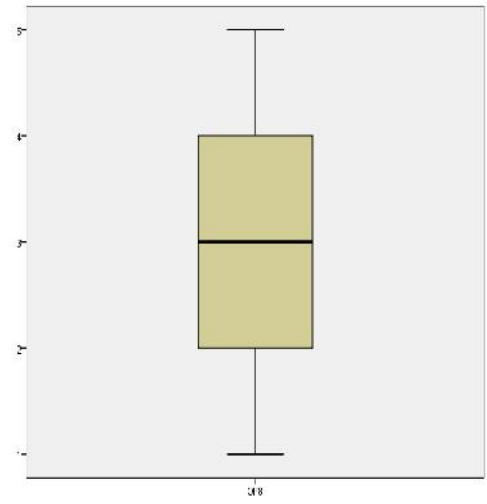
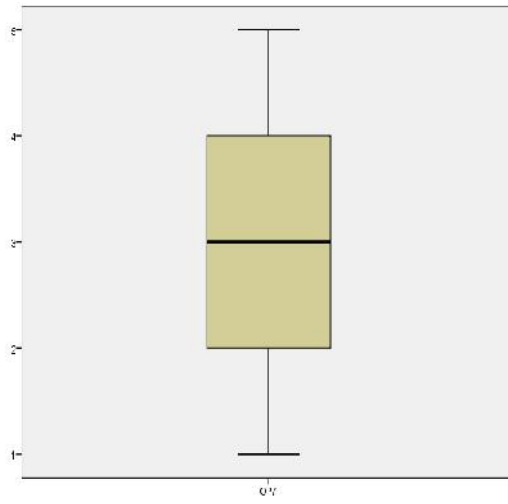
Q-Q Plots of Organizational Innovativeness





