THE INFLUENCE OF THE LEARNING ORGANIZATION
ON INDIVIDUAL PERFORMANCE: THE MEDIATING
ROLE OF KNOWLEDGE SHARING BEHAVIOR

Kotchaworn Chuymanee

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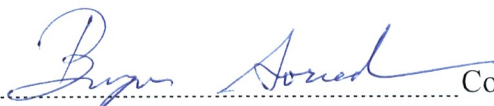
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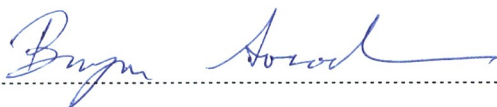(Bung-on Sorod, Ph.D.)

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ABSTRACT

Title of Dissertation	The Influence of the Learning Organization on Individual Performance: The Mediating Role of Knowledge Sharing Behavior
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The main objective of this study was to examine the effect of learning organization and knowledge sharing behavior on individual performance with a consideration of the mediating role of knowledge sharing behavior on that effect. The four measures used to collect data included a demographic questionnaire, a newly-developed knowledge sharing behavior scale (KSBS), a Thai version of the dimensions of the learning organization questionnaire (DLOQ), and a Thai version of the role-based performance scale (RBPS). The consolidated questionnaires were distributed to 2,454 employees in four large hard disk drive (HDD) manufactures in Thailand, and 1,161 questionnaires (47.31 percent) were returned. The number of filled questionnaires that could be used was 1,025 and they divided into three sets. The first set of 320 questionnaires was employed for item analysis and exploratory factor analysis of the KSBS. The first version of the 19-item KSBS with four emerging dimensions, including the explicit knowledge donation, tacit knowledge contribution, reactive knowledge receiving, and proactive knowledge acquisition was generated. This 19-item KSBS revealed good validity and reliability. Afterward, the second set of 285 questionnaires was analyzed for KSBS, DLOQ, and RBPS validation and reliability using item analysis and confirmatory factor analysis. All three adjusted measurement models presented a good fit with the data and excellent validity and reliability. Finally, the last data set of 705 questionnaires, the whole 1,025 excluding the first data set, was used to

test the hypothesized structure model of the learning organization, knowledge sharing behavior, and individual performance using the structural equation modeling. The results reported good fit with the data ($\chi2$ = 69.202, df = 52, $\chi2$/df = 1.330, p-value = 0.056, SRMR =0.026, RMSEA = 0.022, CFI = 0.997, and TLI = 0.994). They also showed a high predictive power of the learning organization and knowledge sharing behavior in terms of individual performance. Furthermore, the learning organization accounted for 30.50% of the variance in the knowledge sharing behavior while the learning organization and knowledge sharing behavior accounted for 73.50% in individual performance. The empirical findings provided evidence to confirm that knowledge sharing behavior partially mediates the relationship between the learning organization and individual performance (β = 0.38, p < 0.001).

In conclusion, these results not only delivered strong linkages among the learning organization, knowledge sharing behavior, and employees' performance but also provided a valid and reliable KSBS specific to HDD context. The research findings and the KSBS can be utilized by human resource development practitioners, management staff in organizations, and scholars. Expanding the usage of the KSBS will later result a standard KSBS for employees in many different organizations.

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ABBREVIATIONS

Abbreviations	Equivalence
AVE	Average Variance Extracted
CFA	Confirmative Factor Analysis
CFI	Comparative Fit Index
CITC	Corrected Item-Total Correlation
CR	Composite Reliability
DLOQ	Dimensions of Learning Organization Questionnaire
EFA	Exploratory Factor Analysis
HDD	Hard disk drive
HRD	Human Resource Development
HROD	Human Resource and Organization Development
IP	Individual Performance
KM	Knowledge Management
KMO	Kaiser–Meyer–Olkin
KSB	Knowledge Sharing Behavior
KSBS	Knowledge Sharing Behavior Scale
LO	Learning Organization
M	Mean
RBPS	Role-Based Performance Scale
RMSEA	Root-Mean-Square Error of Approximation
SRMR	Standardized Root Mean Square Residual
SD	Standard Deviation
SEM	Structural Equation Modelling
TLI	Tucker–Lewis Index

CHAPTER 1

INTRODUCTION

1.1 Rationale and Problem Statement

" The most valuable asset of a 21st – century institution, whether business or non-business, will be its knowledge workers and their productivity " (Drucker, 1999, p. 79).

Over the past decades, a large number of scholars and practitioners have explicitly stated that knowledge is a critical organizational asset and probably the only source of a company's sustainable competitive advantage for gaining business success and conquering business uncertainty in the fast-moving world (Davenport & Prusak, 1998; De Long & Fahey, 2000; Nonaka & Takeuchi, 1995; Srivastava, Fahey, & Christensen, 2001; Wang & Noe, 2010). Additionally, knowledge is currently recognized as the most strategical drivers for improving existing processes and developing innovative products and services, all of which focus learning to improve organizational performance (Grant, 1996; Jo & Joo, 2011; Organisation for Economic Co-operation and Development, 1996).

In fact, there is a widespread belief among practitioners and scholars that individual performance is crucial as the backbone of firm performance (Huselid, 1995). Employees are expected to complete specific tasks to achieve targets that are aligned with organizational goals and strategies (De Waal, 2007). In order to enhance performance, continuous learning and taking action by transferring knowledge are necessities (Weldy, 2009; Wymer & Alves, 2012a). Hence, knowledge management and the learning organization are increasingly required in this current era of knowledge-driven economy (Zhang & Jiang, 2015), especially in knowledge-intensive industries (Dekoulou & Trivellas, 2015; Lu, Leung, & Koch, 2006).

One of the building blocks of knowledge management is knowledge sharing (Du, Ai, & Ren, 2007; Gupta, Iyer, & Aronson, 2000; Matzler & Mueller, 2011). In

terms of the organization, knowledge sharing behavior constructs organizational knowledge that generates gigantic tangible organizational outcomes including sales growth, revenue from products and services, production cost reduction, and innovation capability (Cummings, 2004; Hansen, Nohria, & Tierney, 1999; Jo & Joo, 2011; Lin, 2007; Obrenovic, Obrenovic, & Hudaykulov, 2015). Since in the 1990s, knowledge sharing behavior among organizational members has received much consideration because it plays a vital role in increasing the performance of those individuals that share knowledge (He & Wei, 2009; Lu et al., 2006). Knowledge sharing is, however, considered as a very complicated process which is not easy to promote in the workplace (Jo & Joo, 2011; Riege, 2005). Chow and Chan (2008) for example pointed out that the knowledge possessed by individuals and hardly command to transfer from an individual to others. Some previous studies (Au, 2011; Kwahk & Park, 2016) also revealed that knowledge sharing practice has both explicitly and implicitly influenced in-role productivity and extra-role performance. However, employees in many companies hesitate to share or even hoard knowledge because they believe it has a negative impact (Bock, Zmud, Kim, & Lee, 2005; Davenport & Prusak, 1998). Therefore, it is important that organizations be required to provide a specific context in terms of inducing employees' knowledge diffusion (Lu et al., 2006). Not surprisingly, firms necessitate organization-wide mechanisms that stimulate and engage organizational members to effectively contribute their useful knowledge to others through the learning organization (Marsick & Watkins, 2003; K.E. Watkins & Marsick, 1993; Witherspoon, Bergner, Cockrell, & Stone, 2013).

The learning organization has been suggested to have a remarkable influencer on knowledge sharing behavior (Jo & Joo, 2011). Moreover, some scholars believe that the organization not only highly facilitate knowledge sharing behavior but also increases individual performance (Dekoulou & Trivellas, 2015; Örtenblad, 2018; Weldy, 2009). However, the interactions among the learning organization, knowledge sharing behavior, and employee performance have been investigated to a very limited extent (Dekoulou & Trivellas, 2015). Thus, there is a strong need to investigate to a great extent the linkage of the learning organization, knowledge sharing, and individual performance (Au, 2011; Henttonen, Kianto, & Ritala, 2016). In addition, Asrar-ul-Haq, Anwar, and Nisar (2016) have emphasized that many studies related to

knowledge sharing and transfer have been carried out mostly in developed countries and encourage researchers to gain more evidence on the same issues in emerging economic countries and in diverse sectors.

Thailand is a flourishingly revolutionizing economy country and has transformed itself from agriculture to industry, and particularly export-oriented manufacturing, such as the electronics industry (Asian Development Bank, 2015). With the goals of achieving sustainability and becoming a developed country by 2036, the Thai government has launched Thailand's 20-Year National Strategy (2017-2036) and implemented the Thailand 4.0 policy as key drivers to transform and develop Thailand's economic and social structure (Thailand Board of Investment, 2017, January; The Government Public Relations Department, 2016, September). The electronics sector is one of the ten focused industries in the policy, which will add more value by using advanced technologies to further strengthen Thailand's competitiveness (Thailand Board of Investment, 2017).

The electronics industry in Thailand has total export values of approximately US$ 55 billion during 2010-2016, accounting for one-fourth of the country's total annual export income (Thailand Board of Investment, 2015a). The main subsector of the Thai electronics industry is the manufacture of hard disk drives with US$ 12 billion exported value in 2015, almost one-third of the HDD global market share (Charusilawong, 2015; Thailand Board of Investment, 2015a). Thailand is also the number one HDD product exporter in the world and the second HDD components producers in the world, after China (PRC) (Charusilawong, 2015). Recently, Thailand's HDD industry competitiveness has been impacted by both opportunities and threats at the domestic and global levels. For example, Daengrongrot (2014) highlighted that Thailand's HDD industry has been affected by higher labor costs, political uncertainty, the 2011 major flooding, etc. In addition, the Kasikorn Research Center (Charusilawong, 2015) reported that global HDD consumption has dropped because of the decline in the personal computer market, but the emergence of cloud computing and the movement of "the Internet of things" have created new markets as well as raised the demand for enterprise data storage, and other portable electronic equipment. Consequently, the HDD sector has been compelled to adapt its business strategies, apply advanced technology, and create suitable human resources and

organization development strategies (Pichitkarnkar, Pinthapataya, & Kengpol, 2015). For example, the HDD industry presents the main characteristics of the knowledge-intensive organization, whose success heavily relies on a skilled workforce, high-technology transfer, and research and development (Alvesson, 2011; Intarakumnerd, 2005). Therefore, enhancing employee performance is critically required by promoting knowledge sharing and exploiting among knowledge workers in the organization (Henttonen et al., 2016; Pichitkarnkar et al., 2015).

Hobday and Rush (2007) have emphasized that though Thailand is the leading production base for HDD exporting multinational corporations' subsidiaries, conducting research has received little attention. There have been only a few studies associated with knowledge sharing and performance in the Thai business sector. For example, Jangsuthivorawat, Pinthapataya, and Boonyasopon (2018) created a knowledge management model to increase the organization's efficiency in the HDD industry. In addition, Pichitkarnkar et al. (2015) designed and tested a model of the factors that influence knowledge sharing in an HDD firm. However, no research has been done on HDD employees' performance as a consequence of the learning organization, mediating by knowledge sharing.

Consequently, there is a strong need for conducting more research on learning organization and knowledge sharing behavior as the influencers on individual performance as an outcome in a knowledge-intensive industry, i.e., the HDD industry in Thailand, an emerging economic country. Hence, this study seeks to understand employee perceptions of the learning organization, knowledge sharing behavior, and individual performance among HDD manufacturers. The relationships among the learning organization, knowledge-sharing behavior, and individual performance are identified and tested in these manufacturers.

1.2 Objective of the Study

The following are the four purposes of this research study are:

1) To explore the influence of the learning organization on individual performance.

2) To investigate the impact of knowledge sharing behavior on individual performance.

3) To examine the effect of the learning organization on knowledge sharing behavior.

4) To test the mediating effect of knowledge sharing behavior on the effect of the learning organization on individual performance.

1.3 Research Questions

The main research question of this dissertation is whether the learning organization and knowledge sharing behavior affect the individual performance of Thai employees in large HDD manufacturers in Thailand.

In order to find the answers to this research question, four related research hypotheses are proposed:

Hypothesis 1: The learning organization has a positive effect on individual performance.

 Hypothesis 2: Knowledge sharing behavior has a positive effect on individual performance.

Hypothesis 3: The learning organization has a positive effect on knowledge sharing behavior.

Hypothesis 4: Knowledge sharing behavior mediates the relationship between the learning organization and individual performance.

1.4 Significance and Expected Outcomes of the Study

For human resource development and organizational behavior academics, even though, many scholars have claimed that knowledge is the most critical resource for creating the sustainable competitive advantage of organizations by increasing the efficiency and/or effectiveness of current products/processes/services or even innovating new ones (Raed, Ra'ed, & Ala'a, 2013; Nonaka, Toyama, & Konno, 2000), there has been little related empirical research on the linkage of the learning organization and knowledge sharing behavior and individual performance. Remarkably, the present study is one of the pioneering studies examining the outcome of employees' knowledge sharing behavior and learning organization in large

transnational companies in Thailand. Meanwhile, the knowledge sharing behavior scale (KSBS) was developed and tested in order to establish a valid and reliable measurement of knowledge sharing behavior in Thai context. Therefore, this study has broadened the concept of the learning organization, knowledge sharing behavior, and individual performance.

This current study also has beneficial practical implications, by guiding HROD practitioners in terms of building and/or strengthening mechanisms for facilitating employees' learning, engaging the individual's knowledge sharing, and using it to increase his or her productivity in such knowledge-intensive firms (Jo & Joo, 2011; Pichitkarnkar et al., 2015). It also provides three valid and reliable instruments that can be applied in HDD industries: 1) the dimensions of the learning organization questionnaire (DLOQ) (K.E. Watkins & Marsick, 1993), 2) the role-based performance scale (RBPS) (Welbourne, Johnson, & Erez, 1998), and 3) the knowledge sharing behavior scale (KSBS), newly developed. By using the valid and reliable DLOQ, KSBS and RBPS, this study expects that practitioners can further enhance employees' performance as well as the learning organization by strengthening related interventions and activities that will promote employees' knowledge sharing behaviors throughout the organizations.

1.5 Definitions of Key Terms

There are three major concepts in this study: knowledge sharing behavior, the learning organization, and individual performance. The following paragraphs explain these three terms as applied in the study.

1.5.1 Knowledge Sharing Behavior

Knowledge sharing behavior is sets of individual exchange action in two processes; donating and collecting, on their work-related knowledge among employees in one organization (Hooff & Ridder, 2004; Yi, 2009). The two processes of knowledge sharing behavior are the following: 1) knowledge donating behavior is a set of actions to provide (e.g. tell, relay, explain, teach, suggest, send, etc.) one's tacit

and explicit knowledge to others; 2) knowledge collecting behavior is a set of actions to collect (e.g. ask, search, take, be told and receive, etc.) one's tacit and explicit knowledge from others.

1.5.2 Learning Organization

The learning organization is a form of organization that facilitates members to continuously expand their capacity to learn and transform themselves, reflecting new knowledge and change (Garvin, 1993; Marsick & Watkins, 2003; Pedler, Burgoyne, & Boydell, 1991). Seven facets of the learning organization are reflected at individual, team, and organizational levels, including; continuous learning opportunities, inquiry and dialogue, collaboration and team learning, systems to share and capture learning, empowerment and collective vision, connecting to the environment and strategic leadership for learning (Marsick & Watkins, 2003).

1.5.3 Individual Performance

Individual performance is defined as the individual's action and outputs that relate to five expected roles, namely, job, career, innovation, team, and organization (Au, 2011; Welbourne et al., 1998).

CHAPTER 2

LITERATURE REVIEW

In order to develop the conceptual framework of this study, this chapter contains concepts and relevant studies of individual performance, the learning organization and knowledge sharing behavior. Furthermore, the relationships among these variables will be unfolded through an investigation of previous research. The details of the current state of related studies on each of these factors are as follows.

2.1 Individual Performance

Basically, organizations attempt to sustain businesses growth by adopting several interventions to enhance their performance and that of the individuals that work for them. In general, performance is explained in terms of outcomes such as efficiency, effectiveness, quality, and productivity (Pradhan & Jena, 2016; Stannack, 1996). However, employees' performance can be looked at in terms of outcomes and actions that related to the organizational goals (Koopmans, Bernaards, Hildebrandt, De Vet, & Van Der Beek, 2013). In order to understand employees' performance, performance appraisal is a widely-selected practice in most organizations (Mitchell, 2010). This method provides the organization with individual employees' data so that they can make decisions appropriately about human resource activities such as benefits payments, promotion, employee feedback, training and development, etc. (Campbell & Lee, 1988; Cleveland, Murphy, & Williams, 1989).

Furthermore, in the academic field, performance appraisal is one of the most received attention topics in the fields of human resource management and organizational behavior (Bommer, Johnson, Rich, Podsakoff, & MacKenzie, 1995). Performance appraisal standpoints and methods have evolved for more than 100 years until the present (DeNisi & Pritchard, 2006; Murphy & Cleveland, 1995). In the past, performance appraisal focused only individual job performance (DeNisi, Cafferty, &

Meglino, 1984), however, it has been acknowledged that in order to measure overall performance, focusing only on the job aspect may lead to the neglect of other significant factors (Welbourne et al., 1998). Therefore, in order to gain the full benefits of performance appraisal, a large number of researchers have sought to expand the critical areas of evaluation and have provided various criteria (Anthony, 2011; Griffin, Neal, & Parker, 2007; Koopmans et al., 2013).

Since the 1980s, a new movement of non-task performance has been highlighted, organizational citizenship behavior (OCB), which first coined in the 1980s by Organ and his associates (Smith, Organ, & Near, 1983). OCB refers to employees' voluntary behaviors that are not directly related to their jobs and are not explicitly recognized by the formal organization's reward or punishment system (Jo & Joo, 2011; Organ, 1988). In line with Borman and Motowidlo (1997), they also considered non-task performance as "contextual performance." Furthermore, some scholars have suggested other indicators, such as problem-solving and idea implementation (Parker, Williams, & Turner, 2006), creativity and training efforts (Charbonnier-Voirin & Roussel, 2012).

