

The Effects of Learning Organization Practices on Organizational Commitment
and Effectiveness for Small and Medium-Sized Enterprises in Taiwan

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DEDICATION

This dissertation is dedicated to
my parents, Ming-Kuei Tseng and Yueh-Chiao Yang.

ABSTRACT

This study explored the effects of learning organization practices on organizational commitment and effectiveness in Taiwanese small and medium-sized enterprises (SMEs). The research question is, "What are the effects of learning organization practices on organizational commitment and organizational effectiveness for SMEs in Taiwan?" A framework for three hypotheses were explored: 1) Learning organization practices have a positive effect on perceived organizational commitment; 2) Learning organization practices have a positive effect on perceived organizational effectiveness; and 3) Organizational commitment has a positive relationship with organizational effectiveness.

The study used a quantitative research design. Three measurements were used to form an integrated 58 item instrument. It includes: 1) The Dimensions of Learning Organization Questionnaire (Marsick & Watkins, 1999, 2003), 21 items; 2) Organizational Commitment Questionnaire (Mowday, Steers, & Porter, 1979), 9 items; and 3) Survey of Organizations (Taylor & Bower, 1972), 20 items. In addition, demographic information, 8 items, comprised a fourth section in the questionnaire. The instrument was back-translated from English to Chinese. The validity of the three components of the instrument was examined by factor analysis, and the relationships were tested by correlation and structural equation modeling (SEM). In addition, descriptive analysis was used for the demographic information, items, dimensions, and instrument's characteristics. The research used a self-administered computer-based Internet survey to collect the research data. The data were collected from a sample of 300 SMEs including 152 outstanding awarded SMEs (AOSMEs) and 148 incubating start-up

SMEs (ISSMEs) in Taiwan. IRB approval was sought. Permission from the publishers to use the instrument was obtained.

The results suggested that learning organization practices can be viewed as an important antecedent factor for organizational commitment, as well as an antecedent factor for organizational effectiveness. It has a moderately positive association with organizational effectiveness and a strongly positive relation with organizational commitment. Furthermore, the relationship between organizational commitment and organizational effectiveness is reciprocal but not equal. Organizational commitment has a moderately positive impact on organizational effectiveness; however, organizational effectiveness has a weak positive influence on organizational commitment. The findings not only provided a new direction for organizational research on key variables, but also generated an important implication for organizational practice: Strengthening learning organization practices is a wise way to create organizational effectiveness; strong learning organization practices are good to develop the organizational commitment; and the well developed organizational commitment is an advantage to foster organizational effectiveness.

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CHAPTER 1

INTRODUCTION

Learning and implementing what is learned are key prerequisites for most successful organizations. However, the learning and implementation must be integrated with organizational commitment and organizational effectiveness that contribute to business success (Marsick & Watkins, 1999). A learning organization is an organization skilled at modifying its behavior to reflect new knowledge, insights (Garvin, 1993), commitment (Bhatnagar, 2007), and effectiveness (Woodall, 2005). Therefore, the effectiveness of organizations and employee commitment necessarily must involve the concept of the learning organization.

Argyris and Schön (1974) first discussed the idea of learning in organizations. Their innovative thinking around notions such as the learning society, double-loop learning, and reflection-in-action has become part of the language of business education (Argyris, 1982, 1999; Argyris & Schön, 1974, 1978, 1996). Argyris (1999) summed up learning within an organization as stemming from two conditions. First, learning is said to take place when a planned action was accomplished, and, second, if the plan was not accomplished, the reasons why are found and corrected. A learning organization has been defined as a place where employees excel at creating, acquiring, and transferring new knowledge (Garvin, Edmondson, & Gino, 2008). As cognitive entities, organizations are capable of observing their own actions, experimenting to discover the effects of alternative actions, and modifying their actions to fulfill organizational goals (Fiol & Lyles, 1985).

Kim (1998) pointed out that the success of learning in an organization depends on the enterprise's absorptive capacity, which itself is determined by the enterprise's prior related knowledge. Organizations often expect that learning and knowledge creation will take place continuously for individuals and that they will share what they know in ways that promote learning in groups throughout the organization (Marsick & Watkins, 2003). Marsick & Watkins (2003) concluded that learning organizations are particularly significant in today's workplace where employees may frequently change jobs or hoard what they know because they believe that sharing knowledge could be detrimental to their own success.

Small and medium-sized enterprises (SMEs) dominate many economies in terms of employment and the number of companies, yet their full potential remains remarkably untapped (Schlögl, 2004). In addition, SMEs are increasingly being asked to undertake many challenges with fewer resources. Learning organization practices may help SMEs to understand and improve organizational commitment and organizational effectiveness.

Many SMEs recognize the significance of being a learning organization and realize that the learning results in changes in organizational values and promotes a fundamental transformation of the organization so it becomes more successful and productive (Argyris & Schön, 1996). Success for SMEs would take into account learning organization practices. Thus, understanding the effects of learning organization practices on SMEs' employees' commitment and organizational effectiveness will have significant implications for enterprise stockholders, managers, employees, customers, and the community in which SMEs operates (Wolff & Pett, 2006).

Problem Statement

Considering that SMEs account for over 95% of enterprises and 60-70% of employment in OECD countries, they are now very much in the limelight of entrepreneurship, research and development, innovation, and job creation (OECD, 2003). SMEs exert a strong influence on the economies of all countries, particularly in the fast-changing and increasingly competitive global market (Drilhon & Estime, 1993).

In Taiwan, according to the Small and Medium Enterprise Administration (2007), more than 1,244,000 enterprises (97.8% of total enterprises) are SMEs. Some features of SMEs, such as creativity and problem-solving action orientation, are considered to be vital for success in Taiwan (Lin, 1998). In order to maintain Taiwan's competitiveness and sustain enterprise performance, the Ministry of Economic Affairs has initiated the National Award for Outstanding SMEs, the Rising Star Award, and Taiwan SME's Innovation Award to recognize publicly the outstanding 289 dynamic SMEs and include them in a publication, *Introduction to 300 of Taiwan's Dynamic SMEs* (Small & Medium Enterprise Administration, 2006a).

Furthermore, in order to develop SMEs, create new jobs, and integrate existing resources to supply what enterprises need in the beginning (Wu, 1999), the Government has assisted in the establishment of about 82 incubator centers all over Taiwan since 1996 (China Productivity Center, 2006). An incubator center is defined as an organization development tool designed to accelerate the growth and success of entrepreneurial companies through an array of business support resources, services, and learning opportunities (National Business Incubation Association, 2003). Thus, apparently 1,229 SMEs are using incubating start-up processes to take the initiative in learning

organization practices in Taiwanese incubator centers (Small & Medium Enterprise Administration, 2006b).

However, little research on learning organization practices related to SMEs has been identified in Taiwan. In addition, there has been little research identified on the influence of learning organization practices on organizational commitment and effectiveness in a Taiwanese SME context.

Unlike large enterprises, SMEs do not typically provide their management and financial information to the public. It would be very difficult to get adequate information, such as return on investment, stock prices, annual revenues (Kaplan & Norton, 1992; Slater & Narver, 1995), and market value added (Hillman & Keim, 2001) to measure SME organizational commitment and effectiveness. Therefore, in this study, performance will be measured by organizational commitment and organizational effectiveness.

Purpose of Study

The purpose of this study was to develop a model in which the combined effects of learning organization practices on (a) organizational commitment and (b) organizational effectiveness, as well as the effects of these measures on each other, will be tested using survey data of awarded outstanding SMEs and incubating start-up SMEs in Taiwan, controlling for the industry of the SMEs. Awarded outstanding SMEs are the SMEs that have received one of the previously cited awards, and the incubating start-up SMEs are SMEs that were incubated more than one year ago from one of the incubator centers in Taiwan.

According to Garvin (2008) and Marsick and Watkins (2003), a learning organization is the dynamic place of creation, acquisition, and integration of knowledge

that contributes to better organizational success. This study expects learning organization practices to lead to better organizational commitment and effectiveness in the context of Taiwanese small and medium-sized businesses.

Based on Watkins and Marsick (1996, 1997), the seven dimensions of the learning organization questionnaire (DLOQ) (Marsick & Watkins, 2003; Yang, Watkins, & Marsick, 2004) was used as the instrument for learning organization practices for the SMEs: (1) create continuous learning opportunities, (2) promote inquiry and dialogue, (3) encourage collaboration and team learning, (4) create systems to capture and share learning, (5) empower people toward a collective vision, (6) connect the enterprise to the environment, and (7) provide strategic leadership for learning.

Developed by Mowday, Steers, and Porter (1979), the Organizational Commitment Questionnaire (OCQ) was used as the measurement for organizational commitment in this study. The OCQ is measured by 9 items and characterized by several related aspects of commitment: (1) a willingness to exert effort on behalf of the organization; (2) the degree of goal and value congruency within the organization; and (3) a desire to maintain membership (Porter, Crampon, & Smith, 1976; Porter, Steers, Mowday, & Boulian, 1974).

In addition, the Survey of Organizations (SOO) (Taylor & Bower, 1972) was used as the instrument for measuring organizational effectiveness in the study. The SOO is a standardized instrument. Based on Taylor and Bower (1972), in this study, organizational effectiveness included three dimensions of measurement: leadership, organizational climate, and satisfaction.

Research Question and Hypotheses

It is important to understand what influence the strategic framework of learning organization practices has on building an enterprise's learning mechanism that would contribute to the development of a knowledge-based entrepreneurial society (China Productivity Center, 2006) and to the promotion of organizational commitment and organizational effectiveness in the SME sector. Thus, the research question of this study was:

What are the effects of learning organization practices on organizational commitment and organizational effectiveness for the awarded outstanding SMEs and incubating start-up SMEs in Taiwan?

This research was guided by Watkins and Marsick's conceptualization of the learning organization (Marsick & Watkins, 1999, 2003; Watkins & Marsick, 1993, 1996, 1997). According to Watkins and Marsick (1996), "Learning is a continuous, strategically used process—integrated with and running parallel to work" (p. 4). The DLOQ assessment tool allows members of organizations to examine the extent to which their organizations embrace the practices and beliefs associated with the seven action imperatives (Marsick & Watkins, 1999, 2003; Watkins & Marsick, 1993, 1996, 1997).

Therefore, seven complementary action imperatives characterize organizations journeying toward the concept of the learning organization as identified by Watkins and Marsick (1996):

- Create continuous learning opportunities
- Promote inquiry and dialogue
- Encourage collaboration and team learning

- Establish systems to capture and share learning
- Empower people toward a collective vision
- Connect the organization to its environment
- Use leaders who model and support learning at the individual, team, and organizational levels (pp. 13-14)

Marsick and Watkins (1999) also emphasized three leverage points in their framework: “(1) systems-level, continuous learning; (2) that is created in order to create and manage knowledge outcomes; and (3) which lead to improvement in the organization’s performance, and ultimately its value” (pp. 10-11).

In order to address the research question and analyze empirically the existence of significant and persistent differences in organizations based on organizational learning, commitment, and effectiveness, an hypothesized model and three related research hypotheses were proposed (Figure 1). This model demonstrates the anticipated value of learning organization practices that impact both SMEs’ organizational commitment and organizational effectiveness.

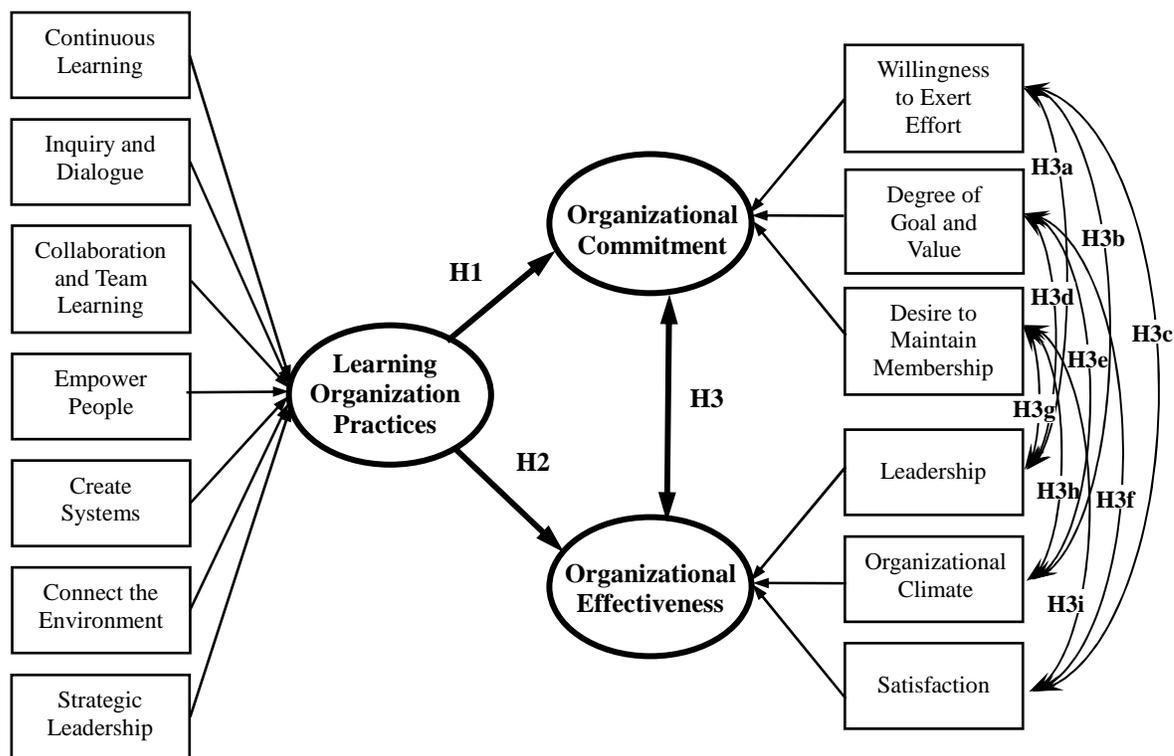


Figure 1. Hypothesized model of this study

To answer the research question, three testable hypotheses were developed based on Figure 1. Each hypothesis and its theoretical background are proposed below.

Effect of Learning Organization Practices on Perceived Organizational Commitment

In this study, the Organizational Commitment Questionnaire (OCQ) (Mowday et al., 1979) was used to measure organizational commitment in the Taiwanese SME context. Organizational commitment has been shown to be related to organizational learning practices, as follows.

First is the employee's loyalty to the organization. Bhatnagar (2007) argued that committed employees should accept as true that their organizations would constantly offer them prospects to develop and grow in their career paths. This would suggest that

providing learning organization practices through training interventions would increase the level of commitment of employees (Bhatnagar, 2007).

Second is the willingness to exert effort on behalf of the organization. It has been found that learning organization practices not only develop employees and improve their skills and abilities, but also enhance their willingness to exert effort on the job and their commitment to the organization (Harel & Tzafrir, 1999; Paul & Anatharaman, 2004).

Third is the degree of goal and value congruency with the organization. According to Pedler, Burgoyne, and Boydell (1991), learning organization practices facilitate the learning of all of the organization's members and continuously transform the organization in order to meet organizational goals and commitment. Thus, building the capability of learning organization practices leads to organizational commitment (Ulrich, Jick, & Von Glinnow, 1993).

Last is the desire to maintain membership. Mowday et al. (1979) pointed out that commitment could be inferred not only from the expressions of people's beliefs and opinions, but also from their desires and action. The learning orientation of the organization is pertinent to the context of helping employees be committed and desire to maintain membership in the organization (Sayeed, 2001). Taking on this belief, they stay on and are more inclined to deepen their commitment to the company (Lin & Chang, 2005).

Through learning organization practices, not only are the goals and values accomplished, but also organizational commitment can be fulfilled. Therefore, the first hypothesis is:

Hypothesis 1: Learning organization practices have a positive effect on perceived organizational commitment.

Effect of Learning Organization Practices on Perceived Organizational Effectiveness

In this study, the Survey of Organizations (SOO) (Taylor & Bower, 1972) was used to measure organizational effectiveness in the Taiwanese SME context. Taylor and Bower (1972) stated that the SOO is “a machine-scored, standardized instrument developed since 1966 for use as a core measurement tool in industrial and commercial enterprises” (p. 1).

Organizational effectiveness is an organization’s ability to adapt strategies and behaviors to future environmental change by maximizing the contribution of the organization’s success (Gilley & Coffern, 1994). Organizational theorists have agreed that organizational effectiveness is multidimensional (Campbell, Bownas, Peterson, & Dunnette, 1974; Steers, 1977). Based on Taylor and Bower (1972), organizational effectiveness includes three dimensions of measurement: leadership, organizational climate, and satisfaction.

Leadership mobilizes the organization to meet its effectiveness and challenges (Tseng & McLean, 2007). Learning organization practices provide leaders with the learning opportunity to enhance their ability to obtain organizational effectiveness, good communication skills, self-confidence, creativity, vision, and capable management (Tarabishy, Solomon, Fernald, & Sashkin, 2005).

Organizational climate has been defined as “a relatively enduring quality of the internal environment of an organization that (a) is experienced by its members, (b)

influences their behavior, and (c) can be described in terms of the values of a particular set of characteristics” (Tagiuri & Litwin, 1968, p. 27).

Based on the Survey of Organizations (Taylor & Bower, 1972), the criterion of satisfaction includes information relevant to efficiency, attendance, development, and human costs. Learning organization practices not only help enterprises to adapt strategies and behaviors to future environmental change (Fallon & Brinkerhoff, 1996), but also assist businesses to improve employee satisfaction.

Therefore, the second hypothesis is:

Hypothesis 2: Learning organization practices have a positive effect on perceived organizational effectiveness.

Relationship between Organizational Commitment and Organizational Effectiveness

This research offers an opportunity to uncover a commitment-effectiveness relationship in the organizations (Angle & Perry, 1981). Angle and Perry (1981) noted that “it had been anticipated that several measures of organizational effectiveness would be sensitive to difference in the levels of commitment of the members of organizations studied” (p. 2). Therefore, it was expected that organizations whose employees are strongly committed would have both high participation and high effectiveness (Angle & Perry, 1981).

In addition, it was anticipated that the relative strength of the relationship between organizational commitment and organizational effectiveness might vary depending upon the behaviors to which the employees are committed and the effectiveness of the organization (Angle & Perry, 1981). Thus, the third hypothesis is:

Hypothesis 3: Organizational commitment has a positive relationship with organizational effectiveness.

In addition, nine sub-hypotheses were developed from this hypothesis based on the sub-scales:

Hypothesis 3(a): The employee's willingness has a positive relationship with leadership.

Hypothesis 3(b): The employee's willingness has a positive relationship with organizational climate.

Hypothesis 3(c): The employee's willingness has a positive relationship with satisfaction.

Hypothesis 3(d): The degree of goal and value congruency has a positive relationship with leadership.

Hypothesis 3(e): The degree of goal and value congruency has a positive relationship with organizational climate.

Hypothesis 3(f): The degree of goal and value congruency has a positive relationship with satisfaction.

Hypothesis 3(g): The employee's desire to maintain membership has a positive relationship with leadership.

Hypothesis 3(h): The employee's desire to maintain membership has a positive relationship with organizational climate.

Hypothesis 3(i): The employee's desire to maintain membership has a positive relationship with satisfaction.

Significance of the Study

First, there has been little research on the influence of learning organization practices on organizational commitment and effectiveness in Taiwanese SMEs. Different from previous studies examining the learning organization concept in Taiwanese medium-to-large business contexts (Lien, Hung, Yang, & Li, 2006; Lin, 2006), this study focuses on the Taiwanese SME context. It is believed that it will be the first study to discuss the relationship between learning organization practices and organizational commitment and effectiveness in Taiwanese SME contexts. Therefore, the effects of learning organization practices on SME organizational commitment and effectiveness will be examined through this study. Actually, Taiwan's government and institutes are paying increasing attention to the learning organization because they would like to build a learning system in order to create a knowledge-based entrepreneurial society in Taiwan (China Productivity Center, 2006). However, little research on learning organization practices related to SMEs has been identified in Taiwan.

Second, this study used instruments that have not previously been used in SMEs in Taiwan: the dimensions of learning organization questionnaire, DLOQ (Watkins & Marsick, 1993); the Organizational Commitment Questionnaire, OCQ (Mowday et al., 1979); and the Survey of Organizations Questionnaire, SOQ (Taylor & Bower, 1972). While they have been used in many areas, previous research has done little to look at the influence of learning organization practices in SMEs.

Last, this study has both theoretical and practical implications for HRD research and practice about organizational commitment and organizational effectiveness. Because

formal HRD is more likely to be found in large organizations, little research has been conducted on HRD in SMEs.

Limitations of the Study

Two limitations may be present in this study. First, commonly-applied western theoretical methods might have caused some findings that are invalid (Wang, 2005) in Taiwanese SME contexts. The DLOQ, OCQ, and SOO instruments that the study used are based on theoretical and practical frameworks and constructs developed by scholars in the United States with US organizational contexts. They might not fit Taiwanese contexts because of potential cultural dissimilarities between western and eastern civilizations. Therefore, it is necessary to validate the instruments in Taiwanese SME contexts.

Second, the issue of social desirability bias might have impacted the results of the research survey in an SME context. People in an organization may have had a need to appear more altruistic and society-oriented than they actually are; social desirability is the tendency of individuals to deny socially undesirable actions and behaviors and to admit to socially desirable ones (Zerbe & Paulhus, 1987). Chung and Monroe (2003) indicated that “social desirability bias is the tendency of individuals to underestimate (overestimate) the likelihood they would perform an undesirable (desirable) action” (p. 291). In this study, participants may have believed that they are more ethical than their peers (e.g., Randall & Fernandes, 1992). In addition, these participants may have justified their own unethical behavior as being necessary when they filled out the self-report research questionnaire (Tyson, 1990). Consequently, it is reasonable to expect that the interpretation and understanding of this research might be affected by a social desirability bias (Chung & Monroe, 2003).

Definitions

There are six major concepts in this study: human resource development (HRD), learning organization, organizational commitment, organizational effectiveness, organizational learning, and small and medium enterprises (SMEs). The following paragraphs define these six concepts as used in this study.

Human Resource Development (HRD)

Human resource development (HRD) is “any process or activity that, either initially or over the long term, has the potential to develop adults’ work-based knowledge, expertise, productivity and satisfaction, whether for personal or group/team gain, or for the benefit of an organization, community, nation or, ultimately, the whole of humanity” (McLean & McLean, 2001, p. 322).

Learning Organization

A learning organization is “a place where employees excel at creating, acquiring, and transferring knowledge” (Garvin, Edmondson, & Gino, 2008, p. 110), and “an organization skilled at modifying its behavior to reflect new knowledge and insights” (Garvin, 1993, p. 80).

Organizational Commitment

Organizational commitment is defined by three related factors: “(1) a strong belief in and acceptance of the organization’s goals and values; (2) a willingness to exert considerable effort on behalf of the organization; and (3) a strong desire to maintain membership in the organization” (Mowday et al., 1979, p. 226).

Organizational Effectiveness

Organizational effectiveness is “a company’s long-term ability to achieve consistently its strategic and operational goals” (Fallon & Brinkerhoff, 1996, p. 14).

Organizational Learning

Organizational learning refers to “changed organizational capacity for doing something new” (Watkins & Marsick, 1993, p. 152).

Small and Medium Enterprises (SMEs)

Small and medium enterprises (SMEs) refer to any enterprise that conforms to the following criteria (Small and Medium Enterprise Administration, 2005): (1) In the manufacturing with capital of NT\$80 million or less. And the number of regular employees must be less than 200. (2) In the commercial, finance, industrial and commercial services which in the last year had sales revenue of NT\$100 million or less. And the number of regular employees must be less than 50.

Summary

The concepts of learning organization and their application to organizational commitment and organizational effectiveness are important research foci in HRD. However, there has been little research on these constructs in SME contexts, specifically in Taiwan. Thus, this research was designed to fill this gap in the literature. This study is based on the assumption that learning organization practices are critical factors in enhancing the organizational commitment and organizational effectiveness of SMEs. In addition, a learning organization is an organization whose goal is to improve the development of the organization by means of new initiatives from the government’s

policy intervention. This study applied the DLOQ, the OCQ, and SOQ to SMEs in Taiwan.

Three hypotheses were presented based on the research question: What is the effect of learning organization practices on organizational commitment and organizational effectiveness for SMEs in Taiwan? Hypothesis 1 states that learning organization practices have a positive effect on perceived organizational commitment. Hypothesis 2 proposed that learning organization practices have a positive effect on perceived organizational effectiveness. The final hypothesis stated that organizational commitment has a positive relationship with organizational effectiveness.

This study assessed the current state of learning organization practices and investigated the effects of learning organization practices on SME's organizational commitment and organizational effectiveness within dynamic SMEs and incubating SMEs in Taiwan.

Chapter 2 presents a review of the literature, Chapter 3 is methods, Chapter 4 presents the results of research analyses, and Chapter 5 discusses the results in terms of the literature. Finally, conclusions and suggestions for future research are presented.