Q-Q Plots of Organizational Performance

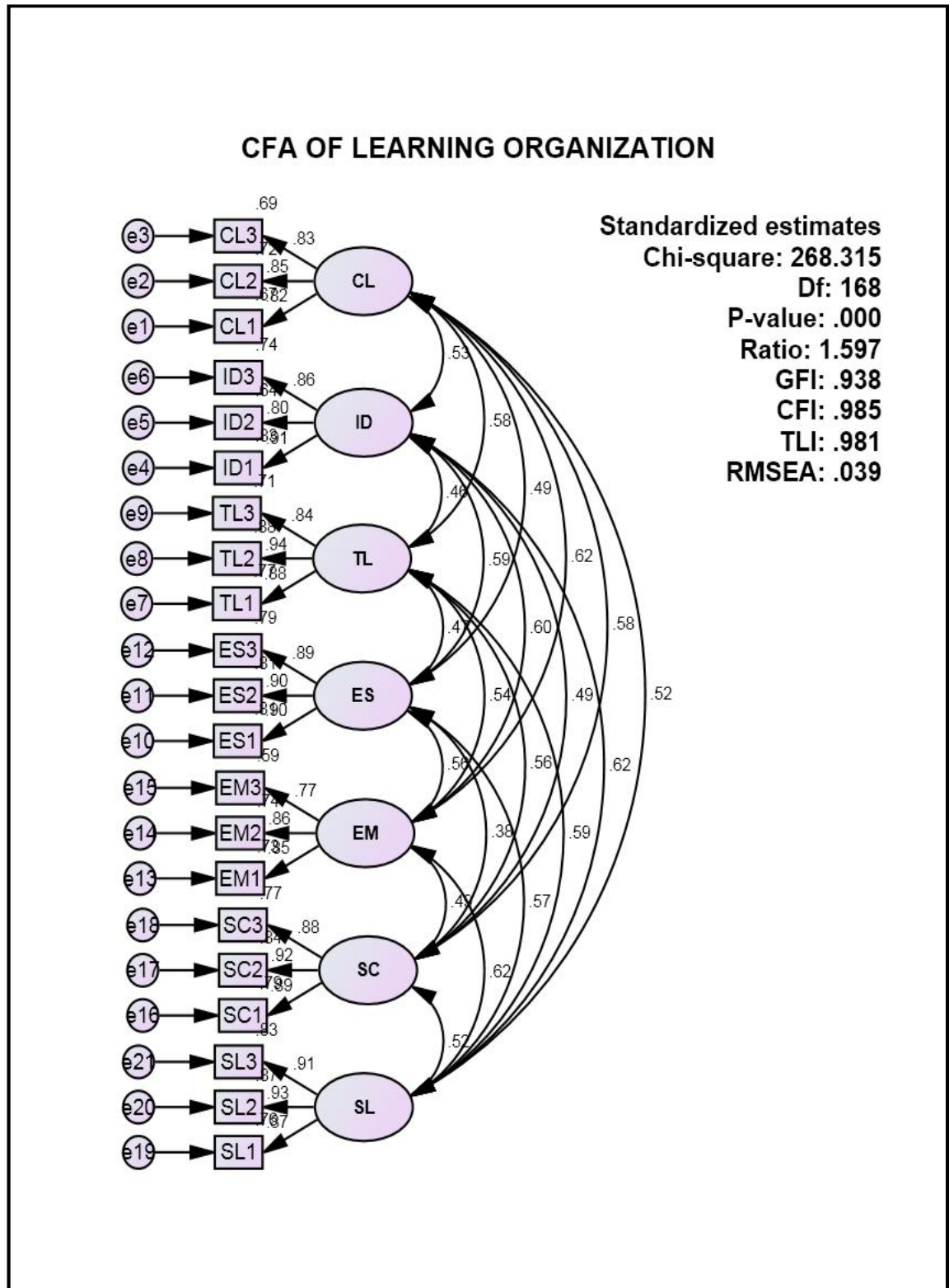




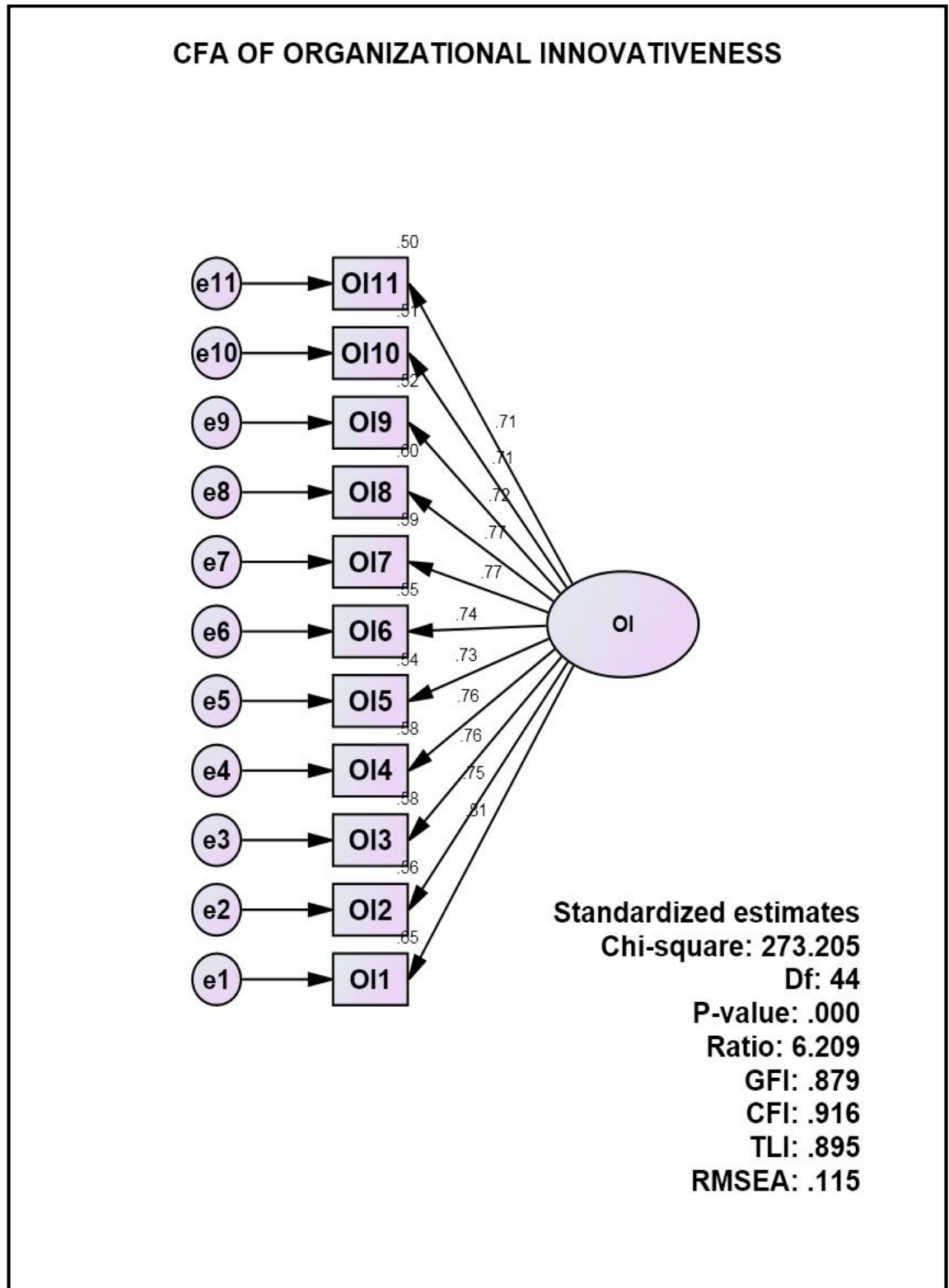
Appendix K

Measurement Model

Confirmatory Factor Analysis (CFA) of Learning Organization

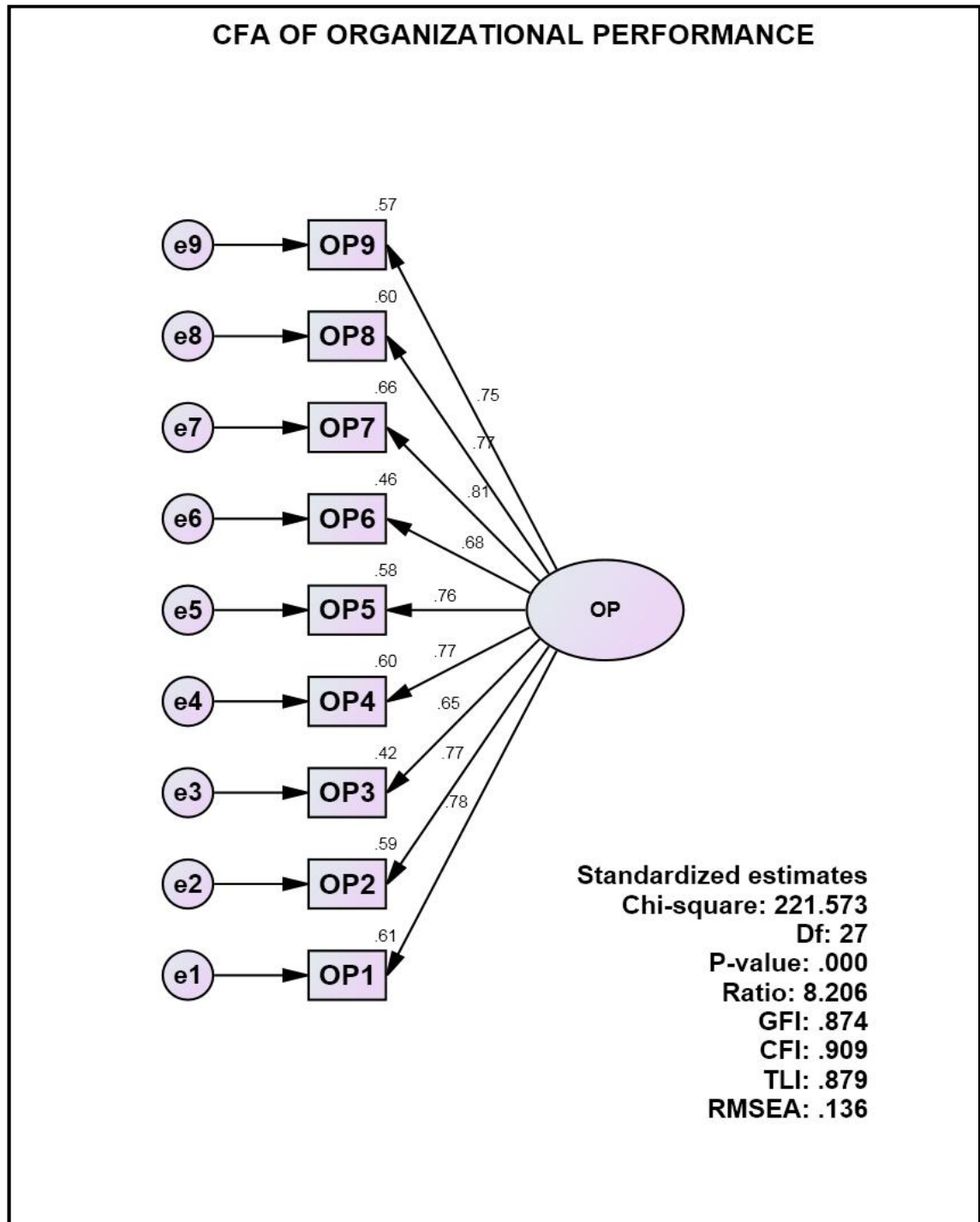


Confirmatory Factor Analysis (CFA) of Organizational Innovativeness



Note: OI=Organizational Innovativeness

Confirmatory Factor Analysis (CFA) of Organizational Performance

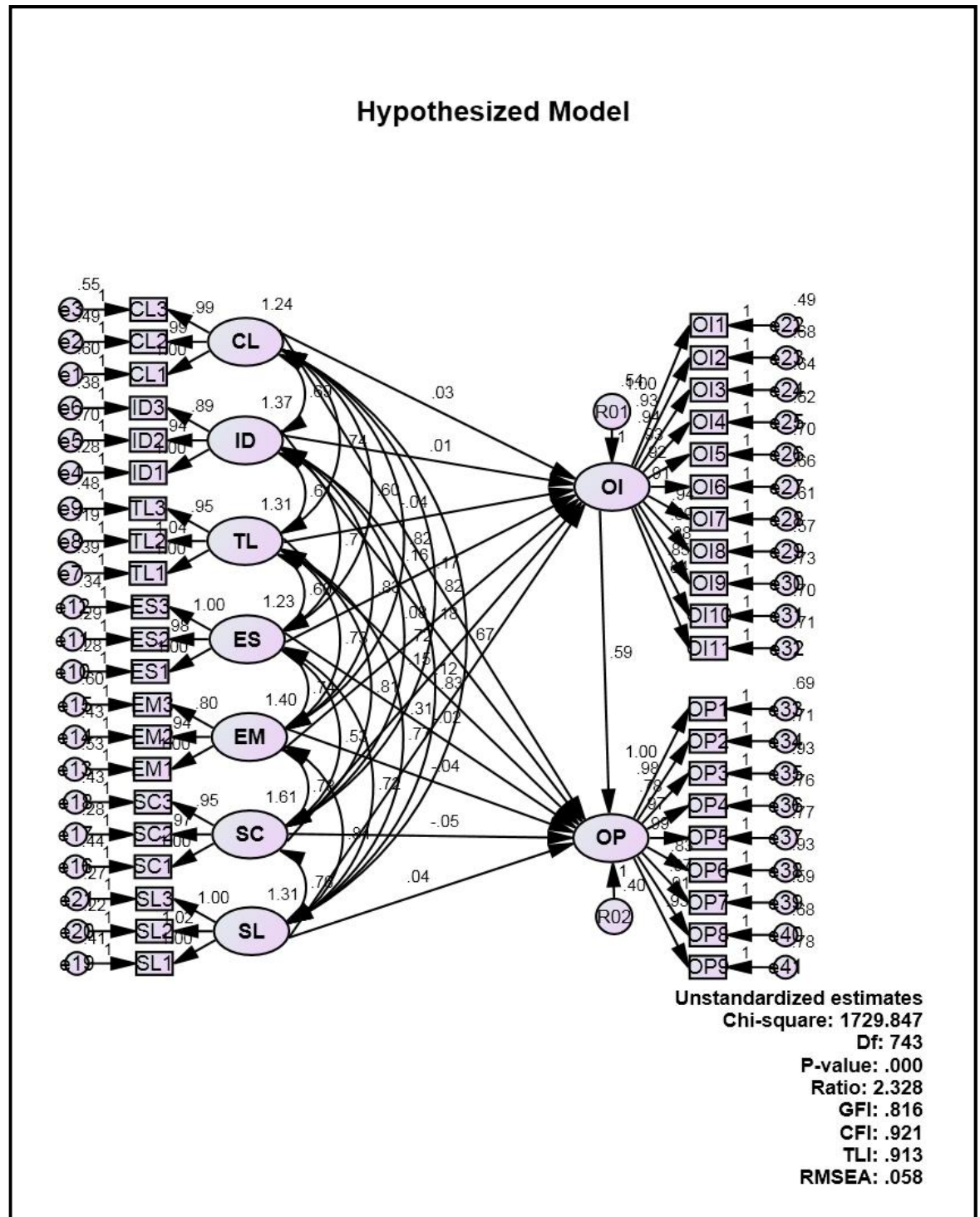


Note: OP=Organizational Performance

Appendix L

Structural Model

Hypothesized Model



Note. CL=Continuous Learning; ID=Inquiry and Dialogue; TL=Team Learning; ES=Embedded System; EM=Empowerment; SC=System Connection; SL=Strategic Leadership; OI=Organizational Innovativeness; OP=Organizational Performance.

Scalar Estimates (Group number 1 - Default model)

Maximum Likelihood Estimates

Regression Weights: (Group number 1 - Default model)

| | | | Estimate | S.E. | C.R. | P | Label |
|-----|------|----|----------|------|--------|------|--------|
| OI | <--- | CL | .032 | .061 | .518 | .604 | par_62 |
| OI | <--- | ID | .013 | .056 | .228 | .820 | par_63 |
| OI | <--- | TL | -.042 | .054 | -.783 | .433 | par_64 |
| OI | <--- | ES | .165 | .054 | 3.051 | .002 | par_65 |
| OI | <--- | EM | .083 | .060 | 1.388 | .165 | par_66 |
| OI | <--- | SC | .146 | .047 | 3.134 | .002 | par_67 |
| OI | <--- | SL | .305 | .060 | 5.121 | *** | par_68 |
| OP | <--- | CL | .168 | .057 | 2.958 | .003 | par_54 |