In order to conquer the limitations of job-based performance evaluation, Welbourne et al. (1998) proposed an integrated concept and a validated scale of roles-based performance that employed two theories, i.e., role theory and identity theory. Based on role theory in the organizational context, it was suggested that organizational members have multi-social positions where different duties, norms, behaviors, and rights are expected (Biddle, 1986). In addition, according to the Identity theory, the idea that employees select to behave in some expected roles, influenced by the actions of the firm is emphasized, such as formal and informal rewarding and/or punishing (Burke & Reitzes, 1991; Thoits, 1992). Moreover, Welbourne et al. (1998) scoped down the various roles of employees by appointing only the critical roles that highly impact on organizational accomplishment, and therefore, the five selected roles were job, career, innovator, team, and organization. According to Welbourne et al. (1998), the alpha coefficient of each dimension was identified by ranging from 0.86 to 0.96. and the total Cronbach's alpha at 0.94. The details on the five roles are described in Table 2.1.

Table 2.1 Summary of Each Role Definitions in Role-based Performance

Roles	Definitions
Job	Employees' performance involves with official job duties and responsibilities
Career	Employees' performance is associated with the attempt to new work-related skills, knowledge and professional growth.
Innovator	Employees' performance is related with the contribution of creative ideas and the improvement of personal tasks for all organizational processes in order to sustain competitive advantages.
Team	Employees' performance refers to actions that are supported and that also support other team members to achieve team goals.
Organization	Employees' performance concerns with voluntary actions that are beyond the in-role tasks, reflecting OCB.

Source: Au (2011); Kim (2014); Welbourne et al. (1998).

2.2 Learning Organization

In order to sustain the long-term growth of any businesses in today's fast-moving, complicated and unpredictable world, continuous learning among teams and individuals across organizations is vital. Previous studies have explicitly shown that the performance of organizations could be influenced by the learning organization such as financial performance and knowledge performance (Kim, Watkins, & Lu, 2017), customer satisfaction (Pantouvakis & Bouranta, 2013), organizational effectiveness (Tseng, 2012), and organizational performance (Jain & Moreno, 2015). Therefore, in order to create a "learning organization", which has collective learning entity attributes, processes and assumptions are emphasized, whereas "organizational learning" explains how organizational learning occurs (Preskill & Torres, 1999). Thus, the learning organization needs to consolidate individual learning into organizational learning (Wang & Ahmed, 2003). In order to promote organization-

wide learning, institutions are required to foster a learning culture for the creation of organizations as continuous learning facilitators (Marsick & Watkins, 2003)

Organizational culture has been highlighted in much of the learning organization literature (Ipe, 2003; Wang & Ahmed, 2003; Wang & Noe, 2010) because it influences high levels of behavioral consistency in members through social norms, shared values, and shared mental models (Jo & Joo, 2011). As Schein (1996) defined culture as a sharing pattern of basic assumptions of a group of people that determines their perceptions, thoughts, feelings, and actions about how the world is and ought to be. In addition, in order to handle its problems and adapt to circumstances, various actions from their collective learning are created, then to be taught to new members as the correct way to perceive, think and feel in relation to those problems.

The characteristics of the learning organization have been classified according to four approaches (Yang, Watkins, & Marsick, 2004): the systems perspective (Senge, 1990); the learning perspective (Garvin, 1993); the strategic perspective (Pedler et al., 1991); and the integrative perspective (Watkins & Marsick, 1993). In 1978, Argyris and Schon presented an idea related to the concept of the learning organization, however, this idea was promoted and made widely accepted by Peter Senge's book, *The Fifth Discipline* in 1990 (Preskill & Torres, 1999). Senge (2006, p. 3) defined a learning organizations, from the systems perspective, as places "where people continuously expand their capacity to create and achieve results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together." In addition, Garvin (1993, p. 80) proposed characteristics of a learning organization from the learning perspective as "an organization skilled at creating, acquiring, and transferring knowledge, and at modifying its behavior to reflect new knowledge and insights." Further, from a strategic and organizational performance perspective, Pedler et al. (1991, p. 1) described a learning company as "an organization that facilitates the learning of all of its members and continuously transforms itself in order to meet its strategic goals."

Furthermore, scholars have studied the correlations between the learning-oriented operation organization and firms' performance in various contexts. The

results have been confirmed that it enhances the effectiveness of organizational processes, strengthens relationships with stakeholders, increases a company's capacity for improvement through development and innovation, and finally, elevates financial performance (Dekoulou & Trivellas, 2015; Ellinger, Ellinger, Yang, & Howton, 2002; Watkins & O'Neil, 2013).

Watkins and Marsick (1993) provided an integrative perspective on learning organization culture. Watkins and O'Neil (2013) highlighted that since Watkins and Marsick published a book of *Sculpting the Learning Organization: Lessons in the Art and Science of Systemic Change* in 1993 as it has refined in their writing and practice as well as the theoretical origins of their concepts, including the seven dimensions of the learning organization questionnaire (DLOQ) development. The DLOQ includes the positive nature and cultural aspects of supportive learning organizations that encourage a dynamic organizational learning process at two levels: the organizational structure level and people's collaborative learning level (Song, Joo, & Chermack, 2009). There are seven dimensions of the DLOQ, displaying the major characteristics of a learning organization as seen in Table 2.2:

Table 2.2 Descriptions of the Seven Dimensions of the Learning Organization
Questionnaire (DLOQ)

Dimension	Description
1. Creating continuous learning opportunities	An organization's effort to systematically establish for continuous education and growth in jobs.
2. Promoting inquiry and dialogue	An organization's effort to foster a culture that encourages individuals to obtain productive reasoning ability to listen to others' and to ask for their opinions, showing freely their own opinions and feedback, including experimentation.
3. Encouraging collaboration and team learning	Attempt of the organization to create culture of team spirit where team members are expected to learn by working together and building collaboration to achieve team targets and to be rewarded.

Table 2.2 (Continued)

Dimension	Description
4. Establishing systems to share and capture learning	The effort of the organization to provide both high- and low-technology systems for sharing, capturing, and diffusing learning integrated in the organizational daily work routine.
5. Empowering people toward a collective vision	The organization's processes that encouraged employees to be involved in setting, owning, and implementing a collective vision; responsibility is distributed close to decision making so that people are motivated to learn about what they are held accountable to do.
6. Connecting the organization to its environment	The effort of the organization to nurture employees to perceive their work consequences regarding the whole organization and understand the organization's environment, and then apply information to adjust the work practices.
7. Providing strategic leadership for learning	Leadership ability in terms of strategic thinking by leveraging learning as a strategic tool to create change and generate the desired organizational outcomes.

Source: Chmiel (2013); Marsick and Watkins (2003, p. 139).

From 2003 to 2013, over 70 studies using the DLOQ in many contexts and cultures have been published (Watkins & O'Neil, 2013). This concept has been studied by focusing on the validity and reliability of its applicability in several countries, various contexts, and different sectors, such as medium to large private companies in Taiwan (Ya-Hui Lien, Yu-Yuan Hung, Yang, & Li, 2006), SMEs in South Korea (Kim & Marsick, 2013), manufacturers in Malaysia and New Zealand (Mohd-Zainal, Goodyer, Grigg, & Rohani, 2011), banking and IT sectors in Lebanon

(Jamali, Sidani, & Zouein, 2009), etc. Furthermore, the DLOQ has been examined along with several interdisciplinary variables beyond learning-oriented variables to prove the positive impact of a supportive learning culture on the various types of performance measures in terms of financial, knowledge and behavioral performance (Ellinger et al., 2002; Song et al., 2009).

2.2.1 Learning Organization and Individual Performance.

Although the ultimate outcomes of the learning organization focus on enhancing the performance of the individual and the organizations (Weldy, 2009), most of literature highlights the organizational level as mentioned above. Only a few empirical studies have verified the impact of the learning organization on individual performance. In addition, most of them have included only in-role or extra-role performance. For example, in 2018, one study indicated that teachers that perceived a higher level of the learning organization demonstrated higher levels of job performance (Song et al., 2018). This is in line with a study of Dekoulou and Trivellas (2015) of Greek advertisement firms, where it was found that the learning organization plays a significant role regarding the work outcomes of employees. Furthermore, OCB has been seen to be impacted by the learning organization (Islam et al., 2012; Jo & Joo, 2011). This current empirical study investigates the relationship of the learning organization with employees' performance according to five roles. The researcher, therefore, would like to propose an exploratory hypothesis as follows.

Hypothesis 1: Learning organization has a positive effect on individual performance

2.3 Knowledge Sharing Behavior

In this section, meaning, existing measures and relevant studies of knowledge sharing behavior are elaborated.

2.3.1 Definition of Knowledge and Types of Knowledge

Due to the complexity and ambiguity of the concept of knowledge, it is difficult to specify a consensus definition. Nevertheless, there have been efforts to explain knowledge in the organizational context. Nonaka and Takeuchi (1995, p. 58)

for example explained that knowledge is "a dynamic human process of justifying personal belief toward the "truth." Knowledge belongs to humans as "truths and beliefs, perspectives and concepts, judgments and expectations, methodologies and know-how" (Wiig, 1993, p. xvi). It is also a product of human reflection and experience related to specific contexts and situations (De Long & Fahey, 2000; Nonaka & Takeuchi, 1995). Each organization's own experiences and expertise by interacting with internal and external factors; adapting itself overtime, organization knowledge is accumulated and utilized as business acumen (Bollinger & Smith, 2001; Cabrera & Cabrera, 2002). In addition, Bollinger and Smith (2001) have pointed out that knowledge in the organization derived from the interpretation of information about each employee and team. It is "valuable information in action" which is what people know about customers, products, processes, mistakes, and successes (O'Dell & Grayson, 1998).

In terms of types of knowledge, on the one hand, some scholars believed that knowledge is a continuum (Leonard & Sensiper, 1998). For instance, Weiss (1999) has reviewed the nature of knowledge in various leading organizations and conducted a study on knowledge sharing in professional service firms. She found that knowledge can be painted along a continuum from easily articulates to that which is difficult to explain. It can range in degree from "complex, accumulated expertise that resides in individuals and is partly or largely inexpressible" to "much more structured and able to express in explicit content by verbal, symbolic or written form" (Chou & Tsai, 2004; Lee, 2001). On the other hand, knowledge is a "duality" that is widely presented in the knowledge management (KM) field. Accordingly, Nonaka (1991) explained that explicit knowledge refers to easily-expressed, captured, stored, and reused knowledge that is kept in books, manuals, messages, and databases, etc. In contrast, tacit knowledge is contextual, consisting of technical skills, mental models, beliefs, etc. Thus, it is grounded in action and is highly personal, and is difficult to formalize and communicate with others. Likewise, Bollinger and Smith (2001) proposed two types of knowledge, explicit and tacit. Explicit knowledge is clearly formulated or defined, easily expressed without ambiguity or vagueness, and codified and stored in a database. Tacit knowledge is the unarticulated knowledge that is in a person's head that is often difficult to describe and transfer, including best practices,

lessons learned, know-how, judgments, rules of thumb, and intuition (O'Dell & Grayson, 1998).

Further, some scholars and practitioners have mentioned types of knowledge using a practical approach, instead. For instance, Alavi and Leidner (2001) presented five types of knowledge related to customers, products, processes, competitors, and business frameworks. Zack (1999) sorted knowledge into three groups, i.e., causal (know-why), declarative (know-what), and procedural (know-how), whereas, Reychav and Weisberg (2010) categorized knowledge into three types, i.e., employee experience, know-who/where, and employee professionalism.

In fact, all knowledge composes of both "hard" and "soft" sides at some certain levels which means that the softer parts of knowledge are those that are difficult to express, and the harder parts are those that can be articulated, captured, and retained more easily; thus both knowledge aspects in organizations are needed to manage (Hildreth & Kimble, 2002). Therefore, explicit and tacit knowledge boundaries cannot be divided clearly (Lu et al., 2006) but they are interwoven and mutually complimentary entities (Hildreth & Kimble, 2002; Nonaka, 1991).

In this study, knowledge is what an individual knows and the skills that he or she possesses (Ozlati, 2012). It is justified truths and beliefs, perspectives and concepts, judgments and expectations, methodologies, and know-how (Nonaka & Takeuchi, 1995; Wiig, 1997). Knowledge has been divided into 2 types as follows: explicit knowledge is knowledge that is transferable in formal, systematic language and is easily codified and can be documented, articulated, and stored for later use, such as hard copy and electronic files (Lam, 2000; Ozlati, 2012). Tacit knowledge is knowledge that is difficult to codify and is not communicated easily. It is strongly established in action and is engaged in a specific context, and in addition, it is acquired through the work experience, professional training, and connections (know who and know where) there are in someone's mind. (Nonaka, 1994; Ozlati, 2012; Polanyi, 1966; Reychav & Weisberg, 2010)

2.3.2 The Definition of Knowledge Sharing in the Organization

Within organizations, knowledge has been found at multi-levels because knowledge can be stored in the mind of an individual, in the collective minds of a

group, or embedded in the processes and methods used to accomplish a task (De Long & Fahey, 2000; Wellman, 2009). Although individuals establish only the basic level which knowledge exists within the organization, the individual knowledge sharing is crucial to encode, convey, and manage across teams and the organization (Ipe, 2003; O'Dell & Hubert, 2011). In addition, Nonaka and Takeuchi (1995) claimed that it hardly that organizations build knowledge without individuals, if each employee does not share with individuals and groups, the knowledge cannot be maximized to organizational effectiveness, thus employees' knowledge sharing behaviors are core process to transform individual learning to organizational knowledge.

According to a review of the literature, Lin (2007) described knowledge sharing is individuals actions of contextual experiences and information with one another. In addition, knowledge sharing is also a set of employees' behaviors involving transferring one's work-related knowledge and expertise with other members within one's organization as the collective knowledge which can contribute to the ultimate effectiveness, goals achievement of the organization, and that is necessary to collaborate with others when solving problems, developing new ideas, or improving procedures (Cabrera & Cabrera, 2002; Ipe, 2003; Lee, 2001; Ozlati, 2012; Ramayah, Yeap, & Ignatius, 2014; Yi, 2009).

In addition, it was seen from the prior literature that the term of knowledge sharing has been expressed in two perspectives; one-directional and bidirectional, depending on active role(s) in the process (Tangaraja, Rasdi, Ismail, & Samah, 2015). In the unidirectional view, the knowledge providers totally govern the role in the one way process (Bock & Kim, 2002; Chennamaneni, 2006; Ozlati, 2012; Ramayah et al., 2014; Yi, 2009), whereas, in bidirectional view highlights both knowledge providers and recipients play the main roles in the two-way process of knowledge exchange (Hooff & Ridder, 2004). Furthermore, knowledge providers spread knowledge to other organization members; and knowledge recipients gather knowledge by consulting others (Au, 2011). This perspective is in line with the explanation of other scholars such as Connelly and Kelloway (2003); Davenport and Prusak (1998); Karkoulian, Harake, and Messarra (2010); Lin (2007); Tohidinia and Mosakhani (2010). Details of supported definitions and types of knowledge were displayed in Table 2.3.

Table 2.3 Summary of Knowledge Sharing Definition and Types

One-directional Perspective	Definition	Types of Knowledge
Active source is only knowledge providers.	"The degree to which one actually shares one's knowledge" (Bock & Kim, 2002, p. 1116).	-explicit/ implicit knowledge
	"The degree to which knowledge worker actually shares knowledge with other members within the organization" (Chennamaneni, 2006, p. 30).	-practical knowledge (customers, products, suppliers and competitors) - explicit/ implicit knowledge
	"The transfer of knowledge from one individual to another" (Ozlati, 2012, p. 130).	- explicit/ tacit knowledge
	"The act of making knowledge available to others within the organization" (Suppiah & Singh Sandhu, 2011, p. 464).	-explicit/ tacit knowledge
	"A set of individual behaviors involving sharing one's work-related knowledge and expertise with other members within one's organization, which can contribute to ultimate effectiveness of the organization" (Yi, 2009, p. 68).	-more explicit/ more tacit knowledge

Table 2.3 (Continued)

Bidirectional perspective	Definition	Types of Knowledge
Active sources are both knowledge providers and knowledge recipients	"It involves two main activities; transmission and absorption. The transmission activity includes effectively sending and correctly presenting knowledge to the potential knowledge recipients, and the absorption activity is the effectiveness of knowledge use by the recipients" (Davenport & Prusak, 1998, p. 5).	-individual aspect: work experience, values, and expert insight - contextual aspect: organizational routines, process, practices, and norms - explicit/tacit knowledge
	"A subset of knowledge management encompassing the exchange of knowledge (information, skills, experiences, or expertise) within and across organizations" (Janus, 2016, p. 4).	-explicit/ tacit knowledge
	"A social interaction, involving the exchange of employee knowledge, experiences, and skills through the whole department or organization; including communicate and consult actively with colleagues for knowledge donation and collection" (Lin, 2007, pp. 136 - 137).	-not identified specific types of knowledge
	"The process where individuals mutually exchange their knowledge and jointly create new knowledge. Sharing involves two central processes, i.e. knowledge donating and knowledge collecting." Van Den Ho off and De Ridder (2004, p. 118)	-explicit/ tacit knowledge

In the book of *Becoming a Knowledge-Sharing Organization: A Handbook for Scaling Up Solutions through Knowledge Capturing and Sharing* by Janus (2016) mentioned that knowledge sharing can be unidirectional, but in most cases, it is at least a two-sided knowledge exchange among parties that learn from others. This is in accordance with Tangaraja et al. (2015) claimed that knowledge providers are only the active source in some specific situations. For example, experts only distribute their knowledge to novices and do not accumulate knowledge from them. In general, colleagues exchange bidirectionally about their organization-related information, work-related experiences, thought, suggestions and skills, etc. (Connelly & Kelloway, 2003; Tohidinia & Mosakhani, 2010).

In conclusion, in this study, knowledge sharing behavior is comprised of a set of employees' exchange actions regarding tacit and explicit work-related knowledge in an organization by acting as knowledge providers and knowledge recipients (Hooff & Ridder, 2004; Yi, 2009).