CHAPTER 2

LITERATURE REVIEW

This chapter provides an integrative overview of the relevant literature about learning organization practices, organizational commitment, organizational effectiveness, the relationships among these three factors, and small and medium enterprises in Taiwan. First, the effect of learning organization practices and the Dimensions of Learning Organization Questionnaire (DLOQ) are discussed in detail. Second, the concepts of organizational commitment and the Organizational Commitment Questionnaire (OCQ) are presented. Third, the literature on organizational effectiveness and the Survey of Organizations Questionnaire (SOQ) are summarized. Next, the relationships among learning organization practices, organizational commitment, and organizational effectiveness are described in brief. Finally, small and medium-sized enterprises in Taiwan are discussed.

Learning Organization Practices

Organizational learning researchers have been integrating learning formulations from different levels of analysis (Bontis, Crossan, & Hulland, 2002; Marsick & Watkins, 2003; Matusik & Heeley, 2005). The specification of learning practices at different levels (individual, team or group, and organization) has provided opportunities to uncover a more detailed picture of the role of enterprises in facilitating learning organization (Berson, Nemanich, Waldman, Galvin, & Keller, 2006).

Conception of Learning Organization

Argyris (1964) discussed the idea of learning in individuals and organizations. His innovative thinking around notions such as the learning society, double-loop learning,

and reflection-in-action has become part of the language of education (Smith, 2001). In the early 1990's, Senge began to explore the art and practice of the learning organization and popularized organizational learning with his book, *The Fifth Discipline*, that describes five characteristics of learning organizations: systems thinking, personal mastery, mental models, building shared vision, and team learning (Senge, 1990a). Senge (1990b) defined learning organizations as:

organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to see the whole together. (p. 3)

He pointed out that the dimension that distinguishes learning from more traditional organizations is the mastery of certain basic disciplines. The above five disciplines were identified as converging on innovative learning organizations (Senge, 1990a).

Watkins and Marsick (1993, 1996, 1997) argued that there are three levels of organizational learning. The first is the individual level, which is composed of two dimensions of organizational learning: continuous learning and dialogue and inquiry. The second is the team or group level, which is reflected by team learning and collaboration. The third is the organizational level, which has four dimensions of organizational learning: embedded systems, system connections, empowerment, and provision of leadership for learning.

These three levels can be further considered to belong to one of the two components of Watkins and Marsick's model of a learning organization. Yang (2003) argued that the first component represents people who comprise an organization, and the

second component represents the structures and culture created by the social institution of the organization. Structural-level learning activities could serve as a refining function by filtering and incorporating individual and group learning into the organization's mission or effectiveness.

Garvin (1993) defined learning organization as “an organization skilled at creating, acquiring, and transferring knowledge, and at modifying its behavior to reflect new knowledge and insights” (p. 80). Based on this definition, Garvin, Edmondson, and Gino (2008) constructed the concept of the learning organization from the following three building blocks: 1) a supportive learning environment: an environment that supports learning has four characteristics, including psychological safety, appreciation of differences, openness to new ideas, and time for reflection (Garvin et al., 2008). Davis and Daley (2008) described that, in a learning organization, individual and group performance within the organization results in interactions with the environment; 2) concrete learning processes and practices: learning processes involve the generation, collection, interpretation, and dissemination of information (Garvin et al., 2008). Garvin (1993) argued that companies must review their successes and failures, assess them systematically, and record the lessons in a form that employees find open and accessible. Therefore, these concrete processes ensure that essential information moves quickly and efficiently into the hands and heads of those who need it (Garvin et al., 2008); and 3) leadership behavior that reinforces learning: Garvin et al. (2008) pointed out that organizational learning is strongly influenced by the behavior of leaders. So, if leaders signal the importance of spending time on problem identification, knowledge transfer,

and continuous learning, these learning organization practices are likely to flourish (Garvin et al., 2008).

Learning Organization versus Organizational Learning

The literature on organizational learning has concentrated on the detached collection and analysis of the processes involved in individual and collective learning inside organizations; whereas the learning organization literature has an action orientation and is geared toward using specific diagnostic and evaluative methodological tools that can help to identify, promote, and evaluate the quality of learning processes inside organizations (Easterby-Smith & Araujo, 1999; Tsang, 1997). Three normative distinctions between organizational learning and the learning organization have been identified in the literature (Ortenblad, 2001). First, organizational learning is viewed as a process or set of activities, whereas the learning organization is seen as a form of organization (Tsang, 1997). Second, some authors hold the view that learning takes place naturally in organizations, whereas it requires effort to develop a learning organization (Dodgson, 1993). Third, the literature on organizational learning emerged from academic inquiry, while the literature on the learning organization developed primarily from practice (Easterby-Smith, 1997).

Tseng and McLean (2008) provided a conceptual framework to analyze the relationship between organizational learning and the learning organization. They found that there is a need for a greater comprehension of organizational learning that, in turn, will contribute to a better theoretical implementation of becoming a learning organization. Therefore, organizational learning is the activity and the process by which organizations eventually reach the ideal of a learning organization (Finger & Brand, 1999).

From the literature review, organizational learning characterizations can be summarized as in Table 1.

Table 1

Characterizations of Organizational Learning

Author	Characterization
Argyris (1999)	Sums up learning within an organization as stemming from two conditions. First, learning is said to take place when a planned action is accomplished, and, second, if the plan was not accomplished; the reasons are found and corrected.
Gilley & Maycunich (2000)	Organizational learning process consists of five phases. First is preparation for learning; second is information exchange; third is knowledge acquisition and practice; fourth is transfer and integration; and the last is accountability and recognition.
López, Peón, & Ordás (2006, p. 217)	Organizational learning is “a process to improve the development of the organization by means of new initiatives (technological, productive, or commercial).”
Marquardt (1996, p. 230)	Organizational learning is “how learning occurs on an organization-wide basis,” as opposed to a learning organization that describes the systems, principles, and characteristics of organizations that learn as a collective entity.
Watkins & Marsick (1993, p. 152)	Organizational learning is “changed organizational capacity for doing something new.”

Organizational learning is a dynamic process of creation, acquisition, and integration of knowledge aimed at the development of resources and capabilities that contribute to better organizational effectiveness (Argyris & Schön, 1978; Gilley & Maycunich, 2000; López et al., 2006). Organizational learning in the current study will consist of seven characteristics based on the literature: continuous learning, inquiry and dialogue, collaboration and team learning, creating systems, empowering people,

connecting the organization, and strategic leadership. They are the key dimensions contributing to the development of a learning organization.

Measurement of Learning Organization Practices: DLOQ

Following are the seven action imperatives of the learning organization that form the basis of the DLOQ (Marsick & Watkins, 1999, pp. 13-15).

- Create continuous learning opportunities
- Promote inquiry and dialogue
- Encourage collaboration and team learning
- Create systems to capture and share learning
- Empower people toward a collective vision
- Connect the organization to its environment
- Single out leaders who model and champion learning

According to the literature, learning organizations are generally described as being market-oriented; having an entrepreneurial culture and a flexible, organic structure; and having facilitative leadership (Lundberg, 1995; Luthans, Rubach, & Marsnik, 1995; Slater & Narver, 1995; Watkins & Marsick, 1996). The learning organization is described by Watkins and Marsick (1996) as learning continuously and transforming itself. The seven critical dimensions of the learning organization are detailed in Table 2.

Table 2

Dimensions of Learning Organization Practices Applied to Small Enterprises (Marsick & Watkins, 2003)

Dimension	Description
Create continuous learning opportunities	In small enterprises, this dimension includes incubator learning programs, on-line learning, and developmental coaching related to entrepreneurial planning, and entrepreneurial learning experiences that include start-up, management, and industry-specific experiences.
Promote inquiry and dialogue	According to this dimension, entrepreneurs gain productive reasoning skills to express their views and their capacity to listen and inquire into the views of others in the enterprise; the culture is changed to support questioning, feedback, and experimentation.
Encourage collaboration and team learning	Different ways of thinking are accessed and work is designed for collaboration; entrepreneurial teams or groups are expected to learn and work together.
Create systems to capture and share learning	Enterprises will focus on the ability to create a learning system to share learning and capture what is learned in the work.
Empower people toward a collective vision	Enterprise members are involved in setting, owning, and implementing a joint vision; responsibility is distributed close to decision making so that entrepreneurs are motivated to learn about what they are held accountable to do.
Connect the organization to its environment	Enterprise members scan the incubator environment and use information to adjust work practices; the enterprise is linked to incubator communities.
Provide strategic leadership for learning	Appropriate strategic leadership is important to help enterprise members create a collective vision toward which the entire organization can work in a learning organization.

Note, Based on Marsick and Watkins (2003, p. 139).

Organizational Commitment

Organizational commitment refers to the relative strength of an individual's identification with and involvement in a particular organization (Porter & Smith, 1970). The current study attempted to integrate the knowledge of organizational commitment (Bateman & Strasser, 1984) by exploring the concepts, the measurements of organizational commitment, and the relationship between organizational commitment and organizational learning practices.

Concepts of Commitment to the Organization

Organizational commitment has received a great deal of study, both as a consequence of and as an antecedent to other work-related areas of research (Allen & Meyer, 1990; Randall, 1990; Reichers, 1985). Steers (1977) described organizational commitment as the strength of an employee's involvement in and identification with the organization. Organizations want their commitment from their employees because committed employees will exert more effort (Mowday, Porter, & Dubin, 1974; Scholl, 1981) when the enterprise drives toward the goal of becoming a learning organization. Therefore, organizational commitment is a strong belief in and acceptance of an organization's goals and values, a willingness to exert considerable effort on behalf of the organization's goals and values, and a strong desire to maintain membership in the organization (Mowday, Porter, & Steers, 1982; Porter, Steers, Mowday, & Boulian, 1974).

According to Reichers (1985), employees in an organization might have a number of commitments (foci of commitment) that affect their behavior and attitudes in their workplace, such as commitment to the organization, to the occupation, to the union, to

the workgroup, and to the job. Thus, in a workplace, employees' work behavior is influenced by several perspectives of commitment. Allen and Meyer (1990) distinguished three facets of commitment: (a) affective commitment is the identification with the values and goals of the organization, (b) continuance commitment is based on the material benefits to be gained from remaining at the organization or the costs of leaving, and (c) normative commitment is defined as a perceived duty to support the organization and its activities. Meyer and Allen (1991) pointed out that affective commitment is "the employee's emotional attachment to, identification with, and involvement in the organization; employees with a strong affective commitment continue employment in the organization because they want to do so" (p. 67). Normative commitment is "a feeling of obligation to continue employment; employees with a high level of normative commitment feel that they ought to remain with the organization" (Meyer & Allen, 1991, p. 67). Continuance commitment is about "awareness of the costs associated with leaving the organization; employees whose primary link to the organization based on continuance commitment means they remain because they need to do so" (Meyer & Allen, 1991, p. 67).

In recent studies, researchers have demonstrated that there are two separate dimensions of commitment: continuance commitment with a low number of alternatives and continuance commitment with high personal sacrifice (Carson & Carson, 2002; Hackett, Bycio, & Hausdorf, 1994; Joo, 2007; Lim, 2003; Park, 2007; van Dijk, 2004; Wang, 2005). Continuance commitment can be described as the tendency to persist in one's commitment to an organization because of personal sacrifices associated with leaving and few perceived change alternatives (Carson & Carson, 2002). The first

dimension means that employees decide to stay in the organization because they lack opportunities to work for other organizations. Carson and Carson (2000) found that the remaining four cognitive/behavioral items tapping personal sacrifices are consistent with the first dimension of continuance commitment. The second dimension is that employees present their loyalty to an organization because of significant costs associated with leaving (Wallace, 1997). In this dimension, continuance commitment is approached from a calculative perspective in which individuals are viewed as remaining in an organization for extrinsic rewards and accumulated interests (Finegan, 2000).

Lease (1998) stated that only a few studies have examined more than one component of commitment. O'Reilly and Chatman (1986) also mentioned that commitment has different bases (components of commitment) that cause attachment to different foci. Mowday et al. (1979) described commitment in three aspects: commitment-related behaviors, attitudinal commitment, and loyalty to the organization. Commitment-related behaviors represent the manners in the organization where individuals forgo alternative courses of action and choose to link themselves to the organization (Mowday et al., 1979). Attitudinal commitment often encompasses an exchange relationship and is defined by three dimensions: positive affect for the organization, identification with the organization, and a willingness to exert effort on behalf of the organization (Jaussi, 2007). Loyalty to the organization is the state of attachment experienced by an organizational member as a feeling of allegiance and faithfulness (Fletcher, 1993).

Measurement of Organizational Commitment

Attempts to measure organizational commitment have been quite diverse (Ferris & Aranya, 1983). According to them, three prevalent approaches have emerged: calculative, moral, and antecedent. Calculative commitment denotes a mutual relationship based on an exchange between the employee and the organization (Park & Rainey, 2007). Moral commitment stems from a sense of obligation toward the organization (Johnson, 1991). Antecedents are identified as promoting higher commitment between employees and the organization (Johnson & Chang, 2008). Representative of these approaches are instruments developed by: (1) Mowday et al. (1979); (2) Meyer and Allen (1987, 1991); and (3) Yousef (2003).

Mowday et al.'s (1979) instrument was developed on the basis of a definition of organizational commitment that conceptualized the construct as having three primary components: "(1) a strong belief in and acceptance of the organization's goals and values; (2) a willingness to exert considerable effort on behalf of the organization; and (3) a strong desire to maintain membership in the organization" (p. 226). Under this approach, commitment is conceptualized as a state in which an individual identifies with a particular organization and its goals and wishes to maintain membership in order to facilitate those goals (Mowday et al., 1979). This instrument contains 15 items, and respondents are asked to indicate the extent of their agreement with the items. The 15 items reflect a combination of attitudes and behavioral intentions and emphasize the employee's moral involvement with the organization (Ferris & Aranya, 1983). This instrument has been the most widely utilized to date (Angle & Perry, 1981; Cooke, 1997;

Fiorito, Bozeman, Young, & Meurs, 2007; Lam, 1998; Lee & McNeeley, 1992; Morris & Steers, 1981).

The Meyer and Allen (1987, 1991) instrument uses three components to measure organizational commitment approaches: affective, continuance, and normative. These components reflect distinct psychological states, according to Allen and Meyer (1990). Allen and Meyer (1990) found that employees with strong affective commitment remain because they want to, those with strong continuance commitment because they need to, and those with strong normative commitment because they feel they ought to. Thus, Meyer and Allen developed independent scales to measure these states. A pool of 51 items was generated for purposes of scale construction. Some of these items were modified versions of those used in other scales. Each item was worded in accordance with one of the components of commitment. However, normative commitment has been shown to have considerable overlap with affective commitment and continuance commitment (Angle & Lawson, 1994; Brown, 1996). In contrast, the constructs of affective commitment and continuance commitment have been well established in the literature (Mathieu & Zajac, 1990).

Yousef's (2003) instrument sought to validate the dimensionality of the measurement of organization commitment construct from a non-western cultural setting (the United Arab Emirates). He used Mowday et al.'s (1979) OCQ to assess respondents' loyalty and desire to remain with the organization, their beliefs in and acceptance of the values and goals of the organization, and their willingness to put in extra effort to help the organization succeed (Yousef, 2003). In order to compare the results of a non-western cultural study with those of western studies, Yousef (2003) amended Mowday et al.'s

OCQ model into a six-item version including items 1, 5, 6, 9, 11, and 15 of the full OCQ. The study corroborated that the results of organizational commitment measurement in a non-western setting differ in many ways from the western setting (Yousef, 2003).

Organizational Commitment and Learning Organization Practices

The learning orientation of the organization is pertinent to the context of keeping employees committed (Sayeed, 2001). Bhatnagar (2007) commented that learning organization practices through training interventions will increase the level of employee commitment. Organizational learning practices strengthen the psychological contract and motivate employees to have continued commitment to the firm (Harel & Tzafrir, 1999). Committed employees, consequently, accept as true that their organizations will constantly offer them prospects to develop and grow in their career paths (Bhatnagar, 2007).

Several studies have reported a relationship between workplace learning and organizational commitment (Ahmad & Bakar, 2003; Bartlett, 2001; Kontoghiorghes & Bryant, 2004; McMurray & Dorai, 2001). These studies have found that participation in training and learning activities enhances employees' organizational commitment (Cho & Kwon, 2005). Bartlett's (2001) study of nurses in five public US hospitals revealed that employee attitudes toward training, such as perceived access to training, social support for training, motivation to learn, and perceived benefits of training, are positively related to organizational commitment.

Ahmad and Bakar (2003) investigated the relationships among five training variables, including availability, support, motivation, training environment, and perceived benefits, and the three dimensions of organizational commitment. Their study found that

all training variables in a learning organization environment are significantly associated with affective organizational commitment (Ahmad & Bakar, 2003), but there were no relationships with the other two forms of commitment. McMurray and Dorai (2001) explored the relationship between workplace training and organizational commitment in Australian organizational settings. The results show that workplace training and organizational commitment are context specific and vary from one organizational context to another (McMurray & Dorai, 2001). McMurray and Dorai (2001) found that, for the automotive industry and hospitality service industries, only training opportunities and view of training were positively related to organizational commitment. In contrast, for the non-profit organization, motivation for training and view of training were positively associated with organizational commitment (McMurray & Dorai, 2001).

Considering the results of the previous studies on organizational commitment and learning organization practices, the relationship between the two constructs is reciprocal (Cho & Kwon, 2005). Consequently, learning organization practices can assist in enhancing employee commitment toward the organization. Also, organizational commitment makes employees more motivated and eager to learn in the workplace (Cho & Kwon, 2005).

Organizational Effectiveness

The literature on organizational effectiveness is replete with schools of thought, all of which examine organizational effectiveness from different perspectives (Dikmen, Birgonul, & Kizitas, 2005). Effectiveness is often mentioned as an integral aspect of research on organizations (Benson, 1977; Cameron, 1980). The current study explored

different aspects of organizational effectiveness: its concepts, its measurement, and its relationship with learning organization practices and organizational commitment.

Concepts of Organizational Effectiveness

There have been many foci on defining organizational effectiveness (Mzozoyana, 2002). For example, Barnard (1938) defined effectiveness as the accomplishment of a specific objective or aim. Price (1972) described it as the extent to which multiple goals are achieved. Hannan and Freeman (1977) defined effectiveness as “the degree of congruence between organizational goals and observed outcomes” (p. 12). Organizational effectiveness is “a company’s long-term ability to consistently achieve its strategic and organizational goals” (Fallon & Brinkerhoff, 1996, p. 14).

As the theories proposed in literature approach organizational effectiveness from different starting points, researchers do not agree on how to model organizational effectiveness or determine the factors that affect organizational effectiveness (Angle & Perry, 1981; Dikmen, Birgonul, & Kizitas, 2005). Peters and Waterman (1982) argued that an organization is effective if it is able to manage ambiguity and is flexible, customer oriented, productive, value driven, and structured lean in form, and knows its major area of business and highly empowers its employees. Several significant concepts of organizational effectiveness are explored in the following paragraphs.

Taylor and Bowers (1972) provided a description and data-based evaluation of research using the Survey of Organizations (SOO). The survey had been undergoing development since 1966 by members of the Organizational Development Research Program of the Center for Research on the Utilization of Scientific Knowledge (CRUSK) of the Institute for Social Research (ISR) at the University of Michigan (Taylor &

Bowers, 1972). It is designed to tap dimensions of organizational climate, managerial leadership, peer behavior, group process, and satisfaction derived from Likert's (1967) theory of organizational effectiveness.

Cameron (1978a, 1981) approached organizational effectiveness as a construct composed of multiple and contradictory dimensions and divergent constituencies and criteria that vary over time. Cameron (1978b) defined organizational effectiveness as "successful organizational transactions" (p. 17). This concept encompasses the commonly used unitary model of achieving goals, acquiring maximum possessions, and having organizational health (Cameron, 1980). Cameron (1978b, 1980, 1981) pointed out that his construct was based on three aspects of open systems in organizations: inputs, processes, and outputs, and three levels of analysis: individuals, subunits, and organization (Cameron, 1978b). Taken together, these lead to nine criterion cells.

Astley and van de Ven (1983) used four major views to describe organizational effectiveness: (a) natural selection, organizational effectiveness is viewed as the ability of an organization to acquire needed resources (Pfeffer & Salancik, 1978); (b) collective-action, organizational effectiveness is the "condition in which the organization overtime, increases outputs with constant or decreasing inputs or has constant outputs with decreasing inputs" (Argyris, 1964, p. 123); (c) system-structural, organizational effectiveness "depends on the organization's bargaining position in obtaining scarce and valued resources" (Yuchtman & Seashore, 1967, p. 897); and (d) strategic choice views, organizational effectiveness is the extent to which the organization meets the goals of strategic choices (Astley & van de Ven, 1983).

Dikmen, Birgonul, and Kiziltas (2005) developed a conceptual model to examine the level of organizational effectiveness in construction companies:

(a) The means of organizational effectiveness that stem from the organizational environment: the means are primarily strategies, structure, culture, and capabilities and resources; (b) Influencing groups in the business environment: organizational effectiveness is related to how the value chain of a company is integrated effectively and how relations with other parties are constructed to minimize the impact of competitive forces acting on the company; and (c) External forces due to the macro-environment: external forces are considered to illustrate the relationship between organizational means, environment forces, and organizational effectiveness. (pp. 253-254)

In sum, organizational climate, managerial leadership, peer behavior, group process, satisfaction, successful organizational transactions, and ability to acquire resources are all important components of organizational effectiveness. Therefore, organizational effectiveness is concerned with how the organizational strategies, leadership, satisfaction, and capabilities support its business activities; how the nature of the relations with the influencing groups in the organizational climate support or inhibit the company value chain; and how the company adapts itself to macro-environmental forces (Dikmen, Birgonul, & Kizitas, 2005).

Measurement of Organizational Effectiveness

As referenced above, a variety of models exist that have been employed to measure the concept of organizational effectiveness (Steers, 1975). Steers (1975) argued that it is possible to identify two general types of models: “(1) normative or prescriptive

models, which attempt to specify those things an organization must do to become effective; and (2) descriptive models, which attempt to summarize the characteristics found in successful organizations” (p. 550).

Normative models, based on either theoretical formulations or value premises, attempt to prescribe the requisite conditions under which an investigator or manager can determine the degree of effectiveness of an organization. Both the Survey of Organizations (SOO) (Taylor & Bowers, 1972) and Cameron’s (1978b) nine-cell framework are illustrations of normative models. Descriptive models typically take an empirical approach, describing those characteristics that emerged as a result of investigation (Steers, 1975). Dikmen, Birgonul, and Kiziltas’ (2005) prediction model in construction companies is one example of a descriptive model. Three models for measuring organizational effectiveness are discussed below.

The Survey of Organizations (SOO) (Taylor & Bowers, 1972) is a mechanism for organizations to look at themselves and involve the membership in identifying various strengths and weaknesses to prompt discussion of organizational effectiveness (Golembiewski, 1981). The SOO is a 98-item questionnaire (1970 format) developed to capture perceptions of employees about the organization in which they work. Taylor and Bowers (1972) pointed out that

measures have similarly been blocked into four major categories by organization: Organizational Climate, Managerial Leadership, Peer Relationships, and Satisfaction. Group Process, although another obvious category, was missing from early editions of the questionnaire and cannot therefore be used in the present analysis. (p. 92)

The SOO was designed to measure four domains of organizational effectiveness using 48 scales: organizational climate (17 scales), managerial leadership (13 scales), peer relationships (11 scales), and satisfaction (7 scales). The domains focus primarily on the respondent's work group and supervisor, rather than on physical working conditions (Golembiewski, 1981). Taylor and Bowers (1972) recommended that the SOO be used for organizational assessment and diagnosis, benchmarking, survey feedback, and employee development. It is one of the most popular measures of organizational effectiveness and dimensions (Cummings & Worley, 2005).

Cameron (1978b) used the nine-cell construct as the organizing framework for studies of effectiveness in higher education institutions. He explored the relevance and measurability of the effectiveness evaluation criteria in the interview data and organized the results into nine dimensions: (a) student educational satisfaction, (b) student academic development, (c) student career development, (d) student personal development, (e) faculty and administrator employment satisfaction, (f) professional development and quality of the faculty, (g) system openness and community interaction, (h) ability to acquire resources, and (i) organizational health (Cameron, 1978b). Using a 57-item instrument, Cameron (1981) identified organizational domains in assessing the effectiveness of four colleges and universities. Following statistical treatment, four domains of effectiveness emerged: (a) external adaptation, (b) morale, (c) academic-oriented, and (d) extracurricular (Cameron, 1981).

Dikmen, Birgonul, and Kiziltas (2005) used the approaches of artificial neural network and multiple regression techniques to explore the organizational characteristics of structural context, organizational flexibility, rules and regulations, person-oriented

processes, and strategic means. They constructed a prediction model to measure the nine key factors to measure organizational effectiveness in construction companies: (a) the ability to benefit from market opportunities; (b) experience; (c) frequency of joint venturing; (d) strength of culture; (e) level of organizational learning; (f) technical resources and capability; (g) financial resources and capability; (h) adaptability and flexibility; and (i) effectiveness of information flow (Dikmen, Birgonul, & Kiziltas, 2005).