| OP | <--- | TL | .119 | .050 | 2.412 | .016 | par_55 |
| OP | <--- | ID | .178 | .052 | 3.435 | *** | par_56 |
| OP | <--- | ES | -.018 | .050 | -.352 | .725 | par_57 |
| OP | <--- | EM | -.045 | .055 | -.816 | .415 | par_58 |
| OP | <--- | SC | -.047 | .043 | -1.075 | .282 | par_59 |
| OP | <--- | SL | .043 | .056 | .772 | .440 | par_60 |
| OP | <--- | OI | .591 | .062 | 9.577 | *** | par_61 |
| CL1 | <--- | CL | 1.000 | | | | |
| CL2 | <--- | CL | .988 | .054 | 18.398 | *** | par_1 |
| CL3 | <--- | CL | .995 | .055 | 18.127 | *** | par_2 |
| ID1 | <--- | ID | 1.000 | | | | |
| ID2 | <--- | ID | .941 | .047 | 20.163 | *** | par_3 |
| ID3 | <--- | ID | .890 | .039 | 22.932 | *** | par_4 |
| TL1 | <--- | TL | 1.000 | | | | |
| TL2 | <--- | TL | 1.042 | .039 | 26.409 | *** | par_5 |
| TL3 | <--- | TL | .952 | .043 | 22.255 | *** | par_6 |
| ES1 | <--- | ES | 1.000 | | | | |
| ES2 | <--- | ES | .976 | .038 | 25.858 | *** | par_7 |
| ES3 | <--- | ES | .998 | .039 | 25.335 | *** | par_8 |
| EM1 | <--- | EM | 1.000 | | | | |
| EM2 | <--- | EM | .936 | .047 | 19.796 | *** | par_9 |
| EM3 | <--- | EM | .798 | .046 | 17.303 | *** | par_10 |
| SC1 | <--- | SC | 1.000 | | | | |
| SC2 | <--- | SC | .971 | .037 | 26.293 | *** | par_11 |
| SC3 | <--- | SC | .951 | .039 | 24.373 | *** | par_12 |
| SL1 | <--- | SL | 1.000 | | | | |
| SL2 | <--- | SL | 1.020 | .038 | 26.698 | *** | par_13 |
| SL3 | <--- | SL | 1.000 | .039 | 25.909 | *** | par_14 |
| OI1 | <--- | OI | 1.000 | | | | |