2.3.3 Measuring Knowledge Sharing Behavior in the Workplace

It has been documented that the development of a reliable and valid KSBS is still a young and emerging research area (Ramayah et al., 2014; Yi, 2009). Based on past studies on the one-way view of KSB, there are three common methods for assessing KSB: numbers of written documents, frequencies of using technology for knowledge delivery, and reactions for some given knowledge providing scenarios (Chalkiti, 2012; Yi, 2009). However, some scholars have clearly stated that a combination of tacit and explicit knowledge is created through human activities and interaction (Nonaka & Takeuchi, 1995; Nonaka & Von Krogh, 2009). In addition, Bartol and Srivastava (2002) agreed with Yi (2009) that a variety of KSB, including KSB through formal and informal communication, should be evaluated because they produce a high impact on organizational outcomes. Furthermore, regarding the two-way perspective of KSB, Hooff and Ridder (2004) highlight not only assessing the knowledge-donating side but also on the knowledge-receiving side. Thus, both sides are active communication processes of knowledge exchange among the organization's members. Some selected existing KSB questionnaires are described in Table 2.4.

Table 2.4 Summary of the Current KSBS

Author(s) and Years	Details of the scale	Reliability of the scale	Participants
Lu et al. (2006)	-unidirectional perspective -8 items (6 positive items and 2 reverse items) -the seven-point Likert-type scales	-tacit knowledge sharing (α=0.85) -explicit knowledge sharing (α=0.65)	-middle-level employees and part-time MBA who were knowledge workers in firms. -China
Ozlati (2012)	-unidirectional -13 items (all positive items) -the seven-point Likert-type scales	-tacit knowledge sharing (α=0.91) -explicit knowledge sharing (α=0.89) -overall (α=0.91)	-full-time working professionals -USA
Yi (2009)	-unidirectional -28 items (all positive items) -the five-point Likert-type scales	-written contributions (α = 0.51) -organizational communications (α = 0.92) -personal interactions (α = 0.71) -communities of practice (α = 0.94) -overall (α=0.73)	-employees in private organizations -USA
Hooff and Ridder (2004)	-bidirectional -10 items (all positive items; 6 knowledge donating items and 4 knowledge collecting items) - the five-point Likert-type scales	-knowledge donating (α=0.85) -knowledge collecting (α=0.78)	-employees in private organizations -Netherlands
Reychav and Weisberg (2010)	-bidirectional -20 items (knowledge collection, knowledge donation, tacit knowledge and explicit knowledge sharing) - the five-point Likert-type scales	-explicit knowledge sharing (α=0.80) -tacit knowledge sharing (α=0.89)	-employees in hi-technology companies -Israel

According to previous studies, as mentioned above, no KSBS has been established in the HDD business, especially in Thailand. Therefore, in this study, a KSBS was newly developed; based on prior literature review. The researcher selected the behavioral aspect of employees' knowledge sharing anticipated by the organization factor (Tangaraja et al., 2015; Yi, 2009). In addition, a two-sided view of KSB, which are knowledge collection and knowledge donation, was considered more suitable for the nature of work in the HDD setting. Moreover, tacit and explicit knowledge types were adopted as a guideline for generating items and the questionnaire design.

2.3.4 Knowledge Sharing Behavior and Individual Performance

In order to grow and maintain successful businesses, organizations demand knowledge and skillful employees. However, formal training, or even leaving them spontaneously learn from routine jobs are not quick enough to accelerate employees' productivity. It is generally believed that the capacity of employees to complete tasks is influenced by actual knowledge sharing among them (Alavi & Leidner, 1999); however, only a few studies have been conducted that obviously show the linkage (Henttonen et al., 2016; Lu et al., 2006). In addition, most past empirical studies were conducted in foreign countries (Collins & Smith, 2006; Henttonen et al., 2016; Kang, Kim, & Chang, 2008; Sparrowe, Liden, Wayne, & Kraimer, 2001). Moreover, it should be noted that most prior research was focused only the relationship of knowledge sharing behavior with in-role or extra-role performance, except Au (2011) which the results were emphasized on the impact of knowledge exchange behavior among Hongkong public employees on five role-based performance. Thus, in this study, the second proposed hypothesis is following.

Hypothesis 2: Knowledge sharing behavior has a positive effect on individual performance.

2.3.5 Learning Organization and Knowledge Sharing Behavior

Successful actual knowledge sharing among employees requires various enablers, especially at the organizational level (Wang & Noe, 2010). Organizational factors play a vital role in terms of organizational knowledge by determining what

knowledge is important, linking knowledge between individual and organizational knowledge, creating a context for social interaction, shaping creation and adoption new knowledge (De Long & Fahey, 2000; Wang & Noe, 2010). In order to apply knowledge for continuous improvement processes, and products and services, organizations are required to enhance their ability to adapt and respond quickly which are characteristics of the learning organization (Chmiel, 2013; Jo & Joo, 2011).

As mentioned above, scholars believe that the well-established circumstances of the learning organization formulate joint efforts, effective teamwork, and collective knowledge flow (Confessore & Kops, 1998). In line with the work of Alipour, Idris, and Karimi (2011) clearly explained the influence of the process of the learning organization on knowledge sharing and transfer. In addition, Nonaka and Takeuchi (1995) stated that the learning organization facilitates tacit knowledge conversion to explicit knowledge among employees. Some previous evidence-based studies suggested a positive association between the learning organization and employees knowledge sharing, but there was a small number (Islam et al., 2012). For instance, Hernandez (2003) investigated tacit knowledge transfer within eight organizations in Bogotá, Colombia by using the DLOQ. He also found that all seven dimensions of the learning organization influenced the process of within-firm transfer of tacit knowledge. Further, Jo and Joo (2011) explored the relationship between the learning organization as an antecedent of knowledge-sharing intention of 452 Korean employees. The results indicated that the learning organization significantly affected knowledge sharing.

Thus, based on the previous literature, the author proposed that the learning organization can facilitate knowledge sharing behavior among organizational members according to the following hypothesis.

Hypothesis 3: Learning organization has a positive effect on knowledge sharing behavior.

2.4 Knowledge Sharing Behavior, Learning Organization and Individual Performance

According to the author's literature review, no empirical study investigated the mediating role of knowledge sharing behavior on the relationship of the learning

organization on individual performance. However, the synthesis of the concepts and the supporting empirical data discussed previously revealed both the direct relationship and the mediating role of knowledge sharing. This suggests that the learning organization facilitates the flow of knowledge exchanged by employees in the same team and across the teams. In addition, the appropriated organizational context and knowledge assist employees to succeed in their roles (Henttonen et al., 2016). Moreover, Weldy (2009) claimed that in order to enhance performance, the knowledge and skills of employees are required for making changes and taking actions in the learning organization.

Therefore, knowledge sharing behavior is expected to be a mediator regarding this link, and therefore the following mediation hypothesis is presented:

Hypothesis 4: Knowledge sharing behavior mediates the relationship between the learning organization and individual performance.

2.5 Conceptual Model and Hypotheses of This Study

Figure 2.1 depicts the hypothesized relationships among the learning organization, knowledge sharing behavior, and individual performance.
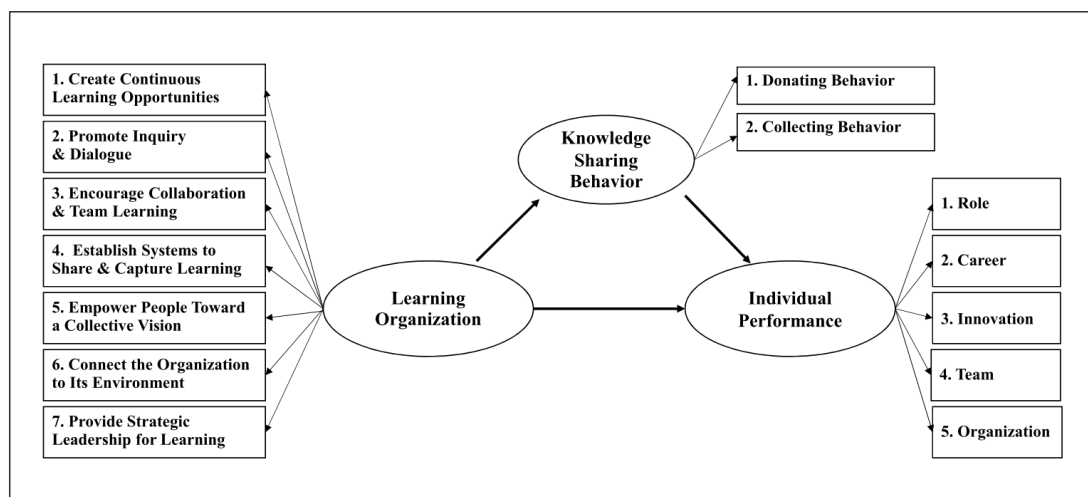
Figure 2.1 Conceptual Framework of the Hypothesized Model of the Present Study

In conclusion, there are four proposed hypotheses that are related to the learning organization, knowledge sharing behavior, and individual performance.

Hypothesis 1: The learning organization has a positive effect on individual performance.

Hypothesis 2: Knowledge sharing behavior has a positive effect on individual performance.

Hypothesis 3: The learning organization has a positive effect on knowledge sharing behavior.

Hypothesis 4: Knowledge sharing behavior mediates the relationship between the learning organization and individual performance.

CHAPTER 3

METHODS

In order to answer the objective of the present study, the hypothesized relationships among the learning organization, knowledge sharing behavior and individual performance of Thai employees in large-size hard disk drive (HDD) companies were explored. Structural Equation Modeling (SEM) to test the hypotheses was adopted in this cross-sectional and quantitative survey research. Lastly, in order to be certain of the trustworthiness of the results, questionnaires for measuring the learning organization , individual performance and knowledge sharing behavior were developed and validated. Additionally, other critical issues were of concerned and are explained in this chapter, including information about the population and sample, data collection, data analysis, and questionnaire development.

3.1 Population and Sample

In order to attain the purpose of the research, the individual level was studied as a unit of analysis (Lewis-Beck, Bryman, & Futing Liao, 2004), and the target population in the present study was Thai salaried employees in large HDD manufacturers located in seven strategic provinces following the Thailand Board of Investment (BOI) cluster development policy. According to the BOI clusters policy on electrical appliances, electronics and telecommunication equipment, covering HDD products, the policy is focusing on special economic development geographic areas which include the following seven provinces: Ayutthaya, Pathum Thani, Chonburi, Rayong, Chachoengsao, Prachinburi and Nakhon Ratchasima (Thailand Board of Investment, 2015b). Thus, a total number of large HDD manufacturers located in the focused areas is nineteen companies consisting of sixteen parts producers only and three product owners and parts producers, based on the Electrical and Electronics Intelligence Unit (EIU), the Ministry of Industry (Electrical and

Electronics Intelligence Unit, 2017). The simple random sampling method was adopted for selecting the participating companies in this study.

In order to calculate the sample size of the participants, Kline (2011, p. 12) recommended a rule of thumb for the perfect ratio of participants to parameters or an item ratio of 10-20:1. For the scale development, the maximum items among the three scales belonging to the initial version of the KSBS, which consisted of 32 items, thus, 320-640 samples were considered to be appropriate. In addition, for examining the hypotheses among the LO, KSB, and IP, there were approximately around 30 parameters, thus, 300-600 samples were in the appropriate range. Therefore, at least 620 samples of the total participants were expected for this study.

3.2 Questionnaires Preparation

In order to examine all of the hypotheses, a set of questionnaires was formulated and it was ensured that they were appropriate and had good quality for measuring the definitions and constructs of each variable in the research model; and in order to consolidate the questionnaire of this study (see Appendix A), is comprised of five main parts: a cover letter, a demographic survey, and three instruments of the newly-developed of knowledge sharing behavior scale (KSBS), the Thai version of the dimensions of the learning organizational culture questionnaire (DLOQ) and the Thai version of the role-based performance scale (RBPS). The 6-point rating scale response options were employed to align with the entire questionnaire. This section explains the steps of the questionnaire preparation.

3.2.1 Cover Letter

The cover letter aimed to inform the participants about the key contents, such as the study's purpose, the subscales, and numbers of items, the anonymous use of the data, and the right to participate or not. At the end of this page, the consent statements were shown and each participant had to fill it in before completing the questionnaire.

3.2.2 Demographic Survey

The demographic survey was designed to collect information on 7 topics, i.e. gender, age, education level, position, department, years of service at the company, and total years of work experience.

3.2.3 KSBS, DLOQ and RBPS

The questionnaires of the newly-developed KSBS and two adopted DLOQ and RBPS were used. To explain each step in the developing process was as follow.

3.2.3.1 The Newly Developed KSBS

In order to measure knowledge sharing behavior, the author developed the new questionnaire so that it fit the population and context of this study. This scale was established to measure the behavior of participants regarding work-related knowledge exchange with co-workers in their organization. An initial version of the items was developed in four steps as follows.

First of all, related theories and concepts, prior studies, and a current English knowledge sharing scale were reviewed and analyzed in order to find an operational definition of knowledge sharing behavior (KSB). Then, crucial statements from the literature and key items from various past studies (Bock & Kim, 2002; Bock et al., 2005; Cabrera & Cabrera, 2002; Lee, 2001; Lu et al., 2006; Ozlati, 2012; Reychav & Weisberg, 2010; Yi, 2009) were selected and adjusted. Based on previous literature, there were two main dimensions of KSB: knowledge donation and collection. It turned out that twenty-four positive items were initially documented and translated into Thai.

Second, in order to reduce any acquiescence or extreme response biases and to increase the attention of the respondents, negative items were included (Barnette, 2000; Sauro & Lewis, 2011). Therefore, the preliminary version of the KSBS contained 34 items i.e., 24 positive and 10 negative items. In addition, the KSBS instruction was drafted, using a Likert scale, ranging from 1= very untrue of me; 2= untrue of me, 3= somewhat untrue of me, 4= somewhat true of me, 5= true of me 6 = very true of me, was identified. The main purpose of using a 6-point rating scale was used to avoid midpoint response bias, to enhance scale sensitivity, and to gain more reliable information (Cummins & Gullone, 2000; Matell & Jacoby, 1971; Tsang, 2012).

Third, a list of initial items was reviewed and assessed by a knowledge management content expert and two behavioral science experts. They were asked to examine the content validity by considering the construct definition relevancy of each item by scoring the item on a 3-point scale: -1 = clearly not measuring, 0 = unclear,

and 1 = clearly measuring. Received rating scores were calculated for the indexes of item-objective congruence (IOC) (Turner & Carlson, 2003). If the IOC was equal or higher than 0.5, the item was considered to be of good quality and was retained. In addition, how to improve the quality of items by adjusting, adding, and removing some of them was suggested. Furthermore, the instruction for the scale to ensure that it was readable and understandable were also recommended.

Fourth, the revised scale, following to the experts' comments, was sent back to reassess the questionnaires and it was agreed that this preliminary version of the KSBS could be applied. Consequently, two negative items of the initial version of the KSBS were deleted because the IOC was lower than 0.50. Finally, a 32-item KSBS with 24 positive and 8 negative items, and with a 6-point rating scale, was confirmed to be used for the data collection. The items of the KSBS for measuring knowledge donating behavior ranged from KSB1 to KSB16 e.g. I send work-related information to other staff per their request; I fully reveal my successful work-related tips and techniques to the staff in my organization; and KSB17 to KSB32 were assessed for knowledge collecting behavior, e.g. When I have a chance, I ask the staff to share their knowledge and expertise; I receive new work-related information from the staff in my organization.

3.2.3.2 Translation and Adaptation of DLOQ and RBPS

The DLOQ and the RBPS with a translated and adapted version are explained below.

1) The DLOQ was created by Marsick and Watkins (2003). There are three versions of the DLOQ; the 43-item version, the 21-item version, and the 7-item version. Yang et al. (2004) recommended that the 21-item DLOQ, with 3 items for each dimension, is an appropriate version for studies that focus on examining the relationships of the learning organization with other variables. The reliability estimate of the overall scale was 0.93 with the coefficient alpha for seven dimensions ranging from 0.83 to 0.93 (Yang et al., 2004). All seven dimensions (3 items each) of the DLOQ reflecting the individual, team, and organizational level, were the following: 1) continuous learning opportunities (e.g. In my organization, people are rewarded for learning.); 2) inquiry and dialogue (e.g. In my organization, people spend time building trust with each other.); 3) collaboration and team learning

(e.g. In my organization, teams/groups revise their thinking as a result of group discussions or information collected.); 4) systems to share and capture learning (e.g. My organization makes its lessons learned available to all employees.); 5) empowerment to collective vision (e.g. My organization recognizes people for taking initiative.) 6) connect to environment (e.g. My organization works together with the outside community to meet mutual needs.); 7) strategic leadership for learning (e.g. In my organization, leaders continually look for opportunities to learn.).

        2) The RBPS was originally created by Welbourne et al. (1998) and was recently by Au (2011). The 20-item of RBPS has been employed to measure individual performance related to five categories (4 items each) as follows: job role (e.g. I provide excellent service to my internal and/or external customers.): career role (e.g. I am making progress in my career.), innovator role (e.g. I am always finding improved ways to do things.): team role (e.g. I always respond to the needs of others in my work group.): and organization role (e.g. I always offer help so that the company is a good place to be.). The CFA factor loading values and Cronbach's alpha from Anthony's research in 2011 with Hongkong government officials. The factor loading values were job role (0.81), career role (0.78), innovator role (0.84), team role (0.79), and organization role (0.77), and Cronbach's alpha for the overall scale was 0.86.

        In order to translate and adapt both mentioned instruments, the researcher followed these steps below.

        First, the researcher sent e-mails to the authors of the DLOQ and the RBPS asking for formal permission to employ, translate, and adjust the tools in the study. One of the authors of the DLOQ granted permission and provided a guideline for using the questionnaire, whereas the main originator and the developer of the RBPS allowed the researcher to continue as requested.

        Second, the researcher and two translators that had experience in HRD conducted the first-round translation of both questionnaires into Thai separately. This was done by balancing the item's objective and literal translation. After that, all three translation drafts were compared and combined. In case, some items were not clear, the authors of the questionnaires were asked for clarification. Subsequently, some words and statements were slightly modified to suit the context, such as changing the

word "people" to "employees." In addition, the six-point rating scale wording of the DLOQ was moderately adjusted to the following range: 1 = never; 2 = very rarely; 3 = rarely, 4 = occasionally, 5 = very frequently, 6 = always.