Organizational Effectiveness and Learning Organization Practices

Impact is important because learning organization is under pressure to demonstrate its contribution to organizational effectiveness and performance (Woodall, 2005). López, Peón, and Ordás (2006) examined the relationships among high performance human resource practices, organizational learning, and business performance. However, their survey analysis, based on structural equation modeling drawing from the responses of Spanish CEOs, found that high performance human resource practices showed a positive direct effect upon organizational learning (López, Peón, & Ordás, 2005). Therefore, according to López et al.'s (2005) conclusion, it is necessary not only to clarify the concepts of learning organization and organizational effectiveness, but also to establish the relationship between learning organization and organizational effectiveness.

Learning is a fundamental aspect of competitiveness, and it links with knowledge acquisition and effectiveness improvement (López et al., 2005). Jones (2000) emphasized the importance of being a learning organization for performance, defining it as a process by which managers try to increase employees' capabilities, the better to understand and

manage the organization and its environment and to accept decisions that increase organizational performance on a continuous basis. The knowledge resulting from learning implies an improvement in response capacity through a broader understanding of the environment (Dodgson, 1993). The linkage between learning organization practices and organizational effectiveness helps people discover why problems are seen in a one-dimensional framework, posing questions of the current systems and challenging and questioning paradoxes as they occur (Murray & Donegan, 2003). On the other hand, the wish to learn and to know more leads to the establishment of effectiveness and relationships with customers, suppliers, and other market agents so that favorable attitudes towards collaboration and conflict solution are generated (Webster, 1992). Then, because of their inherent flexibility, learning-oriented organizations are able quickly to reconfigure their architecture and reallocate their resources to focus on emergent opportunities and effectiveness (Slater & Narver, 1995).

Finally, López et al. (2006) concluded that the intervening firm capabilities are the true facilitators of effectiveness enhancement: “high performance human resource systems can contribute to achieving sustainable competitive advantage and organizational effectiveness to the extent that they impact upon the knowledge, skills, attitudes and behaviors that form the basis of organizational learning” (p. 232).

Organizational Effectiveness and Organizational Commitment

Angle and Perry (1981) attempted to relate organizational effectiveness to organization commitment in organizations offering bus services and found that organizations whose members were strongly committed had both high participation and high effectiveness. In keeping with the view that “committed employees will engage in

spontaneous, innovative behaviors on behalf of the organization” (Angle & Perry, 1981, p. 3), it was expected that “organizational commitment among the members would facilitate the ability of an organization” (Angle & Perry, 1981, p. 3) to obtain better organizational effectiveness. Therefore, such organizations were expected to show a high level of operating efficiency (Angle & Perry, 1981).

From the review of literature, it is anticipated that the strength of the relationship between organizational commitment and organizational effectiveness might vary depending upon the behaviors to which the employees were committed (Angle & Perry, 1981). Based upon Steers’ (1977) concept of active and passive commitment, Harris and Eoyang (1977) offered a fourfold typology of commitment and built a construct with two bipolar dimensions: (1) commitment, or lack of commitment, to remain with the organization; and (2) commitment, or lack thereof, to work in support of organizational objectives. Angle and Perry (1981) pointed out that, within such a framework, the organizational effectiveness of turnover measures is the most sensitive to the extent to which employees were committed to remaining in the organization.

On the issue of measures of organizational commitment, Angle and Perry (1981) found that employee commitment measured by the 15-item Organizational Commitment Questionnaire (OCQ) has demonstrated good psychometric properties and has been used with a wide range of job categories (Mowday et al., 1979). In that study, the Cronbach’s alpha was .90. Based on the results of a factor analysis, two subscales were created: value commitment (alpha = .89) and commitment to stay (alpha = .72). The respondents’ commitment to support organizational goals was higher than the extent of their commitment to retain their organizational membership (Angle & Perry, 1981).

On the issue of measures of organizational effectiveness, the value of the SOO (Taylor & Bowers, 1972) is highly dependent on employee commitment and leadership's ability to interpret and utilize the results with its membership (Golembiewski, 1981). Therefore, in SOO terms, an effective organization trains and motivates its managers to concentrate on (1) building open, participative work groups and (2) working with these groups to maximize productivity and effectiveness (Lewin & Minton, 1986). In practice, the survey has been used as a diagnostic tool to facilitate organizations' self-evaluation, adaptation, and commitment.

Angle and Perry (1981) concluded that the relationship between commitment and effectiveness very likely depends on the form that commitment takes. Consequently, rather than assuming a simplistic relationship between commitment and positive effectiveness outcomes, organizational researchers will have to begin to deal with more complex factors (Angle & Perry, 1981) because it is difficult to determine the complex results from a simple measurement of relations between organizational effectiveness and organizational commitment.

Small and Medium-Sized Enterprises in Taiwan

Small and medium-sized enterprises (SMEs) play an important role in the economy of Taiwan (Small and Medium Enterprise Administration, 2007) because of their flexibility and ability to innovate (Gunasekaran, Forker, & Kobu, 2000). The definition of a small enterprise, the contributions and challenges of SMEs, and SME development in Taiwan are discussed in this section to highlight how organizational learning, commitment, and effectiveness can be fulfilled with limited resources.

Defining Small and Medium-Sized Enterprise (SMEs)

According to the Small and Medium Enterprise Administration, SMEA (2005) in Taiwan, SME refers to an enterprise that has completed company registration or business registration in accordance with the requirements of the law and that conforms to the following criteria:

1. In manufacturing, construction, mining, and quarrying with paid-in capital of NT\$80 million or less.

2. In agriculture, forestry and fisheries, water, electricity and gas, commercial, transportation, warehousing, communications, finance, insurance, real estate, industrial and commercial services, or social and personal services that in the last year had sales revenue of NT\$100 million or less.

In addition, depending on the nature of the business for which they are providing guidance, government agencies may base their definition of an SME on the number of regular employees as noted below (SMEA, 2005):

1. In manufacturing, construction, mining, and quarrying, the number of regular employees must be less than 200.

2. In agriculture, forestry and fisheries, water, electricity and gas, commercial, transportation, warehousing, communications, finance, insurance, real estate, industrial and commercial services, or social and personal services, the number of regular employees must be less than 50.

3. A micro business refers to an SME that conforms to the criteria in manufacturing, construction, mining, and quarrying in which the number of regular employees must be less than 5; in agriculture, forestry and fisheries, water, electricity and

gas, commercial, transportation, warehousing, communications, finance, insurance, real estate, industrial and commercial services or social and personal services, the number of regular employees must be less than 5.

Contributions and Challenges of SMEs

SMEs are the major contributors to the economic miracle of Taiwan (Lin & Wu, 2004). Gunasekaran, Forker, and Kobu (2000) pointed out that SMEs play a significant role in providing employment opportunities and supporting large-scale manufacturing firms. According to the White Paper on SMEs released by the Small and Medium Enterprise Administration Taiwan in 2007, there are over 1.24 million SMEs, which comprise 97.77% of all Taiwanese enterprises. There are 7.75 million people working in SMEs, representing 76.66% of all employed persons in Taiwan. Besides, SMEs accounted for 30.72% of the total sales of all enterprises in Taiwan (Small and Medium Enterprise Administration, 2007).

Ali (2004) argued that SMEs generally have limited resources in terms of working capital, people, business skills, and strategic planning. Therefore, it is important to have good learning, planning, and proper management of these scarce resources (Ali, 2004). Having the appropriate learning practices will help SMEs decide how best to use the company's scarce resources.

From the viewpoints of Huang (1995), Tai and Huang (2006), and Wu (2000), SMEs are facing three industrial management challenges. First is manufacturing and marketing management problems. Systematic planning and organizing the usage of human resources in businesses affect performance and morale (Huang, 1995). Second, limitations in employees and funding of SMEs result in concentrating on manufacturing

activities, and they are unable to control the profitable supplemental values of marketing (Wu, 2000). Third is the financial structure problem. Most SMEs are not familiar with financial systems and planning, affecting judgment and investigation skills (Tai & Huang, 2006).

Hence, in order to divert risks and stay competitive, Lin and Wu (2004) pointed out that SMEs are forced to improve their technical capabilities in terms of manufacturing, marketing, and the product quality itself. They are required to redefine their niches to be able to compete in both international and domestic markets (Lin & Wu, 2004). Consequently, organizational learning practices play an important role in SMEs to help them with organizational effectiveness and commitment to the growth of the enterprise.

Confucian Culture Applied to Taiwanese SMEs

It is generally asserted that Confucian societies place greater emphasis on hierarchical relationships, filial piety, observance of standardized rituals, and social harmony (Chung, Eichenseher, & Taniguchi, 2008). Tan and Chee (2005) identified the following characteristics of Confucianism: diligence, perseverance, filial piety, thriftiness, respect for authority, value of collective effort, harmony, humility, and magnanimous behavior. The Confucian code of conduct prescribed principles for the major interpersonal relations between ruler and minister, parent and child, older and younger siblings, and husband and wife (Eng & Kim, 2006). Therefore, the Confucian culture stresses virtue, endurance, interdependence, and economic comfort and harmony at a comprehensive level of features and relationships between people in Asian countries (Hyun, 2001).

Previous empirical studies have shown that businesses in Taiwan are high in Confucian Dynamism (Hofstede & Bond, 1988; Hofstede, 1997); that is, a core set of Taiwanese enterprise values relate to the culture of Confucianism. Consequently, the values of Confucian culture motivate Taiwanese SMEs toward the goals of a learning organization and encourage employees to show organizational commitment and effectiveness.

Development of SMEs in Taiwan

SMEs are the foundation of the Taiwanese economy; however, given the ongoing process of globalization, SMEs will need to change their business models if they are to survive and achieve sustainable development (Small and Medium Enterprise Administration, 2007). To build Taiwan into an environment conducive to SME growth and development, the Small and Medium Enterprise Administration (SMEA) has focused on three key areas in its policy formulation: creating a better environment for SME development, building up SME start-up and incubation platforms, and providing awards for outstanding SMEs to encourage aggressive business development (Small and Medium Enterprise Administration, 2007).

Creating a better environment for SME development. To ensure that SMEs understand the laws and regulations that affect them, to make sure that their legal rights are protected, and to enhance SMEs' ability to adapt to changes in the regulatory environment, the SMEA has been working actively to build up a sound legal and regulatory environment conducive to innovation and growth. Some of the key work items and results achieved are:

(a) Formulation of standard contracts for major SME business activities, including Chinese-language and English-language versions of suppliership and contracted design/R&D contracts; (b) The holding of standard contracts presentations in Northern, Central and Southern Taiwan; and (c) Implementation of two research and analysis projects focusing on current legal and regulatory issues. (Small and Medium Enterprise Administration, 2007, p. 208)

Building up SME start-up and incubation platforms. To strengthen the provision of guidance for encouraging innovation and R&D, and to assist with the establishment and development of new enterprises, in 1996 the SMEA began working with other government agencies, research institutes, universities, and the private sector to develop strategies for SME incubation. As of 2006, there were 95 incubator centers in Taiwan, located in 22 different counties and cities. Of these 95 centers, 82 were receiving subsidies from the SME Development Fund. The incubator centers fell into the following four categories:

- (a) University incubator centers: A total of 73 incubator centers, of which 69 (31 public and 38 private) were in receipt of SME Development Fund subsidies;
- (b) Incubator centers with foundation status: A total of 10 incubator centers, of which 7 were in receipt of SME Development Fund subsidies;
- (c) Government-run incubator centers: A total of 8 incubator centers, of which 4 were in receipt of SME Development Fund subsidies; and
- (d) Privately-run incubator centers: A total of 4 incubator centers, of which 2 were in receipt of SME Development Fund subsidies. (Small and Medium Enterprise Administration, 2007, pp. 210-211)

As of the end of December, 2006, based on the Small and Medium Enterprise Administration (2007), a total of 1,229 additional enterprises had incubated from 82 incubator centers that were in receipt of funding support from the Government in Taiwan.

Awarding outstanding SMEs to encourage aggressive business development. The Government has organized a number of annual award activities. Annual commendation activities have included the National Award for Outstanding SMEs, the Rising Star Award, and Taiwan SME's Innovation Award (Small and Medium Enterprise Administration, 2007). According to the Small and Medium Enterprise Administration (2007), the National Award for Outstanding SMEs was established to encourage SMEs to upgrade themselves by selecting for public commendation those SMEs that had achieved impressive performance across the board and that had also made a meaningful contribution to society. The purpose of the Rising Star Award is to honor those SMEs that have achieved particularly impressive export performance by focusing on SMEs that have succeeded in developing international markets while keeping their main production facilities in Taiwan (Small and Medium Enterprise Administration, 2007). To encourage SMEs to undertake innovation and R&D activity on an ongoing basis over the long term, and to upgrade their R&D capabilities and invest in innovation, thereby enhancing overall enterprise competitiveness, the Government has held the Taiwan SME's Innovation Awards since 1993 (Small and Medium Enterprise Administration, 2007).

Summary

This chapter presented a comprehensive review of literature on learning organization practices, organizational commitment, organizational effectiveness, and their interrelationships. Each section covered characteristics and concepts, measurement and contexts, and theoretical and empirical studies. Finally, small and medium-sized enterprises in Taiwan were discussed briefly.

The review of literature on organizational learning, learning organization, and the measurement of the Dimensions of Learning Organization Questionnaire (DLOQ) found that organizational learning is the activity and process by which organizations could reach the ideal of a learning organization (Finger & Brand, 1999). Consequently, it is appropriate to apply the DLOQ instrument to explore the effects of learning organization practices on organizational commitment and effectiveness.

Organizational commitment is defined as a strong belief in and acceptance of an organization's goals and values, a willingness to exert considerable effort on behalf of the organization's goals and values, and a strong desire to maintain membership in the organization (Mowday et al., 1982; Porter et al., 1974). In addition, three prevalent approaches have emerged: calculative, moral, and antecedent. Samples of these prevalent approaches and measurements include (1) Mowday et al. (1979); (2) Meyer and Allen (1987, 1991); and (3) Yousef (2003). Finally, from the literature, learning organization practices can assist in enhancing employee commitment toward the organization (Cho & Kwon, 2005).

Theories proposed in the literature approach organizational effectiveness from different starting points. Researchers cannot reach agreement on how to model

organizational effectiveness or determine which factors affect organizational effectiveness (Angle & Perry, 1981; Dikmen, Birgonul, & Kizitas, 2005). Three measurements of organizational effectiveness were identified under two general types of models: (1) normative or prescriptive models: the Survey of Organizations (SOO) (Taylor & Bowers, 1972) and Cameron's (1978b) nine-cell framework; and (2) descriptive models: Dikmen, Birgonul, and Kizitas' (2005) prediction model in construction companies. Thus, a brief exploration of the relationship among organizational effectiveness, learning organization practices, and organizational commitment found that high performance human resource systems can contribute to achieving sustainable organizational commitment and effectiveness to the extent that they impact upon the knowledge, skills, attitudes, and behaviors that form the practices of learning organization (López et al., 2006).

Finally, considering the contribution of small and medium-sized enterprises (SMEs) in Taiwan, the definition of a small enterprise and importance and challenges of SMEs are discussed in this chapter to highlight how learning organization practices, commitment, and effectiveness can be fulfilled with limited resources. In addition, the values of Confucian culture motivate Taiwanese SMEs toward the goals of a learning organization and encourage employees to show organizational commitment and effectiveness. To explore SME growth and development in Taiwan, this study focused on three key areas in the Government's policy formulation: creating a better environment for SME development, building up SME start-up and incubation platforms, and awarding outstanding SMEs to encourage aggressive business development.

CHAPTER 3

METHODS

An empirical approach with a questionnaire survey method was used in this research. This chapter describes the instruments used in this study, the data collection procedures, the population and sample, and the data analysis techniques used to answer the study's research questions.

Instrument

This study used a quantitative research design with a self-report questionnaire to examine the impact of learning organization practices on SMEs' organizational commitment and effectiveness. The survey used three existing instruments based on theoretical and empirical foundations (e.g., Wang, 2005): learning organization practices (Marsick & Watkins, 2003), organizational commitment (Mowday et al., 1979), and organizational effectiveness (Taylor & Bower, 1972). The three instruments were refined and integrated into one questionnaire, and the contents of the three instruments were modified and translated from English to Chinese for the Taiwanese context. The English format of the consolidated questionnaire is shown in Appendix A, while the Chinese version is shown in Appendix B. Each instrument separately has shown a substantial level of reliability and validity, as described below.

Description of the Instruments

It was necessary to determine if the instrument had adequate psychometric properties and demonstrable construct validity (Yang, Watkins, & Marsick, 2004). Based on Yang (2003) and Yang, Watkins, and Marsick (2004), this study used confirmatory

factor analysis (CFA) to assess the construct validity for each of the DLOQ, OCQ, and SOO (Yang, 2003) in the Taiwanese SME context.

The validity and reliability of the DLOQ has been confirmed by many empirical studies (Ellinger et al., 2002; Marsick & Watkins, 2003; Wang, 2005; Watkins & Marsick, 2003; Yang, 2003; Yang, Watkins, & Marsick, 2004). Ellinger et al. (2002) assessed the construct validation of DLOQ from confirmatory factor analysis and confirmed that learning organization culture is a multidimensional construct, and the seven-dimension structure supports a strong linkage between learning organization culture and organizational performance. Yang, Watkins, and Marsick (2004) reported that the Cronbach's coefficient alpha reliability estimates for the seven dimensions of DLOQ tend to be acceptable (all above .80). Under the initial measures of a learning organization with 43 items, the coefficient alpha for the seven proposed dimensions ranged from .80 to .87, and the reliability estimates under CFA ranged from .89 to .94. Under the refined measures of the learning organization with 21 items, the coefficient alphas for the seven dimensions ranged from .68 to .83, and the reliability estimates under CFA ranged from .83 to .93. The results demonstrate that the measures included in the DLOQ have reasonable reliability estimates (Yang, Watkins, & Marsick, 2004).

One potentially important threat to the validity of the multi-item DLOQ instrument is social desirability bias, as described earlier. The pervasive tendency of individuals to present themselves in the most favorable manner relative to prevailing social norms threatens to compromise research findings (King & Bruner, 2000). To overcome the effects of this behavioral response on the part of the subjects, King and Bruner (2000) emphasized that it is necessary to identify situations in which data may be

systematically biased toward respondents' perceptions of what is socially acceptable and to implement the most appropriate methods of control. Thus, the individual subject's motives (e.g., achievement, approval, or dependence goals), or the subjects' expectancies regarding the evaluative consequences of their behavior (King & Bruner, 2000) were removed from the learning organization practices instrument by the authors in order to reduce the impact of social desirability bias.

According to Mowday et al. (1979), much of the evidence for the OCQ's reliability and validity were derived directly from the psychometric properties of this instrument. In general, the internal consistency reliability coefficient alpha has been consistently high, ranging from .82 to .93, with a median of .90. Item analyses indicated that each item had a positive correlation with the total score for the OCQ, with the range of average correlations being from .36 to .72, and a median correlation of .64 (Mowday et al., 1979). To examine the stability of the OCQ over time, Mowday et al. (1979) reported that test-retest reliabilities ranging from .53 to .75 compare favorably to other attitude measures. Furthermore, Mowday et al.'s (1979) findings indicated that convergent validities across six diverse samples ranged from .63 to .74, with a median of .70, and they provided consistent evidence of convergent validity for OCQ. Finally, from the viewpoint of predictive validity for the OCQ, Mowday et al. (1979) pointed out the relationship between commitment and employee performance should not be overly strong in view of the many factors that have been found to influence performance (e.g., effectiveness, role clarity, reward systems, etc.). Performance data collected from the sample of hospital employees revealed that two of the four correlations between organizational commitment and performance were significant; however, some differences

between the cross-lag correlations were found only for the 4- to 6-month comparison from the sample of retail management trainees (Mowday et al., 1979). Thus, results across these studies of Mowday et al. (1979) indicated that the relationship between organizational commitment and performance was in the positive direction, although the strength of the relationships found was modest.

Taylor and Bowers (1972) provided adequate psychometric properties of the SOO. The measurements of the SOO revealed high internal consistency reliabilities in each of the three study domains: 1) the Cronbach's coefficient alphas obtained for the eight leadership indices ranged from .70 to .94; 2) the coefficient alphas obtained for the five organizational climate composite indices ranged from .79 to .90; and 3) the coefficient alphas obtained for the seven satisfaction indices ranging from .75 to .87 (Taylor & Bowers, 1972). In addition, Taylor and Bowers' (1972) findings indicated that the OCQ instrument provided significant evidence of discriminant validities: for the 4 supervisory leadership indices, ranging from .72 to .81; for the 4 peer leadership indices, ranging from .56 to .71; and for the 5 organizational climate indices, ranging from .42 to .83. Finally, fairly clear evidence of predictive validity exists that the SOO measures related appropriately to both efficiency and attendance criteria (Taylor & Bowers, 1972). Taylor and Bowers (1972) found that relationships to efficiency extended across all four time periods and reached levels as high as .80, and relationships to attendance attained only slightly lower levels.

Learning Organization Practices

The Dimensions of Learning Organization Questionnaire (DLOQ) (Marsick & Watkins, 1999, 2003; Watkins & Marsick, 1993, 1996, 1997) was selected to assess the

degree of learning organization practices. Marsick and Watkins (2003) developed a seven-dimension questionnaire to demonstrate the value of an organization's learning practices. The questionnaire used a six-point Likert-type scale and included 43 items covering individual, team or group, and organizational levels in the seven dimensions: (1) create continuous learning opportunities, 7 items; (2) promote inquiry and dialogue, 6 items; (3) encourage collaboration and team learning, 6 items; (4) create systems to capture and share learning, 6 items; (5) empower people toward a collective vision, 6 items; (6) connect the enterprise to incubator environment, 6 items; and (7) provide strategic leadership for learning, 6 items (Marsick & Watkins, 2003; Watkins & Marsick, 1997). The six-point response scale determined the degree to which each item is or is not true of the organization, ranging from "Almost Never" (1) to "Almost Always" (6) (Marsick & Watkins, 2003).

The utility of the DLOQ has been verified in several recent empirical studies conducted in English contexts (e.g., Ellinger, Ellinger, Yang, & Howton, 2002; Marsick & Watkins, 2003; Watkins & Marsick, 2003; Yang, Watkins, & Marsick, 2004), Chinese contexts (e.g., Lien, Hung, Yang, & Li, 2006; Lin, 2006; Wang, 2005; Zhang, Zhang, & Yang, 2004), and Korean contexts (Joo, 2007; Lim, 2003; Park, 2007). These studies have indicated that the DLOQ has acceptable reliability estimates, and the seven-dimensional structure fits the empirical data reasonably well (Lien, Hung, Yang, & Li, 2006). Yang et al. (2004) performed a broad series of exploratory and confirmatory factor analyses and determined that a reduced 21-item instrument is a superior measurement model to the original 43-item model. They suggested using two versions of the instrument, one utilizing 43 items as a practical diagnostic tool, and the shorter

version with 21 measurement items for research purposes, as the latter has superior psychometric properties (Lien et al., 2006; Yang et al., 2004).

This study used the 21-item instrument to address learning organization practices as the first part of the consolidated questionnaire (see Appendix A). In the questionnaire, items 1-3 measure continuous learning; items 4-6, inquiry and dialogue; items 7-9, collaboration and team learning; items 10-12, creation of systems; items 13-15, empowerment of people; items 16-18, connection of the organization; and items 19-21, strategic leadership. The original 6-point scale of the 21 items was converted to a five-point Likert-type scale, ranging from “Strongly Disagree” (1) to “Strongly Agree” (5) for consistency across all items in the consolidated questionnaire.

Organizational Commitment

Commitment has been operationally defined in many ways; however, Mowday et al.’s (1979) Organizational Commitment Questionnaire (OCQ) has been viewed as one major stream of current research (Batheman & Strasser, 1984). Mowday et al. (1979) conducted a series of studies among 2,563 employees in nine divergent organizations, including 569 employees in six governmental agencies of a midwestern state, 243 classified university employees in a large west coast university, 382 hospital employees in a large midwestern hospital, 411 female employees in 37 branches of a major west coast bank, 605 male employees in a western telephone company, 119 scientists and engineers employed by a major independent research laboratory in the midwest, 115 managers in a major automotive manufacturing firm, 60 psychiatric technicians worked in a major west coast hospital, and 212 management trainees in a large national retail sales organization. Satisfactory test-retest reliabilities and internal consistency

reliabilities were found in the instrument; in addition, cross-validated evidence at acceptable levels of predictive, convergent, and discriminant validity emerged for the OCQ (Mowday et al., 1979). Based on the above research studies, it appears that the OCQ has been the most widely utilized in many appropriate organizations to date (Cooke, 1997; Fiorito, Bozeman, Young, & Meurs, 2007; Lam, 1998; Yousef, 2003).

According to Mowday et al. (1979), the OCQ used a seven-point Likert-type scale and included 15 items in three primary components of the construct: (1) a willingness to exert considerable effort on behalf of the organization; 4 items, including 1 negatively phrased and reverse scored item; (2) a strong belief in and acceptance of the organization's goals and values; 4 items, including 1 negatively phrased and reverse scored item; and (3) a strong desire to maintain membership in the organization; 7 items, including 4 negatively phrased and reverse scored items. Responses to each item in the OCQ used a seven-point scale with anchors labeled from “Strongly Disagree” (1) to “Strongly Agree” (7).