| | | | Estimate | S.E. | C.R. | P | Label |
|------|------|----|----------|------|--------|-----|--------|
| OI2 | <--- | OI | .928 | .055 | 16.758 | *** | par_15 |
| OI3 | <--- | OI | .937 | .054 | 17.192 | *** | par_16 |
| OI4 | <--- | OI | .928 | .054 | 17.200 | *** | par_17 |
| OI5 | <--- | OI | .925 | .056 | 16.585 | *** | par_18 |
| OI6 | <--- | OI | .914 | .054 | 16.780 | *** | par_19 |
| OI7 | <--- | OI | .945 | .054 | 17.511 | *** | par_20 |
| OI8 | <--- | OI | .890 | .052 | 17.250 | *** | par_21 |
| OI9 | <--- | OI | .881 | .055 | 15.873 | *** | par_22 |
| OI10 | <--- | OI | .847 | .054 | 15.710 | *** | par_23 |
| OI11 | <--- | OI | .838 | .054 | 15.545 | *** | par_24 |
| OP1 | <--- | OP | 1.000 | | | | |
| OP2 | <--- | OP | .976 | .058 | 16.879 | *** | par_25 |
| OP3 | <--- | OP | .780 | .057 | 13.638 | *** | par_26 |
| OP4 | <--- | OP | .970 | .059 | 16.556 | *** | par_27 |
| OP5 | <--- | OP | .988 | .059 | 16.648 | *** | par_28 |
| OP6 | <--- | OP | .832 | .058 | 14.249 | *** | par_29 |
| OP7 | <--- | OP | .968 | .055 | 17.553 | *** | par_30 |
| OP8 | <--- | OP | .906 | .055 | 16.427 | *** | par_31 |
| OP9 | <--- | OP | .930 | .058 | 16.052 | *** | par_32 |

Standardized Regression Weights: (Group number 1 - Default model)

| | | | Estimate |
|-----|------|----|----------|
| OI | <--- | CL | .035 |
| OI | <--- | ID | .015 |
| OI | <--- | TL | -.048 |
| OI | <--- | ES | .183 |
| OI | <--- | EM | .098 |
| OI | <--- | SC | .186 |
| OI | <--- | SL | .351 |
| OP | <--- | CL | .175 |
| OP | <--- | TL | .128 |
| OP | <--- | ID | .195 |
| OP | <--- | ES | -.018 |
| OP | <--- | EM | -.049 |
| OP | <--- | SC | -.055 |
| OP | <--- | SL | .046 |
| OP | <--- | OI | .551 |
| CL1 | <--- | CL | .821 |
| CL2 | <--- | CL | .843 |
| CL3 | <--- | CL | .832 |
| ID1 | <--- | ID | .912 |

| | Estimate |
|--------------|----------|
| ID2 <--- ID | .797 |
| ID3 <--- ID | .861 |
| TL1 <--- TL | .877 |
| TL2 <--- TL | .939 |
| TL3 <--- TL | .844 |
| ES1 <--- ES | .901 |
| ES2 <--- ES | .896 |
| ES3 <--- ES | .886 |
| EM1 <--- EM | .852 |
| EM2 <--- EM | .861 |
| EM3 <--- EM | .773 |
| SC1 <--- SC | .887 |
| SC2 <--- SC | .918 |
| SC3 <--- SC | .878 |
| SL1 <--- SL | .873 |
| SL2 <--- SL | .927 |
| SL3 <--- SL | .912 |
| OI1 <--- OI | .817 |
| OI2 <--- OI | .746 |
| OI3 <--- OI | .760 |
| OI4 <--- OI | .761 |
| OI5 <--- OI | .741 |
| OI6 <--- OI | .747 |
| OI7 <--- OI | .771 |
| OI8 <--- OI | .762 |
| OI9 <--- OI | .717 |
| OI10 <--- OI | .711 |
| OI11 <--- OI | .706 |
| OP1 <--- OP | .789 |
| OP2 <--- OP | .779 |
| OP3 <--- OP | .655 |
| OP4 <--- OP | .767 |
| OP5 <--- OP | .770 |
| OP6 <--- OP | .679 |
| OP7 <--- OP | .802 |
| OP8 <--- OP | .762 |
| OP9 <--- OP | .748 |

Covariances: (Group number 1 - Default model)

| | Estimate | S.E. | C.R. | P | Label |
|------------|----------|------|-------|-----|--------|
| CL <--> ID | .688 | .086 | 7.993 | *** | par_33 |
| CL <--> TL | .743 | .087 | 8.553 | *** | par_34 |
| CL <--> ES | .601 | .080 | 7.537 | *** | par_35 |
| CL <--> EM | .817 | .094 | 8.702 | *** | par_36 |
| CL <--> SC | .820 | .096 | 8.548 | *** | par_37 |
| CL <--> SL | .668 | .084 | 7.944 | *** | par_38 |
| ID <--> TL | .612 | .082 | 7.425 | *** | par_39 |
| ID <--> ES | .769 | .085 | 9.096 | *** | par_40 |
| ID <--> EM | .830 | .093 | 8.879 | *** | par_41 |
| ID <--> SC | .722 | .092 | 7.810 | *** | par_42 |
| ID <--> SL | .831 | .089 | 9.335 | *** | par_43 |
| TL <--> ES | .597 | .078 | 7.621 | *** | par_44 |
| TL <--> EM | .733 | .089 | 8.223 | *** | par_45 |
| TL <--> SC | .808 | .094 | 8.624 | *** | par_46 |
| TL <--> SL | .770 | .086 | 8.939 | *** | par_47 |
| ES <--> EM | .738 | .087 | 8.501 | *** | par_48 |
| ES <--> SC | .534 | .083 | 6.395 | *** | par_49 |
| ES <--> SL | .725 | .082 | 8.820 | *** | par_50 |
| EM <--> SC | .733 | .096 | 7.628 | *** | par_51 |
| EM <--> SL | .840 | .093 | 9.048 | *** | par_52 |
| SC <--> SL | .760 | .092 | 8.251 | *** | par_53 |