Furthermore, the original five-rating scale of the RBPS was expanded to a six-point Likert scale, ranging form was expanded to a six-point rating scale, ranging from 1 = very untrue of me; 2= untrue of me, 3= somewhat untrue of me, 4= somewhat true of me, 5= true of me 6 = very true of me. The benefits of using a six-point rating scale were mentioned earlier as well as in the KSBS developmental section of the present study. The study agrees with Tseng (2010), who noticed that having the same rating scales for all parts of a survey could help participants understand with no confusion and create fewer difficulties in the statistical analysis.

Third, after the initial translation was completed, the first Thai version of the DLOQ and RBPS were sent to the mentioned experts in the KSBS development section. They examined the first Thai draft of both questionnaires by comparing it to the English version and suggested a number of revisions.

Fourth, the researcher modified and returned the second Thai version of both questionnaires to the group of experts. They slightly adjusted it in order to ensure that both questionnaires were appropriate for the Thai manufacturing context. Subsequently, the third Thai version of the 21-item DLOQ and the 20-item RBPS with a 6-point rating scale was ready for further steps.

3.2.4 The Finalized Version of the Consolidate Questionnaire

In order to ensure the comprehension of the cover letter, demographic survey content, instructions, and item wording of the instruments, the fully-designed questionnaire file was reviewed and commented on by one engineer and two HR staff members in three different HDD manufacturers and by two Ph.D. students in HRD. The comments of all five contributors were considered and used in order to slightly adjust some of the wordings of the instrument. The finalized version of the consolidated questionnaire was conducted and approved by the dissertation's advisor and a research committee member. Later it was delivered for the data collection.

3.3 Data Collection

After contacting large HDD companies, one by one, via telephone, seven of them were interested in this study. Official letters with brief proposals and questionnaires were sent to the management staff of those seven companies. Finally, four of them accepted and allowed their employees to take part in this research. Two of them (company A and B) are HDD parts producers only, whereas, the other two (company C and D) are product owners and parts producers. Even though company C recently acquired company D, they are considered as two different companies.

The objectives and benefits of the study, the details of the questionnaires, data collection and analysis process, and so on were explained through the decision-makers and/or coordinators of each company. Then, the whole package of questionnaires was delivered for data collection from September to November 2017, managed by companies' coordinators. In order to complete the questionnaire, a self-administered survey method was employed. Both paper-based and Internet-based questionnaires were prepared as data-collection options and were selected by the companies' coordinators, as well as different choices of gifts for participating, such as gift vouchers or souvenirs.

In this regards, 1,161 out of 2,454 distributed questionnaires were returned, and only 1,025 were completed and usable. Of those 2,454 distributed questionnaires, the paper-based questionnaire was employed and administered by company A and B, while company C and D chose the online-questionnaire, where the number of distributed questionnaires of each company was 430, 400, 1,224 and 400 respectively. Of those questionnaires, 396, 397, 254, and 114 were returned and only 344, 348, 231, and 102 were completed and usable (return rates of 92.09%, 99.25%, 20.75% and 28.50% and a contribution rate of 33.56%, 33.95%, 22.54% and 9.95% respectively). Table 3.1 shows the description of questionnaires.

Table 3.1 Description of Questionnaires

Company/ Sites	Questionnaire type	Distributed questionnaires	Returned questionnaires (return rate %)	No. of usable questionnaires (contribution rate %)
A	paper	430	396 (92.09%)	344 (33.56%)
B	paper	400	397 (99.25%)	348 (33.95%)
C	online	1,224	254 (20.75%)	231 (22.54%)
D	online	400	114 (28.50%)	102 (9.95%)
Total		**2,454**	**1,161(47.31%)**	**1,025 (100%)**
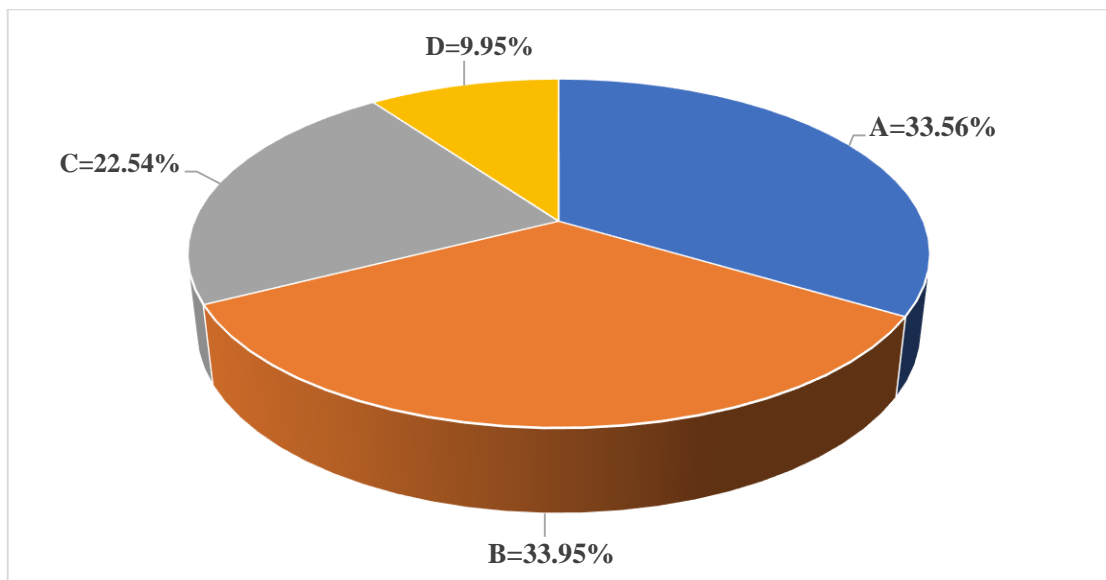
Figure 3.1 Number and Percent of Usable Questionnaires of Each Company

3.4 Questionnaire Analysis

In order to develop the questionnaires for the study, the research data were analyzed. Descriptive statistics reflected the characteristics of the samples. After the experts examined the content validity, the items of the KSBS were selected using statistical analysis methods, including, item discrimination, item-total correlations, scale reliability, and exploratory factor analysis (EFA). Finally, confirmatory factor analysis (CFA) and scale reliability methods were used to validate the KSBS, the DLOQ, and the RBPS.

In the present study, the 1,025 participants were randomized into three groups, which were 320, 285 and 705. First, the first data set of the 320 participants, was appointed for the initial version of the KSBS development. Then, the second data set of 285 participants, was chosen for analyzing the validation and reliability for all three questionnaires: the newly-developed KSBS, the translated version of the DLOQ, and the RBPS. Lastly, the last group of 705 participants, i.e. all of the participants (1,205), excluding the participants in the first data set (320) were used for conducting SEM and other statistical methods in order to test the hypotheses of the study.

The first and second data set are presented in this chapter because they are related to the development of all three questionnaires used in the study. The third data set is explained separately in chapter 4 because it was used to test hypotheses regarding the research results.

3.4.1 Questionnaire Development

Briefly, the demographic characteristics of the first data set were as follows: the majority of the participants were female (63.44%) and the participants' average age was 34.23 years ($SD = 6.16$, ranging from 22 to 52 years of age). The majority of educational background was a bachelor degree or higher (49.68%). More than half of the participants (58.75%) had 1-10 service years at their current company. In addition, a half of the participants (51.88%) had total work experience of 6-15 years (see Appendix C for demographic information). Item analysis and EFA were conducted and the details are as follows.

3.4.1.1 Item Analysis of the Initial Version of the KSBS

The criteria of item analysis for the KSBS in the present study were as follows. 1) The low-quality items in the scale were performed using two statistical approaches, i.e. corrected item-total correlation (CITC) and discrimination t-value analysis, similar to that used by Churchill (1979) and Hinkin (2005). 2) The CITC was considered and it was made sure that each item was significantly related to the total score; therefore the minimum value for retaining each item was 0.3 as mentioned by Cristobal, Flavián, and Guinalíu (2007). 3) A single item requires the ability to differentiate lower and upper groups (below the 30th percentile and above the 70th percentile of each item) in order to demonstrate item discrimination based on the analyses of the t-values that meet the criteria of p-value < 0.05 (Bhanthumnavin, 2008).

As mentioned in the literature review, knowledge sharing behavior was originally defined as actions that include two processes, i.e. knowledge donating and knowledge collecting. Therefore, the knowledge donating dimension was measured using the first 16-item that contributed to the KSBS in the study, consisting of 11 positive items and 5 negatively-worded items, whereas, the knowledge collecting dimension was evaluated using the last 16 items, consisting of 13 positive items and 3 negatively-worded items. Based on the criteria of the item analysis as mentioned above, the results indicated that all 32 items were qualified and maintained because they achieved all of the criteria. Details of the results are presented in Appendix D.

3.4.1.2 Exploratory Factor Analysis of the KSBS

Exploratory Factor Analysis (EFA) was applied for investigating the factors that emphasized the sets of observed variables that indicated latent variables in the research (Yang, 2005). It is a data or variables reduction process that is typically used for refining new questionnaires (Hinkin, 2005; Wymer & Alves, 2012b). In this research, the selected extraction and rotation methods were the principal component analysis and Varimax with Kaiser normalization. These methods reduce large variable sets into smaller groups while retaining as much of the original total variance as possible and creating interpretable uncomplicated patterns (Conway & Huffcutt, 2003; Costello & Osborne, 2005; Yang, 2005). In addition, five criteria for the EFA were applied: 1) the measure of sampling adequacy (Kaiser-Meyer-Olkin test) should

be greater than $.50$; 2) the Bartlett test of sphericity should be significant; 3) the eigenvalue for each construct should be greater than one; 4) the retained number of constructs should yield the total cumulative percentage for explaining the total variation of at least 60% and (5) each item should load at .5 or higher (Hinkin, 2005).

The first round of EFA results of the 32 KSB items showed a good fit of Kaiser-Meyer-Olkin test (KMO = .93) with a significant Bartlett test of sphericity ($\chi^2 = 6338.67$, $df = 496$, $p < .001$, $n = 320$). The results indicated five emerging dimensions of the KSB measure. However, the highest loaded dimension was induced by all 8 negative items. Additionally, this unexpected dimension did not make any sense. This occurrence of a meaningless dimension of negatively-worded items was in line with previous studies. For example, Schmitt and Stuits (1985) emphasized that mostly- or wholly- negative items regularly load on their own dimension in the factor (see alsoWymer & Alves, 2012b). It is consistent with much of the research over the past decades (Barnette, 2000; Siegel & Kaemmerer, 1978). Therefore, DeVellis (2017) suggested that negative items should not be included in the scale because they distort the factor structure. Consequently, all eight negative items were excluded, whereas, 24 positive items were retained and moved forward for the further analysis.

The second round of EFA was repeatedly analyzed by using the same data and techniques. At this stage, the items were kept by considering five previously-mentioned EFA criteria as well as the appropriate loading of items on the relevant dimensions (Hinkin, 2005). The results of EFA suggested four meaningful dimensions with 19 items. There were a low loading item and four unsuitably loading items. Thus, these five items were dropped and only 19 items were retained. Subsequently, the EFA was rerun with the same dataset. Eventually, the output for the 19 KSB items presented a good fit of Kaiser-Meyer-Olkin test (KMO = .92) with a significant Bartlett test of sphericity ($\chi^2 = 3630.73$, $df = 171$, $p < .001$, $n = 320$). Four major constructs emerged, with each eigenvalue above one, describing 67.41% of the total variance. In addition, the item loading value of each item was between .54 and .84. According to the results, the EFA output in Appendix D affirmed the construct validity of the 19-item KSB measure.

As a result, a four-construct model of the KSBS was created (see Appendix D). The first dimension consisted of six positive items with an eigenvalue

of 3.74. It was identified tacit knowledge contribution (TKC) which defines as a set of actions to provide tacit knowledge to other employees. It is considered the most important dimension of KSB. This dimension described 19.70% of the variance of KSB.

The second dimension consisted of five positive items, termed proactive knowledge acquisition (PKA) and referring to a set of enthusiastic actions by creating one's own opportunities to obtain knowledge from other employees. This dimension, with an eigenvalue of 3.45, additionally described the variance of KSB measure at 18.17%, which caused the total cumulative variance explanation of 37.87% of KSB.

The third dimension, called reactive knowledge receiving (RKR) consisted of five positive items with the eigenvalue of 2.93. RKR was defined as a set of responding actions to gain knowledge from other employees. This dimension could additionally explain the variance of the KSB measure at 15.43%, which caused the total cumulative variance explanation of 53.30% of this construct.

The fourth dimension was composed of three positive items with an eigenvalue of 2.68, which was labelled explicit knowledge donation (EKD). This dimension refers to a set of actions to deliver explicit knowledge to other employees. It could additionally explain the variance of the KSB measure at 14.11%, which led to the total cumulative variance explanation of 67.41% of this construct.

3.4.2 Scale Validation

In this phase, CFA was conducted to test whether the structures of the scales, based on the results of the exploratory factor analysis, were consistent with new data or not. In this study, when the measurement model was performed, the important goodness-of-fit indices and criteria were identified for testing the model fit, including, the ratio of the chi-square/df ($\chi2/df$) being less than 3 with a non-significant level criterion ($p > .05$); a Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) values greater than .95; and Standardized Root Mean Square Residual (SRMR) and Root Mean Square Error of Approximation (RMSEA) values less than .08 (Hair, Black, Babin, & Anderson, 2010; Hooper, Coughlan, & Mullen, 2008; Schreiber, Stage, King, Nora, & Barlow, 2006). In addition, the minimum of the factor-loading value for each item was .40 (Deng, 2010; Ott, Cashin, & Altekruse, 2005).

Table 3.2 The Criterion of Model Fit Indices for CFA

Fit indices	Criterion
1. Chi-square: /	No significant
2. Relative Chi-square: /df	$\chi^2/df < 3.00$
3. p-value	$p > .05$
4. Comparative Fit Index: CFI	CFI > .95
5. Tucker–Lewis Index: TLI	CFI > .95
6. Root Mean Square Error of Approximation: RMSEA	RMSEA < .08
7. Standardized Root Mean Square Residual: SRMR	SRMR < .08
8. Factor loading	> .40

In order to conduct scales validation, a second-order CFA of the KSBS, DLOQ and RBPS measures were tested. The second data set of 285 employees was used. According to the analysis, the data showed that a majority was female workers (66.32%), and the participants' average age was 37.14 (*SD*=7.39 ranging from 21 to 53 years of age). Half of the samples (50.93%) had not earned degrees. Half of the samples (51.16%) had service years fewer than 10 years at their current company and the three-fifths of the samples (62.80%) had total work experience longer than 10 years. (see Appendix C for demographic information).

3.4.2.1 KSBS Validation and Reliability

The second order confirmatory factor analysis model of KSB was run and adjusted, based on the suggestions of some modification indices and theoretical concepts. The model demonstrated good fit indices, which are presented by compared with the criteria in Table 3.3.

Table 3.3 Goodness of Fit Indices of the KSB Model (*n*=285)

Fit indices	Criterion	The KSB Model	Satisfaction of the KSB Model
χ^2	-	148.672	-
df	-	123	-
χ^2/df	< 3	1.208	✓
p-value	>.05	.057	✓
CFI	> .95	.991	✓
TLI	> .95	.987	✓
SRMR	< .08	.039	✓
RMSEA	< .08	.027	✓

In addition, from the four dimensions of KSBS, the highest gamma value of .99 belonged to the dimension of proactive knowledge acquiring (PKA) and the highest factor loading score among five items of this dimension was .86 (When other staff members relay work-related knowledge to me, I ask questions until my doubts are cleared up.). The second important dimension of KSB was reactive knowledge receiving (RKR) with a gamma value of .95 and the highest factor loading score among the five items of this dimension was .73 (I am told by other staff in my organization about how to fix mistakes at work.). The third important dimension was tacit knowledge contribution (TKC) with a gamma value of .82 and among the six items of this dimension, the highest factor loading score was .88 (When I learn something new and useful to work from internal training, I relay it to the staff in my organization.). The least important dimension was explicit knowledge donation (EKD) with a gamma value of .64 and in the three items of this dimension, the highest factor loading score was .83 (I send work-related information to other staff per their request staff.).

For the 19-item of the KSBS, the factor loading scores of the single item ranged from .47-.88 with $p < .001$, reaching above the .40 criterion level with significance (Deng, 2010; Ott et al., 2005). As a result, the 19-item KSBS with four dimensions was confirmed. The details of the second-order confirmation factor analysis results are depicted next in Figure 3.2.
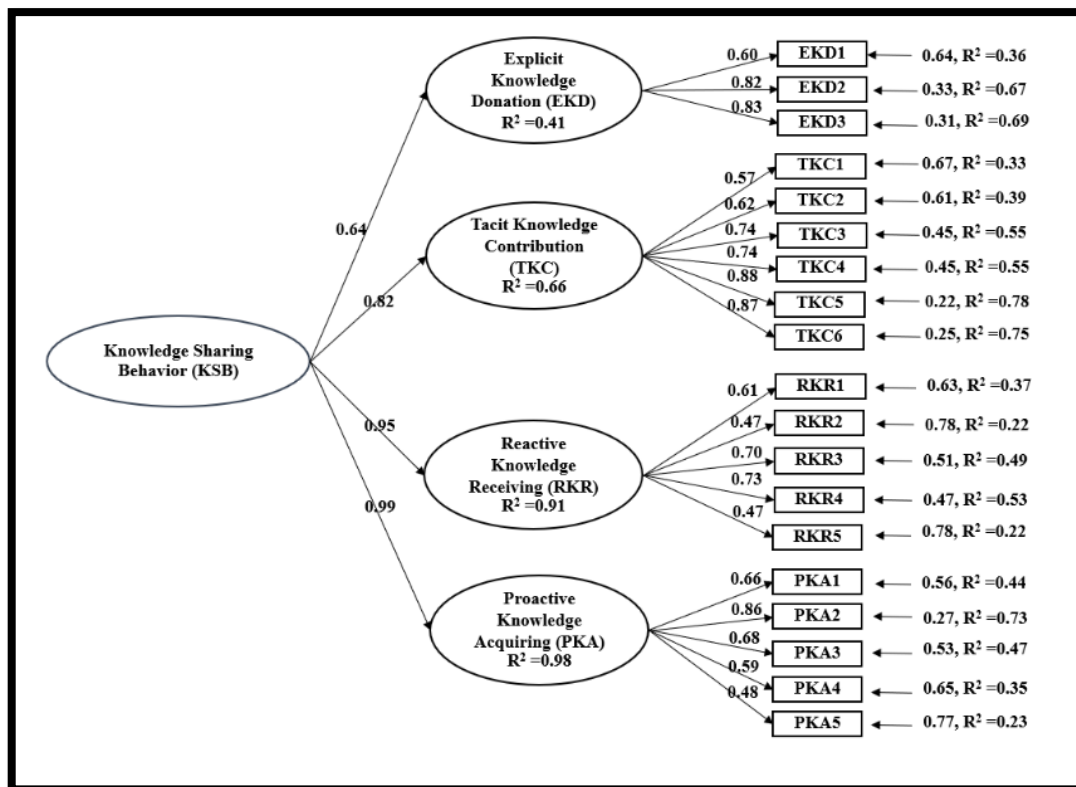
Figure 3.2 Second-Order Confirmatory Factor Analysis of the 19-item KSBS

        In order to evaluate the construct and convergent validity of the KSBS, composite reliabilities (CR) and average variance extracted (AVE) were conducted. The CR values of all dimensions were .74 -.83, which were higher than the minimum criterion at .7 (Hair et al., 2010). In addition, Table 3 displays the AVE values of explicit knowledge donation (EKD) and tacit knowledge contribution (TKC), which were .56 and .57; thus they were higher than .5, but the AVE values of the other two dimensions, proactive knowledge acquisition (PKA) and reactive knowledge receiving (RKR), were at .40 and .44, lower than .50. However, the AVE at .40 was bearable since the CR was greater than .60 (Fornell & Larcker, 1981; Huang, Wang, Wu, & Wang, 2013). In addition, the CR and AVE of the overall scale were .94 and .50, respectively, which were greater than the recommendation.