In several studies, a nine-item short-form of the instrument using only positively worded items was administered (Mowday et al., 1979). Consistent with Mowday et al. (1979), the consolidated questionnaire of this study used this nine-item short-form: 3 items from the component of willingness to exert effort on behalf of the organization; 3 items from the component of degree of goal and value congruency with the organization; and 3 items from the component of desire to maintain membership. Then, for unification purposes, the original 7-point scale of the 9 items was converted to a five-point Likert-type scale ranging from “Strongly Disagree” (1) to “Strongly Agree” (5). In the questionnaire (see Appendix A), items numbered 22-24 measure willingness to exert

effort; items numbered 25-27 measure the degree of goal and value congruency; and items numbered 28-30 measure the desire to maintain membership.

Organizational Effectiveness

In this study, Taylor and Bowers' (1972) Survey of Organizations (SOO) instrument was used to measure the organizational effectiveness of SMEs. The SOO is a machine-scored, standardized instrument developed since 1966 by the Organizational Development Research Program of the Institute for Social Research (ISR) at the University of Michigan (Taylor & Bowers, 1972). It is one of the most popular measures of organizational effectiveness and dimensions in current research (Cummings & Worley, 2005). In the SOO, according to Taylor and Bowers (1972), there are 20 indices in three domains, including leadership, organizational climate, and satisfaction. Eight indices exist under the leadership domain: (1) managerial support, (2) managerial goal emphasis, (3) managerial work facilitation, (4) managerial interaction facilitation, (5) peer support, (6) peer goal emphasis, (7) peer work facilitation, and (8) peer interaction facilitation. The next five indices are under the organizational climate domain: (9) technological readiness, (10) human resources primacy, (11) communication flow, (12) motivational conditions, and (13) decision-making practices. The final seven indices are under the domain of satisfaction: (14) satisfaction with work group, (15) satisfaction with supervisor, (16) satisfaction with job, (17) satisfaction with organization, (18) satisfaction with pay, (19) satisfaction with progress now, and (20) satisfaction with future progress (Taylor & Bowers, 1972).

The phrasing of the items was intended to yield a descriptive rather than an explicitly evaluative assessment of organizational characteristics (Wood, 1974). A

standard 5-point Likert-type scale response set was used in the SOO questionnaire, ranging from “Not at all” (1) to “To a very great extent” (5) (Taylor & Bowers, 1972). In the consolidated questionnaire (see Appendix A), 8 leadership subscales in organizational effectiveness comprise items 31-38; 5 organizational climate subscales in organizational effectiveness comprise items 39-43; and 7 satisfaction subscales in organizational effectiveness comprise items 44-50. The 5-point scale response options for these items were applied to align with the rest of the questionnaire.

Demographics

Demographic characteristics are variables that could affect learning organization practices, organizational commitment, and organizational effectiveness. Thus, eight demographic items covering gender, age, education level, primary responsibility, years of the enterprise in operation, number of employees, incubated start-up, and outstanding award. The demographic items, numbered 51-58, were included in the questionnaire to characterize the varied status of learning organization practices, organizational commitment, and organizational effectiveness in the incubating start-up SMEs and awarded outstanding SMEs.

Questionnaire Scale

In this study, a 5-point Likert-type scale was used in the consolidated questionnaire to provide a unimode design (Dillman, 2007), whereas the original instruments used three different scales. Dillman (2007) pointed out that reducing the number of response categories may be more important as researchers move towards greater use of e-mail and Web surveys in which the desire to get all response choices onto one screen encourages surveyors to use fewer response choices. Thus, the effect of

reducing the scale from the original scale into a simplified scale (five-point) in the study was positive because it increased the likelihood (Schaefer & Dillman, 1998) that the participants would have more interest in responding to the simplified scale questionnaire online. Further, having different scales for parts of a survey could be confusing to respondents and could create some difficulties in statistical analysis.

Translating Instrument from English into Chinese

The DLOQ, OCQ, and SOO instruments adopted in this study were originally developed in English; however, all potential participants in the research were Taiwanese whose primary language is Traditional-Chinese. Thus, it was necessary to conduct an English-to-Chinese translation before the field study. This study combined the three English original instruments into one consolidated questionnaire, then English-to-Chinese translations of the questionnaire with the statements and consent form were undertaken carefully to ensure that this process was done appropriately. This study followed the guidelines for instrument translation recommended by Hulin and Mayer (1986) and several examples performed by current researchers (Lien, Hung, Yang, & Li, 2006; Lin, 2006; Wang, 2005; Zhang, Zhang, & Yang, 2004).

Lien, Hung, Yang, and Li (2006) had previously used a Chinese version of the 43 item DLOQ in Taiwan. In addition, Lin (2006) had used a Chinese version of the 21 item DLOQ in Taiwan, and Wang (2005) and Zhang, Zhang, and Yang (2004) had used a Chinese version of the 21 item DLOQ in China. Therefore, the researcher referred to these Chinese versions of the DLOQ and made revisions to the questionnaire where deemed appropriate. However, because no Chinese version was identified for the OCQ and SOO instruments, the researcher conducted the first-round translation of the items

used from these two instruments. Once the initial translation was completed, the Chinese version of the questionnaire was forwarded to two Chinese-English bilinguals: one is an assistant professor (graduated from the University of Minnesota) and the other is a researcher (has a Ph.D. degree from the United States) in Taiwan. They examined the Chinese draft by comparing it to the English version and suggested a number of revisions for improving the second-round translation.

The second Chinese draft was forwarded to a Taiwanese having many translation experiences and who graduated from a university in the USA to translate the instrument back into English. The original and back-translated English versions were compared by the researcher and the advisor. Finally, the third Chinese version of the questionnaire was prepared based on settling the differences between the previous two versions, resolving problematic items.

According to Hulin and Mayer (1986), even if a translated version from one language to another achieves linguistic equivalence, it does not mean that the translated items have cultural and psychometric equivalence. For example, Lien et al. (2006) pointed out that no exact equivalent word or phrase exists in Chinese for the English word, “vision.” Thus, a think-aloud and pilot study were conducted to establish cross-cultural sensitivity and to finalize the questionnaire before it was used (Wang, 2005).

Think-Aloud

After the three instruments were integrated and translated, two Taiwanese organization leaders were invited to think aloud on the clarity of the statements and to suggest improvements to the questionnaire. They confirmed the instrument to be an

effective and valid measure in Taiwanese SME settings and offered recommendations.

The think-aloud question was: Tell me what you are thinking about the content and statements of the questionnaire as you read it?

Pilot Study and Finalizing the Questionnaire

For the pilot study, 30 samples were selected from the target population by using random sampling, and 13 responses were obtained from the pilot test. These respondents were contacted by email and asked to complete the third version of the Chinese questionnaire and to comment on any problems they had. I communicated with the respondents online and collected questions and comments from them. I found that the feedbacks from the participants focused on the comprehension of literary and minor typing errors in the questions. The study also noted what kind of response rate the survey was likely to obtain (Dillman, 2007). In the pilot study, the response rate was about 43%.

Most of the respondents gave very positive comments during the pilot study. Thus, after revising the minor errors of the third Chinese draft based on the results of the pilot test, the questionnaire was finalized, and the final version of the survey was conducted online immediately after the conclusion of the pilot study.

Summary of Questionnaire Contents

Table 3 summarizes the contents of the instrument. The first three sections include the original scales of the DLOQ, OCQ, and SOO. Their contents or subscales, item numbers, and total number for each content/subscale are illustrated in the table. The demographic information is the fourth section in the table.

Table 3

Contents of the Instrument

Section	Content/Subscale	No. of Item	Total No.
Learning	Continuous Learning	1, 5, 14	3
Organization	Inquiry and Dialogue	7, 33, 43	3
Practices	Collaboration & Team Learning	9, 40, 46	3
	Create Systems	10, 21, 24	3
	Empower People	12, 16, 29	3
	Connect the Environment	3, 18, 26	3
	Strategic Leadership	8, 20, 23	3
Organizational	Willingness to Exert Effort	25, 37, 48	3
Commitment	Degree of Goal and Value	4, 28, 31	3
	Desire to Maintain Membership	32, 38, 42	3
Organizational	Leadership	6, 11, 15, 30, 34, 36, 39, 45	8
Effectiveness	Organizational Climate	2, 19, 22, 41, 50	5
	Satisfaction	13, 17, 27, 35, 44, 47, 49	7
Demographic	Gender	51	1
Information	Age	52	1
	Education Level	53	1
	Primary Responsibility	54	1
	Years of Enterprise in Operation	55	1
	Number of Employees	56	1
	Incubated Start-up	57	1
	Outstanding Award	58	1
Total Items			58

Reliability and Validity Data

In order to test the applicability of the Taiwanese version of the consolidated questionnaire, first, the reliability of the instrument was examined with internal consistency using Cronbach's alpha. Second, construct validity was determined using a

confirmatory factor analysis technique to determine that the factor structure developed in the USA is suitable in this context of SMEs in Taiwan.

Reliability Evidence

According to Gall, Gall, and Borg (2007), Cronbach's alpha (α) is a measure of the internal consistency of a test containing items that are not scored dichotomously. Cronbach's α is also known as the coefficient of reliability. According to Cristmann and van Aelst (2006), values of 0.7 or higher are often used as the cutoff value for Cronbach's α and thus for the reliability of the test. From the present data, the reliability estimates of the Taiwanese version of the questionnaire are showed in Table 4.

Table 4

Reliability of the Consolidated Questionnaire in the Taiwanese SMEs Context (n=300)

Scale	Subscale	No. of Items	Cronbach's Alpha (α)
Learning Organization Practices	LOP1: Create Systems	3	.76
	LOP2: Inquiry and Dialogue	3	.85
	LOP3: Connect the Environment	3	.71
	LOP4: Continuous Learning	3	.87
	LOP5: Collaboration & Team Learning	3	.71
	LOP6: Empower People	3	.81
	LOP7: Strategic Leadership	3	.54
	Total Scale	21	.82
Organizational Commitment	OC1: Desire to Maintain Membership	3	.67
	OC2: Degree of Goal and Value	3	.71
	OC3: Willingness to Exert Effort	3	.74
	Total Scale	9	.78
Organizational Effectiveness	OE1: Leadership	8	.89
	OE2: Satisfaction	7	.85
	OE3: Organizational Climate	5	.86
	Total Scale	20	.90

The study found that most of the subscales had satisfactory reliability estimates. Both the organizational commitment and organizational effectiveness total scales showed acceptable reliability with α of .78 and .90, respectively. The coefficient alphas of the three subscales of organizational commitment ranged from .67 to .74. The three subscales of organizational effectiveness had moderately high reliability estimates ranging from .85 to .89.

The learning organization practices scale totaled .82, an acceptable level. Six of the seven subscales of learning organization practices—create systems, inquiry and dialogue, connect the environment, continuous learning, collaboration and team learning, and empower people--met the minimum criteria of reliability estimate ranging from .71 to .87. Only one subscale was below this--strategic leadership, .54.

Evidence of Construct Validity

Factor analysis provides an empirical basis for reducing all items to a few factors by combining variables that are moderately or highly correlated with each other (Gall, Gall, & Borg, 2007). In this study, based on factor analysis, the 21 items of DLOQ were reduced to seven factors; the 9 items of OCQ were reduced to three factors; and the 20 items of SOO were reduced to three factors, all as anticipated. Thus, it is possible to compute a correlation coefficient between a factor and an item that was belonged to the factor. Gall, Gall, and Borg (2007) pointed out this correlation coefficient is called a factor loading. Tables 5, 6, and 7 demonstrate the factor loadings for the subscales of DLOQ, OCQ, and SOO in the study.

Table 5

Factor Loadings for the Subscales of DLOQ

Items	Factors						
	LOP1	LOP2	LOP3	LOP4	LOP5	LOP6	LOP7
10. My organization makes its lessons learned available to all employees.	.91	-	-	-	-	-	-
21. My organization creates systems to measure gaps between current and expected performance.	.72	-	-	-	-	-	-
24. My organization measures the results of the time and resources spent on training.	.87	-	-	-	-	-	-
07. In my organization, people spend time building trust with each other.	-	.84	-	-	-	-	-
33. In my organization, people give open and honest feedback to each other.	-	.71	-	-	-	-	-
43. In my organization, whenever people state their view, they also ask what others think.	-	.87	-	-	-	-	-
03. My organization works together with the outside community to meet mutual needs.	-	-	.81	-	-	-	-
18. My organization encourages people to get answers from across the organization when solving problems.	-	-	.70	-	-	-	-
26. My organization encourages people to think from a global perspective.	-	-	.81	-	-	-	-
01. In my organization, people help each other learn.	-	-	-	.74	-	-	-
05. In my organization, people are rewarded for learning.	-	-	-	.63	-	-	-
14. In my organization, people are given time to support learning.	-	-	-	.80	-	-	-
09. In my organization, teams/groups have the freedom to adapt their goals as needed.	-	-	-	-	.86	-	-
40. In my organization, teams/groups revise their thinking as a result of group discussion or information collected.	-	-	-	-	.59	-	-
46. In my organization, teams/groups are confident that the organization will act on their recommendations.	-	-	-	-	.61	-	-
12. My organization recognizes people for taking initiative.	-	-	-	-	-	.72	-
16. My organization gives people control over the resources they need to accomplish their work.	-	-	-	-	-	.61	-
29. My organization supports employees who take calculated risks.	-	-	-	-	-	.70	-
08. In my organization, leader mentors and coaches those he or she leads.	-	-	-	-	-	-	.41
20. In my organization, leader continually look for opportunities to learn.	-	-	-	-	-	-	.64
23. In my organization, leader ensures that the organization's actions are consistent with its values.	-	-	-	-	-	-	.54
Eigenvalue	4.75	2.12	1.94	1.63	1.51	1.37	1.21
Variance %	22.60	10.07	9.26	7.78	7.20	6.53	5.76
Cumulative %	22.60	32.67	41.93	49.71	56.91	63.44	69.20

Note: Items with loadings < .40 were removed.

LOP1, create systems; LOP2, promote inquiry and dialogue; LOP3, connect the organization to its environment; LOP4, continuous learning opportunity; LOP5, collaboration and team learning; LOP6, empower people toward a collective version; LOP7, provide strategic leadership for learning..

Table 6

Factor Loadings for the Subscales of OCQ

Items	Factors			
	OC1	OC2	OC3	
32. For me this is the best of all possible organizations for which to work.	.75	.41	-	
38. I am extremely glad that I chose this organization to work for over others I was considering at the time I joined.	.73	-	.43	
42. I really care about the fate of this organization.	.61	-	-	
04. I am proud to tell others that I am part of this organization.	-	.68	-	
28. I find that my values and the organization's values are very similar.	.41	.68	-	
31. This organization really inspires the very best in me in the way of job performance.	-	.66	-	
25. I am willing to put in a great deal of effort beyond that normally expected in order to help this organization be successful.	-	-	.61	
37. I would accept almost any type of job assignment in order to keep working for this organization.	-	-	.70	
48. I talk up this organization to my friends as a great organization to work for.	-	-	.59	
	Eigenvalue	3.27	1.31	1.12
	Variance %	36.28	14.58	12.49
	Cumulative %	36.28	50.86	63.35

Note: Items with loadings < .40 were removed.

OC1, desire to maintain membership; OC2, degree of goal and value; OC3, willingness to exert effort.

Table 7

Factor Loadings for the Subscales of SOO

Items	Factors			
	OE1	OE2	OE3	
06. To what extent do people in your work group help you find ways to do a better job?	.56	-	-	
11. To what extent does your supervisor encourage people who work for him to exchange opinions and ideas?	.76	-	-	
15. To what extent do people in your work group encourage you to work as a team?	.67	-	-	
30. To what extent do people in your work group encourage people to give their best effort?	.78	-	-	
34. To what extent does your supervisor show you how to improve your performance?	.70	-	-	
36. To what extent do people in your work group pay attention to what you are saying?	.70	-	-	
39. To what extent does your supervisor encourage people to give their best effort?	.72	-	-	
45. To what extent is your supervisor willing to care your problems?	.74	-	-	
13. Considering your skills and the effort you put into the work, how satisfied are you with your pay?	-	.79	-	
17. How satisfied do you feel with the progress you have made in this organization up to now?	-	.72	-	
27. All in all, how satisfied are you with your supervisor?	-	.54	-	
35. How satisfied do you feel with your chances for getting ahead in this organization in the future?	-	.75	-	
44. All in all, how satisfied are you with the persons in your work group?	-	.72	-	
47. All in all, how satisfied are you with job?	-	.56	-	
49. All in all, how satisfied are you with this organization, compared to most others?	-	.79	-	
02. To what extent does the organization have a real interest in the welfare and happiness of those who work here?	-	-	.73	
19. To what extent are there things about working here (people, policies, or conditions) that encourage you to work hard?	-	-	.74	
22. To what extent are decisions made at those levels where the most adequate and accurate information is available?	-	-	.77	
41. To what extent are the equipment and resources you have to do your work with adequate, efficient, and well-maintained?	-	-	.69	
50. To what extent are you told what you need to know to do your job in the best possible way?	-	-	.69	
	Eigenvalue	6.83	2.65	2.05
	Variance %	34.16	13.26	10.25
	Cumulative %	34.16	47.42	57.67

Note: Items with loadings < .40 were removed.

OE1, leadership; OE2, satisfaction; OE3, organizational climate.

In this study, based on CFA, the 21 items of the DLOQ were reduced to seven factors, the 9 items of OCQ were reduced to three factors, and the 20 items of SOO were reduced to three factors, all as anticipated. Thus, it is possible to compute a correlation coefficient between a factor and an item that belonged to the factor. Gall, Gall, and Borg (2007) called this correlation coefficient “factor loading.” The factor loadings of all items loaded on their respective subscales above the generally accepted minimum of .40 (Ott, Cashin, & Altekruise, 2005). Therefore, the subscales of DLOQ, OCQ, and SOO were verified as appropriate factors for the research.

The parameters in CFA are estimated by *principal axis factoring* (PAF) analysis. PAF is a form of factor analysis which seeks the least number of factors that can account for the common variance (correlation) of a set of variables. Tables 5, 6, and 7 show the results of factor analyses: the analyses of PAF and promax rotation generated a seven-factor solution for learning organization practices and a three-factor solution for organizational commitment and effectiveness. The solutions were determined by eigenvalues greater than one and explained 69.20% of the variance over the seven proposed dimensions for learning organization practices, 63.35% of the variance over the three proposed subscales for organizational commitment, and 57.67% of the variance over the three proposed subscales for organizational effectiveness.

In addition, a single factor in the learning organization practices scale, “Establishing systems to capture and share learning” had the highest eigenvalue (= 4.75) and highest percentage of variance (=22.60%). In the organizational commitment scale, “Desire to maintain membership” had the highest eigenvalue (= 3.27) and percentage of variance (=36.28%). In the organizational effectiveness scale, “Leadership” had the

highest eigenvalue (= 6.83) and percentage of variance (=34.16%).

From the factor analysis results in Tables 5-7, the study found that the loadings of the measure on each factor in the three scales exceeded this minimum. Therefore, the subscales of DLOQ, OCQ, and SOO are verified to be the appropriate factors for the research.

In addition, several model-data fit indices were used to evaluate properties of the three measurement models. The χ^2 (chi-square) /df ratio was used to calculate how closely the expected covariance matrix derived from the estimated model fits the actually observed matrix. According to Bollen and Long (1993), a χ^2 /df ratio value that equals 5 or less is considered acceptable. The Goodness-of-Fit Index (GFI), a measure of the relative amount of variance and covariance in the actually observed matrix predicted by the implied variance-covariance matrix which was taken as an indication of reasonable fit with a value exceeding 0.90 (the range of GFI is between 0 and 1) (Bentler & Bonett, 1980). The Comparative Fit Index (CFI) (Bentler, 1990) and Non-Normed Fit Index (NNFI) (Bentler & Bonett, 1980) also need to be above 0.90 to fit appropriately. The Root Mean Squared Residuals (RMR) (Jöreskog & Sörbom, 1993) reflects the extent by which the sample variances and covariances differ from the corresponding estimated variances and covariances; and the fit is better when the RMR is smaller. The Root Mean Squared Error of Approximation (RMSEA) measures a real advance in the evaluation of models fit from both a statistical and conceptual viewpoint, with RMSEA value (range between 0 and 1) less than 0.05 representing a model that fits very well, between 0.05-0.08 reasonably well, and between 0.08-0.10 tolerably well (Brown & Cudeck,

1993). Table 8 indicates the statistical results of fit indices for the measurement models of the three scales including DLOQ, OCQ, and SOO in the study.

Table 8

Fit Indices for the Measurement Models of the Three Scales

Model	χ^2	df	χ^2/df	GFI	NNFI	CFI	RMR	RMSEA
DLOQ	213.45	168	1.27	.94	.98	.98	.026	.030
OCQ	18.56	24	.77	.99	.98	.99	.016	.025
SOO	235.91	167	1.41	.93	.99	.99	.032	.037

Notes: GFI= Goodness-of-fit index, NNFI= Non-normed fit index, CFI= Comparative fit index, RMR= Root Mean Squared Residuals, RMSEA= Root Mean Squared Error of Approximation

The scale measuring learning organization practices (i.e., DLOQ) showed appropriate fit between the proposed measurement model and the data. In addition, the organizational commitment and effectiveness scales reasonably fit the data. Given these good results in Table 8, the study found that the scales of learning organization practices, organizational commitment, and organizational effectiveness provide very good supporting evidence of construct validity. Therefore, the three measurements, DLOQ, OCQ, and SOO, could be acceptable in the context of Taiwanese SMEs.

Population and Sample

The targeted population consisted of all ISSMEs (incubating start-up small and medium-sized enterprises) and AOSMEs (awarded outstanding small and medium-sized enterprises) in Taiwan. According to the Small and Medium Enterprise Administration (2007), two features of SMEs were considered as essential for maintaining Taiwan's competitiveness and development: (1) 289 AOSMEs, which included 104 National Awards for Outstanding SMEs, 57 Rising Star Award SMEs, and 128 Taiwan SME's Innovation Award SMEs; and (2) 1,229 ISSMEs, which have been incubated from 82 incubator centers that were in receipt of funding support from the Government in Taiwan. So, the study population might be roughly inferred to the organizations of award receiving outstanding SMEs and incubating start-up SMEs located in Taiwan with similar social and economic characteristics (Wang, 2005).

Sample Selection and Sample Frame

This study used random sampling as the sampling strategy. A sample of 500 was chosen at random from the targeted population with an equal number of AOSMEs and ISSMEs. First, the researcher selected 250 SMEs from the 289 AOSMEs (86.5%). According to this ratio, 90 National Award for Outstanding SMEs were selected at random, 50 from the Rising Star Awarded SMEs, and 110 from Taiwan SME's Innovation Awarded SMEs. Second, 250 SMEs were selected from the targeted population of 1,229 ISSMEs (20 %). This study selected participants who had at least one year of operation in the organization since their enterprise started up. Those SMEs having less than one year operation were excluded from the research because they were at the

stage of pre-start up, and the organizational functions at this stage tended to be done implicitly by the entrepreneur himself or herself (Kazanjian, 1984).

According to Kelloway (1998), a sample size of at least 200 observations is generally required. Marsh, Balla, and MacDonald (1988) also argued that parameter estimates may be inaccurate in samples of less than 200. Bentler and Chou (1987) suggested a different approach with the ratio of sample size to estimated parameters at between 5:1 and 10:1. Therefore, a sample of 500 SMEs (including 250 awarded outstanding SMEs and 250 incubating start-up SMEs) was chosen to meet the minimum sample size requirements following both of the above approaches.

Response Rate

Response rates for mail surveys and e-mail and internet surveys, in at least one study, were shown to be the same--58% (Schaefer & Dillman, 1998). In this study, of the 500 random selected sample SMEs, 305 SMEs responded with 153 responses from ISSMEs and 152 responses from AOSMEs. Thus, the overall response rate was 61% when the initial response rate of the ISSMEs was 61.2% and the rate of the AOSMEs was 60.8%.

No matter how carefully the questionnaire was designed, eleven of the completed questionnaires were defective in their responses that either missed one or more required responses, or apparently their enterprise had been in operation for less than one year. A non-defective response means that all items in the questionnaire were completed appropriately (Wang, 2005). In this study, of the 294 non-defective responses, 144 were ISSMEs and 150 were AOSMEs. Thus, 96.4% of the returned surveys were non-defective, and AOSMEs had slightly more non-defective responses than ISSMEs.

However, except for the 5 responses whose enterprise operation was less than one year, the other 11 responses with one or more items missed were still usable technically. The statistical procedures performed in this study excluded the missed items but calculated the other items. The 13 responses from the pilot study were excluded as they were already used for finalizing the questionnaire. Consequently, 300 responses were totally usable in the data analysis procedures for an overall usable response rate of 60%. Table 9 shows the total response rates between ISSMEs and AOSMEs.