Correlations: (Group number 1 - Default model)

| | Estimate |
|------------|----------|
| CL <--> ID | .528 |
| CL <--> TL | .583 |
| CL <--> ES | .486 |
| CL <--> EM | .620 |
| CL <--> SC | .580 |
| CL <--> SL | .523 |
| ID <--> TL | .457 |
| ID <--> ES | .592 |
| ID <--> EM | .600 |
| ID <--> SC | .486 |
| ID <--> SL | .620 |
| TL <--> ES | .470 |
| TL <--> EM | .542 |
| TL <--> SC | .557 |
| TL <--> SL | .587 |
| ES <--> EM | .562 |

| | Estimate |
|------------|----------|
| ES <--> SC | .379 |
| ES <--> SL | .570 |
| EM <--> SC | .488 |
| EM <--> SL | .619 |
| SC <--> SL | .522 |

Variances: (Group number 1 - Default model)

| | Estimate | S.E. | C.R. | P | Label |
|-----|----------|------|--------|-----|---------|
| CL | 1.243 | .131 | 9.463 | *** | par_69 |
| ID | 1.368 | .121 | 11.308 | *** | par_70 |
| TL | 1.309 | .122 | 10.765 | *** | par_71 |
| ES | 1.232 | .109 | 11.263 | *** | par_72 |
| EM | 1.399 | .140 | 10.015 | *** | par_73 |
| SC | 1.611 | .147 | 10.986 | *** | par_74 |
| SL | 1.314 | .122 | 10.762 | *** | par_75 |
| R01 | .545 | .059 | 9.291 | *** | par_76 |
| R02 | .398 | .049 | 8.185 | *** | par_77 |
| e1 | .602 | .060 | 10.113 | *** | par_78 |
| e2 | .493 | .053 | 9.355 | *** | par_79 |
| e3 | .548 | .056 | 9.765 | *** | par_80 |
| e4 | .278 | .040 | 7.007 | *** | par_81 |
| e5 | .698 | .061 | 11.531 | *** | par_82 |
| e6 | .379 | .039 | 9.700 | *** | par_83 |
| e7 | .395 | .039 | 10.070 | *** | par_84 |
| e8 | .192 | .032 | 6.096 | *** | par_85 |
| e9 | .479 | .043 | 11.212 | *** | par_86 |
| e10 | .285 | .032 | 8.902 | *** | par_87 |
| e11 | .290 | .031 | 9.223 | *** | par_88 |
| e12 | .337 | .035 | 9.723 | *** | par_89 |
| e13 | .528 | .058 | 9.090 | *** | par_90 |
| e14 | .426 | .049 | 8.703 | *** | par_91 |
| e15 | .601 | .053 | 11.333 | *** | par_92 |
| e16 | .436 | .045 | 9.693 | *** | par_93 |
| e17 | .284 | .036 | 7.853 | *** | par_94 |
| e18 | .431 | .043 | 10.098 | *** | par_95 |
| e19 | .412 | .038 | 10.961 | *** | par_96 |
| e20 | .222 | .028 | 8.040 | *** | par_97 |
| e21 | .265 | .029 | 9.119 | *** | par_98 |
| e22 | .494 | .041 | 12.201 | *** | par_99 |
| e23 | .682 | .053 | 12.871 | *** | par_100 |
| e24 | .637 | .050 | 12.771 | *** | par_101 |

| | Estimate | S.E. | C.R. | P | Label |
|-----|----------|------|--------|-----|---------|
| e25 | .624 | .049 | 12.769 | *** | par_102 |
| e26 | .700 | .054 | 12.909 | *** | par_103 |
| e27 | .658 | .051 | 12.866 | *** | par_104 |
| e28 | .608 | .048 | 12.691 | *** | par_105 |
| e29 | .568 | .045 | 12.757 | *** | par_106 |
| e30 | .730 | .056 | 13.049 | *** | par_107 |
| e31 | .697 | .053 | 13.078 | *** | par_108 |
| e32 | .705 | .054 | 13.107 | *** | par_109 |
| e33 | .694 | .056 | 12.298 | *** | par_110 |
| e34 | .710 | .057 | 12.416 | *** | par_111 |
| e35 | .930 | .070 | 13.221 | *** | par_112 |
| e36 | .757 | .060 | 12.530 | *** | par_113 |
| e37 | .769 | .062 | 12.498 | *** | par_114 |
| e38 | .927 | .071 | 13.113 | *** | par_115 |
| e39 | .595 | .049 | 12.139 | *** | par_116 |
| e40 | .680 | .054 | 12.572 | *** | par_117 |
| e41 | .779 | .061 | 12.688 | *** | par_118 |

Squared Multiple Correlations: (Group number 1 - Default model)

| | Estimate |
|------|----------|
| OI | .453 |
| OP | .653 |
| OP9 | .560 |
| OP8 | .581 |
| OP7 | .644 |
| OP6 | .461 |
| OP5 | .593 |
| OP4 | .588 |
| OP3 | .429 |
| OP2 | .606 |
| OP1 | .623 |
| OI11 | .498 |
| OI10 | .506 |
| OI9 | .514 |
| OI8 | .581 |
| OI7 | .594 |
| OI6 | .558 |
| OI5 | .549 |
| OI4 | .579 |
| OI3 | .578 |
| OI2 | .557 |

| | Estimate |
|-----|----------|
| OI1 | .668 |
| SL3 | .832 |
| SL2 | .860 |
| SL1 | .761 |
| SC3 | .772 |
| SC2 | .843 |
| SC1 | .787 |
| EM3 | .597 |
| EM2 | .742 |
| EM1 | .726 |
| ES3 | .784 |
| ES2 | .802 |
| ES1 | .812 |
| TL3 | .712 |
| TL2 | .881 |
| TL1 | .768 |
| ID3 | .741 |
| ID2 | .634 |
| ID1 | .831 |
| CL3 | .692 |
| CL2 | .711 |
| CL1 | .674 |

Model Fit Summary

CMIN

| Model | NPAR | CMIN | DF | P | CMIN/DF |
|--------------------|------|-----------|-----|------|---------|
| Default model | 118 | 1729.847 | 743 | .000 | 2.328 |
| Saturated model | 861 | .000 | 0 | | |
| Independence model | 41 | 13303.710 | 820 | .000 | 16.224 |

RMR, GFI

| Model | RMR | GFI | AGFI | PGFI |
|--------------------|------|-------|------|------|
| Default model | .074 | .816 | .787 | .704 |
| Saturated model | .000 | 1.000 | | |
| Independence model | .667 | .127 | .083 | .121 |