        Next, Cronbach's alpha was performed for demonstrating the reliability of each dimension and the overall scale reliability (Hinkin, 2005). The reliability coefficients of each dimension of KSB were .78 - .88 and the overall scale reliability

coefficient was .92, which was excellent levels ($\alpha > .70$, George & Mallery, 2003). Further analyses were corrected item total correlation (CITC) and the t-test item discrimination. Again each item of the KSBS had a significant *t*-value discrimination (*t*-values > 8.65, $p <.001$) and the values of the item total correlation ranged from .43 to .81, with $p <.001$. Consequently, the validity and reliability of the finalized version of the KSBS were acceptable. Finally, the reliability and validity results from the scale development disclosed that 19-item KSBS, consisting of four dimensions, was a valid and reliable measure and could be employed for collecting data from the HDD employees. More details are shown in Table 3.4.

Table 3.4 Statistical Results of the Final 19-item KSBS

Dimension	Items	Cronbach's Alpha (α)	*t*-values	*p*-values	CITC	CR	AVE
Explicit Knowledge Donation	EKD1-EKD3	.78	9.91-10.24	.000	.54-.67	.80	.57
Tacit Knowledge Contribution	TKC1-TKC6	.88	8.65- 11.83	.000	.55-.81	.83	.56
Reactive Knowledge Receiving	RKR1-RKR5	.80	8.78- 14.00	.000	.49-.70	.74	.40
Proactive Knowledge Acquisition	PKA1-PKA5	.79	9.70- 14.96	.000	.43-.69	.79	.44
CR =.94, AVE =.50, α =.917							

3.4.2.2 DLOQ and RBPS Validation and Reliability

In order to ensure that the translated version of DLOQ and RBPS could be applied in Thai context. First, t-test item discrimination and corrected item-total correlation (CITC) and discrimination t-value were analyzed for item analysis. Second, construct validity was determined by performing second-order confirmatory

factor analysis (CFA) that the structure of dimensions is appropriated. Last, Cronbach's alpha was examined for the reliability of each dimension and the whole scale of two. In addition, the data set of 285 participants, which was analyzed regarding KSBS development, were also used for this part.

In order to evaluate the measurement models of DLOQ and RBPS, a number of model-data fit indices were applied as same as KSBS validation; namely, the ratio of chi-square/df ($\chi 2/df$), non-significant level, CFI, TLI, SRMR, RMSEA and the factor-loading value of each item. The statistical results of goodness of fit indices and the values of measurement models of the DLOQ and RBPS were described next.

1) According to the measurement model of the DLOQ, based on the suggestions of some of the modification indices, the model demonstrated a good fit with the data ($\chi^2 =181.55$, df = 153, (χ^2 /df) = 1.187, p-value = .057, SRMR = .036; RMSEA = .026; CFI = .991; TLI = .988) as shown by comparing with the criteria in Table 3.5. In addition, the CFA of the DLOQ as shown in Figure 3.3 indicated that the most important dimension was systems to share and capture learning dimension with a gamma value of .96, whereas the least important dimension belongs to connecting to environment with a gamma value of .71. Overall, the gamma values of the seven dimensions range from .71 to .96 and the factor loading of each item was .58 - .90, reaching above the .40 criterion level (Deng, 2010; Ott et al., 2005). As a result, the 21- item DLOQ with seven dimensions was confirmed.

Table 3.5 Goodness of Fit Indices of the DLOQ Model (*n*=285)

Fit indices	Criterion	The DLOQ Model	Satisfaction of The DLOQ Model
$\chi 2$	-	181.554	-
df	-	153	-
$\chi 2/df$	< 3	1.187	✓
p-value	.05	.057	✓
CFI	> .95	.991	✓
TLI	> .95	.988	✓
SRMR	< .08	.036	✓
RMSEA	< .08	.026	✓
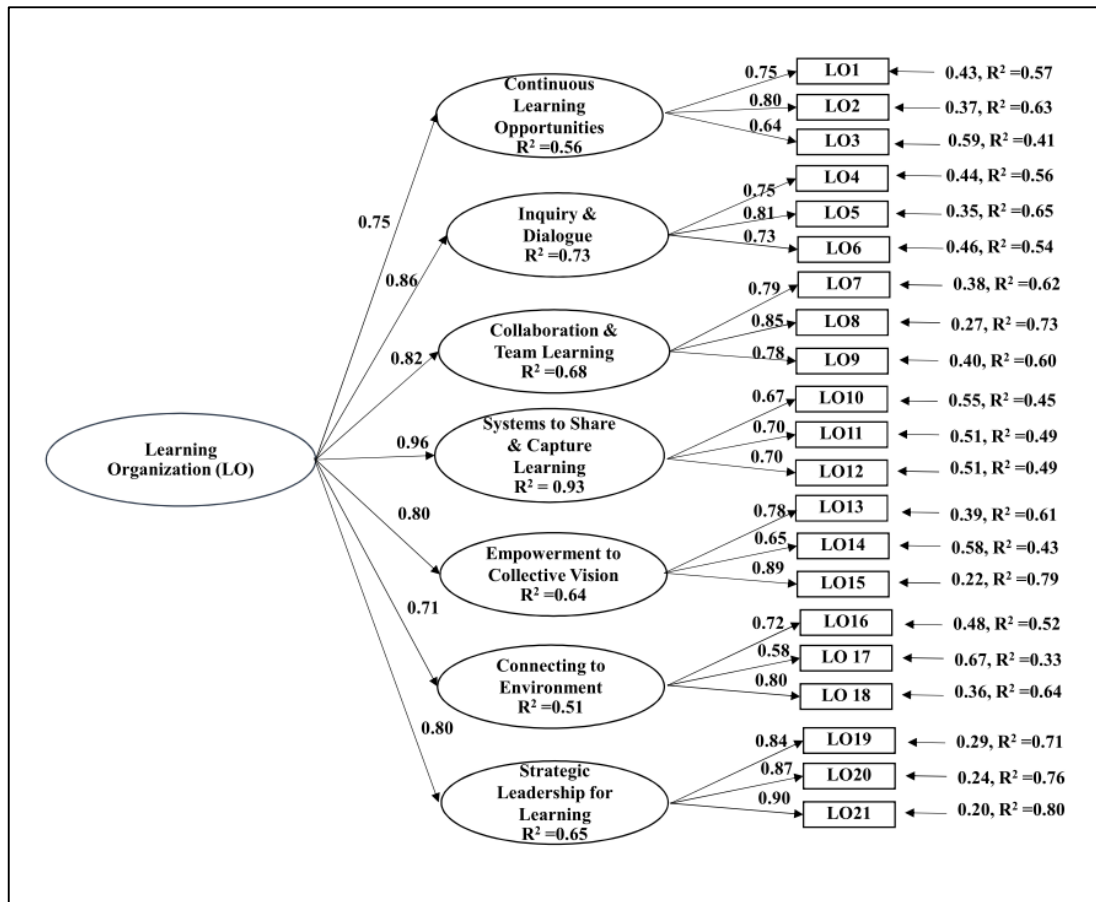
Figure 3.3 Second-order Confirmatory Factor Analysis of the 21-item DLOQ

As presented in Table 3.6, the seven constructs DLOQ reliability coefficients were .73 -.89 and the overall scale reliability coefficient was .94, which were at high levels. Further analyses were item-total correlation and discriminant t-value. Each item of the DLOQ had a significant *t*-value discrimination (*t*-values 13.67, *p*-values <.001) and the values of the item total correlation ranged from .47 to .83, with *p*-values <.001. Consequently, the validity and reliability of the finalized version of the DLOQ were acceptable. More details are shown in Table 3.6.

Table 3.6 Summary of *t*-values, CITC and Cronbach's Alpha of DLOQ

Dimension	Cronbach's Alpha (*α*)	Item	*t*-value	*p*-value	CITC	Selection
1. Continuous Learning Opportunities	.74	LO1	9.44	.000	.56	✓
		LO2	12.58	.000	.67	✓
		LO3	9.86	.000	.47	✓
2. Inquiry and Dialogue	.80	LO4	12.25	.000	.65	✓
		LO5	11.90	.000	.69	✓
		LO6	10.86	.000	.61	✓
3. Collaboration and Team Learning	.85	LO7	12.02	.000	.68	✓
		LO8	13.46	.000	.77	✓
		LO9	12.57	.000	.69	✓
4. Systems to Share and Capture Learning	.73	LO10	11.32	.000	.52	✓
		LO11	11.95	.000	.57	✓
		LO12	11.10	.000	.57	✓
5. Empowerment to Collective Vision	.81	LO13	11.11	.000	.69	✓
		LO14	9.87	.000	.59	✓
		LO15	14.96	.000	.72	✓
6. Connecting to Environment	.75	LO16	10.08	.000	.58	✓
		LO17	9.65	.000	.51	✓
		LO18	10.30	.000	.64	✓
7. Strategic Leadership for Learning	.89	LO19	13.41	.000	.74	✓
		LO20	12.66	.000	.83	✓
		LO21	13.67	.000	.78	✓
Total scale of DLOQ (21 items) *α* = .937						

       2) After adjusting the measurement model of the RBPS, the statistical results indicated that the model has a good fit with the data (χ^2 =114.777, *df* = 106, (χ^2 /*df*) = 1.083, *p*-value =.264, SRMR =.035, RMSEA =.017, CFI =.998, TLI =.997), as shown by comparing with the criteria in Table 3.7. In addition, the highest gamma value among the five-dimension of RBPS is .95 belonged to the job role. The lowest values are innovator and organization roles at.87. In addition, factor loading of

each item ranged from .45-.92 which satisfied all criteria. The details of the second-order confirmation factor analysis of RBPS are depicted next in Figure 3.4.

Table 3.7 Goodness of Fit Indices of the RBPS Model (*n*=285)

Fit indices	Criterion	The RBPS Model	Satisfaction of The RBPS Model
χ^2	-	114.777	-
df	-	106	-
χ^2/df	< 3	1.083	✓
p-value	>.05	.264	✓
CFI	> .95	.998	✓
TLI	> .95	.997	✓
SRMR	< .08	.035	✓
RMSEA	< .08	.017	✓
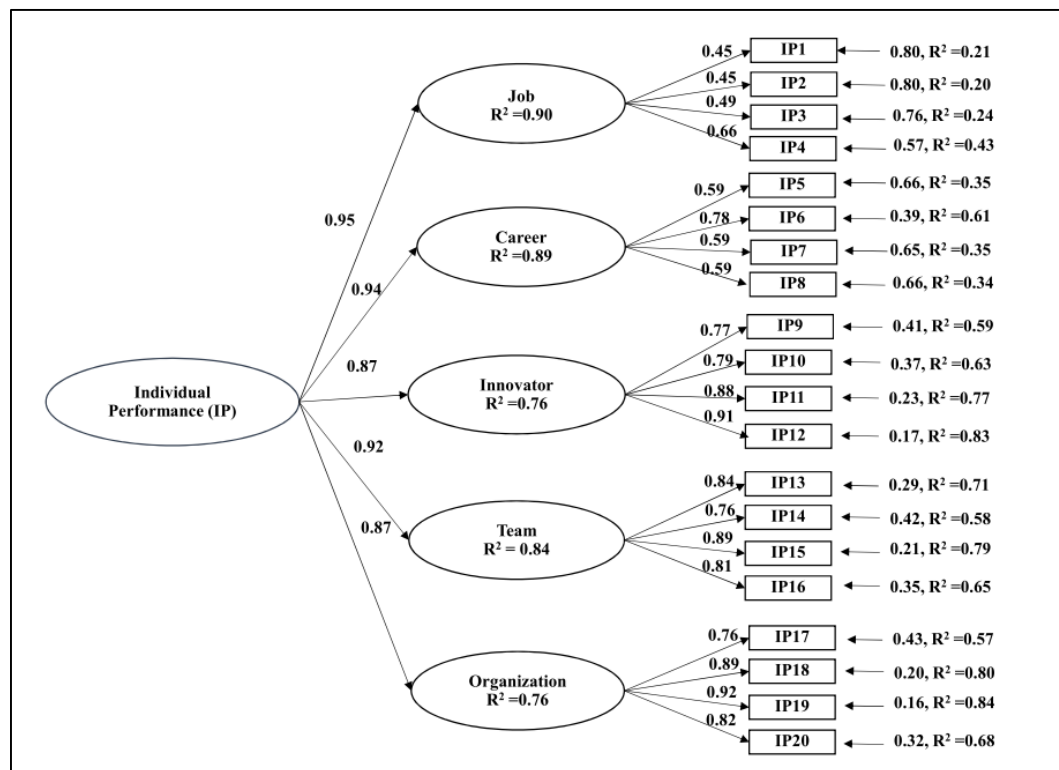
Figure 3.4 Second-order Confirmatory Factor Analysis of the 20-item RBPS

As presented in Table 3.8, The five-construct RBPS reliability coefficients were .81-.91 and the overall scale reliability coefficient was .94, which were at high levels. Further analyses were item-total correlation and discriminant *t*-value. Each item of the RBPS had a significant t-value discrimination (*t*-values > 8.87, *p*-values <.001) and the values of the item total correlation ranged from .33 to .86, with *p*-values <.001. Consequently, the validity and reliability of the finalized version of the RBPS were acceptable. More details are shown in Table 3.8

Table 3.8 Summary of t-values and CITC and Cronbach's Alpha of RBPS

Dimension	Cronbach's Alpha (*α*)	Item	*t*-value	*p*-value	CITC (r)	Selection
1. Job Role	.83	IP1	8.87	.000	.76	✓
		IP2	9.29	.000	.81	✓
		IP3	11.33	.000	.79	✓
		IP4	10.37	.000	.33	✓
2. Career Role	.81	IP5	10.92	.000	.58	✓
		IP6	14.71	.000	.62	✓
		IP7	11.37	.000	.72	✓
		IP8	10.62	.000	.60	✓
3. Innovator Role	.91	IP9	13.25	.000	.78	✓
		IP10	15.67	.000	.81	✓
		IP11	16.91	.000	.81	✓
		IP12	16.48	.000	.76	✓
4. Team Role	.88	IP13	16.93	.000	.71	✓
		IP14	13.66	.000	.73	✓
		IP15	14.02	.000	.80	✓
		IP16	13.96	.000	.74	✓
5. Organization Role	.91	IP17	11.44	.000	.72	✓
		IP18	13.46	.000	.85	✓
		IP19	14.01	.000	.86	✓
		IP20	14.38	.000	.78	✓
Total scale of RBPS (20 items) *α* = .944						

In conclusion, The CFA testing of the proposed measurement model of the newly-developed 19-item KSBS presented an appropriate fit with the empirical data (χ^2 = 148.67, df = 123, normed chi-square (χ^2/df) = 1.208, p-value =.057, SRMR =.039, RMSEA =.027, CFI =.991, and TLI =.987). The item factor loadings of the 19 items were between 0.45 and 0.92 at the significant level of p <.001. In addition, the scale was found to be highly reliable (α =.92). Furthermore, The CFA testing of the translated hypothesized measures of the DLOQ and RBPS reasonably fit the data. The results of the DLOQ revealed the following: χ^2 =181.55, df = 153, normed chi-square (χ^2/df) = 1.187, p-value =.057, SRMR =.036; RMSEA =.026; CFI =.991; TLI =.988. The item factor loadings of the 21-item DLOQ were between 0.58 and 0.90 at the significant level of p <.001. Further, the RBPS results showed that χ^2 = 114.777, df = 106, normed chi-square (χ^2/df) = 1.083, p-value =.264, SRMR =.035, RMSEA =.017, CFI =.998, TLI =.997. The item factor loadings for the 20-item RBPS were between .45 and .92 at the significant level of p <.001. In addition, the reliability of the DLOQ and RBPS was at .94.

As a result, all three scales were seen to have good validity and reliability by considering the supporting evidence from the current outcomes. Therefore, the three questionnaires could be acceptably utilized for collecting the data in this context.

3.5 Data Analysis

In order to proceed with hypotheses and model testing of this study, the 705 questionnaires were analyzed by employing statistical analysis methods, including, descriptive statistics, correlation, and Structural Equation Modeling (SEM).

Based on the suggestions of Kenny, Kashy, and Bolger (1998), the current study investigated: 1) the correlation of the learning organization with individual performance; 2) the correlation of knowledge sharing with individual performance; 3) the correlation of the learning organization with knowledge sharing behavior; and 4) the mediating effect of knowledge sharing behavior on the learning organization and individual performance by using SEM.