Table 9

Response Rates for the Survey

Type of SMEs	Sample Size	Responses Returned	Non-defective Responses	Initial Response Rate (%)	Non-defective Response Rate (%)
ISSMEs	250	153	144	61.2	57.6
AOSMEs	250	152	150	60.8	60.0
Total	500	305	294	61.0	58.8

Table 10

Sample Composition by Demographics

Demographic Variable	Category	ISSMEs Frequency (%)	AOSMEs Frequency (%)	Total Frequency (%)
Gender	Male	92 (60.1%)	89 (58.6%)	181 (59.3%)
	Female	61 (39.9%)	63 (41.4%)	124 (40.7%)
	Total	153 (100%)	152 (100%)	305 (100%)
Age	Less than 30 years old	20 (13.1%)	18 (11.8%)	38 (12.5%)
	30 - 39 years old	72 (47.1%)	54 (35.5%)	126 (41.3%)
	40 - 49 years old	49 (32.0%)	52 (34.2%)	101 (33.1%)
	50 years old or more	12 (7.8%)	28 (18.4%)	40 (13.1%)
	Total	153 (100%)	152 (100%)	305 (100%)
Education	Doctoral degree	22 (14.4%)	18 (11.8%)	40 (13.1%)
	Master's degree	52 (34.0%)	49 (32.2%)	101 (33.1%)
	Four-year or two-year college degree	75 (49.0%)	84 (55.3%)	159 (52.1%)
	Senior high school	4 (2.6%)	1 (0.7%)	5 (1.6%)
	Junior high school or less	0 (0%)	0 (0%)	0 (0%)
	Total	153 (100%)	152 (100%)	305 (100%)
Employee number	5 or less	15 (9.8%)	0 (0%)	15 (4.9%)
	6 - 10	38 (24.8%)	1 (0.7%)	39 (12.8%)
	11 - 20	53 (34.6%)	3 (2.0%)	56 (18.4%)
	21 - 30	23 (15.0%)	30 (19.7%)	53 (17.4%)
	31 - 50	15 (9.8%)	50 (32.9%)	65 (21.3%)
	Over 50	9 (5.9%)	68 (44.7%)	77 (25.2%)
	Total	153 (100%)	152 (100%)	305 (100%)

Demographic Variable (continued)	Category	ISSMEs Frequency (%)	AOSMEs Frequency (%)	Total Frequency (%)
Primary responsibility	Founder	18 (11.8%)	7 (4.6%)	25 (8.2%)
	General Management	8 (5.2%)	15 (9.9%)	23 (7.5%)
	Operations/Production	3 (2.0%)	3 (1.9%)	6 (2.0%)
	Administration, Logistics	22 (14.4%)	31 (20.4%)	53 (17.4%)
	Financial/Accounting	12 (7.8%)	17 (11.2%)	29 (9.5%)
	Human Resources	7 (4.6%)	23 (15.1%)	30 (9.8%)
	Marketing/Sales	45 (29.4%)	24 (15.8%)	69 (22.6%)
	Technical/R&D	31 (20.3%)	20 (13.2%)	51 (16.7%)
	Other	7 (4.6%)	12 (7.9%)	19 (6.2%)
	Total	153 (100%)	152 (100%)	305 (100%)
Years of enterprise operation	Less than 1 year	5 (3.3%)	0 (0%)	5 (1.6%)
	1 - 3 years	78 (51.0%)	3 (1.9%)	81 (26.6%)
	4 - 10 years	53 (34.6%)	44 (29.0%)	97 (31.8%)
	11 - 20 years	12 (7.8%)	73 (48.0%)	85 (27.9%)
	Over 20 years	5 (3.3%)	32 (21.1%)	37 (12.1%)
	Total	153 (100%)	152 (100%)	305 (100%)
Incubated Start-up	Yes	153 (100%)	0 (0%)	153 (50.2%)
	No	0 (0%)	152 (100%)	152 (49.8%)
	Total	153 (100%)	152 (100%)	305 (100%)
Outstanding award	The National Award for Outstanding SME	0 (0%)	49 (32.2%)	49 (16.1%)
	The Rising Star Award	0 (0%)	30 (19.8%)	30 (9.8%)
	Taiwan SME's Innovation Award	12 (7.8%)	66 (43.4%)	78 (25.6%)
	None	140 (91.5%)	0 (0%)	140 (45.9%)
	Other	1 (0.6%)	7 (4.6%)	8 (2.6%)
	Total	153 (100%)	152 (100%)	305 (100%)

Demographic Information of Participants

Table 10 describes the responses of participants' demographic information with results shown for both ISSMEs and AOSMEs in eight categories: gender, age, education level, primary responsibility, years of enterprise in operation, number of employees, incubated start-up, and outstanding award.

In terms of years of enterprise operation of ISSMEs, the largest group was 1-3 years (51%), while the largest group of AOSMEs was 11-20 years (48%). The largest category of total responses was from 4 to 10 years (31.8%).

In terms of outstanding award of ISSMEs, the largest group was no award (91.5%), while the largest group of AOSMEs was Taiwan SME's Innovation Award (43.4%). The largest category of total responses was no award (45.9%).

Data Collection

According to established academic ethics codes and the University of Minnesota regulations, an IRB (Institutional Review Board) approval is required for data collection. Application for IRB approval was made for this study. Following approval from the IRB, first contact was made by e-mail to seek agreement from the core member of each SME to participate. The survey was integrated with the cover letter and the consent form using web tools and sent to the samples' electronic mail account.

Thus, this study used a self-administered computer-based Internet survey method in order to decrease the effect of social desirability and for ease in administration and analysis. Dwight and Feigelson (2000) found that testing by computer might reduce socially desirable responses as computer-administered questions may result in an increased sense of anonymity (Lautenschlager & Flaherty, 1990). Several studies have

found that participants identify the computer-based survey as being more anonymous than either paper-and-pencil or interview formats (Booth-Kewley, Edwards, & Rosenfeld, 1992; Lautenschlager & Flaherty, 1990). The University of Minnesota's College of Education's online survey service (<https://survey.cehd.umn.edu/Surveys/>) was used to conduct the survey.

There are three benefits for Internet surveys: (a) there is no time limitations of accessibility by participants all over the world (Birnbaum, 2004), (b) it is flexible for design and implementation (Dillman, 2007), and (c) it is convenient for data coding and entry (Bartlett, 2005). Negatively, Internet system failure would potentially impact the response rate. Besides, it is inconvenient for people who are unfamiliar with computer technology to complete online surveys. I contacted respondents with a follow-up email and phone call two weeks after the initial delivery of the URL for the questionnaire. The purpose of the phone call was to encourage participation and, when requested, to complete the questionnaire over the phone.

It is important to know the ethical issues that can occur at various points in the research process so the researcher can employ appropriate strategies to resolve them (Gall, Gall, & Borg, 2007). First, informed consent is important. The research topic, the research procedures, the relationship of the research to the community context, the application of results, and potential benefits and concerns to the participants were communicated. Returning the survey was implied acceptance of consent to participate (Gall, Gall, & Borg, 2007). Second, the participants were informed that their responses were anonymous. The data were collected and protected in an off-site computer system in order to protect the anonymity of the information. In addition, the participants were able

to withdraw from the study at any time. Finally, permission was sought and received from the publishers of the DLOQ, OCQ, and SOO instruments to use their instrument in this study.

Data Analysis

The research data were collected to conduct data analysis and compute descriptive statistics for each group (AOSMEs and ISSMEs) (Gall, Gall, & Borg, 2007). These statistics, including group means, standard deviations, and frequencies, were used to describe item responses, dimensions, and instrument characteristics. One-way ANOVA was conducted to identify the differences among demographic groups and independent variables; t-tests were performed to identify differences between Taiwanese AOSMEs and ISSMEs.

Finally, a correlation analysis was used to assess the associations among the constructs of learning organization practice, organizational commitment, and organizational effectiveness. Then, a structural equation modeling (SEM) approach was used to verify hypothesized relationships among the constructs of the three instruments (Yang, 2003) using LISREL (Jöreskog & Sörbom, 1993).

Summary

This chapter described the research design, instrument, population and sample, data collection, and data analysis techniques. An integrated questionnaire was used to collect research data, and then data analyses were performed in SPSS and LISREL.

All the learning organization practices, organizational commitment, and organizational effectiveness scales showed acceptable overall reliability with Cronbach's alphas (α) totaling .82, .78, and .90, respectively. Through confirmatory factor analysis,

the construct validity of the measures for the three instruments in this study was examined. The results confirmed that the DLOQ, OCQ, and SOO have acceptable construct validity.

The 58-item instrument integrated from the DLOQ, OCQ, and SOO measurement included 21 learning organization practices items, 9 organizational commitment items, 20 organizational effectiveness items, and 8 demographic information items. The questionnaire was translated from English into Traditional-Chinese and applied to the Taiwanese context. After a think-aloud and pilot study, the questionnaire was revised and finalized.

The relationships were determined using correlation and SEM. In addition, comparisons based on demographic information and enterprise type were conducted using one-way ANOVA and t-tests.

The data were collected from a sample of 300 SMEs, including 152 AOSMEs (awarded outstanding small and medium-sized enterprises) and 148 ISSMEs (incubating start-up small and medium-sized enterprises). The overall response rate was 61%, while the response rate of the ISSMEs was 61.2% and the rate of the AOSMEs was 60.8%.

This study used a self-administered computer-based Internet and phone call surveys to collect the research data. IRB approval was sought and obtained; permission from the publishers to use the instruments was obtained.

CHAPTER 4

RESULTS

This chapter presents the results from the data analyses. First, descriptive statistics for the scales are reported. Second, differences among demographic groups and between the ISSMEs and AOSMEs were determined with one-way ANOVA and t-tests. Finally, the relations among learning organization practices, organizational commitment, and organizational effectiveness were explored with correlation analysis and structural equation modeling (SEM). Two statistical program tools, SPSS 16.0 and LISREL 8.7, were used to conduct the statistical analyses.

Descriptive Statistics

Three hundred respondents in small and medium-sized enterprises in Taiwan participated. There were 50 questions in total asking participants about the learning organization practices of their enterprise (21 items), organizational commitment (9 items), and organizational effectiveness (20 items). In this section, individual and overall means and standard deviations calculated from subscales and items in the three scales are presented. Table 11 shows the results from the three scales and their subscales, while Tables 12, 13, and 14 show the scores of items in each of the scales.

Table 11

Descriptive Statistics on Scales and Subscales in the Taiwanese SMEs Context (n=300)

Scale	Subscales	Mean	S. D.
Learning	LOP1, create systems	4.09	.56
Organization	LOP2, inquiry and dialogue	3.50	.63
Practices	LOP3, connect the environment	3.76	.62
	LOP4, continuous learning	3.33	.76
	LOP5, collaboration & team learning	3.76	.69
	LOP6, empower people	3.75	.74
	LOP7, strategic leadership	3.61	.75
	Total Scale	3.69	.55
	Organizational Commitment	OC1, desire to maintain membership	3.99
OC2, degree of goal and value		3.99	.65
OC3, willingness to exert effort		3.79	.78
Total Scale		3.93	.63
Organizational Effectiveness	OE1, leadership	3.64	.52
	OE2, satisfaction	3.46	.66
	OE3, organizational climate	3.47	.67
	Total Scale	3.52	.57

As shown in Table 11, participants in the sample enterprises had the higher overall score on organizational commitment, and the lower overall score on organizational effectiveness. At the level of subscales, empower people (LOP5) had the highest score and create systems the lowest score. These results seem reasonable as most participants were core members or key employees in small and medium-sized enterprises, so they presumably had more willingness to exert effort and had greater desire for maintaining membership in SMEs.

Table 12

Descriptive Statistics on Items in the Learning Organization Practices Scale

Items	No. of Responses	Mean	S. D.
10	300	3.82	.86
21	300	4.01	.80
24	300	3.46	.95
07	300	3.29	.92
33	300	3.49	.79
43	300	3.73	.73
03	300	3.76	.90
18	300	4.01	.78
26	300	3.49	.96
01	300	3.76	.87
05	300	2.85	1.25
14	300	3.38	.91
09	300	4.55	.60
40	299	3.33	1.02
46	300	4.40	.64
12	300	3.68	.91
16	300	3.96	.70
29	299	3.21	1.23
08	300	3.71	.67
20	300	3.63	.81
23	299	3.95	.72

Table 12 shows that item 09 (“My organization recognizes people for taking initiative”) had the highest score (4.55) with the lowest standard deviation (0.60). In addition to item 09, three other items had high scores over 4.00, including item 21 (“In my organization, people are rewarded for learning”), item 18 (“In my organization, teams/groups revise their thinking as a result of group discussion or information collected”), and item 46 (“My organization supports employees who take calculated risks”). Comparatively, item 05 (“My organization creates systems to measure gaps between current and expected performance”) had the lowest score (2.85). Most

participant SMEs apparently still do not create the appropriate systems to measure gaps between current and expected performance.

Table 13

Descriptive Statistics on Items in the Organizational Commitment Scale

Items	No. of Responses	Mean	S. D.
32	300	4.36	.70
38	300	3.36	1.16
42	300	3.66	.92
04	300	4.05	.81
28	300	4.13	.77
31	299	3.78	.75
25	298	3.55	.89
37	300	3.87	.71
48	300	4.53	.62

Table 13 shows that item 38 (“I would accept almost any type of job assignment in order to keep working for this organization”) had the lowest score (3.36), meaning that most participants have their specific job preference in the organization. Item 48 (“I really care about the fate of this organization”) had the highest score (= 4.53), which may indicate that most employees committed to their organization and its future.

Table 14

Descriptive Statistics on Items in the Organizational Effectiveness Scale

Items	No. of Responses	Mean	S. D.
06	300	3.72	.80
11	300	3.68	.81
15	300	3.82	.78
30	300	3.64	.75
34	300	3.54	.74
36	300	3.59	.77
39	299	3.57	.78
45	300	3.55	.85
13	300	3.54	.95
17	300	3.74	.78
27	300	3.23	1.02
35	300	3.10	.92
44	300	3.75	.82
47	300	2.72	1.02
49	300	3.51	.79
02	299	3.44	.77
19	300	3.54	.75
22	300	3.51	.76
41	300	3.61	.83
50	300	3.56	.86

As Table 14 shows, most items scored evenly, ranging from 2.72 (item 47) to 3.82 (item 15), which may imply that most participant SMEs pay equal, but not particularly high, attention to the aspects of organizational effectiveness. However, item 47 (“Considering your skills and the effort you put into the work, how satisfied are you with your pay”) had an exceptionally low score (= 2.72), implying that most participant employees were less satisfied with their pay (salaries and other benefits) for the work they had put into their skills and efforts.

Differences in Demographic Groups and SMEs

In this section, differences, if any, in learning organization practices, organizational commitment, and organizational effectiveness between different demographic groups and the types of SMEs--AOSMEs (awarded outstanding small and medium-sized enterprises) and ISSMEs (incubating start-up small and medium-sized enterprises)--are presented. Such differences were examined with three statistical techniques--one-way ANOVA, Turkey t-tests when significance emerged, and t-tests. Each demographic and organizational type variable was tested against the three scales and their associated subscales to determine if there were differences based on these variables.

Differences between Genders

The frequencies on gender are shown in Table 15.

Table 15

Frequencies of Gender (n=300)

Demographic Variable	Category	Frequency	Percent
Gender	Male	179	59.7
	Female	121	40.3

Table 16

Differences in Outcomes Based on Gender as Determined by t-tests (n=300)

Variable	t-value	Sig.	Mean		S. D.		Differences*
			A n = 179	B n = 121	A n = 179	B n = 121	
LOP1	1.14	.26	3.80	3.71	.73	.63	None
LOP2	1.68	.09	3.55	3.43	.62	.62	None
LOP3	0.77	.44	3.78	3.71	.74	.74	None
LOP4	1.02	.31	3.37	3.28	.74	.79	None
LOP5	2.33*	.02	4.16	4.01	.53	.57	A > B
LOP6	1.50	.13	3.67	3.53	.75	.75	None
LOP7	2.05*	.04	3.82	3.67	.65	.54	A > B
Overall LOP	1.80	.07	3.74	3.62	.55	.54	None
OC1	3.29*	.00	3.92	3.63	.77	.72	A > B
OC2	2.61*	.01	4.07	3.88	.62	.66	A > B
OC3	2.60*	.01	4.07	3.88	.63	.58	A > B
Overall OC	3.02*	.00	4.02	3.80	.62	.60	A > B
OE1	1.26	.21	3.67	3.60	.52	.48	None
OE2	1.40	.16	3.52	3.41	.67	.67	None
OE3	2.29*	.02	3.49	3.31	.66	.63	A > B
Overall OE	1.82	.07	3.57	3.45	.57	.54	None

*The t-values are significant at the .05 level.

Note: A, male; B, female; LOP1, create systems; LOP2, promote inquiry and dialogue; LOP3, connect the organization to its environment; LOP4, continuous learning opportunity; LOP5, collaboration and team learning; LOP6, empower people toward a collective version; LOP7, provide strategic leadership for learning; Overall LOP, overall learning organization practices; OC1, desire to maintain membership; OC2, degree of goal and value; OC3, willingness to exert effort; OC, organizational commitment; OE1, leadership; OE2, satisfaction; OE3, organizational climate; OE, organizational effectiveness.

The t-test was used to analyze whether there were differences in learning organization practices, organizational commitment, and organizational effectiveness based on gender. As Table 16 shows, some comparisons revealed significant differences. In every instance where there was a significant difference, males had the higher scores.

First, significant differences in three subscales and the overall scale of organizational commitment were found based on gender. Males had a higher score on willingness to exert effort, degree of goal and value, and desire to maintain membership, and males were more satisfied with their organization overall.

Second, the results demonstrated that there were no gender differences in most of the dimensions of learning organization practices, except for the two dimensions of LOP5 (empowering people toward a collective version) and LOP7 (providing strategic leadership for learning); in both instances, males scored higher.

Third, the results also displayed no differences between genders in two subscales (leadership and organizational climate) and the overall scale of organizational effectiveness. Only the subscale, OE3 (satisfaction), showed a significant difference, with males scoring higher.

Differences among Age Groups

The frequencies on age are shown in Table 17.

Table 17

Frequencies of Age (n=300)

Demographic Variable	Category	Frequency	Percent
Age	Less than 30 years old	37	12.3
	30 - 39 years old	124	41.3
	40 - 49 years old	99	33.0
	50 years old or more	40	13.4

Table 17 shows the distribution of the age variable, For the purpose of effective comparison, the four groups were merged into three; the age group of less than 30 years old was merged with the next older group.

An ANOVA was conducted to test the age differences on the three constructs of learning organization practices, organizational commitment, and organizational effectiveness and their subscales. The ANOVA results are presented in Table 18.

Table 18

*Differences in Outcome Variables Based on Age as Determined by One-Way ANOVAs**(n=300)*

Variables	Mean (SD)			F	Sig.	Multiple Differences*
	A n = 161	B n = 99	C n = 40			
LOP1	3.67 (.64)	3.76 (.71)	4.15 (.72)	8.17	.00	C > B, C > A
LOP2	3.39 (.61)	3.62 (.58)	3.68 (.68)	6.49	.00	C > A, B > A
LOP3	3.63 (.73)	3.82 (.76)	4.10 (.60)	7.42	.00	C > A
LOP4	3.22 (.75)	3.40 (.75)	3.66 (.72)	6.20	.00	C > A
LOP5	3.97 (.56)	4.18 (.49)	4.43 (.49)	13.56	.00	C > B, C > A, B > A
LOP6	3.45 (.71)	3.69 (.75)	4.01 (.71)	12.47	.00	C > B, C > A, B > A
LOP7	3.64 (.56)	3.85 (.62)	4.05 (.67)	9.36	.00	C > A, B > A
Overall LOP	3.56 (.51)	3.7 (.54)	4.01 (.54)	13.39	.00	C > B, C > A, B > A
OC1	3.59 (.72)	3.96 (.76)	4.25 (.67)	16.94	.00	C > A, B > A
OC2	3.83 (.63)	4.10 (.62)	4.37 (.52)	14.43	.00	C > A, B > A
OC3	3.84 (.58)	4.09 (.60)	4.34 (.61)	13.42	.00	C > A, B > A
Overall OC	3.76 (.59)	4.06 (.60)	4.32 (.55)	17,65	.00	C > B, C > A, B > A
OE1	3.54 (.49)	3.72 (.46)	3.85 (.60)	7.78	.00	C > A, B > A
OE2	3.33 (.63)	3.55 (.66)	3.88 (.65)	12.63	.00	C > B, C > A, B > A
OE3	3.27 (.64)	3.51 (.62)	3.79 (.63)	12.54	.00	C > A, B > A
Overall OE	3.39 (.53)	3.61 (.52)	3.83 (.58)	12.62	.00	C > A, B > A

*Mean differences are significant at the .05 level as determined by the post hoc Turkey t-test.

Note: A, less than 40 years old; B, 40-49 years old; C, 50 years old or more; LOP1, create systems; LOP2, promote inquiry and dialogue; LOP3, connect the organization to its environment; LOP4, continuous learning opportunity; LOP5, collaboration and team learning; LOP6, empower people toward a collective version; LOP7, provide strategic leadership for learning; Overall LOP, overall learning organization practices; OC1, desire to maintain membership; OC2, degree of goal and value; OC3, willingness to exert effort; OC, organizational commitment; OE1, leadership; OE2, satisfaction; OE3, organizational climate; OE, organizational effectiveness.

Table 18 indicates that participants in the three age groups had significant differences in all comparisons. The study found that the group aged 50 years old or more had the highest score in all three scales and their subscales. This was especially so in the overall OC scale and OC1 (willingness to exert effort) subscale. The reason for this may be because they had a greater degree of commitment to the goals and values of the organization and desired to maintain membership in the organization.

The second most significant difference was in the scores of those between 40 and 49 years of age. This study found many entrepreneurs and people in high levels of management who belonged to this age group. They also had high organizational commitment, as well as organizational learning and effectiveness perspectives.

The group aged less than 40 years had significantly smaller scores than in the other two groups, perhaps because they would have the least cost if they were to transfer to another organization.

Differences Based on Education Level

The category of junior high school or less was excluded because of no responses in the study. The categories and response frequencies on the demographic variable of education level are showed in Table 19.

Table 19

Frequencies of Education Level (n=300)

Demographic Variable	Category	Frequency	Percent
Education Level	Doctoral degree	39	13.0
	Master's degree	101	33.7
	Four-year or two-year college degree	156	52.0
	Senior high school	4	1.3
	Junior high school or less	0	0

For the purposes of effective comparison, the four groups were merged into three groups: (a) doctoral degree; (b) Master's degree; and (c) college degree or less. Then, ANOVA was performed to analyze the differences among the three groups. Differences based on educational level are shown in Table 20.

Table 20

*Differences in the Outcome Variables Based on Education Level Using One-Way**ANOVAs (n=300)*

Variables	Mean (SD)			F	Sig.	Multiple Differences*
	A n = 39	B n = 101	C n = 160			
LOP1	4.07 (.63)	3.82 (.71)	3.65 (.67)	6.30	.00	A > C
LOP2	3.79 (.49)	3.57 (.60)	3.40 (.64)	7.38	.00	A > C
LOP3	3.91 (.60)	3.83 (.71)	3.67 (.78)	2.47	.09	None
LOP4	3.61 (.63)	3.31 (.75)	3.28 (.78)	2.94	.05	A > C
LOP5	4.29 (.48)	4.09 (.58)	4.05 (.54)	3.04	.05	A > C
LOP6	3.86 (.53)	3.59 (.74)	3.56 (.80)	2.55	.08	None
LOP7	4.18 (.55)	3.76 (.67)	3.66 (.55)	11.92	.00	A > B, A > C
Overall LOP	3.96 (.45)	3.71 (.55)	3.61 (.55)	6.72	.00	A > B, A > C
OC1	4.39 (.68)	3.85 (.77)	3.62 (.70)	18.13	.00	A > B, A > C, B > C
OC2	4.31 (.64)	4.03 (.67)	3.89 (.60)	7.13	.00	A > C
OC3	4.41 (.55)	4.02 (.65)	3.87 (.56)	13.09	.00	A > B, A > C
Overall OC	4.37 (.58)	3.99 (.63)	3.80 (.57)	15.33	.00	A > B, A > C, B > C
OE1	3.97 (.51)	3.67 (.51)	3.55 (.47)	11.86	.00	A > B, A > C
OE2	3.74 (.57)	3.51 (.68)	3.39 (.67)	4.76	.01	A > C
OE3	3.89 (.57)	3.41 (.65)	3.30 (.62)	13.95	.00	A > B, A > C
Overall OE	3.88 (.49)	3.54 (.56)	3.42 (.54)	11.69	.00	A > B, A > C

* Mean differences are significant at the .05 level as determined by the post hoc Turkey t-test.

Note: A, doctoral degree; B, Master's degree; C, college degree or less; LOP1, create systems; LOP2, promote inquiry and dialogue; LOP3, connect the organization to its environment; LOP4, continuous learning opportunity; LOP5, collaboration and team learning; LOP6, empower people toward a collective version; LOP7, provide strategic leadership for learning; Overall LOP, overall learning organization practices; OC1, desire to maintain membership; OC2, degree of goal and value; OC3, willingness to exert effort; OC, organizational commitment; OE1, leadership; OE2, satisfaction; OE3, organizational climate; OE, organizational effectiveness.