Baseline Comparisons

| Model | NFI Delta1 | RFI rho1 | IFI Delta2 | TLI rho2 | CFI |
|--------------------|---------------|-------------|---------------|-------------|-------|
| Default model | .870 | .856 | .921 | .913 | .921 |
| Saturated model | 1.000 | | 1.000 | | 1.000 |
| Independence model | .000 | .000 | .000 | .000 | .000 |

Parsimony-Adjusted Measures

| Model | PRATIO | PNFI | PCFI |
|--------------------|--------|------|------|
| Default model | .906 | .788 | .834 |
| Saturated model | .000 | .000 | .000 |
| Independence model | 1.000 | .000 | .000 |

NCP

| Model | NCP | LO 90 | HI 90 |
|--------------------|-----------|-----------|-----------|
| Default model | 986.847 | 869.407 | 1111.969 |
| Saturated model | .000 | .000 | .000 |
| Independence model | 12483.710 | 12113.377 | 12860.458 |

FMIN

| Model | FMIN | F0 | LO 90 | HI 90 |
|--------------------|--------|--------|--------|--------|
| Default model | 4.424 | 2.524 | 2.224 | 2.844 |
| Saturated model | .000 | .000 | .000 | .000 |
| Independence model | 34.025 | 31.928 | 30.981 | 32.891 |

RMSEA

| Model | RMSEA | LO 90 | HI 90 | PCLOSE |
|--------------------|-------|-------|-------|--------|
| Default model | .058 | .055 | .062 | .000 |
| Independence model | .197 | .194 | .200 | .000 |

AIC

| Model | AIC | BCC | BIC | CAIC |
|--------------------|-----------|-----------|-----------|-----------|
| Default model | 1965.847 | 1994.249 | 2434.456 | 2552.456 |
| Saturated model | 1722.000 | 1929.232 | 5141.256 | 6002.256 |
| Independence model | 13385.710 | 13395.579 | 13548.532 | 13589.532 |

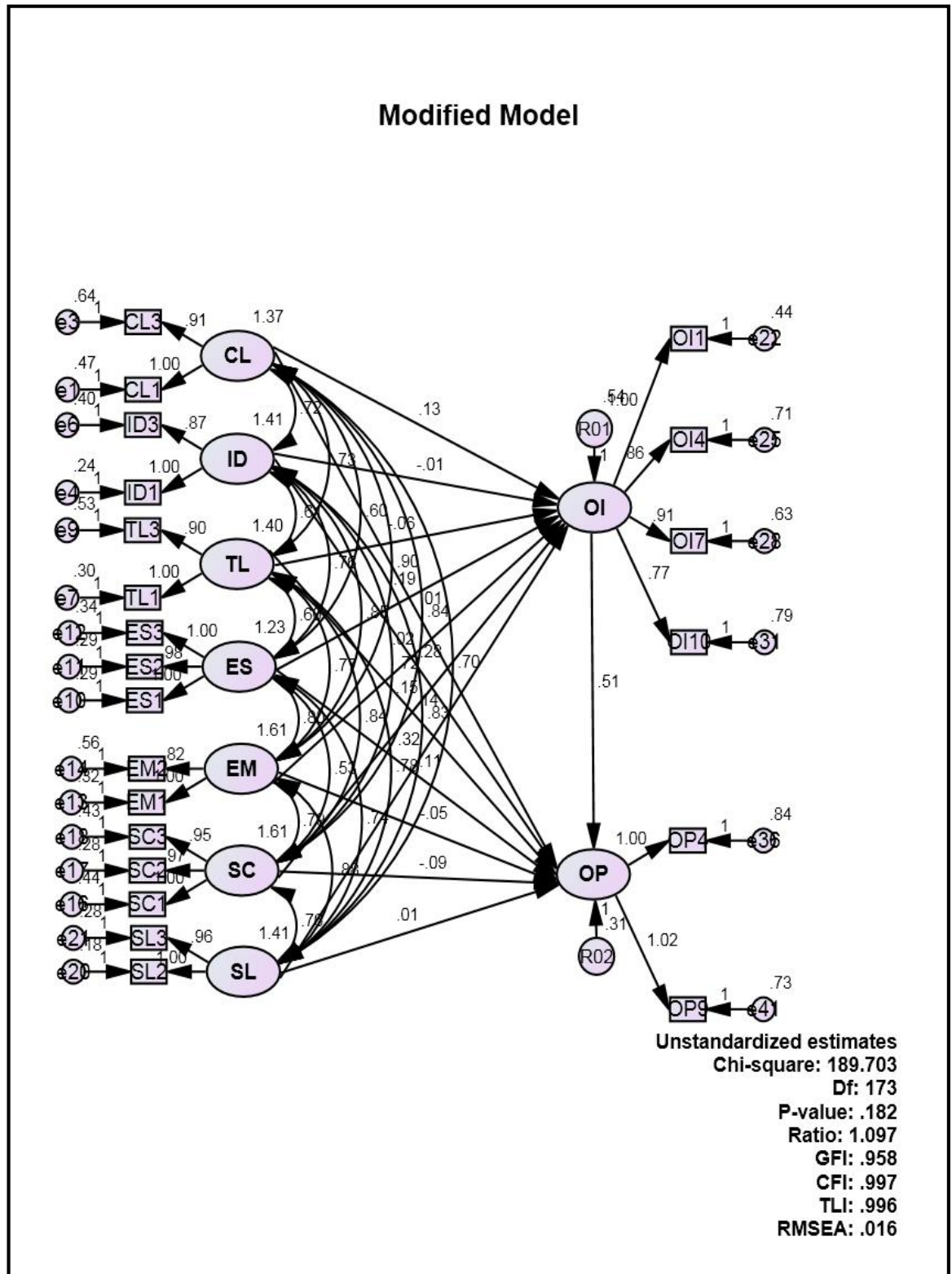
ECVI

| Model | ECVI | LO 90 | HI 90 | MECVI |
|--------------------|--------|--------|--------|--------|
| Default model | 5.028 | 4.727 | 5.348 | 5.100 |
| Saturated model | 4.404 | 4.404 | 4.404 | 4.934 |
| Independence model | 34.235 | 33.287 | 35.198 | 34.260 |

HOELTER

| Model | HOELTER .05 | HOELTER .01 |
|--------------------|----------------|----------------|
| Default model | 183 | 189 |
| Independence model | 27 | 27 |

Modified Model



Note. CL=Continuous Learning; ID=Inquiry and Dialogue; TL=Team Learning; ES=Embedded System; EM=Empowerment; SC=System Connection; SL=Strategic Leadership; OI=Organizational Innovativeness; OP=Organizational Performance.