SEM is a merging technique of confirmatory factor analysis and path analysis to examine measurement-model fit; an assessment of validity, reliability and

unidimensional of a measured latent variable model, and the structural model; by testing measurement errors, direct, and indirect structural relationships among three latent variables; namely, learning organization, knowledge sharing behavior and individual performance (Burnette & Williams, 2005; H. K. Kim, 2014; Schumacker & Lomax, 2004). In this research study, the maximum likelihood estimation (MLE) was determined for parameter estimation in the SEM analysis. In addition, in order to examine the proposed model fit with the empirical data, critical goodness-of-fit estimates were identified, including $\chi 2$, ratio of chi-square/df ($\chi 2/df$), Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI), Standardized Root Mean Square Residual (SRMR) and Root Mean Square Error of Approximation (RMSEA). The results of the study are presented in chapter 4.

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CHAPTER 4

RESULTS

This chapter presents the findings of the hypothesized structural model examination as the main objective of this study. The output of the effects of the learning organization on knowledge sharing behavior, knowledge sharing behavior on individual performance and the learning organization on individual performance were analyzed and reported after the explanation of the participants' demographic characteristics. In addition, information on the mediating role of knowledge sharing behavior was demonstrated.

4.1 Demographics Information

For testing hypothesized model of the learning organization, knowledge sharing behavior and individual performance of employees by the structural equation modeling (SEM), there were 705 questionnaires from four large HDD manufacturers, the whole (1,025) excluded the first data set (320), was analyzed. In brief, the demographic characteristics were as follows: the majority of participants were female (62.27%) and the participants' average age was 38.27 years ($SD = 7.28$, ranging from 21 to 58 years of age). The education background of the majority was a bachelor degree or higher (57.88%). There were 371 supervisors and managers (52.77%), whereas 314 employees were at the staff level (44.54%). Half of the participants (52.06%) had more than 10 service years at their current company. In addition, more than two-thirds of the participants (70.50%) had total work experience of more than 10 years.

In Table 4.1, the details of the demographic characteristics of 705 participants were explained.

Table 4.1 Demographic Characteristics of the 705 Participants

Demographic Data	Frequency	Percentage
Gender		
Male	265	37.59
Female	439	62.27
Age		
Range	21-58	
Mean (S.D.)	38.27 (7.28)	
Education level		
High school or vocational certificate	135	19.15
High vocational certificate or associate's degree	141	20.00
Bachelor degree	297	42.13
Master degree	107	15.18
Doctoral degree	4	0.57
Position level		
Executive (Director/Manager)	60	8.51
Supervisor/Leader	312	44.26
Staff	314	44.54
Service years at this company		
Less than 1 year	31	4.40
1-5 years	140	19.86
6-10 years	164	23.26
11-15 years	131	18.58
16-20 years	90	12.77
More than 21 years	146	20.71
Total work experience		
Less than 1 year	7	0.99
1-5 years	68	9.65
6-10 years	126	17.87
11-15 years	117	16.60
16-20 years	156	22.13
More than 21 years	224	31.77

4.2 The Relationships Among Three Variables

The relationships among the learning organization, knowledge sharing behavior, and individual performance were examined by using Pearson's correlation coefficient. The correlations among the dimensions and the total of all three variables are presented in Table 4.2. Overall, the findings revealed that all dimensions and the total variables had positive relationships with each other ($.87 > r > .11$, $p < .01$). The details of the relationships are described as follows:

The testing of all seven dimensions of the learning organization showed positive relationships with each other ($.68 > r > .50$, $p < .01$), and with the total of the learning organization ($.85 > r > .77$, $p < .01$). In addition, among the learning organization dimensions, the results showed that the highest correlations ($r = .67$, $p < .01$) were between "collaboration and team learning" and "inquiry and dialogue", between "connect to environment and "empowerment to collective vision". The lowest correlations ($r = .51$, $p < .01$) were the correlation between "connect to environment" and "inquiry and dialogue", between "connect to environment" and "collaboration and team learning". The rest of the correlations among the dimensions of the learning organization ranged from .54 ($p < .01$) to .65 ($p < .01$).

The testing of the four dimensions of knowledge sharing behavior showed positive relationships with each other ($.65 > r > .36$, $p < .01$), and with the total of knowledge sharing behavior ($.86 > r > .69$, $p < .01$). Among the knowledge sharing behavior dimensions, the results showed that the highest correlation ($r = .64$, $p < .01$) were between "proactive knowledge acquiring" and "tacit knowledge contribution", between "proactive knowledge acquiring" and "reactive knowledge receiving". The lowest correlation ($r = .37$, $p < .01$) were those between "reactive knowledge collection" and "explicit knowledge donation". The rest of the correlations of the knowledge sharing behavior dimensions ranged from .47 ($p < .01$) to .53 ($p < .01$).

The testing of the five dimensions of individual performance showed positive relationships with each other ($.79 > r > .42$, $p < .01$), and with total individual performance ($.87 > r > .71$, $p < .01$). Among the individual performance dimensions, the results showed that the highest correlation was between "organization role" and "team role" ($r = .78$, $p < .01$). The lowest value was the correlation between

"organization role" and "job role" ($r = .43$, $p < .01$). The rest of the correlations of the individual performance dimensions ranged from 0.47 ($p < .01$) to .69 ($p < .01$).

In addition, the relationship between the total for the learning organization and the total for individual performance correlated at .44 ($p < .01$). The strongest relationship among the constructs was found between "strategic leadership to learning" and "career role" ($r = .40$, $p < .01$). The rest of the correlations of these construct relationships ranged from .12 to .39 ($p < .01$) while the relationship between knowledge sharing behavior and individual performance highly correlated at .63 ($p < .01$). The strongest relationship among the constructs was found between "proactive knowledge acquiring" and "team role" at .58 ($p < .01$). The rest of the correlations of these construct relationships ranged from .28 to .55 ($p < .01$). Moreover, the relationship between the learning organization and knowledge sharing behavior highly correlated at .55 ($p < .01$). The strongest relationship among the constructs was found between "strategic leadership to learning" and "reactive knowledge receiving" (r $= .46$, $p < .01$). The rest of the correlations of these construct relationships ranged from .26 to .44 ($p < .01$).

The outputs of intercorrelations of all variables are presented in Table 4.2

Table 4.2 Pearson Correlation Coefficients between the Learning Organization, Individual Performance and Knowledge Sharing Behavior

Variable	M	SD	LO_CLO	LO_ID	LO_CTL	LO_SCL	LO_ECV	LO_CE	LO_SL	IP_Job	IP_Car	IP_Inn	IP_Tea	IP-Org	EKD	TKC	RKR	PKA	Total LO	Total IP	Total KSB
LO_CLO	13.09	2.36	1																		
LO_ID	12.99	2.33	.63**	1																	
LO_CTL	13.25	2.45	.58**	.67**	1																
LO_SCL	12.80	2.49	.59**	.63**	.65**	1															
LO_ECV	13.13	2.73	.60**	.61**	.61**	.63**	1														
LO_CE	12.26	2.75	.59**	.51**	.51**	.54**	.67**	1													
LO_SL	13.92	2.65	.60**	.60**	.57**	.62**	.64**	.56**	1												
IP_Job	16.49	3.14	.17**	.19**	.19**	.12**	.20**	.21**	.20**	1											
IP_Car	16.98	3.21	.38**	.35**	.36**	.36**	.35**	.36**	.40**	.47**	1										
IP_Inn	18.17	2.87	.28**	.25**	.28**	.25**	.26**	.26**	.32**	.51**	.64**	1									
IP_Tea	18.96	2.73	.33**	.29**	.35**	.29**	.32**	.32**	.38**	.50**	.56**	.69**	1								
IP-Org	19.32	2.85	.32**	.25**	.32**	.28**	.26**	.25**	.39**	.43**	.53**	.67**	.78**	1							
EKD	13.67	2.71	.33**	.29**	.30**	.26**	.31**	.27**	.38**	.28**	.31**	.31**	.35**	.34**	1						
TKC	28.71	4.18	.36**	.31**	.33**	.29**	.27**	.29**	.42**	.39**	.46**	.48**	.55**	.55**	.53**	1					
RKR	21.63	3.96	.41**	.43**	.42**	.39**	.40**	.42**	.46**	.20**	.46**	.29**	.39**	.34**	.37**	.51**	1				
PKA	23.54	3.25	.37**	.37**	.39**	.32**	.35**	.33**	.44**	.36**	.49**	.48**	.58**	.54**	.47**	.64**	.64**	1			
TotalLO	91.44	14.41	.80**	.81**	.80**	.82**	.84**	.78**	.81**	.23**	.45**	.34**	.40**	.36**	.38**	.40**	.52**	.45**	1		
TotalIP	89.91	12.01	.36**	.33**	.37**	.32**	.34**	.35**	.42**	.72**	.80**	.86**	.86**	.83**	.39**	.59**	.41**	.60**	.44**	1	
TotalKSB	87.55	11.40	.46**	.44**	.45**	.40**	.41**	.41**	.53**	.38**	.54**	.49**	.59**	.55**	.70**	.85**	.80**	.85**	.55**	.63**	1

Note: ** Correlation is significant at the 0.01 level (2-tailed). LO_CLO= Continuous Learning Opportunities, LO_ID =Inquiry and Dialogue, LO_CTL= Collaboration and Team Learning, LO_SCL= Systems to Share and Capture Learning, LO_ECV= Empowerment to Collective Vision, LO_CE=Connect to Environment, LO_SL=Strategic Leadership for Learning, IP_Job= Job Role, IP_Car= Career Role, IP_Inn=Innovator Role, IP_Tea=Team Role, IP_Org=Organization Role, EKD=Explicit Knowledge Donation, TKC=Tacit Knowledge Contribution, RKR= Reactive Knowledge Receiving, PKA=Proactive Knowledge Acquiring

4.3 The SEM Analysis of the Variables

The results of the structural equation modeling among three variables-the learning organization, knowledge sharing behavior and individual performance-disclosed that the hypothesized structural model fits with the empirical data by χ^2 =69.202, df = 52, χ^2 /df = 1.33, p-value = .056, SRMR =.026; RMSEA =.022; CFI =.997; TLI =.994. The comparison of the model fit indices results and criteria is depicted in table 4.3

Table 4.3 Goodness of Fit Indices of the Hypothesized Model (n=705)

Fit indices	Criterion	The hypothesized Model	Satisfaction of the Model
χ^2	-	69.202	-
df	-	52	-
χ^2/df	< 3	1.33	✓
p-value	>.05	.056	✓
CFI	> .95	.997	✓
TLI	> .95	.994	✓
SRMR	< .08	.026	✓
RMSEA	< .08	.022	✓

In the hypothesized model, the learning organization was the exogenous variable, comprised of seven sub-constructs as follows; continuous learning opportunities, inquiry and dialogue, collaboration and team learning, systems to share and capture learning, empowerment to collective vision, connect to environment and strategic leadership for learning. According to Figure 4.1, it was found that strategic leadership for learning was the most critical sub-construct (loading = .80), while, connect to its environment was the least critical sub-construct among the seven of them (loading = .69). The other five construct loading estimates ranged from .75 - .79.

There were two endogenous variables, namely, knowledge sharing behavior and individual performance. The four sub-constructs of knowledge sharing behavior were explicit knowledge donation, tacit knowledge contribution, reactive knowledge

receiving, and proactive knowledge acquiring. The most important sub-construct among the four of them was tacit knowledge contribution and proactive knowledge acquiring (loading = .82). The following sub-construct was reactive knowledge receiving (loading = .77). The least important sub-construct was explicit knowledge donation (loading = .60). Individual performance contained five-related roles, i.e., job, career, innovator, team, and organization. The organization role was found to be the most meaningful sub-construct (loading = .84), followed by the team role (loading = .77), the job role (loading = .76) and the innovator role (loading = .67). The career role was found to be the least meaningful sub-construct (loading = .54). Details are illustrated in Figure 4.1.
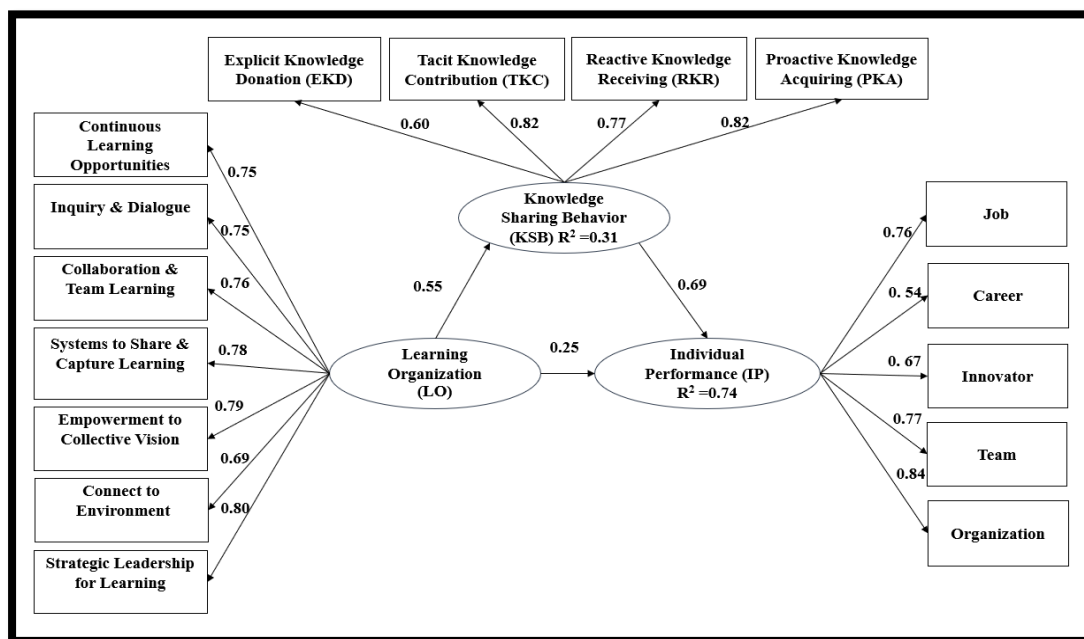
Figure 4.1 SEM Analysis of the Learning Organization, Knowledge Sharing
Behavior and Individual Performance

Furthermore, the SEM indicated the indirect and direct effects of the learning organization on individual performance in Table 4.4. In addition, the mediating role of knowledge sharing behavior was examined to explain the influential relationship between the learning organization and individual performance via knowledge sharing behavior. The findings in Table 4.4 indicate that the learning organization had a direct

effect of .55 ($p < .001$) on knowledge sharing behavior, whereas knowledge sharing behavior had a direct effect of .69 ($p < .001$) on individual performance. The learning organization had a total effect of .63 ($p < .001$) on individual performance, of which .25 ($p < .001$) was directly transferred. Thus, individual performance was indirectly affected by the learning organization at .38 ($p < .001$) while knowledge sharing behavior acted as a partial mediator of this relationship. This finding supported hypothesis 4.

In order to identify the predictive power of the research model, the R^2 values of knowledge sharing behavior and individual performance were calculated. In addition, the path coefficients and the significance value of the relationships among the latent variables determined the strength of the relationships (Chennamaneni, 2006). The evidence in Figure 4.1 reveals that the model has high predictive power, with the learning organization accounting for 30.50% of the variance in knowledge sharing behavior, while, the learning organization and knowledge sharing behavior accounted for 73.5% of the variance in individual performance. The pathways indicated that the learning organization not only directly affected individual performance but also indirectly affected individual performance via knowledge sharing behavior.

Table 4.4 Decomposition of the Effects in the SEM

Independent Variable		Dependent Variable					
		Knowledge sharing behavior			Individual performance		
		Direct Effect	Indirect Effect	Total Effect	Direct Effect	Indirect Effect	Total Effect
Learning	b	0.589	-	0.589	0.305	0.467	0.772
organization	$S.E.$	0.055	-	0.055	0.047	0.047	0.059
	β	0.552	-	0.552	0.250	0.383	0.633
Knowledge	b	-	-	-	0.793	-	0.793
sharing	$S.E.$	-	-	-	0.065	-	0.065
behavior	β	-	-	-	0.694	-	0.694
R^2			0.305			0.735	

4.4 Summary of Hypothesis Testing

According to the results of the SEM analysis presented in Table 4.4, the learning organization also had a moderate positive influence on individual performance with a significant path coefficient of .25 ($p < .001$), verifying hypothesis 1 "The learning organization has a positive effect on individual performance." Next, knowledge sharing behavior had a strong influence on individual performance with a significant path coefficient at .69 ($p < .001$). Consequently, hypothesis 2, "Knowledge sharing behavior has a positive impact on individual performance," was confirmed. Further, the learning organization had also a strong effect on knowledge sharing behavior with a significant path coefficient at .55 ($p < .001$). Thus, it supported hypothesis 3: "The learning organization has a positive effect on knowledge sharing behavior." Lastly, the learning organization has a positive indirect effect on individual performance via knowledge sharing behavior ($\beta = .38$, $p < 0.001$), and therefore hypothesis 4, "Knowledge sharing behavior mediates the relationship between the learning organization and individual performance," was also supported. As a result, the SEM statistical output fully confirmed all hypotheses.

CHAPTER 5

CONCLUSION, DISCUSSION AND RECOMMENDATIONS

This chapter provides a concise conclusion of the study, involving, the purposes, the main research question, and the methods, and the findings. In addition, a discussion, implications, limitations, and recommendations for practice and future research are provided.

5.1 Conclusion

This section of the chapter concludes the research question, objectives, methods, and findings.

5.1.1 Research Question and Objectives

This study attempted to explore whether the learning organization and knowledge sharing behavior affect the individual performance of Thai employees in large HDD manufacturers in Thailand. In order to fill the research gap, there were four objectives of the study as follows:

1) To explore the influence of the learning organization on individual performance.

2) To investigate the impact of knowledge sharing behavior on individual performance.

3) To examine the effect of the learning organization on knowledge sharing behavior.

4) To test the mediating effect of knowledge sharing behavior on the effect of the learning organization on individual performance.