Table 20 reveals that in almost all comparisons the participants were different based on educational level. Only two subscales of learning organization practices, LOP3 and LOP 6, showed no differences.

When differences occurred, those with a doctoral degree showed the highest level of learning organization practices, organizational commitment, and organizational effectiveness. The group with a Master's degree showed a higher level than the group with a college degree or less in only one subscale of organizational commitment (willingness to exert effort) and overall organizational commitment.

Second, no differences were found in only two subscales of learning organization practices (collaboration and team learning; and connecting the organization to its environment).

Differences based on Primary Responsibility Groups

The frequencies on the demographic variable of primary responsibility are showed in Table 21.

Table 21

Frequencies of Primary Responsibility (n=300)

Demographic Variable	Category	Frequency	Percent
Primary Responsibility	Founder	25	8.3
	General Management	23	7.7
	Operations/Production	6	2.0
	Administration/Logistics	52	17.3
	Financial/Accounting	28	9.3
	Human Resources	29	9.7
	Marketing/Sales	68	22.7
	Technical/R&D	50	16.7
	Others	19	6.3

For the purposes of effective comparison, the nine groups were merged into three groups: (a) administration (n = 157, including founder, general management, administration/logistics, financial/accounting, and human resources); (b) technical (n = 56, including operations/production and technical/R&D); and (c) marketing and others (n = 87; the category of others includes customer service, public relations official, marketing planning official, and foreign affairs official). Then, ANOVAs were performed to analyze the differences among the three groups, as shown in Table 22.

Table 22

Differences in Outcome Variables Based on the Primary Responsibility Levels as Determined by One-Way ANOVAs (n=300)

Variables	Mean (SD)			F	Sig.	Multiple Differences*
	A n = 157	B n = 56	C n = 87			
LOP1	3.94 (.64)	3.63 (.74)	3.54 (.68)	11.31	.00	A > B, A > C
LOP2	3.65 (.62)	3.44 (.56)	3.30 (.60)	9.89	.00	A > C
LOP3	3.97 (.63)	3.56 (.84)	3.48 (.73)	16.11	.00	A > B, A > C
LOP4	3.55 (.70)	3.16 (.78)	3.05 (.74)	15.30	.00	A > B, A > C
LOP5	4.24 (.51)	3.93 (.57)	3.95 (.55)	11.50	.00	A > B, A > C
LOP6	3.87 (.67)	3.43 (.72)	3.26 (.76)	23.10	.00	A > B, A > C
LOP7	3.92 (.62)	3.61 (.60)	3.57 (.54)	11.94	.00	A > B, A > C
Overall LOP	3.88 (.51)	3.54 (.53)	3.44 (.51)	23.12	.00	A > B, A > C
OC1	4.05 (.72)	3.60 (.67)	3.48 (.75)	20.79	.00	A > B, A > C
OC2	4.16 (.61)	3.82 (.64)	3.81 (.63)	11.68	.00	A > B, A > C
OC3	4.21 (.59)	3.73 (.55)	3.78 (.56)	22.58	.00	A > B, A > C
Overall OC	4.14 (.59)	3.71 (.56)	3.70 (.57)	21.06	.00	A > B, A > C
OE1	3.79 (.54)	3.47 (.41)	3.48 (.43)	15.84	.00	A > B, A > C
OE2	3.69 (.62)	3.23 (.67)	3.24 (.62)	19.13	.00	A > B, A > C
OE3	3.64 (.62)	3.20 (.57)	3.16 (.63)	20.96	.00	A > B, A > C
Overall OE	3.72 (.54)	3.31 (.49)	3.31 (.50)	22.27	.00	A > B, A > C

* Mean differences are significant at the .05 level as determined by the post hoc Turkey t-test.

Note: A, administration responsibilities; B, technical responsibilities; C, marketing responsibilities and others; LOP1, create systems; LOP2, promote inquiry and dialogue; LOP3, connect the organization to its environment; LOP4, continuous learning opportunity; LOP5, collaboration and team learning; LOP6, empower people toward a collective version; LOP7, provide strategic leadership for learning; Overall LOP, overall learning organization practices; OC1, desire to maintain membership; OC2, degree of goal and value; OC3, willingness to exert effort; OC, organizational commitment; OE1, leadership; OE2, satisfaction; OE3, organizational climate; OE, organizational effectiveness.

The results from the ANOVAs are presented in Table 22. All the comparisons showed significant differences, with the group with primary responsibility in administration having the highest level of learning organization practices, organizational commitment, and organizational effectiveness. No differences existed between the other two groups.

Differences among Years of Enterprise Operation

The years of enterprise operation variable was measured in four groups, and the distribution of the variable is shown in Table 23.

Table 23

Frequencies of Years of Enterprise Operation (n=300)

Demographic Variable	Category	Frequency	Percent
Years of enterprise operation	Less than 1 year	5	(excluded)
	1 - 3 years	81	27.0
	4 - 10 years	97	32.3
	11 - 20 years	85	28.3
	Over 20 years	37	12.4

For the purposes of effective comparison, the five groups were merged into three groups; the operation year group of less than 1 year was excluded because it did not meet the need of this study, and the group of over 20 years was merged into the 11-20 years group. Then, ANOVA was performed to analyze the differences among the three groups, as shown in Table 24.

Table 24

Differences in Outcome Variables Based on the Years of Enterprise Operation as Determined by One-Way ANOVAs (n=300)

Variables	Mean (SD)			F	Sig.	Multiple Differences*
	A n = 81	B n = 97	C n = 122			
LOP1	3.36 (.75)	3.75 (.65)	4.04 (.53)	28.22	.00	C > B, B > A, C > A
LOP2	3.19 (.60)	3.46 (.57)	3.75 (.57)	22.51	.00	C > B, B > A, C > A
LOP3	3.21 (.74)	3.69 (.70)	4.16 (.49)	53.48	.00	C > B, B > A, C > A
LOP4	2.77 (.61)	3.23 (.69)	3.80 (.61)	65.39	.00	C > B, B > A, C > A
LOP5	3.73 (.56)	4.10 (.46)	4.34 (.46)	36.44	.00	C > B, B > A, C > A
LOP6	3.10 (.70)	3.56 (.68)	3.99 (.62)	44.61	.00	C > B, B > A, C > A
LOP7	3.68 (.64)	3.74 (.53)	3.84 (.65)	1.79	.17	None
Overall LOP	3.29 (.50)	3.64 (.49)	3.99 (.44)	53.41	.00	C > B, B > A, C > A
OC1	3.42 (.83)	3.75 (.72)	4.09 (.63)	21.95	.00	C > B, B > A, C > A
OC2	3.62 (.61)	3.95 (.59)	4.27 (.57)	30.03	.00	C > B, B > A, C > A
OC3	3.68 (.64)	3.95 (.54)	4.24 (.55)	23.43	.00	C > B, B > A, C > A
Overall OC	3.58 (.64)	3.89 (.55)	4.20 (.53)	29.41	.00	C > B, B > A, C > A
OE1	3.45 (.53)	3.63 (.43)	3.77 (.51)	10.25	.00	C > A
OE2	2.97 (.57)	3.42 (.58)	3.85 (.55)	59.67	.00	C > B, B > A, C > A
OE3	3.04 (.66)	3.41 (.56)	3.67 (.60)	26.56	.00	C > B, B > A, C > A
Overall OE	3.19 (.55)	3.50 (.47)	3.76 (.51)	30.27	.00	C > B, B > A, C > A

* Mean differences are significant at the .05 level as determined by the post hoc Turkey t-test.

Note: A, enterprise operation between 1 - 3 years; B, enterprise operation between 4 - 10 years; C, enterprise operation over 10 years; LOP1, create systems; LOP2, promote inquiry and dialogue; LOP3, connect the organization to its environment; LOP4, continuous learning opportunity; LOP5, collaboration and team learning; LOP6, empower people toward a collective version; LOP7, provide strategic leadership for learning; Overall LOP, overall learning organization practices; OC, organizational commitment; OE, organizational effectiveness.

In all but one ANOVA comparison, respondents in the three groups by operation year indicated significant differences. The exception was strategic leadership (LOP7), which showed no differences. In almost every instance where differences were found, the respondents in organizations with the longest existence scored highest.

Differences among Employee Size

The frequencies on employee numbers in the employing enterprises are shown in Table 25.

Table 25

Frequencies of Employee Numbers (n=300)

Demographic Variable	Category	Frequency	Percent
Employee Number	5 or less	12	4.0
	6 - 10	37	12.3
	11 - 20	56	18.7
	21 - 30	53	17.7
	31 - 50	65	21.7
	Over 50	77	25.6

For the purposes of effective comparison, the six groups were merged into three groups: (a) number of employees is 20 or less (n = 105); (b) number of employees between 21-50 (n = 118); and (c) number of employees over 50 (n = 77). Then, ANOVAs were performed to analyze the differences among the three groups.

Table 26

Differences in Outcome Variables Based on Employee Numbers as Determined by One-Way ANOVAs (n=300)

Variables	Mean (SD)			F	Sig.	Multiple Differences*
	A n = 105	B n = 118	C n = 77			
LOP1	3.38 (.7)	3.90 (.53)	4.07 (.55)	31.33	.00	C > A, B > A
LOP2	3.17 (.60)	3.66 (.58)	3.72 (.52)	27.42	.00	C > A, B > A
LOP3	3.23 (.74)	3.97 (.58)	4.13 (.53)	55.73	.00	C > A, B > A
LOP4	2.74 (.61)	3.58 (.63)	3.77 (.62)	76.87	.00	C > A, B > A
LOP5	3.75 (.55)	4.25 (.46)	4.34 (.44)	41.75	.00	C > A, B > A
LOP6	3.10 (.66)	3.79 (.66)	4.04 (.61)	53.05	.00	C > A, B > A
LOP7	3.66 (.62)	3.78 (.55)	3.87 (.68)	2.70	.07	None
Overall LOP	3.29 (.49)	3.84 (.44)	3.99 (.44)	62.64	.00	C > A, B > A
OC1	3.37 (.81)	3.96 (.64)	4.13 (.61)	31.51	.00	C > A, B > A
OC2	3.63 (.64)	4.14 (.51)	4.27 (.61)	32.77	.00	C > A, B > A
OC3	3.67 (.61)	4.10 (.52)	4.27 (.59)	26.74	.00	C > A, B > A
Overall OC	3.57 (.62)	4.06 (.50)	4.22 (.55)	34.98	.00	C > A, B > A
OE1	3.44 (.49)	3.72 (.48)	3.80 (.49)	14.10	.00	C > A, B > A
OE2	2.99 (.56)	3.66 (.57)	3.84 (.56)	61.68	.00	C > A, B > A
OE3	3.04 (.63)	3.56 (.57)	3.71 (.56)	34.49	.00	C > A, B > A
Overall OE	3.19 (.53)	3.65 (.48)	3.78 (.49)	37.19	.00	C > A, B > A

* Mean differences are significant at the .05 level as determined by the post hoc Turkey t-test.

Note: A, number of employees is 20 or less; B, number of employees between 21-50; C, number of employees over 50; LOP1, create systems; LOP2, promote inquiry and dialogue; LOP3, connect the organization to its environment; LOP4, continuous learning opportunity; LOP5, collaboration and team learning; LOP6, empower people toward a collective version; LOP7, provide strategic leadership for learning; Overall LOP, overall learning organization practices; OC, organizational commitment; OE, organizational effectiveness.

Table 26 indicates that most comparisons based on the number of employees showed consistent differences, with the largest companies always scoring higher than the smallest companies, and the medium-sized companies also scoring higher than the smallest companies. Only one component (LOP7) in learning organization practices had no differences.

Differences among the Outstanding Award Groups

Table 27 shows the frequencies based on the outstanding award received

Table 27

Frequencies of Outstanding Award Received (n=300)

Demographic Variable	Category	Frequency	Percent
Outstanding Award	The National Award for Outstanding SME	49	16.3
	The Rising Star Award	30	10.0
	Taiwan SME's Innovation Award	78	26.0
	Other Awards	8	2.7
	None	135	45.0

For the purposes of effective comparison, the five groups shown in Table 27 were merged into three groups: (a) national award for outstanding SME, rising star award, and other award (n = 87); (b) Taiwan SME's Innovation Award (n = 78); and (c) None (n = 135). Then, ANOVAs were performed to analyze the differences among the three groups, as shown in Table 28.

Table 28

*Differences in Outcome Variables based on Receipt of an Outstanding Award as**Determined by One-Way ANOVA (n=300)*

Variables	Mean (SD)			F	Sig.	Multiple Differences*
	A n = 87	B n = 78	C n = 135			
LOP1	4.06 (.51)	3.99 (.53)	3.45 (.74)	32.20	.00	A > C, B > C
LOP2	3.71 (.51)	3.78 (.53)	3.22 (.61)	32.57	.00	A > C, B > C
LOP3	4.16 (.46)	4.09 (.52)	3.30 (.74)	68.14	.00	A > C, B > C
LOP4	3.85 (.57)	3.73 (.53)	2.78 (.58)	119.52	.00	A > C, B > C
LOP5	4.36 (.41)	4.39 (.40)	3.76 (.52)	66.04	.00	A > C, B > C
LOP6	4.07 (.57)	3.94 (.57)	3.13 (.66)	76.33	.00	A > C, B > C
LOP7	3.85 (.65)	3.91 (.53)	3.62 (.61)	6.58	.00	A > C, B > C
Overall LOP	4.01 (.38)	3.98 (.38)	3.32 (.49)	88.39	.00	A > C, B > C
OC1	4.16 (.54)	4.11 (.53)	3.39 (.80)	47.27	.00	A > C, B > C
OC2	4.31 (.50)	4.27 (.45)	3.63 (.63)	52.94	.00	A > C, B > C
OC3	4.31 (.51)	4.22 (.45)	3.65 (.60)	49.20	.00	A > C, B > C
Overall OC	4.26 (.45)	4.20 (.43)	3.57 (.61)	59.60	.00	A > C, B > C
OE1	3.80 (.45)	3.77 (.45)	3.46 (.52)	16.20	.00	A > C, B > C
OE2	3.91 (.50)	3.78 (.47)	3.01 (.57)	96.15	.00	A > C, B > C
OE3	3.74 (.52)	3.68 (.47)	3.05 (.64)	50.76	.00	A > C, B > C
Overall OE	3.81 (.44)	3.75 (.41)	3.21 (.54)	52.05	.00	A > C, B > C

* Mean differences are significant at the .05 level as determined by the post hoc Turkey t-test.

Note: A, National Award for Outstanding SME, Rising Star Award, and other award; B, Taiwan SME's Innovation Award; C, none; LOP1, create systems; LOP2, promote inquiry and dialogue; LOP3, connect the organization to its environment; LOP4, continuous learning opportunity; LOP5, collaboration and team learning; LOP6, empower people toward a collective version; LOP7, provide strategic leadership for learning; Overall LOP, overall learning organization practices; OC, organizational commitment; OE, organizational effectiveness.

The ANOVAs reveal that in all comparisons the SMEs who had received an outstanding award scored higher than those companies that had not received an award; however, there were no differences between the two award types.

Relations among Learning Organization Practices, Organizational Commitment, and Organizational Effectiveness

In this section, the relationships among learning organization practices, organizational commitment, and organizational effectiveness were examined. Both correlation analysis and Structural Equation Modeling (SEM) were conducted to explore the relationships among these constructs. SEM is a statistical procedure for testing the validity of a structural model about the causal links among variables (Gall, Gall, & Borg, 2007). The results from the correlation matrix and a structural model of relationships are reported.

Correlations

Correlation values between .10 and .30 are referred to as small or weak positive relationships, between .40 and .60 as moderate positive relationships, and .70 and above as high positive relationships (Tian & Wilding, 2008).

Table 29 shows the correlation matrix of all dimensions of the three constructs being studied—learning organization practices, organizational commitment, and organizational effectiveness.

Table 29

Correlations among Subscales of Three Measurements (n = 300)

	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13
1. LOP1	3.76	.69	1												
2. LOP2	3.51	.62	.38*	1											
3. LOP3	3.75	.74	.34*	.35*	1										
4. LOP4	3.34	.76	.43*	.31*	.43*	1									
5. LOP5	4.10	.55	.33*	.11	.33*	.28*	1								
6. LOP6	3.61	.75	.13*	.35*	.35*	.34*	.06	1							
7. LOP7	3.76	.61	.23*	.22*	.40*	.51*	.06	.31*	1						
8. OC1	3.80	.76	.49*	.39*	.49*	.55*	.19*	.26*	.42*	1					
9. OC2	3.99	.64	.44*	.40*	.43*	.56*	.28*	.30*	.37*	.65*	1				
10. OC3	3.99	.62	.39*	.33*	.43*	.48*	.21*	.32*	.44*	.65*	.53*	1			
11. OE1	3.64	.51	.38*	.38*	.33*	.42*	.22*	.20*	.24*	.37*	.42*	.28*	1		
12. OE2	3.47	.67	.57*	.44*	.34*	.44*	.26*	.16*	.32*	.54*	.51*	.42*	.52*	1	
13. OE3	3.42	.65	.42*	.36*	.34*	.43*	.22*	.21*	.31*	.47*	.48*	.38*	.39*	.51*	1

*Pearson Correlation is significant at the 0.01 level (2-tailed).

Note: LOP1, create systems; LOP2, promote inquiry and dialogue; LOP3, connect the organization to its environment; LOP4, continuous learning opportunity; LOP5, collaboration and team learning; LOP6, empower people toward a collective version; LOP7, provide strategic leadership for learning; OC1, desire to maintain membership; OC2, degree of goal and value; OC3, willingness to exert effort; OE1, leadership; OE2, satisfaction; OE3, organizational climate.

Table 30

Correlations among Scales of Three Measurements (n = 300)

	Mean	S.D.	1	2	3
1. LOP	3.69	.55	1		
2. OC	3.93	.62	.73*	1	
3. OE	3.52	.56	.67*	.63*	1

* Significant at the 0.01 level (2-tailed).

Note: LOP, learning organization practices;
OC, organizational commitment;
OE, organizational effectiveness.

As shown in Table 29, correlations among the three subscales of organizational commitment were strong (ranging from 0.53 to 0.65) and higher than the correlations between them and the dimensions of learning organization practices (ranging from 0.06 to 0.51). Similarly, correlations among the three subscales of organizational effectiveness are strong (ranging from 0.39 to 0.52).

In addition, the correlation between the subscales of learning organization practices and organizational commitment was found to indicate a positive relationship (ranging from .19 to .56). The correlation between the subscales of learning organization practices and organizational effectiveness was found to indicate a positive relationship, too (ranging from .16 to .57).

Furthermore, from the statistical results in Table 30, correlations among the three measurements of learning organization practices, organizational commitment, and organizational effectiveness are strong (ranging from .63 to .73).

The results indicate that:

(1) The employee's willingness (OC1) has a strong relationship with leadership (OE1), which confirms hypothesis 3a.

(2) The employee's willingness (OC1) has a strong relationship with organizational climate (OE2), which confirms hypothesis 3b.

(3) The employee's willingness (OC1) has a strong relationship with satisfaction (OE3), which confirms hypothesis 3c.

(4) The degree of goal and value congruency (OC2) has a strong relationship with leadership (OE1), which confirms hypothesis 3d.

(5) The degree of goal and value congruency (OC2) has a strong relationship with organizational climate (OE2), which confirms hypothesis 3e.

(6) The degree of goal and value congruency (OC2) has a strong relationship with satisfaction (OE3), which confirms hypothesis 3f.

(7) The employee's desire to maintain membership (OC3) has a strong relationship with leadership (OE1), which confirms hypothesis 3g.

(8) The employee's desire to maintain membership (OC3) has a strong relationship with organizational climate (OE2), which confirms hypothesis 3h.

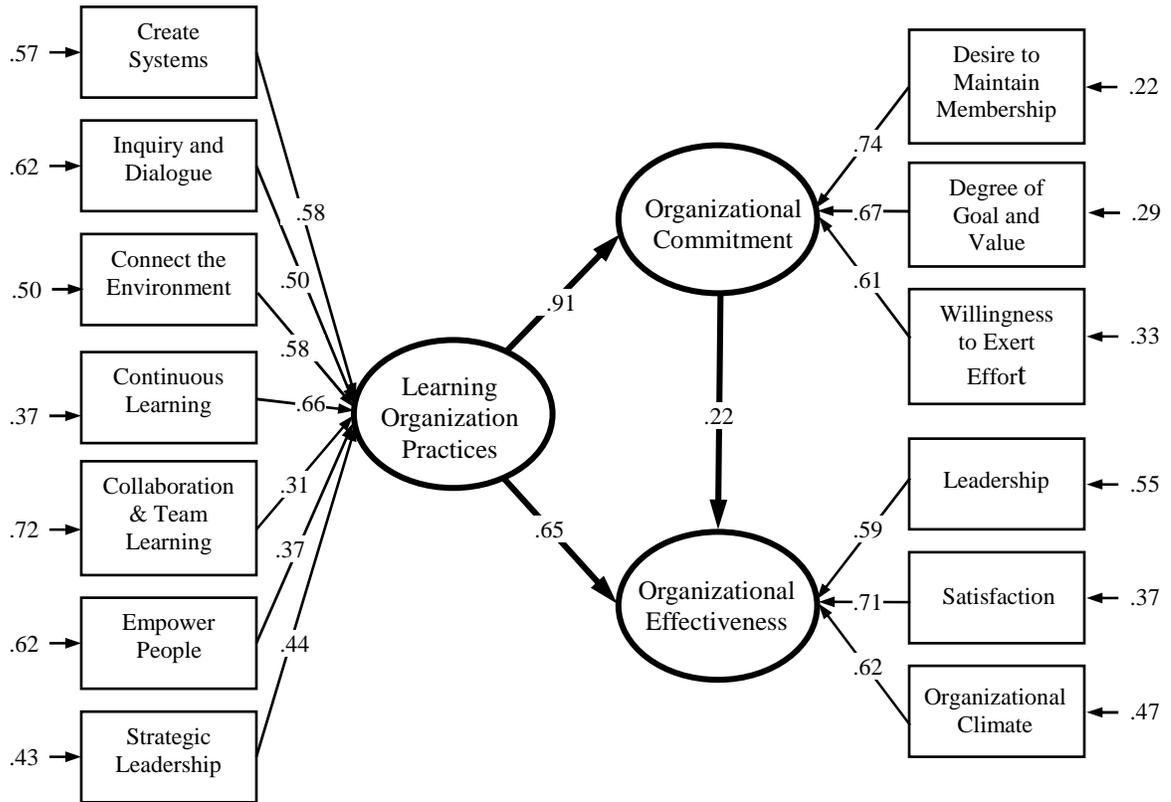
(9) The employee's desire to maintain membership (OC3) has a strong relationship with satisfaction (OE3), which confirms hypothesis 3i.

Structural Equation Modeling

Structural Equation Modeling (SEM), originally developed by Joreskog (1973), is a multivariate statistical method that combines the technique of factor analysis, path analysis, and econometric modeling. In order to explore the accurate relationships among the three constructs, including learning organization practices, organizational

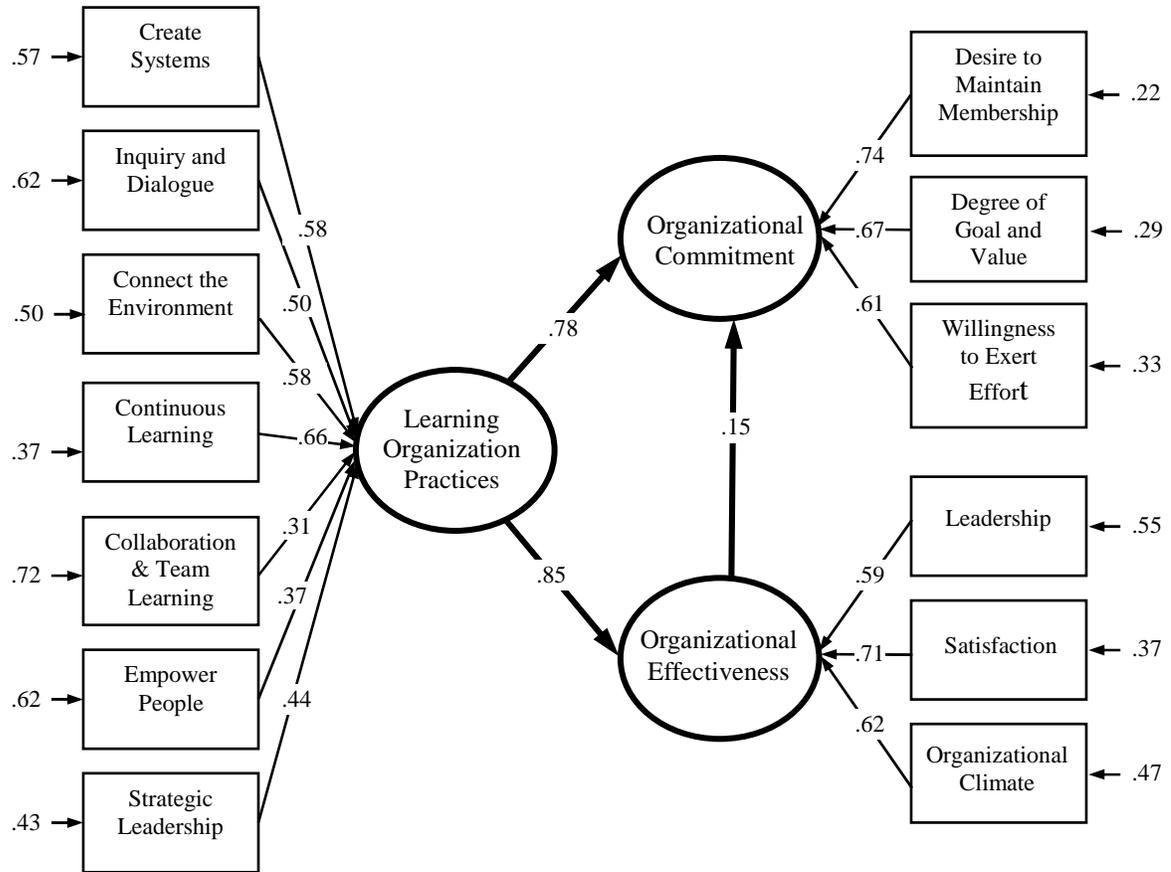
commitment, and organizational effectiveness, the SEM technique was utilized in the study.