Scalar Estimates (Group number 1 - Default model)

Maximum Likelihood Estimates

Regression Weights: (Group number 1 - Default model)

| | | | Estimate | S.E. | C.R. | P | Label |
|------|------|----|----------|------|--------|------|--------|
| OI | <--- | CL | .128 | .064 | 1.997 | .046 | par_35 |
| OI | <--- | ID | -.010 | .059 | -.177 | .859 | par_36 |
| OI | <--- | TL | -.061 | .058 | -1.061 | .289 | par_37 |
| OI | <--- | ES | .185 | .059 | 3.122 | .002 | par_38 |
| OI | <--- | EM | .024 | .059 | .409 | .683 | par_39 |
| OI | <--- | SC | .155 | .051 | 3.011 | .003 | par_40 |
| OI | <--- | SL | .318 | .061 | 5.253 | *** | par_41 |
| OP | <--- | CL | .007 | .065 | .104 | .918 | par_42 |
| OP | <--- | ID | .284 | .061 | 4.615 | *** | par_43 |
| OP | <--- | TL | .142 | .059 | 2.421 | .015 | par_44 |
| OP | <--- | ES | .112 | .061 | 1.827 | .068 | par_45 |
| OP | <--- | EM | -.053 | .059 | -.892 | .372 | par_46 |
| OP | <--- | SC | -.090 | .053 | -1.703 | .089 | par_47 |
| OP | <--- | SL | .010 | .064 | .155 | .877 | par_48 |
| OP | <--- | OI | .509 | .077 | 6.641 | *** | par_49 |
| CL1 | <--- | CL | 1.000 | | | | |
| CL3 | <--- | CL | .911 | .063 | 14.465 | *** | par_1 |
| ID1 | <--- | ID | 1.000 | | | | |
| ID3 | <--- | ID | .870 | .045 | 19.279 | *** | par_2 |
| TL1 | <--- | TL | 1.000 | | | | |
| TL3 | <--- | TL | .900 | .056 | 15.999 | *** | par_3 |
| ES1 | <--- | ES | 1.000 | | | | |
| ES2 | <--- | ES | .977 | .038 | 25.852 | *** | par_4 |
| ES3 | <--- | ES | 1.000 | .039 | 25.344 | *** | par_5 |
| EM1 | <--- | EM | 1.000 | | | | |
| EM2 | <--- | EM | .822 | .049 | 16.716 | *** | par_6 |
| SC1 | <--- | SC | 1.000 | | | | |
| SC2 | <--- | SC | .973 | .037 | 26.250 | *** | par_7 |
| SC3 | <--- | SC | .953 | .039 | 24.322 | *** | par_8 |
| SL2 | <--- | SL | 1.000 | | | | |
| SL3 | <--- | SL | .960 | .038 | 25.116 | *** | par_9 |
| OI1 | <--- | OI | 1.000 | | | | |
| OI4 | <--- | OI | .859 | .057 | 15.155 | *** | par_10 |
| OI7 | <--- | OI | .906 | .056 | 16.081 | *** | par_11 |
| OI10 | <--- | OI | .767 | .056 | 13.594 | *** | par_12 |
| OP4 | <--- | OP | 1.000 | | | | |
| OP9 | <--- | OP | 1.023 | .080 | 12.753 | *** | par_13 |

Standardized Regression Weights: (Group number 1 - Default model)

| | Estimate |
|--------------|----------|
| OI <--- CL | .147 |
| OI <--- ID | -.012 |
| OI <--- TL | -.071 |
| OI <--- ES | .200 |
| OI <--- EM | .030 |
| OI <--- SC | .192 |
| OI <--- SL | .368 |
| OP <--- CL | .008 |
| OP <--- ID | .337 |
| OP <--- TL | .169 |
| OP <--- ES | .124 |
| OP <--- EM | -.067 |
| OP <--- SC | -.114 |
| OP <--- SL | .012 |
| OP <--- OI | .523 |
| CL1 <--- CL | .862 |
| CL3 <--- CL | .800 |
| ID1 <--- ID | .925 |
| ID3 <--- ID | .853 |
| TL1 <--- TL | .907 |
| TL3 <--- TL | .825 |
| ES1 <--- ES | .900 |
| ES2 <--- ES | .896 |
| ES3 <--- ES | .886 |
| EM1 <--- EM | .914 |
| EM2 <--- EM | .812 |
| SC1 <--- SC | .886 |
| SC2 <--- SC | .919 |
| SC3 <--- SC | .879 |
| SL2 <--- SL | .942 |
| SL3 <--- SL | .907 |
| OI1 <--- OI | .840 |
| OI4 <--- OI | .723 |
| OI7 <--- OI | .759 |
| OI10 <--- OI | .662 |
| OP4 <--- OP | .737 |
| OP9 <--- OP | .768 |

Covariances: (Group number 1 - Default model)

| | Estimate | S.E. | C.R. | P | Label |
|------------|----------|------|-------|-----|--------|
| CL <--> ID | .719 | .092 | 7.796 | *** | par_14 |
| CL <--> TL | .731 | .094 | 7.798 | *** | par_15 |
| CL <--> ES | .603 | .084 | 7.193 | *** | par_16 |
| CL <--> EM | .897 | .103 | 8.684 | *** | par_17 |
| CL <--> SC | .838 | .100 | 8.343 | *** | par_18 |
| CL <--> SL | .699 | .090 | 7.727 | *** | par_19 |
| ID <--> TL | .606 | .087 | 6.937 | *** | par_20 |
| ID <--> ES | .764 | .085 | 8.958 | *** | par_21 |
| ID <--> EM | .850 | .098 | 8.661 | *** | par_22 |
| ID <--> SC | .717 | .093 | 7.675 | *** | par_23 |
| ID <--> SL | .831 | .091 | 9.166 | *** | par_24 |
| TL <--> ES | .595 | .082 | 7.278 | *** | par_25 |
| TL <--> EM | .770 | .097 | 7.913 | *** | par_26 |
| TL <--> SC | .838 | .098 | 8.543 | *** | par_27 |
| TL <--> SL | .781 | .091 | 8.629 | *** | par_28 |
| ES <--> EM | .795 | .091 | 8.703 | *** | par_29 |
| ES <--> SC | .532 | .083 | 6.390 | *** | par_30 |
| ES <--> SL | .741 | .083 | 8.880 | *** | par_31 |
| EM <--> SC | .789 | .101 | 7.779 | *** | par_32 |
| EM <--> SL | .881 | .098 | 9.023 | *** | par_33 |
| SC <--> SL | .762 | .093 | 8.164 | *** | par_34 |