5.1.2 Research Methods

In order to achieve these objectives, a valid and reliable measure for assessing knowledge sharing behavior was newly developed. Moreover, the quality of the translated instruments for collecting the data on the learning organization and individual performance were assured in terms of validity and reliability in the Thai context. After reviewing the literature for creating a hypothesized structural model of the three latent variables, a newly-developed KSBS, a Thai version of the DLOQ and RBPS was prepared. The scales development, validation and the model testing utilized data from 1,025 participants from four companies.

The first data sample set of 320 participants was employed for *t*-test item discrimination, item-total correlation, and the EFA of the KSBS. The results of the analysis led to the exclusion of 15 items of the initial 32-item KSBS and maintained 19 items with four dimensions for the finalized version of the KSBS. Next, the second data sample set of 285 participants was analyzed for scales validation. In this regard, *t*-test item discrimination, item-total correlation, convergent validity, reliability, and CFA were conducted for the final version of the KSBS. The second-order CFA of the KSBS fit with the data and all 19 items and four dimensions were retained. The KSBS consisted of 3 items for explicit knowledge donation (EKD), 6 items for tacit knowledge contribution (TKC), 5 items for reactive knowledge receiving (RKR), and 5 items for proactive knowledge acquisition (PKA). In conclusion, as a pioneering effort, the KSBS was able to measure actual knowledge sharing behavior and earned good reliability and validity.

Next, the quality of the translated Thai version of the seven-dimension DLOQ and the five-dimension RBPS to collect the data on the learning organization and individual performance was assured for validity and reliability in the Thai context. After conducting *t*-test item discrimination, item-total correlation, reliability, and CFA for the 21 items of the 7-dimension DLOQ and the 20 items of the 5-dimension RBPS were validated by using the second data sample set of 285 participants. The second-order CFA of the DLOQ and RBPS measures strongly fit with the empirical data. In addition, the values of Cronbach's alpha of the DLOQ and RBPS were excellent. According to the other statistical evidence, both measures presented good reliability and validity.

5.1.3 Research Results

The hypothesized structural model of the learning organization, knowledge sharing behavior, and individual performance was tested by using the third dataset of 705 participants. In order to test the hypotheses of the study, SEM was conducted. The hypothesized structural model results reported a good fit with the data ($\chi 2$ = 69.202, df = 52, ($\chi 2$/df) = 1.33, p-value = 0.056, SRMR =0.026, RMSEA = 0.022, CFI = 0.997, and TLI = 0.994). The model exhibited high predictive power on knowledge sharing behavior and individual performance. The learning organization accounted for 30.50% of the variance in knowledge sharing behavior, while, the learning organization and knowledge sharing behavior accounted for 73.5% of the variance in individual performance. In addition, the empirical findings provided evidence to confirm all of the proposed hypotheses. Details are presented as follows;

1) The learning organization has a positive effect on individual performance.

2) Knowledge sharing behavior has a positive impact on individual performance

3) The learning organization has a positive effect on knowledge sharing behavior.

4) Knowledge sharing behavior mediates the relationship between the learning organization and individual performance

5.2 Discussion

Thus, the more authentic the employees perceive their leaders to be, the more likely they will be to share their knowledge.

This section presented the key results of the research and discussion in terms of the research purposes and hypotheses as follows.

The optimal objective of this study was to explore the influential relationships of the learning organization and knowledge sharing behavior on individual performance and the mediating role of knowledge sharing behavior among Thai employees in large HDD manufacturers in Thailand. The four hypotheses of the study were confirmed and discussed; the details are as follows.

First, the learning organization positively affected individual performance. The correlation results between both variables were high and positively significant. Moreover, according to the SEM, the learning organization had a moderate direct effect on individual performance. It showed that the participants that perceived a higher level of the learning organization in their organizations performed their roles better. As a result, the learning organization could be a moderate predictor of individual performance.

Second, knowledge sharing behavior positively affected individual performance. Based on the findings of the SEM, knowledge sharing behavior had a highly direct effect on individual performance. In addition, the correlation between knowledge sharing behavior and individual performance was high and positively and statistically significant. This reflected the fact that the level of individual performance depended on knowledge sharing behavior. The participants that share more showed a higher performance level. In other words, knowledge sharing behavior can be a strong predictor of employees' performance.

Third, the learning organization positively affected knowledge sharing behavior. The current results demonstrated the highly, positively-significant correlation between both variables. In addition, according to the SEM findings, the learning organization had a high direct effect on knowledge sharing behavior. It presented that participants that rated a high score for the learning organization also highly performed knowledge sharing. Therefore, knowledge sharing behavior can be highly predicted by the learning organization.

Forth, the SEM findings also showed the partial mediation effect of knowledge sharing behavior on the learning organization and individual performance. In addition, the learning organization and knowledge sharing behavior had a huge predictive power on individual performance at 73.5%. This supported the notion that organizational culture shapes the environment of an organization that knowledge sharing, distributing and utilizing is occurred (De Long & Fahey, 2000).

In conclusion, the results of all hypotheses are in line with some scholars' statements. For example, Weldy (2009) posited that in pursuit of high performance, putting effort into continuous learning and transferring knowledge in the learning organization drives the superior actions of employees.

In addition, some important points of the learning organization and individual performance, revealed by the SEM, should be elaborated on more. Among the subscales of the learning organization, the most critical subscale belonged to strategic leadership for learning. Unsurprisingly, this result is in accordance with previous studies. For example, Marsick and Watkins (2003) highlighted that without strategic leadership for learning from managers, effective of workplace learning programs decline. Therefore, the current study provides more evidence that leaders have a critical influence on organizational members. Regarding role-based performance, five roles were found from the results, which aligned with the findings of the original RBPS development paper (Welbourne et al., 1998). According to the study findings, the organization role is likely to be the most important aspect, whereas the career role is likely to be the less important aspect as compared with the five subscales. These results imply that HDD employees in large organizations may perceive more reinforcement for their actions that promote the overall good for the firms and less importance of their career advancement.

5.3 Implications for Practitioners

The results of the study can be applied to and are beneficial for human resource and organizational development practitioners such as HROD staff, leaders, managers and executives, HROD consultants, etc. In addition, the implication of the research findings can improve employees' performance, effectively perform knowledge sharing behavior and create an impactful learning organization. Several important issues must be addressed and described as follows.

First, the organization should review and design its performance appraisals so that they are aligned with the behavior that is expected of employees to create clear communication and to ensure that those behaviors cover all of the main roles that impact sustained organizational performance. According to the research results regarding the five roles of individual performance, the organizational role was the most important for individual performance. To apply the findings, organizations should motivate employees to be united in their actions and spirit in order to drive the organization to achieve optimal goals. To be more specific, the organization should

communicate continuously and clearly which employees' actions that serve the overall good of the company, to help the organization grow, to make the company a good place in which to work, and so on. In addition, the organization should provide feedback and promote the organizational results from the employees' effort to show recognitions to them.

Second, according to the research findings, to enhance employees' performance, knowledge sharing behavior plays a vital role. Therefore, in order to nurture knowledge exchange among employees, both tacit knowledge donation and proactive knowledge acquiring are the keys. The organization should create strategies, plans, and projects to raise knowledge exchange by fostering employees to be "proactive knowledge takers and givers". Employees can create their own opportunities to seek knowledge related to their roles, and provide their tacit knowledge to other staff. From the learners' side, employees should be encouraged to develop to a great extent their questioning and listening skills so that they can ask for knowledge and clarify their deep understanding with experienced colleagues. If they do not know something, employees should ask for further sources of knowledge and seek knowledge by themselves. In the sharers' role, employees should be encouraged to convey their tacit knowledge by teaching, answering, proposing their ideas, experience, success stories, and mistakes for lessons learned, and so on. In addition, organizations could provide support for employees interaction which will encourage employees to collect and provide knowledge during their knowledge exchange activities at physical or virtual places, and in both informal ways such as informal chats, in their day to day job, etc. and in formal ways, e.g. training classes, seminars, meetings of community of practices, etc.

These suggestions are in line with current practices of IKEA, the world's largest Swedish-founded furniture retailer, which urges their employees to be brave in asking for and in share knowledge (Mannheimer Swartling, 2018). This is similar to Royal Dutch Shell, a British-Dutch multinational oil and gas company, which has created an "ask-learn-share" behavioral model to encourage employees to search for and ask for information, as well as, learn, improve and donate knowledge in their work (O'Dell & Hubert, 2011). Moreover, practitioners will also gain benefits from using the KSBS for promoting knowledge sharing behavior in the organizations. The

KSBS can also be used as an assessment tool before, during and after promoting the knowledge sharing behavior projects implementation in the workplace.

Last, the learning organization is a significant influencer on individual performance and knowledge sharing behavior. The most critical subscale was "strategic leadership for learning". Thus, the organization should first cultivate its leadership ability by grooming leaders to be role models for being "proactive learners" that are continually looking for learning opportunities and that encourage their subordinates to do so. Moreover, leaders should be equipped to be effective mentors or coaches for their subordinates. In addition, learning policies should be generated and guided to employees by managers. Managers should provide sufficient and appropriate formal and informal learning opportunities to their subordinates.

Organizations are also required to emphasized that the ultimate goal of learning is to utilize it as a strategic method to transform and formulate the desired organizational outcomes. Moreover, in order to help all organizational members learn effectively, organizations should follow other learning organization dimensions to create learning strategies and to build a powerful learning environment that suits informal and formal learning. For example, in order to empower employees, the organization should recognize employees that take appropriated risks and allow them to manage the necessary resources and recognize their achievement. In addition, in order to facilitate employees with learning and sharing their knowledge, the organization should have accessible and effective systems, such as a performance evaluation system, success stories and lessons learned repositories and training evaluation. Furthermore, the organization must provide time for trust and relationship development. Employees should be prepared to become more open about sharing, feedback and listening to others. In addition, they should be more openness and flexible regarding teamwork and goal setting. In order to promote continuous learning, the organization needs to provide time and to motivate employees to learn. Finally, employees can help each other learn both in formal and informal settings.

5.4 Limitations of the Study and Recommendations for Future Research

The current research has several limitations which can potentially lead to future research as follows.

First, in order to collect the data for this study, simple random sampling was employed to create a random company name list, but, in fact, not all of the chosen companies voluntarily contributed to the study. Some of the companies rejected the data collection requisition because they did not want the results of the organizations' evaluation of employees to be publicized to a third party. Some were concerned about wasting the time of their employees and about the benefits from this research. It is suggested that researchers be required to observe and listen for organizations' requisitions. Researchers should be flexible regarding making changes that are appropriated for each company's context and reduce some of the anticipated problems. However, researchers should beware that these changes do not violate the essences of the research design and methods.

Second, it found that the overall return rate of the consolidated questionnaires in data collecting process was much better for paper forms (793 of 830, 94.54%) than for electronic forms (368 of 1,624, 22.66%). The large gap between the numbers of the return questionnaires of both methods needed to be investigated for further research whether what the reasons are.

Third, though the questionnaires were designed using six scales, based on the logic of providing a wider range of choice and eradicating a central rating tendency, some filled-in questionnaires still showed the central rating tendency by selecting only 3, only 4, or balancing the rating scales between 3 or 4. It is possible that participants rather avoided giving low scores for themselves, their teams, or their leaders or even the organizations. It is also possible that the participants provided reckless responses because the consolidated questionnaire seemed long. Researchers should be aware of this and check attentively the returned questionnaires.

Fourth, in order to create the KSBS initial item pool, it mostly relied on previous literature. Generating items may be limited by using this deductive approach. For future study, in order to capture the keywords or critical behaviors of actual knowledge sharing which would be useful for identifying knowledge sharing behavior definitions and designing questionnaires; inductive methods should be used during the beginning phase, for examples, conducting focus groups and/or in-depth interviewing with experts/practitioners, employing field observation methods and other qualitative methods.

Fifth, though the quality of the knowledge sharing behavior measure achieved the expected criteria, it was limited to being conducted with large HDD companies. Therefore, this knowledge sharing behavior measure should be replicated with mid- and small-size HDD companies, with other electronics industries, and also expanded to other sectors, such as government agencies, state enterprises, educational institutes, etc.

Sixth, this study found that the learning organization, as an enabler, had a moderate predictive power on knowledge sharing behavior. This implies that there are other antecedents of knowledge sharing behavior. Prior research suggested that a critical group of knowledge sharing influencers related to personal characteristics and motivational factors (Wang & Noe, 2010). For example, the theory of planned behavior explains that reasoned actions can be predicted by attitudes, subjective norms, perceived behavioral control, and intention (Ajzen, 2012). In addition, the consequences at organizational levels of the learning organization and knowledge sharing behavior are of interest such as organizational effectiveness, organizational performance, knowledge, and financial performance, etc.

In conclusion, although studies related to the learning organization, knowledge sharing and employees' performance are rapidly growing, there are still aspects that remain for pursuing research to expand existing related theories and concepts. This study should be replicated in other industries and also expanded to other sectors, such as government agencies, state enterprises, educational institutes, etc. This would be of benefit for both the practitioners and scholars in these fields.

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APPENDICES

APPENDIX A

THE CONSOLIDATED VERSION OF QUESTIONNAIRE
(IN THAI)

แบบสอบถาม

แบบสอบถามชุดนี้เป็นส่วนหนึ่งของวิทยานิพนธ์ระดับดุษฎีบัณฑิต เรื่อง การศึกษาอิทธิพลขององค์กร
แห่งการเรียนรู้และพฤติกรรมการแบ่งปันความรู้ ต่อการปฏิบัติงานของพนักงานในบริษัทผู้ผลิตฮาร์ตดิสก์ไดรฟ์
ซึ่งประกอบด้วยแบบสอบถามย่อยจำนวน 4 ฉบับ ดังนี้

ฉบับที่1 แบบสอบถามข้อมูลทั่วไปของผู้ตอบ จำนวน 7 ข้อ

ฉบับที่2 แบบสอบถามองค์กรแห่งการเรียนรู้ จำนวน 21 ข้อ

ฉบับที่3 แบบสอบถามพฤติกรรมการแบ่งปันความรู้ จำนวน 19 ข้อ

ฉบับที่4 แบบสอบถามการปฏิบัติงานตามบทบาท จำนวน 20 ข้อ

ขอความกรุณาท่าน อ่านคำชี้แจงก่อนการตอบแบบสอบถามแต่ละฉบับอย่างละเอียด และเนื่องจากไม่มี
คำตอบใดเป็นคำตอบที่ผิดหรือถูก ผู้วิจัยขอความกรุณาท่านตอบแบบสอบถามตามการรับรู้ของท่าน ทั้งนี้ข้อมูล
ทั้งหมดจะนำมาวิเคราะห์ผลในภาพรวมเพื่อการศึกษาวิจัยเท่านั้น และไม่มีการนำเสนอข้อมูลรายบุคคล จึงไม่
กระทบต่อการปฏิบัติงานของท่าน

ผู้วิจัยขอขอบพระคุณทุกท่านที่สละเวลาอันมีค่าเพื่อตอบแบบสอบถามในครั้งนี้ คำตอบของท่านจะเป็น
ประโยชน์อย่างยิ่งต่อการศึกษาเพื่อการพัฒนาทรัพยากรมนุษย์และองค์การต่อไป

ขอแสดงความนับถือ

กชวร จุ้ยมณี

นักศึกษาคณะพัฒนาทรัพยากรมนุษย์ สถาบันบัณฑิตพัฒนบริหารศาสตร์

แบบตอบรับการเข้าร่วมงานวิจัยโดยสมัครใจ

โปรดทราบว่าการเข้าร่วมงานวิจัยในครั้งนี้ เป็นไปตามความสมัครใจของท่าน ดังนั้นผู้วิจัยขอให้ท่านทำ
เครื่องหมาย ✓ ในช่องด้านล่าง เพื่อแสดงว่าท่านได้รับทราบข้อมูลแบบสอบถามข้างต้นแล้ว และแสดงเจตนาใน
การเข้าร่วมงานวิจัย

☐ ข้าพเจ้ารับทราบและ**ยินดี**ที่จะเข้าร่วมงานวิจัย
☐ ข้าพเจ้ารับทราบแต่**ไม่ยินดี**ที่จะเข้าร่วมงานวิจัย

หมายเหตุ หากท่านมีข้อสงสัย สามารถติดต่อผู้วิจัยได้ที่ email address: kotchawornc@gmail.com

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<u>ฉบับที่ 1 แบบสอบถามข้อมูลทั่วไปของผู้ตอบจำนวน 7 ข้อ</u>

<u>คำชี้แจง</u> โปรดทำเครื่องหมาย ✓ ลงในช่อง ☐ ที่ตรงกับความเป็นจริงของท่านมากที่สุด<u>เพียงคำตอบ</u><u>เดียว</u>และ/หรือเติมข้อมูลลงในช่องว่างที่กำหนด

1. เพศ	☐ 1. ขาย	☐ 2. หญิง
2. อายุ (เต็ม)	_____ ปี	
3. การศึกษาสูงสุด	☐ 1. ม.ปลาย/ ปวช.	☐ 2. อนุปริญญา/ปวส.
	☐ 3. ป.ตรี(หรือเทียบเท่า)	☐ 4. ป.โท
	☐ 5. ป.เอก	☐ 6. อื่น ๆ (ระบุ....................)
4. ระดับตำแหน่ง	☐ 1. ผู้บริหาร (ผู้อำนวยการ/ผู้จัดการ)	☐ 2. หัวหน้างาน
	☐ 3. พนักงาน (ไม่มีลูกน้อง)	☐ 4. อื่น ๆ (ระบุ....................)
5. แผนก/ฝ่าย	☐ 1. ผลิต	☐ 2. ตรวจสอบคุณภาพ
	☐ 3.พัฒนาผลิตภัณฑ์	☐ 4. เทคนิค/ซ่อมบำรุง
	☐ 5. คลังสินค้า	☐ 6. ขาย/ตลาด/โลจิสติกส์
	☐ 7. บัญชี การเงิน	☐ 8. บุคคล/ธุรการ
	☐ 9. เทคโนโลยีสารสนเทศ	☐ 10. อื่น ๆ (ระบุ....................)
6. อายุงาน (เฉพาะที่องค์กรนี้)	☐ 1. ต่ำกว่า 1 ปี	☐ 2. 1- 5 ปี
	☐ 3. 6-10 ปี	☐ 4. 11-15 ปี
	☐ 5. 16-20 ปี	☐ 6. 21 ปีขึ้นไป
7. อายุงาน (รวมที่ทำงานมาทั้งหมด)	☐ 1. ต่ำกว่า 1 ปี	☐ 2. 1- 5 ปี
	☐ 3. 6-10 ปี	☐ 4. 11-15 ปี
	☐ 5. 16-20 ปี	☐ 6. 21 ปีขึ้นไป