Two SEM approaches were performed to explore the proposed structural model in different directions. Figure 2 addresses standardized estimates of structural coefficients for the proposed structural model using the SEM approach from organizational commitment to organizational effectiveness; Figure 3 addresses standardized estimates of structural coefficients for the proposed structural model using the SEM approach from organizational effectiveness to organizational commitment.



($\chi^2 = 156.28, df = 61, p\text{-value} = 0.000, RMSEA = 0.072$)

Figure 2. Structural model of relationships among learning organization practices, organizational commitment, and organizational effectiveness - 1



($\chi^2 = 156.28$, $df = 61$, $p\text{-value} = 0.000$, $RMSEA = 0.072$)

Figure 3. Structural model of relationships among learning organization practices, organizational commitment, and organizational effectiveness - 2

As Figures 2 and 3 show, four pathways deliver interrelationships, as follows.

First, learning organization practices had a very strong influence on organizational commitment with a significant positive path coefficient at .91 ($p < .001$) in Figure 2 and .78 ($p < .001$) in Figure 3. As a result, hypothesis 1, “learning organization practices have a positive effect on perceived organizational commitment” in the Taiwanese SMEs setting, was confirmed.

Second, learning organization practices had also a very strong influence on organizational effectiveness with a significant path coefficient of .65 ($p < .001$) in Figure 2 and .85 ($p < .001$) in Figure 3, verifying hypothesis 2 that learning organization practices have a positive effect on perceived organizational effectiveness.

Finally, there existed different influences between organizational commitment and organizational effectiveness. The structural model indicated that organizational commitment had a moderate influence on organizational effectiveness with a path coefficient at .22 ($p < 0.001$) in Figure 2; however, organizational effectiveness had a weak influence on organizational commitment with a positive path coefficient at .15 ($p < .001$) in Figure 3. Consequently, hypothesis 3, “organizational commitment has a positive relationship with organizational effectiveness” was accepted; the relationship between organizational commitment and organizational effectiveness is reciprocal but not equal. Organizational commitment has a moderately positive impact on organizational effectiveness; however, organizational effectiveness has a weak positive influence on organizational commitment.

The fit indices of the structural model shown above are reported in Table 27.

Table 27

Fit Indices of the Structural Model

χ^2	df	χ^2/df	GFI	NNFI	CFI	RMR	RMSEA
156.28	61	2.56	.93	.96	.97	.042	.072

*Notes: GFI= Goodness-of-fit index, NNFI= Non-normed fit index,
CFI= Comparative fit index, RMR= Root Mean Squared Residuals,
RMSEA= Root Mean Squared Error of Approximation*

These indices meet all of the selected criteria, which indicates that the overall model-data fit was accepted.

Summary

In this chapter, the results of the data analyses were reported with a series of statistical procedures, and a number of findings were made to address the research question and to examine the hypotheses in the study.

Through descriptive statistics, the study found that participants in the sample enterprises had the highest overall score on organizational commitment, and the lowest overall score on organizational effectiveness; and the overall score on learning organization practices was in the middle. The study also found “create systems” (LOP1) had the highest score at the level of subscales.

Through one-way ANOVAs, the study found that age, education level, primary responsibility, years of enterprise operation, number of employees, and outstanding award, as six major demographic variables, could have significant association with learning organization practices, organizational commitment, and organizational effectiveness in the Taiwanese SMEs context. Different groups within the same demographic variable showed differences in most measures of the three scales and their subscales.

Through t-test, the study found that there were significant differences in learning organization practices, organizational commitment, and organizational effectiveness between gender groups. The results indicated those significant differences in three subscales and the overall scale of organizational commitment were found based on gender. Males had a higher score on willingness to exert effort, degree of goal and value,

and desire to maintain membership, and males were more satisfied with their organization overall. However, there were no gender differences in most of the dimensions of learning organization practices.

Through correlation analysis and the SEM approach, the hypothesized model and three hypotheses as well as nine sub-hypotheses were examined. The correlation matrix of all measures of three constructs showed adequate convergent and discriminant validity evidence for all three scales and also showed positive interrelations among the internal dimensions of the three constructs. The SEM results confirmed a model of the three-construct relationships.

CHAPTER 5

SUMMARY, DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

This chapter presents a brief summary of the study, including the purpose of this study, the research methods, and the results. Then, it provides a discussion of the results, draws conclusions, and suggests recommendations for practice. Recommendations for future research conclude this section.

Summary

There is a lack of research on the perspectives of effects of learning organization practices, organizational commitment, and organizational effectiveness in Taiwanese SME organizations, particularly in Taiwanese awarded outstanding small and medium-sized enterprises (AOSMEs) and incubating start-up small and medium-sized enterprises (ISSMEs) settings. These perspectives are crucial to understanding the relationships between human resource development and enterprise behavior. This study is designed to fill such a gap in current understanding.

Purpose of the Study and Research Questions

The purpose of this study was to develop a research model that measures the effects of learning organization practices, organizational commitment, and organizational effectiveness on each other. A survey instrument collected data from awarded outstanding SMEs and incubating start-up SMEs in Taiwan.

This study was guided by the research question: What are the effects of learning organization practices on organizational commitment and organizational effectiveness for the awarded outstanding SMEs and incubating start-up SMEs in Taiwan?

In order to address the research question, an hypothesized model and three related research hypotheses were proposed.

Design and Method

A survey research design was employed in this empirical study. Specifically, a self-administered questionnaire was utilized to collect data from ISSMEs and AOSMEs in Taiwan. Then, a series of statistical techniques was performed to analyze the collected data and to generate results and conclusions.

The questionnaire used in this study was from the result of combining three original surveys developed in the USA (Dimensions of the Learning Organization Questionnaire, DLOQ; Organizational Commitment Questionnaire, OCQ; and Survey of Organizations, SOO). The consolidated 58 item questionnaire was composed of four parts: learning organization practices, organizational commitment, organizational effectiveness, and demographic information. In order to apply the instrument in the Taiwanese setting, it was translated into traditional Chinese and back-translated. Three scholars and two organizational leaders participated in a content review and think-aloud. After a pilot test conducted in 13 organizations, the instrument was revised and finalized. The consolidated questionnaire demonstrated overall satisfactory reliability estimates. Both the organizational commitment and organizational effectiveness scales showed acceptable reliability with α totaled .78 and .90, respectively. The learning organization practices scale totaled .82, an acceptable level. Six of the seven subscales of learning organization practices—create systems, inquiry and dialogue, connect the environment, continuous learning, collaboration and team learning, and empower people--met the

minimum criteria of reliability estimate ranging from .71 to .87. Only one subscale was below this--strategic leadership, .54.

From the factor analysis, the study found that the loadings of the measure on each factor in the three scales all exceeded the minimum of .4. Therefore, the subscales of DLOQ, OCQ, and SOO are verified to be the appropriate factors for the research. Participant SMEs give the acceptable overall factor loadings to learning organization practices, organizational commitment, and organizational effectiveness. The factor analyses generated a seven-factor solution for learning organization practices and a three-factor solution for organizational commitment and effectiveness. The solutions were determined by eigenvalues greater than one and explained 69.20% of the variance over the seven proposed dimensions for learning organization practices, 63.35% of the variance over the three proposed subscales for organizational commitment, and 57.67% of the variance over the three proposed subscales for organizational effectiveness. In addition, as for a single factor in the learning organization practices scale, "Establishing systems to capture and share learning" had the highest eigenvalue (= 4.75) and highest percentage of variance (=22.60%). In the organizational commitment scale, "Desire to maintain membership" had the highest eigenvalue (= 3.27) and percentage of variance (=36.28%). In the organizational effectiveness scale, "Leadership" had the highest eigenvalue (= 6.83) and percentage of variance (=34.16%).

The targeted population of this study was SMEs, including: (1) 289 AOSMEs, which contained 104 National Awards for Outstanding SMEs, 57 Rising Star Award SMEs, and 128 Taiwan SME's Innovation Award SMEs; and (2) 1,229 ISSMEs, which were incubated from 82 incubator centers that were in receipt of funding support from the

Government of Taiwan. A sample of 500 SMEs was selected, and 305 participants responded for a total response rate of 61% and usable response rate of 60%. The respondents contained 153 ISSMEs and 152 AOSMEs. Most ISSME respondents had not received an award in their operation; on the other hand, by definition, all AOSMEs received one or more awards.

To address the research question, several statistical techniques were utilized. Descriptive analysis was used to represent the respondent perspectives, and the results were compared among demographic groups using one-way ANOVA, with Tukey t-tests used when there was significance; t-tests were used between the two types of SMEs and for gender. Correlation analysis and structural equation modeling (SEM) were used to examine the relationships among the constructs of learning organization practices, organizational commitment, and organizational effectiveness.

Results

The results of data analyses were revealed as follows.

Based on the results of individual and overall means and standard deviations calculated from subscales and items in the three scales, the study found that participants in the sample enterprises had the highest overall score on organizational commitment, the median overall score on learning organization practices, and the lowest overall score on organizational effectiveness.

Participant SMEs showed differences. For gender, there were significant differences in three subscales and the overall scale of organizational commitment, with males scoring higher; however, there were no gender differences in most of the dimensions of learning organization practices and organizational effectiveness. For age,

significant differences were found in all subscales and the overall three scales, with those in the oldest age group scoring the highest. For the differences based on education level, those with a doctoral degree showed the highest level of learning organization practices, organizational commitment, and organizational effectiveness. For the differences based on primary responsibility groups, all the comparisons showed significant differences, with the group with primary responsibility in administration scoring the highest. For the differences among years of enterprise operation, respondents in the three groups by operation year indicated significant differences except strategic leadership (LOP7). For the differences among employee size, most comparisons based on the number of employees showed consistent differences, with the largest companies always scoring higher. For the differences among the outstanding award groups, scoring the highest the SMEs that had received an outstanding award scored higher.

The correlations among learning organization practices, organizational commitment, and organizational effectiveness ranged from weak (.06) to strong (.65); most were moderate to high. Correlations among the three subscales of organizational commitment are strong (ranging from .53 to .65); higher than the correlations between them and the dimensions of learning organization practices (ranging from .19 to .56). Similarly, correlations among the three subscales of organizational effectiveness were strong. Besides, correlations between the subscales of organizational commitment and organizational effectiveness were strong (ranging from .28 to .54). The inter-correlations among the three overall constructs ranged from .63 to .73.

The SEM results indicated that learning organization practice had a strong influence on organizational commitment with a significant path coefficient of .91 (p

< .001) in Figure 2 and .78 ($p < .001$) in Figure 3, verifying hypothesis 1. Similarly, learning organization practices had also a very strong influence on organizational effectiveness with a significant path coefficient of .65 ($p < .001$) in Figure 2 and .85 ($p < .001$) in Figure 3, supporting hypothesis 2. Finally, organizational commitment had a moderate influence on organizational effectiveness with a positive path coefficient at .22 ($p < 0.001$); however, organizational effectiveness had a weak influence on organizational commitment with a positive path coefficient at .15 ($p < .001$). Consequently, hypothesis 3, “organizational commitment has a positive relationship with organizational effectiveness” was accepted; “organizational effectiveness has a positive but weak influence on organizational commitment.”

Discussion

In this section, the study results are discussed in terms of the research purpose and question.

The Consolidated Questionnaire

According to the reliability evidence and statistical analysis results, the consolidated Chinese version questionnaire derived from the three English instruments (DLOQ, OCQ, and SOO) is moderately acceptable in its entirety. Overall, the data collected through the questionnaire are fairly reliable and valid for this study.

The short-form DLOQ instrument. This instrument was first translated into Chinese and examined in the Taiwanese context by Lien, Hung, Yang, and Li (2006) from a sample of 679 employees in five Taiwanese medium-to-large settings. The results from their study indicated that both internal consistency evidence and fit indices demonstrated the DLOQ’s applicability to Taiwanese companies. Compared with that

study, this study showed some different results in a small and medium-sized setting. The six subscales of learning organization practices--LOP1 (create systems), LOP2 (inquiry and dialogue), LOP3 (connect the environment), LOP4 (continuous learning), LOP5 (collaboration and team learning), and LOP6 (empower people) --met the minimum criterion of reliability estimate. One subscale, LOP7 (strategic leadership), was below the minimum criterion.

As to why there was reliability problem in this Taiwanese SME setting, two possible explanations are worth exploring.

First, some items might have contributed to language confusion and cultural differences and thus resulted in the scale's low internal consistency in the Taiwanese contexts. For example, the item 08 ("In my organization, leader mentors and coaches those he or she leads.") had the lowest, but very acceptable, factor loadings (= .41). In fact, it is difficult for Taiwanese to measure the exact degree of "leader mentors and coaches" because the Confucian culture has been applied to Taiwanese SMEs deeply. The Confucian culture stresses endurance, interdependence, and harmony at a comprehensive level of features and relationships between people in Asian countries (Hyun, 2001)., so those in charge would not be questioned about these factors. Therefore, the questionnaire may not to be revised to follow the characteristics of Confucianism.

Second, some items need to be revised or replaced because these items failed to fit in the small and medium-sized setting. According to Marsick and Watkins (2003), the DLOQ was originally designed for participants in large organizations. Thus, some items were questionable for the responses with small organization settings. For instance, item 40 ("In my organization, teams/groups revise their thinking as a result of group

discussion or information collected.”) in the measures of “collaboration and team learning” and item 23 (“In my organization, leader ensures that the organization’s actions are consistent with its values.”) in the subscale of “strategic leadership” may not be appropriate for the small-sized companies.

Thus, it is suggested that such items be deleted and new items be created to meet the needs in small and medium-sized organizations.

The short-form OCQ instrument. According to Chen (2004), this instrument was examined with a sample of 1,451 employees in Taiwanese SME settings. The internal consistency evidence had high OCQ’s applicability to Taiwanese SMEs. This study also showed fairly similar results by using a small sample from the ISSME and AOSME settings. Consequently, this study reconfirmed the OCQ’s applicability to Taiwanese contexts and culture.

The short-form SOO instrument. As a pioneering effort, this study examined the appropriateness of the SOO in Taiwanese organizations and yielded moderate reliability and good validity.

Features Demonstrated in Demographic Differences

This section discusses the major features demonstrated in the demographic information for learning organization practices, organizational commitment, and organizational effectiveness in the Taiwanese ISSMEs and AOSMEs.

Demographic differences in learning organization practices. As there have been few studies examining how demographic variables can impact learning organization practices, whether demographic compositions characterize learning organization practices

or not remains unknown (Wang, 2005). The results demonstrated that demographic groups had different perceptions of learning organization practices.

In terms of gender, the results demonstrated that there were no gender differences in most of the dimensions of learning organization practices, except for the two dimensions of LOP5 (collaboration and team learning) and LOP7 (providing strategic leadership for learning); in both instances, males scored higher. This phenomenon indicated that both men and women pay attention to the most of activities in learning organization practices. Males, however, may be given more opportunities than females, leading to the differences on these two variables.

In terms of age, those aged 50 or more score highest and the group aged under 40 had significantly lower scores in the learning organization practices scale and most of its subscales. This phenomenon indicates that the oldest group may have had the strongest comprehension of the value to learn within the goals of learning organization practices. This may also reflect the Confucian practice of honoring age, with the older group being given more opportunity to learn. The older group is also more likely to be in positions of authority.

In terms of education level, in almost all comparisons the participants with the most education scored highest. Only two subscales of learning organization practices, LOP3 (connect the organization to its environment) and LOP 6 (empower people toward a collective version), showed no differences. It may be that having higher education contributes to one's understanding of the value of learning. In terms of primary responsibility, not surprisingly, the administration group had the highest level of learning organization practices; however, no differences existed between the other two groups

(technology and marketing). This group probably has more opportunity to participate in the practices for organizational learning. Those in technology or marketing may need to pay more attention to R&D or marketing development.

While in most dimensions enterprise operation years over 10 had the highest scores, enterprise operation years between 4 and 10 gave medium scores, and enterprise operation years between 1 and 3 gave the lowest scores, and there were no differences among the enterprise operation year's groups in the dimension of strategic leadership. This phenomenon indicated that enterprise operation years between 1 and 3 showed the least satisfaction with the present operation and had the strongest sense of the need to improve enterprises' learning organization practices.

In terms of the employee size variable, the larger companies always score higher than the smaller companies. Only one component (LOP7, strategic leadership) in learning organization practices had no differences. This phenomenon indicated that the large companies have more opportunity to participate in the practices of create systems, inquiry and dialogue, connect to the environment, continuous learning, collaboration and team learning, and empower people.

In terms of the outstanding award variable, it showed that enterprises with National Award for Outstanding SME, Rising Star Award, and other award score highest in four dimensions including create systems, continuous learning, connect the environment, and empower people, and score median on the other three subscales including inquiry and dialogue, collaboration and team learning, and strategic leadership; similarly, enterprises with Taiwan SME's Innovation Award score highest in three dimensions including inquiry and dialogue, collaboration and team learning, and strategic

leadership, and score median in the other four subscales including continuous learning, empower people, create systems, and connect the environment; however, enterprises without any award score lowest in all seven dimensions. This phenomenon indicated that those enterprises without any award showed the least satisfaction with the present operation.

These findings imply that, if a SME has the operation years over 10 and largest employee size, then the SME has a higher level of learning organization practices; similarly, if a SME has the National Award for Outstanding SME, Rising Star Award, Taiwan SME's Innovation Award, and/or other award, then the SME has a higher level of learning organization practices.

Demographic differences in organizational commitment and effectiveness.

According to previous study reports, demographic features have significant impacts on organizational commitment and organizational effectiveness (Chen, 2004; Wang, 2005). The results indicated that different demographic groups in the demographic variables had different perceptions of organizational commitment and effectiveness.

In terms of the gender variable, significant differences were found in three subscales and the overall scale of organizational commitment; however, the overall scale of organizational effectiveness displayed no differences. Only the subscale, OE3 (organizational climate), showed a significant difference, with males score higher. This finding implies that different gender did have significant effects on organizational commitment and part of organizational effectiveness.

In terms of the age variable, the group aged 50 years old or more scores highest, the group aged between 40 and 49 years scores median, and the group aged under 40

years scores lowest in all two scales of organizational commitment and organizational effectiveness and their subscales. This finding implies that the group aged 50 years old or more desired to maintain membership in the organization and had the greater degree of commitment to the goals and values of the organization.

In terms of the education level variable, people with a doctoral degree score highest in learning organization practices, organizational commitment, and organizational effectiveness. This finding implies that employees with higher education level have more opportunity to exert effort in the organization.

In terms of the primary responsibility variable, the group with primary responsibility in administration scores highest in organizational commitment and organizational effectiveness, however, no differences existed between the groups of primary responsibility in technology and marketing. This finding implies that people with primary responsibility in administration pay more attention to commitment and effectiveness in the organization. People with primary responsibility in technology or marketing keep lower organizational commitment and effectiveness because they have more opportunity to change their career if they have good business performance and experience.

In terms of the years of enterprise operation variable, this study revealed that enterprises with operation years over 10 score higher in willingness to exert effort, degree of goal and value, and desire to maintain membership, as well as leadership, organizational climate, and satisfaction; while enterprises with operation years between 1 and 3 did not show differences in the above dimensions. This finding implies that

enterprises having the lower operation years between 1 and 3 need to pay more attention to improve their organizational commitment and effectiveness.

In terms of the employee size variable, the largest companies always score higher than the smallest companies and the medium-sized companies also score higher than the smallest companies in all of the subscales and the overall scales of organizational commitment and effectiveness. This finding implies that people at the larger companies have more willingness to keep goals and values and maintain membership.

In terms of outstanding award level, this study revealed that enterprises with National Award for Outstanding SME, Rising Star Award, and other award score highest in willingness to exert effort, degree of goal and value, and desire to maintain membership, as well as leadership, organizational climate, and satisfaction; enterprises with Taiwan SME's Innovation Award score median in willingness to exert effort, degree of goal and value, and desire to maintain membership, as well as leadership, organizational climate, and satisfaction; while enterprises in the groups without any award did not show differences in the above dimensions. This phenomenon indicated that enterprises with one or more outstanding awards had more satisfaction in both organizational commitment and effectiveness; while enterprises without any award showed the lowest satisfaction with the present operation. This finding implies that in order to become the awarding outstanding SMEs, the enterprises had the need to improve their organizational commitment and effectiveness.

In terms of ISSMEs and AOSMEs, this study showed that ISSMEs and AOSMEs had significant differences in most dimensions of the three constructs. AOSMEs performed better than ISSMEs in most of dimensions of learning organization practices.

This finding indicates that AOSMEs have more opportunity to keep their outstanding performance and achievement; thus they are more active in searching for ways to be excellent.

Similarly, AOSMEs had higher levels in the overall organizational commitment and effectiveness and the all subscales, while ISSMEs had comparatively lower levels in all dimensions. Several facts were reflected in this study. First, AOSMEs' employees had a higher willingness to exert effort in their organizations, which implied that AOSMEs' employees were willing to give something of them in order to contribute to the organization's well being (Mowday, Steers, & Porter, 1979).

Second, AOSMEs score higher in degree of goal and value, reflecting that AOSMEs' employees understood the importance for facilitating organizational learning in the organization and continuously transform the organization to meet the organizational goals and commitment (Pedler, Burgoyne, & Boydell, 1991). On the other hand, ISSMEs score lower in degree of goal and value, suggesting that if ISSMEs could build their capability of organizational commitment, then their employees would have more opportunities to meet the goal and value in the organization.

Third, employees in AOSMEs reflect higher in desire to maintain organizational membership, showing that employees in AOSMEs either recognized the costs associated with leaving the organization or had to stay with the organization because of a lack of job alternatives (Wang, 2005). This finding implies that the commitment featured in AOSMEs has a positive influence on the organization because employees are more likely to work on behalf of the organization.

Furthermore, in this study, the results revealed that ISSMEs had lower long-term ability in accomplishing their strategic and organizational goals. Thus, in order to improve the inferior status of organizational effectiveness, it is suggested that ISSMEs need to pay attention to encourage people in the organization to work as a team, to give their best effort, to improve their performance, to create a positive organizational climate, and to fit their satisfaction in the organization.

Relationships among the Three Constructs

The relationships for learning organization practices between organizational commitment and organizational effectiveness have been examined in previous studies (Ahmad & Bakar, 2003; Bartlett, 2001; Kontoghiorghes & Bryant, 2004), among which the majority of empirical results have suggested that learning organization practices can assist in enhancing employee commitment and effectiveness toward the organization. Meanwhile, organizational commitment and effectiveness makes employees more motivated and eager to learn in the workplace (Cho & Kwon, 2005). Considering the results of the previous studies on learning organization practices, organizational commitment, and organizational effectiveness, the relationships among the three constructs are reciprocal (Cho & Kwon, 2005).

The results from this study indicate that learning organization practice had a strong influence on organizational commitment with a significant positive path coefficient; which presented that the relationship between learning organization practices and organizational commitment is reciprocal, and a strong force was occurred from learning organization practices to organizational commitment. Thus, the first hypothesis in this study was supported. Similarly, learning organization practice had a strong

influence on organizational effectiveness with a moderate positive path coefficient. So, learning organization practices plays a key role for cultivating the better commitment and effectiveness in organizations.

This study has also incorporated a new variable, organizational effectiveness, in examining the relationships between learning organization practices and organizational commitment. SEM was utilized in this study to investigate the relationships among the three key organizational variables in Taiwanese contexts. The findings from this study suggest that learning organization practices can be viewed as an important antecedent factor for organizational commitment, as well as an antecedent factor for organizational effectiveness. It has a moderately positive association with organizational effectiveness and a strongly positive relation with organizational commitment. Furthermore, the relationship between organizational commitment and organizational effectiveness is reciprocal but not equal. Organizational commitment has a moderately positive impact on organizational effectiveness; however, organizational effectiveness has a weak positive influence on organizational commitment.