Correlations: (Group number 1 - Default model)

| | Estimate |
|------------|----------|
| CL <--> ID | .518 |
| CL <--> TL | .528 |
| CL <--> ES | .464 |
| CL <--> EM | .604 |
| CL <--> SC | .564 |
| CL <--> SL | .503 |
| ID <--> TL | .432 |
| ID <--> ES | .581 |
| ID <--> EM | .565 |
| ID <--> SC | .477 |
| ID <--> SL | .590 |
| TL <--> ES | .454 |
| TL <--> EM | .513 |
| TL <--> SC | .559 |
| TL <--> SL | .556 |
| ES <--> EM | .566 |

| | Estimate |
|------------|----------|
| ES <--> SC | .379 |
| ES <--> SL | .563 |
| EM <--> SC | .491 |
| EM <--> SL | .585 |
| SC <--> SL | .507 |

Variances: (Group number 1 - Default model)

| | Estimate | S.E. | C.R. | P | Label |
|-----|----------|------|--------|-----|--------|
| CL | 1.372 | .148 | 9.285 | *** | par_50 |
| ID | 1.407 | .128 | 10.967 | *** | par_51 |
| TL | 1.400 | .138 | 10.130 | *** | par_52 |
| ES | 1.229 | .109 | 11.247 | *** | par_53 |
| EM | 1.608 | .154 | 10.452 | *** | par_54 |
| SC | 1.606 | .147 | 10.958 | *** | par_55 |
| SL | 1.409 | .120 | 11.783 | *** | par_56 |
| R01 | .540 | .064 | 8.474 | *** | par_57 |
| R02 | .307 | .065 | 4.706 | *** | par_58 |
| e1 | .473 | .082 | 5.775 | *** | par_59 |
| e3 | .639 | .077 | 8.301 | *** | par_60 |
| e4 | .239 | .056 | 4.235 | *** | par_61 |
| e6 | .398 | .050 | 8.021 | *** | par_62 |
| e7 | .304 | .072 | 4.212 | *** | par_63 |
| e9 | .532 | .067 | 7.895 | *** | par_64 |
| e10 | .287 | .032 | 8.973 | *** | par_65 |
| e11 | .289 | .031 | 9.221 | *** | par_66 |
| e12 | .335 | .035 | 9.708 | *** | par_67 |
| e13 | .319 | .076 | 4.214 | *** | par_68 |
| e14 | .563 | .063 | 8.903 | *** | par_69 |
| e16 | .441 | .045 | 9.755 | *** | par_70 |
| e17 | .280 | .036 | 7.779 | *** | par_71 |
| e18 | .430 | .043 | 10.082 | *** | par_72 |
| e20 | .180 | .041 | 4.356 | *** | par_73 |
| e21 | .279 | .041 | 6.745 | *** | par_74 |
| e22 | .440 | .049 | 8.940 | *** | par_75 |
| e25 | .707 | .061 | 11.684 | *** | par_76 |
| e28 | .634 | .057 | 11.108 | *** | par_77 |
| e31 | .793 | .064 | 12.364 | *** | par_78 |
| e36 | .839 | .085 | 9.818 | *** | par_79 |
| e41 | .727 | .082 | 8.847 | *** | par_80 |

Squared Multiple Correlations: (Group number 1 - Default model)

| | Estimate |
|------|----------|
| OI | .486 |
| OP | .692 |
| OP9 | .590 |
| OP4 | .543 |
| OI10 | .438 |
| OI7 | .576 |
| OI4 | .523 |
| OI1 | .705 |
| SL3 | .823 |
| SL2 | .887 |
| SC3 | .772 |
| SC2 | .844 |
| SC1 | .785 |
| EM2 | .659 |
| EM1 | .835 |
| ES3 | .786 |
| ES2 | .803 |
| ES1 | .811 |
| TL3 | .680 |
| TL1 | .822 |
| ID3 | .728 |
| ID1 | .855 |
| CL3 | .641 |
| CL1 | .744 |

Model Fit Summary

CMIN

| Model | NPAR | CMIN | DF | P | CMIN/DF |
|--------------------|------|----------|-----|------|---------|
| Default model | 80 | 189.703 | 173 | .182 | 1.097 |
| Saturated model | 253 | .000 | 0 | | |
| Independence model | 22 | 5926.748 | 231 | .000 | 25.657 |

RMR, GFI

| Model | RMR | GFI | AGFI | PGFI |
|--------------------|------|-------|------|------|
| Default model | .039 | .958 | .939 | .655 |
| Saturated model | .000 | 1.000 | | |
| Independence model | .662 | .216 | .141 | .197 |

Baseline Comparisons

| Model | NFI Delta1 | RFI rho1 | IFI Delta2 | TLI rho2 | CFI |
|--------------------|---------------|-------------|---------------|-------------|-------|
| Default model | .968 | .957 | .997 | .996 | .997 |
| Saturated model | 1.000 | | 1.000 | | 1.000 |
| Independence model | .000 | .000 | .000 | .000 | .000 |

Parsimony-Adjusted Measures

| Model | PRATIO | PNFI | PCFI |
|--------------------|--------|------|------|
| Default model | .749 | .725 | .747 |
| Saturated model | .000 | .000 | .000 |
| Independence model | 1.000 | .000 | .000 |

NCP

| Model | NCP | LO 90 | HI 90 |
|--------------------|----------|----------|----------|
| Default model | 16.703 | .000 | 54.341 |
| Saturated model | .000 | .000 | .000 |
| Independence model | 5695.748 | 5448.161 | 5949.697 |

FMIN

| Model | FMIN | F0 | LO 90 | HI 90 |
|--------------------|--------|--------|--------|--------|
| Default model | .485 | .043 | .000 | .139 |
| Saturated model | .000 | .000 | .000 | .000 |
| Independence model | 15.158 | 14.567 | 13.934 | 15.217 |

RMSEA

| Model | RMSEA | LO 90 | HI 90 | PCLOSE |
|--------------------|-------|-------|-------|--------|
| Default model | .016 | .000 | .028 | 1.000 |
| Independence model | .251 | .246 | .257 | .000 |

AIC

| Model | AIC | BCC | BIC | CAIC |
|--------------------|----------|----------|----------|----------|
| Default model | 349.703 | 359.703 | 667.404 | 747.404 |
| Saturated model | 506.000 | 537.625 | 1510.729 | 1763.729 |
| Independence model | 5970.748 | 5973.498 | 6058.116 | 6080.116 |

ECVI

| Model | ECVI | LO 90 | HI 90 | MECVI |
|--------------------|--------|--------|--------|--------|
| Default model | .894 | .852 | .991 | .920 |
| Saturated model | 1.294 | 1.294 | 1.294 | 1.375 |
| Independence model | 15.270 | 14.637 | 15.920 | 15.277 |

HOELTER

| Model | HOELTER .05 | HOELTER .01 |
|--------------------|----------------|----------------|
| Default model | 422 | 452 |
| Independence model | 18 | 19 |