The finding not only provides a new direction for organizational research on key variables, but also generates an important implication for organizational practice: Strengthening learning organization practices is a wise way to create organizational effectiveness; a strong learning organization practices is good to develop the organizational commitment; and the well developed organizational commitment is an advantage to foster organizational effectiveness.

Conclusions

This empirical study explored relationships among learning organization practices, organizational commitment, and organizational effectiveness in Taiwanese SME settings. This study yields several important findings and contributions to practice and research.

Based on the finding that learning organization practice had a strong influence on organizational commitment and effectiveness, and organizational commitment has a positive effect on organizational effectiveness, it is concluded that learning organization practices and organizational commitment are the positive guarantees by which organizations eventually reach the success of organizational effectiveness.

This study also translated three scales (DLOQ, OCQ, and SOO) into traditional Chinese and examined their applicability in Taiwanese settings. The results indicated that the Taiwanese context and the English context share a great deal of similarity for these three scales.

This study also tested differences between ISSMEs and AOSMEs, and differences among demographic groups in learning organization practices, organizational commitment, and organizational effectiveness. Three major findings on these issues are described as follows.

First, learning organization practices can be viewed as an important precedent factor for organizational commitment, as well as a precedent factor for organizational effectiveness, and organizational commitment has a positive effect on organizational effectiveness in the context of Taiwanese small and medium-sized enterprises.

Second, AOSMEs have a higher level of learning organization practices, organizational commitment, and organizational effectiveness than ISSMEs do. It can be

inferred that AOSMEs have a stronger competitiveness than ISSMEs in terms of learning capacity and organizational performance. There is also a suggestion here that the criteria established by the Taiwanese government are effective in selecting outstanding companies.

Third, based on the finding that demographic characters and groups have different influences on the three subjects, it is concluded that different gender did have significant effects on organizational commitment; group aged 50 or more score highest in the learning organization practices; higher education contributes to higher understanding of the value of learning, commitment, and effectiveness; group with primary responsibility in administration scores highest in all three measurements; enterprises' operation years over 10 show the highest level of organizational commitment and effectiveness; largest companies always score higher than the smallest companies; and enterprises with National Award for Outstanding SME, Rising Star Award, and other award show the highest organization commitment and effectiveness.

Recommendations for Practice

The results of this study provide valuable suggestions and implications for human resource professionals and managers to understand the present status, differences, and relationships in learning organization practices, organizational commitment, and organizational effectiveness in Taiwanese enterprises, particularly, the ISSMEs and AOSMEs.

First, learning is a crucial component in the transformation from a traditional organization to a learning organization (Gilley & Maycunich, 2000). In addition, learning organization practices have the potential for being valued components of learning by

contributing to organizational commitment and effectiveness. For that reason, learning organization practices appear to be important for SMEs. For industrial applications, instilling more learning organization practices through organizational commitment and effectiveness may lead to more desired outcomes in the SME settings.

Second, this study provides practitioners with a viable way to build a learning organization--focusing on the seven dimensions described in the DLOQ to nurture learning organization practices. Based on Watkins and Marsick (1996), creating systems, promote inquiry and dialogue, connect the organization to its environment, continuous learning opportunity, collaboration and team learning, empower people toward a collective vision, and provide strategic leadership for learning are seven key measures in building a learning organization. Hence, in order to improve an organization's learning practices, organizations and HR practitioners need to pay attention to the issues of these seven key factors.

Third, reliable and valid measurement scales can be valuable managerial tools in practice. Measurement scales, such as DLOQ, OCQ, and SOO, if appropriately applied, can help to diagnose problems, weaknesses, and strengths. Such instruments can be helpful in improving the current condition in learning organization practices, organizational commitment, and organizational effectiveness. Thus, HR practitioners could become more aware of choosing and utilizing well-developed measurement scales in their works (Wang, 2005).

Fourth, organizational commitment and effectiveness in the workplace appear to be beneficial when an organization uses learning organization practices. For example, learning organization practices may help the organization to integrate its vision, mission,

strategy, and practices. Thus, implementing learning organization practices would encourage employees to create innovation, including the process of bringing new problem-solving and value-adding ideas into use.

Fifth, based on the results in this study, SMEs are increasingly establishing partnerships with each other, with universities, and with governments to provide services such as training, effectiveness and employee commitment, and development of portable benefits necessary to nourish the workforce. Therefore, how to build networks and relationships among enterprises, universities, and government is a valuable challenge for learning organization practices in the changing business environment.

Sixth, ISSMEs could pay more attention to organizational commitment. This study shows that employees in ISSMEs have lower organizational commitment than those in AOSMEs. Thus, based on the finding that ISSMEs score lower in organizational commitment and effectiveness, it is suggested that HR practitioners and managers in ISSMEs explicitly state the organization's goals and values and communicate them to employees in order to improve mutual satisfaction between employees and organizational management.

Last, this study revealed that enterprises that have been in operation for more years have higher organizational commitment, organizational effectiveness, and most of learning organization practices. Similarly, having received an outstanding award was positively related to all three measures. Consequently, it is suggested that organizations and HR managers create an enterprise that meets the criteria to be the outstanding learning organization.

Recommendations for Future Research

This study provides the foundation for future research to examine causal links among learning organization practices, organizational commitment, and organizational effectiveness in order to increase the understanding of the role of learning organization practices in organizational success.

First, in addition to the approach among learning organization practices, organizational commitment, and organizational effectiveness, it is suggested that this research be replicated by using different instrument approaches, such as organization development, innovation, and performance, because there have been few research studies with regard to the effects of learning organization practices on these variables in Taiwanese enterprise settings. All of these measures would allow researchers to explore various assessments of learning organization practices. Researchers have suggested a multidimensional approach (Rico, Sanchez-Manzanares, Gil, & Gibson 2008) to develop measures of these relationships.

Second, there is a need to examine further the differences among small and medium-sized enterprises in different types of industries and ownership types, including hi-tech firms, government-invested firms, joint ventures, and non-profit organizations.

Third, further comparisons between countries using the focus on medium and large businesses could be explored.

Finally, there is a need to test the research model using multiple methodologies, such as multivariate analysis of variance (MANOVA), case study, and qualitative research, to diagnose organization practices, organizational commitment, and

organizational effectiveness, and to explore, observe, or reconfirm findings from this empirical study.

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Appendix A
Instrument-Survey Questionnaire (English)

Dear Participants,

Thanks for your cooperation! I am a Ph.D. candidate studying Human Resource Development (HRD) at the University of Minnesota in the United States. This survey will be used to collect data and to analyze learning organization practices on organizational commitment and effectiveness for Taiwanese SMEs.

There are no identifiable benefits to your organization and you personally for participating in this study. Neither are there any risks. You may withdraw from this study at any time without any implications for you or your relationship to your organization, the University of Minnesota, or any other parties involved. If you decide to participate, please complete the survey online and reply with email. **Returning the survey is implied acceptance of the consent to participate.**

All questions in this survey were designed to determine the state of your enterprise or your feelings about your organization. After reviewing each item, please answer it according to your perceptions. Please do not use your name or other recognizable marks to ensure anonymity.

The questionnaire should take you 5-10 minutes to complete. This questionnaire consists of two sections. It is very important that you respond to each statement. Only then can we include your opinion in the final analysis.

Please feel free to contact me at tсен0031@umn.edu or at the following address: 420 Vocational and Technical Education Building, 1954 Buford Avenue, St. Paul, MN 55108, if you have any questions or comments.

Or you may contact my academic advisor, Dr. Gary N. McLean at mclea002@umn.edu or at the following address: 420 Vocational and Technical Education Building, 1954 Buford Avenue, St. Paul, MN 55108, USA.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher or the advisor, you are encouraged to contact the Research Subjects' Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, Minnesota 55455, USA; (612) 625-1650.

Sincerely,

Chien-Chi Tseng
Ph.D. Candidate
University of Minnesota, USA

Item	<i>Strongly disagree or Not at all</i>					<i>Strongly agree or Complete extent</i>				
	1	2	3	4	5	1	2	3	4	5
16. My organization gives people control over the resources they need to accomplish their work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
17. How satisfied do you feel with the progress you have made in this organization up to now?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
18. My organization encourages people to get answers from across the organization when solving problems.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
19. To what extent are there things about working here (people, policies, or conditions) that encourage you to work hard?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
20. In my organization, leader continually look for opportunities to learn.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
21. My organization creates systems to measure gaps between current and expected performance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
22. To what extent are decisions made at those levels where the most adequate and accurate information is available?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
23. In my organization, leader ensures that the organization's actions are consistent with its values.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
24. My organization measures the results of the time and resources spent on training.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
25. I am willing to put in a great deal of effort beyond that normally expected in order to help this organization be successful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
26. My organization encourages people to think from a global perspective.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
27. All in all, how satisfied are you with your supervisor?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
28. I find that my values and the organization's values are very similar.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
29. My organization supports employees who take calculated risks.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
30. To what extent do people in your work group encourage people to give their best effort?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
31. This organization really inspires the very best in me in the way of job performance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
32. For me this is the best of all possible organizations for which to work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
33. In my organization, people give open and honest feedback to each other.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
34. To what extent does your supervisor show you how to improve your performance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
35. How satisfied do you feel with your chances for getting ahead in this organization in the future?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					

Item	<i>Strongly disagree or Not at all</i>	<i>Strongly agree or Complete extent</i>
36. To what extent do people in your work group pay attention to what you are saying?	1 2 3 4 5 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
37. I would accept almost any type of job assignment in order to keep working for this organization.	1 2 3 4 5 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
38. I am extremely glad that I chose this organization to work for over others I was considering at the time I joined.	1 2 3 4 5 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
39. To what extent does your supervisor encourage people to give their best effort?	1 2 3 4 5 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
40. In my organization, teams/groups revise their thinking as a result of group discussion or information collected.	1 2 3 4 5 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
41. To what extent are the equipment and resources you have to do your work with adequate, efficient, and well-maintained?	1 2 3 4 5 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
42. I really care about the fate of this organization.	1 2 3 4 5 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
43. In my organization, whenever people state their view, they also ask what others think.	1 2 3 4 5 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
44. All in all, how satisfied are you with the persons in your work group?	1 2 3 4 5 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
45. To what extent is your supervisor willing to care your problems?	1 2 3 4 5 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
46. In my organization, teams/groups are confident that the organization will act on their recommendations.	1 2 3 4 5 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
47. All in all, how satisfied are you with job?	1 2 3 4 5 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
48. I talk up this organization to my friends as a great organization to work for.	1 2 3 4 5 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
49. All in all, how satisfied are you with this organization, compared to most others?	1 2 3 4 5 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
50. To what extent are you told what you need to know to do your job in the best possible way?	1 2 3 4 5 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

Part II: Demographic Information

In this section, fill in the number on the answer sheet which corresponds to the answer which best describes you or your organization.

51. What is your gender?	<input type="checkbox"/> 1. Male	<input type="checkbox"/> 2. Female
52. What is your age?	<input type="checkbox"/> 1. Less than 30 years old	<input type="checkbox"/> 2. 30 - 39 years old
	<input type="checkbox"/> 3. 40 - 49 years old	<input type="checkbox"/> 4. 50 years old or more

53. What is your highest level of education?	<input type="checkbox"/> 1. Doctoral degree <input type="checkbox"/> 2. Master's degree <input type="checkbox"/> 3. Four-year or two-year college degree <input type="checkbox"/> 4. Senior high school <input type="checkbox"/> 5. Junior high school or less
54. What is your primary responsibility in your enterprise?	<input type="checkbox"/> 1. Founder <input type="checkbox"/> 2. General Management <input type="checkbox"/> 3. Operations/Production <input type="checkbox"/> 4. Administration, Logistics <input type="checkbox"/> 5. Financial/Accounting <input type="checkbox"/> 6. Human Resources <input type="checkbox"/> 7. Marketing/Sales <input type="checkbox"/> 8. Technical/R&D <input type="checkbox"/> 9. Other (please fill in):
55. How many years has your enterprise been in operation since start up?	<input type="checkbox"/> 1. Less than 1 year <input type="checkbox"/> 2. 1 - 3 years <input type="checkbox"/> 3. 4 - 10 years <input type="checkbox"/> 4. 11 - 20 years <input type="checkbox"/> 5. Over 20 years
56. How many employees are in your enterprise?	<input type="checkbox"/> 1. 5 or less <input type="checkbox"/> 2. 6 - 10 <input type="checkbox"/> 3. 11 - 20 <input type="checkbox"/> 4. 21 - 30 <input type="checkbox"/> 5. 31 - 50 <input type="checkbox"/> 6. Over 50
57. Was your enterprise incubated Start-up in the Incubator Center?	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No
58. Did your enterprise receive any outstanding award from the Government?	<input type="checkbox"/> 1. The National Award for Outstanding SME <input type="checkbox"/> 2. The Rising Star Award <input type="checkbox"/> 3. Taiwan SME's Innovation Award <input type="checkbox"/> 4. None <input type="checkbox"/> 5. Other (please fill in):

Appendix B
Instrument-Survey Questionnaire (Chinese)
博士論文研究調 ▫ 問卷

親愛的朋友：

我是美國明尼蘇達大學人力資源領域的博士候選人。目前我正在撰寫博士研究論文，該論文將針對台灣企業學習型組織實踐對組織承諾與組織效力之影響進行研究。基於您對您公司(組織)的了解與豐富經驗，本研究熱忱邀請您參與此項研究問卷調 ▫。

參與本問卷調 ▫ 將不會對您的組織及您個人 ▫ 生任何利益，亦無任何風險。您可決定隨時從本研究調 ▫ 中退出，而不會對您與公司或明尼蘇達大學或其他任何團體的關係造成任何影響。當您決定參與本研究，請在電腦網路上填寫問卷。**答覆此調 ▫ 問卷表示您已同意參與本研究。**

在此問卷中所有問題被設計來檢視您的公司之現況或是您對組織之看法。當您詳讀 ▫ 一問題之後，請您依據您對公司的了解選擇出最貼切的描述。並請勿在問卷上寫上您的名字或其他可辨認之符號，以維持問卷之匿名與保密。完成整份問卷將花費您約 **5 到 10 分鐘**，整份問卷包含兩部份，唯有完成所有問題之回答，本研究才能將您的意見列入最終之分析。

明尼蘇達大學致力於人力資源領域之學術研究，其研究成果及學術地位在美國名列前茅，您的意見將對台灣企業(組織)發展及本學術研究 ▫ 生重要貢獻。

如果您有任何問題，請及時與我聯繫，我的電子郵件信箱是：tsen0031@umn.edu，聯絡地址為：420 Vocational and Technical Education Building, 1954 Buford Avenue, St. Paul, MN 55108, USA.

您也可以聯絡我的論文指導教授：梅克林博士，他的電子郵件信箱是：mclea002@umn.edu 聯絡地址為：420 Vocational and Technical Education Building, 1954 Buford Avenue, St. Paul, MN 55108, USA.

如果您有任何問題，但希望與相關研究人員以外之單位接洽，請直接與明尼蘇達大學研究審核中心聯繫：Research Subjects' Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, Minnesota 55455, USA; (612) 625-1650.

感謝您的合作參與！

曾建基 敬上
美國明尼蘇達大學博士候選人

歡迎回答本研究問卷！本問卷中的所有問題及其回答，均沒有對或錯之分。
在答覆一問題時，請根據您自己的親身感受在適當之數字水準上圈選標示☒。

第一部分：“有多少程度您會同意”以下各問題之陳述：

1-----2-----3-----4-----5
 很不同意 不太同意 不置可否 有些同意 非常同意
 或 或 或 或 或
 完全都不 很少程度 有些程度 很大程度 全部程度

問題項目	很不同意 或 完全都不	1	2	3	4	5	非常同意 或 全部程度
1. 在我的公司(組織)中，人們相互幫助學習。		1	2	3	4	5	
		<input type="checkbox"/>					
2. 有多少程度您認為這公司(組織)對提供福利和快樂給員工有真正的關注？		1	2	3	4	5	
		<input type="checkbox"/>					
3. 我的公司(組織)注重與外部社區做好協調溝通，以滿足共同的需求。		1	2	3	4	5	
		<input type="checkbox"/>					
4. 我很驕傲地告訴其他人，我是這公司機構的一個成員。		1	2	3	4	5	
		<input type="checkbox"/>					
5. 我的公司(組織)獎勵那些學習的員工。		1	2	3	4	5	
		<input type="checkbox"/>					
6. 您認為有多少程度在您工作團隊中的成員會幫助您找到較佳的工作方法？		1	2	3	4	5	
		<input type="checkbox"/>					
7. 在我的公司(組織)中，人們花費時間去建立相互信任的關係。		1	2	3	4	5	
		<input type="checkbox"/>					
8. 在我的公司(組織)中，上司對於下屬進行輔導、指引與幫助。		1	2	3	4	5	
		<input type="checkbox"/>					
9. 在我的公司(組織)中，各小組或團隊可以根據需求去修改他們的目標。		1	2	3	4	5	
		<input type="checkbox"/>					
10. 我的公司(組織)促使一員工都從組織經驗教訓中獲得學習。		1	2	3	4	5	
		<input type="checkbox"/>					
11. 您認為有多少程度您的公司主管會鼓勵為他工作的下屬跟他交換意見和想法？		1	2	3	4	5	
		<input type="checkbox"/>					
12. 我的公司(組織)賞識那些富有主動進取和開拓創新精神的員工。		1	2	3	4	5	
		<input type="checkbox"/>					
13. 考慮您投入在此工作的技能與努力，您對您的薪資報酬有多少滿意程度？		1	2	3	4	5	
		<input type="checkbox"/>					
14. 我的公司(組織)給予員工們必要的學習時間。		1	2	3	4	5	
		<input type="checkbox"/>					

問題項目	很不同意 或 完全都不	1	2	3	4	5 非常同意 或 全部程度
15. 您認為有多少程度在您工作團隊中的成員會鼓勵您一起為團隊工作？	1	2	3	4	5	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
16. 我的公司(組織)給予員工一定的權力，用以支配其完成任務所需的資源。	1	2	3	4	5	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
17. 到目前為止，您覺得您對您在公司(組織)中的工作進展有多少滿意程度？	1	2	3	4	5	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
18. 我的公司(組織)鼓勵員工在研究解決問題時從組織整體尋找答案。	1	2	3	4	5	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
19. 您認為有多少程度在這裡工作的相關事項(成員、政策、或是環境)會激發您更努力工作？	1	2	3	4	5	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
20. 在我的公司(組織)中，上司主管不斷地尋求學習的機會。	1	2	3	4	5	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
21. 我的公司(組織)已經建立了有效系統，以測量目前績效和期望績效之間的差距。	1	2	3	4	5	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
22. 有多少程度您認為公司決策是被制定於最充足和精確可用資訊之層級？	1	2	3	4	5	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
23. 在我的公司(組織)中，領導階層努力確保組織行動與組織價・觀相一致。	1	2	3	4	5	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
24. 我的公司(組織)會對於用在培訓上的時間和資源所帶來的效果進行評估。	1	2	3	4	5	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
25. 為了促成公司組織能・成功，我很樂意去付出最大的努力。	1	2	3	4	5	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
26. 我的公司(組織)鼓勵員工從全球佈局的角度來思考問題。	1	2	3	4	5	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
27. 總體的・來，您對您的公司主管有多少滿意程度？	1	2	3	4	5	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
28. 我發現我個人的價・觀和公司(組織)的價・觀是非常相似的。	1	2	3	4	5	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
29. 我的公司(組織)支持那些經過深思熟慮後進行適當冒險的員工。	1	2	3	4	5	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
30. 您認為有多少程度在您工作團隊中的成員會鼓勵他人付出最大的努力成果？	1	2	3	4	5	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
31. 這公司(組織)確實鼓舞了我去達成非常好的工作績效。	1	2	3	4	5	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
32. 對我而言，在所有可能工作的公司(組織)之中，這公司是最好的。	1	2	3	4	5	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
33. 在我的公司(組織)中，人們彼此之間給予公平、坦誠的	1	2	3	4	5	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

意見。						
問題項目		狠不同意 或 完全都不				非常同意 或 全部程度
34.	您認為有多少程度您的公司主管會指導您如何改善您的工作績效？	1	2	3	4	5
		<input type="checkbox"/>				
35.	在未來，您覺得您對您在公司(組織)中的工作進展機會有多少滿意程度？	1	2	3	4	5
		<input type="checkbox"/>				
36.	您認為有多少程度在您工作團隊中的成員會關心注意您所 的話？	1	2	3	4	5
		<input type="checkbox"/>				
37.	為了保有這公司(組織)的工作，我願意接受幾乎任何型態的工作任務。	1	2	3	4	5
		<input type="checkbox"/>				
38.	當我過去在考慮加入其他公司(組織)時，我非常高興我選擇了到這公司工作。	1	2	3	4	5
		<input type="checkbox"/>				
39.	您認為有多少程度您的公司主管會鼓勵下屬付出最大的努力成果？	1	2	3	4	5
		<input type="checkbox"/>				
40.	在我的公司(組織)中，各小組或團隊在討論或收集資訊之後，能 修正其構想。	1	2	3	4	5
		<input type="checkbox"/>				
41.	您認為有多少程度您必須使用於您工作的設備和資源是足 的、有效率的、以及被妥善維修的？	1	2	3	4	5
		<input type="checkbox"/>				
42.	我真地很關心公司(組織)的命運前途。	1	2	3	4	5
		<input type="checkbox"/>				
43.	在我的公司(組織)中，當人們闡述自己的觀點時，通常 求別人的意見和想法。	1	2	3	4	5
		<input type="checkbox"/>				
44.	總體的 來，您對您工作團隊的成員有多少滿意程度？	1	2	3	4	5
		<input type="checkbox"/>				
45.	您認為有多少程度您的公司主管會願意關心您的問題？	1	2	3	4	5
		<input type="checkbox"/>				
46.	在我的公司(組織)中，各小組或團隊相信公司會按照他們的建議採取行動。	1	2	3	4	5
		<input type="checkbox"/>				
47.	總體的 來，您對您的工作有多少滿意程度？	1	2	3	4	5
		<input type="checkbox"/>				
48.	我大聲地告訴我的朋友們，這公司是最好的企業(組織)， 得我去工作。	1	2	3	4	5
		<input type="checkbox"/>				
49.	總體的 來，與其他公司比較，您對您的公司(組織)有多少滿意程度？	1	2	3	4	5
		<input type="checkbox"/>				
50.	有多少程度您可以從公司(組織)中獲得您所需要了解的最佳可能工作方法？	1	2	3	4	5
		<input type="checkbox"/>				

第二部分：基本資料 (請在適當之答案上圈選標示)

51. 您的性別：	<input type="checkbox"/> 1. 男 <input type="checkbox"/> 2. 女
52. 您的年齡：	<input type="checkbox"/> 1. 小於 30 ▪ <input type="checkbox"/> 2. 30 - 39 ▪ <input type="checkbox"/> 3. 40 - 49 ▪ <input type="checkbox"/> 4. 大於或等於 50 ▪
53. 您的最高教育程度：	<input type="checkbox"/> 1. 博士 <input type="checkbox"/> 2. 碩士 <input type="checkbox"/> 3. 大學或專科 <input type="checkbox"/> 4. 高中 <input type="checkbox"/> 5. 初中或以下
54. 您在公司(組織)中的主要職責：	<input type="checkbox"/> 1. 創辦人 <input type="checkbox"/> 6. 人力資源 <input type="checkbox"/> 2. 總經理 <input type="checkbox"/> 7. 市場行銷 <input type="checkbox"/> 3. 生▪管理 <input type="checkbox"/> 8. 技術研發 <input type="checkbox"/> 4. 行政管理 <input type="checkbox"/> 9. 其他(請標示): <input type="checkbox"/> 5. 財務會計
55. 您公司(組織)從創立至今的營運年限：	<input type="checkbox"/> 1. 小於 1 年 <input type="checkbox"/> 2. 1 - 3 年 <input type="checkbox"/> 3. 4 - 10 年 <input type="checkbox"/> 4. 11 - 20 年 <input type="checkbox"/> 5. 大於 20 年
56. 您公司(組織)的員工人數：	<input type="checkbox"/> 1. 5 人或以下 <input type="checkbox"/> 2. 6 - 10 人 <input type="checkbox"/> 3. 11 - 20 人 <input type="checkbox"/> 4. 21 - 30 人 <input type="checkbox"/> 5. 31 - 50 人 <input type="checkbox"/> 6. 大於 50 人
57. 您的公司(組織)是否曾經接受育成中心的進駐培育？	<input type="checkbox"/> 1. 是 <input type="checkbox"/> 2. 否
58. 您的公司(組織)是否曾經獲得任何政府頒發的傑出獎項？	<input type="checkbox"/> 1. 國家磐石獎 <input type="checkbox"/> 2. 小巨人獎 <input type="checkbox"/> 3. 中小企業創新研究獎 <input type="checkbox"/> 4. 未曾獲獎 <input type="checkbox"/> 5. 其他(請標示):