<u>ฉบับที่ 2 แบบสอบถามองค์กรแห่งการเรียนรู้ จำนวน 21 ข้อ</u>

<u>วัตถุประสงค์</u> เพื่อสอบถามความคิดเห็นของท่านว่า องค์กรของท่านสนับสนุนการเรียนรู้ของพนักงาน ใน ระดับบุคคล ทีมงาน และองค์กรอย่างไร

<u>คำชี้แจง</u> กรุณาตอบแบบสอบถามแต่ละข้อตามลำดับ ให้ครบทุกข้อ และขอให้ท่านพิจารณาว่า แต่ละข้อเป็น จริงสำหรับองค์กรของท่านในระดับใด จาก 1 ถึง 6 (นั่นคือ หากสิ่งนั้นไม่เคยเกิดขึ้นเลย ขอให้ตอบ 1 แต่ถ้าสิ่ง นั้นเกิดขึ้นเสมอหรือตลอดเวลา ขอให้ตอบ 6 โดยทำเครื่องหมาย ✓ ลงในช่องทางขวามือที่ตรงกับระดับ ความคิดเห็นของท่านเพียงเครื่องหมายเดียว ในแต่ละข้อ)

1	2	3	4	5	6
ไม่เคยเกิดขึ้น	แทบไม่เคยเกิด	ไม่ค่อยเกิดขึ้น	เกิดขึ้นบ้าง	เกิดขึ้นบ่อย	เกิดขึ้นตลอด

0   100

<u>ตัวอย่างข้อความและการตอบ</u>

ถ้าท่านเห็นว่า ผู้นำในองค์กรของท่านเปิดโอกาสให้พนักงานเข้าฝึกอบรมอย่างต่อเนื่อง นั้นเกิดขึ้นบ่อยครั้ง ท่านสามารถให้คะแนนข้อนี้ เท่ากับ 5 โดยทำเครื่องหมาย ✓ ในช่องที่ตรงกับเลข 5 ท้ายข้อคำถาม

ข้อความ	ไม่เคย เกิดขึ้น	แทบ ไม่เกิด	ไม่ค่อย เกิดขึ้น	เกิดขึ้น บ้าง	เกิดขึ้น บ่อย	เกิดขึ้น ตลอด
	1	2	3	4	5	6
0. ในองค์กรของฉัน ผู้นำเปิดโอกาสให้พนักงานเข้าฝึกอบรมอย่าง ต่อเนื่อง					✓	

หากท่านเห็นว่า ผู้นำในองค์กรของท่านเปิดโอกาสให้พนักงานเข้าฝึกอบรมอย่างต่อเนื่อง นั้นแทบไม่เกิดขึ้น ท่านสามารถให้คะแนนข้อนี้ เท่ากับ 2 โดยทำเครื่องหมาย ✓ ในช่องที่ตรงกับเลข 2 ท้ายข้อคำถาม

ข้อความ	ไม่เคย เกิดขึ้น	แทบ ไม่เกิด	ไม่ค่อย เกิดขึ้น	เกิดขึ้น บ้าง	เกิดขึ้น บ่อย	เกิดขึ้น ตลอด
	1	2	3	4	5	6
0. ในองค์กรของฉัน ผู้นำเปิดโอกาสให้พนักงานเข้าฝึกอบรมอย่าง ต่อเนื่อง		✓				

ข้อความ	ไม่เคย เกิดขึ้น	แทบไม่ เกิด	ไม่ค่อย เกิดขึ้น	เกิดขึ้น บ้าง	เกิดขึ้น บ่อย	เกิดขึ้น ตลอด
	1	2	3	4	5	6
1. ในองค์กรของฉัน พนักงานช่วยเหลือกันในการเรียนรู้						
2. ในองค์กรของฉัน พนักงานได้รับการจัดสรรเวลาเพื่อการเรียนรู้						
3. ในองค์กรของฉัน พนักงานได้รางวัลตอบแทนจากการเรียนรู้						
4. ในองค์กรของฉัน พนักงานให้ข้อมูลป้อนกลับ/แสดงความคิดเห็นกัน อย่างเปิดเผยและตรงไปตรงมา						
5. ในองค์กรของฉัน เมื่อไหร่ก็ตามที่พนักงานแสดงความคิดเห็นของ ตนเอง พวกเขาก็จะถามความเห็นของผู้อื่นด้วย						
6. ในองค์กรของฉัน พนักงานใช้เวลาในการสร้างความไว้เนื้อเชื่อใจซึ่ง กันและกัน						
7. ในองค์กรของฉัน ทีมงานแต่ละทีมมีอิสระที่จะปรับเป้าหมายได้ตามที่ จำเป็น						
8. ในองค์กรของฉัน ทีมงานปรับเปลี่ยนความคิดให้สอดคล้องตามผล การพูดคุยหารือของทีม หรือผลจากข้อมูลที่รวบรวมได้						
9. ในองค์กรของฉัน ทีมงานมั่นใจว่าองค์กรจะทำตามคำแนะนำของทีม						
10. องค์กรของฉัน สร้างระบบที่ช่วยประเมินความต่างระหว่างผลการ ปฏิบัติงานจริง กับผลการปฏิบัติงานที่คาดหวัง						
11. องค์กรของฉัน ทำให้พนักงานทุกคนสามารถเข้าถึงและรับรู้เรื่องราว แห่งความสำเร็จและความล้มเหลวที่เกิดขึ้นในองค์กรได้						
12. องค์กรของฉัน วัดผลการเรียนรู้จากเวลาและทรัพยากร (รวมถึง งบประมาณ) ที่ใช้ไปในการฝึกอบรม						
13. องค์กรของฉัน ยกย่องชมเชยพนักงานที่คิดริเริ่ม ทำสิ่งใหม่ ๆ						
14. องค์กรของฉัน ให้พนักงานสามารถจัดการทรัพยากรที่จำเป็นในการ ทำงานให้สำเร็จด้วยตนเอง						
15. องค์กรของฉัน ส่งเสริมพนักงานที่กล้าคิดกล้าทำอย่างสมเหตุสมผล						
16. องค์กรของฉัน สนับสนุนพนักงานให้คิดจากมุมมองระดับโลก (เช่น แนวโน้ม ความต้องการ ความสนใจระดับนานาชาติ)						
17. องค์กรของฉัน ร่วมมือกับชุมชนภายนอกเพื่อให้บรรลุความต้องการ ที่มีร่วมกัน						
18. องค์กรของฉัน สนับสนุนให้พนักงานหาคำตอบในการแก้ปัญหาจาก หน่วยงานอื่น ๆ ทั่วทั้งองค์กร						
19. ในองค์กรของฉัน ผู้นำเป็นพี่เลี้ยง โค้ชที่ดูแลให้คำแนะนำกับลูกน้อง ของตน						
20. ในองค์กรของฉัน ผู้นำมองหาโอกาสที่จะเรียนรู้อยู่ตลอดเวลา						
21. ในองค์กรของฉัน ผู้นำทำให้มั่นใจว่าการดำเนินธุรกิจมีความ สอดคล้องกับค่านิยมขององค์กร						

ฉบับที่ 3 แบบสอบถามพฤติกรรมการแบ่งปันความรู้ จำนวน 19 ข้อ

<u>คำชี้แจง</u> กรุณาตอบแบบสอบถามแต่ละข้อตามลำดับ ให้ครบทุกข้อ โดยทำเครื่องหมาย ✓ ลงในช่องทาง
ขวามือท้ายคำถาม ที่ตรงกับความเป็นจริงของท่าน โดยเลือกคำตอบเดียว จากระดับ 1 ถึง 6

<u>หมายเหตุ</u> พนักงานในองค์กร คือ พนักงานคนอื่นที่อยู่ตำแหน่งหรือแผนกใดก็ได้ ในองค์กรเดียวกันกับท่าน

ข้อความ	ไม่จริงอย่างยิ่ง 1	ไม่จริง 2	ค่อนข้างไม่จริง 3	ค่อนข้างจริง 4	จริง 5	จริงอย่างยิ่ง 6
1. ฉันส่งต่อเอกสาร ข้อมูล (เช่น ไฟล์ข้อมูล คลิปวิดีโอ) ที่เป็นประโยชน์ในการทำงานให้พนักงานที่เกี่ยวข้องในองค์กร						
2. เมื่อฉันได้เอกสาร ข้อมูลใหม่ ฉันส่งต่อให้กับพนักงานที่เกี่ยวข้องในองค์กร						
3. ฉันส่งต่อเอกสาร ข้อมูลที่เกี่ยวกับงานให้ตามที่พนักงานในองค์กรต้องการ						
4. เมื่อมีโอกาส ฉันถ่ายทอด (เช่น เล่า/อธิบาย/แสดงวิธี/สอน) ความรู้จากประสบการณ์ทำงานของฉันแก่พนักงานในองค์กร						
5. ฉันเสนอแนะแนวทางการแก้ปัญหาให้กับพนักงานในองค์กร						
6. ฉันบอกเล่าเคล็ดลับความสำเร็จในการทำงานให้พนักงานในองค์กรโดยไม่ปิดบัง						
7. ฉันบอกเล่าวิธีการปรับปรุงแก้ไขข้อผิดพลาดในการทำงานของฉันให้พนักงานในองค์กร						
8. เมื่อฉันได้เรียนรู้สิ่งใหม่ ๆ จาก<u>การฝึกอบรมภายในองค์กร</u> และเห็นว่าเป็นประโยชน์กับงาน ฉันถ่ายทอดให้กับพนักงานในองค์กร						
9. เมื่อฉันได้เรียนรู้สิ่งใหม่ ๆ จาก<u>การฝึกอบรม/เรียนภายนอกองค์กร</u> (เช่น สถาบันการศึกษา) และเห็นว่าเป็นประโยชน์กับงาน ฉันถ่ายทอดให้กับพนักงานในองค์กร						
10. ฉันได้รับเอกสารข้อมูลที่เป็นประโยชน์ในการทำงานจากพนักงานในองค์กร						
11. ฉันได้รับเอกสารข้อมูลใหม่ จากพนักงานคนอื่นในองค์กร						
12. เมื่อมีโอกาส ฉันสอบถาม/ขอความรู้จากพนักงานในองค์กร ตามความสามารถ/ความถนัดที่เขามี						
13. เมื่อพนักงานในองค์กรถ่ายทอดความรู้ในการทำงานให้ฉัน ฉันสอบถามข้อสงสัยที่มีให้กระจ่าง						
14. ฉันได้รับการบอกเคล็ดลับ ความสำเร็จในการทำงานจากพนักงานในองค์กร						
15. ฉันได้รับการบอกเล่าวิธีการปรับปรุงแก้ไขข้อผิดพลาดในการทำงานจากพนักงานในองค์กร						
16. ฉันได้รับข้อมูลและคำแนะนำในการทำงานจากพนักงานคนอื่นในองค์กรโดยไม่ต้องขอ						
17. หากมีโอกาส ฉันเข้าร่วมกิจกรรมส่งเสริม/แบ่งปันความรู้ในองค์กร เช่น การสัมมนา การฝึกอบรมต่าง ๆ						
18. ฉันสอบถามขอความรู้จากพนักงานในองค์กรที่ผ่านการฝึกอบรม/เรียนในหัวข้อที่เกี่ยวข้องกับงานของฉัน						
19. หากพนักงานในองค์กรที่ฉันถามไม่สามารถให้ความรู้ที่ฉันต้องการได้ ฉันถามต่อว่าจะไปหาข้อมูลนั้นได้จากใคร/ที่ใด						

ฉบับที่ 4 แบบสอบถามการปฏิบัติงานตามบทบาท จำนวน 20 ข้อ

คำชี้แจง กรุณาตอบแบบสอบถามแต่ละข้อตามลำดับ ให้ครบทุกข้อ โดยทำเครื่องหมาย ✓ ลงในช่องทาง
ขวามือท้ายคำถาม ที่ตรงกับความเป็นจริงของท่าน โดยเลือกคำตอบเดียว จากระดับ 1 ถึง 6

ข้อความ	ไม่จริงอย่างยิ่ง 1	ไม่จริง 2	ค่อนข้างไม่จริง 3	ค่อนข้างจริง 4	จริง 5	จริงอย่างยิ่ง 6
1. เมื่อเทียบกับพนักงานคนอื่นที่มีตำแหน่งและระดับเดียวกันแล้ว ผลงานของฉันมีปริมาณมาก						
2. เมื่อเทียบกับพนักงานคนอื่นที่มีตำแหน่งและระดับเดียวกันแล้ว ผลงานของฉันมีคุณภาพสูง						
3. เมื่อเทียบกับพนักงานคนอื่นที่มีตำแหน่งและระดับเดียวกันแล้ว งานของฉันมีความถูกต้องในระดับสูง						
4. ฉันให้บริการอย่างดียิ่งแก่พนักงานทุกระดับในองค์กร (เช่น เพื่อนร่วมงาน หัวหน้า ลูกน้อง เป็นต้น) และ/หรือผู้รับบริการภายนอกองค์กรของฉัน						
5. ฉันคอยมองหาโอกาสในการเติบโตในสายอาชีพอยู่ตลอดเวลา						
6. ฉันพัฒนาทักษะที่จำเป็นเพื่อความก้าวหน้าในอาชีพของฉันเสมอ						
7. ฉันกำลังเจริญก้าวหน้าในอาชีพของฉัน						
8. ฉันประสบความสำเร็จในสายอาชีพตามเป้าหมายที่ฉันตั้งไว้						
9. ฉันมีความคิดใหม่ ๆ ที่เกี่ยวกับงานอยู่เสมอ						
10. ฉันนำความคิดใหม่ ๆ มาใช้ในการทำงานอยู่เสมอ						
11. ฉันค้นหาวิธีการปรับปรุงการทำงานให้ดีขึ้นอยู่เสมอ						
12. ฉันพัฒนากระบวนการทำงาน และการทำงานแต่ละวันของฉันให้ดีขึ้นอยู่เสมอ						
13. ฉันทำงานเป็นส่วนหนึ่งของทีมได้อย่างดี						
14. ฉันมีความสามารถในการขอข้อมูลการทำงานจากสมาชิกในทีม						
15. ฉันทำ (เช่น ช่วยเหลือ ติดตามงาน) จนมั่นใจว่าทีมของฉันทำงานได้สำเร็จ						
16. ฉันให้ความช่วยเหลือตามที่สมาชิกในทีมของฉันต้องการเสมอ						
17. ฉันทำสิ่งต่าง ๆ เพื่อช่วยเหลือเพื่อนร่วมงาน แม้จะไม่ใช่งานส่วนของฉัน						
18. ฉันทำงานเพื่อผลประโยชน์โดยรวมขององค์กร						
19. ฉันทำสิ่งต่าง ๆ เพื่อสนับสนุนให้องค์กรก้าวหน้า						
20. ฉันอาสาให้ความช่วยเหลืออยู่ตลอด เพื่อช่วยให้องค์กรเป็นสถานที่ที่น่าทำงาน						

ขอขอบคุณทุกท่าน ที่ตอบแบบสอบถามฉบับนี้จนครบทุกข้อ

APPENDIX B

THE ITEM CODES OF THE CONSOLIDATED VERSION
OF QUESTIONNAIRE (IN THAI)

ฉบับที่ 1 แบบสอบถามองค์กรแห่งการเรียนรู้ จำนวน 21 ข้อ

ข้อความ	Item Code
1. ในองค์กรของฉัน พนักงานช่วยเหลือกันในการเรียนรู้	LO1
2. ในองค์กรของฉัน พนักงานได้รับการจัดสรรเวลาเพื่อการเรียนรู้	LO2
3. ในองค์กรของฉัน พนักงานได้รางวัลตอบแทนจากการเรียนรู้	LO3
4. ในองค์กรของฉัน พนักงานให้ข้อมูลป้อนกลับ/แสดงความคิดเห็นกันอย่างเปิดเผยและตรงไปตรงมา	LO4
5. ในองค์กรของฉัน เมื่อไหร่ก็ตามที่พนักงานแสดงความคิดเห็นของตนเอง พวกเขาก็จะถามความเห็นของผู้อื่นด้วย	LO5
6. ในองค์กรของฉัน พนักงานใช้เวลาในการสร้างความไว้เนื้อเชื่อใจซึ่งกันและกัน	LO6
7. ในองค์กรของฉัน ทีมงานแต่ละทีมมีอิสระที่จะปรับเป้าหมายได้ตามที่จำเป็น	LO7
8. ในองค์กรของฉัน ทีมงานปรับเปลี่ยนความคิดให้สอดคล้องตามผลการพูดคุยหารือของทีม หรือผลจากข้อมูลที่รวบรวมได้	LO8
9. ในองค์กรของฉัน ทีมงานมั่นใจว่าองค์กรจะทำตามคำแนะนำของทีม	LO9
10. องค์กรของฉัน สร้างระบบที่ช่วยประเมินความต่างระหว่างผลการปฏิบัติงานจริงกับผลการปฏิบัติงานที่คาดหวัง	LO10
11. องค์กรของฉัน ทำให้พนักงานทุกคนสามารถเข้าถึงและรับรู้เรื่องราวแห่งความสำเร็จและความล้มเหลวที่เกิดขึ้นในองค์กรได้	LO11
12. องค์กรของฉัน วัดผลการเรียนรู้จากเวลาและทรัพยากร (รวมถึงงบประมาณ) ที่ใช้ไปในการฝึกอบรม	LO12
13. องค์กรของฉัน ยกย่องชมเชยพนักงานที่คิดริเริ่ม ทำสิ่งใหม่ ๆ	LO13
14. องค์กรของฉัน ให้พนักงานสามารถจัดการทรัพยากรที่จำเป็นในการทำงานให้สำเร็จด้วยตนเอง	LO14
15. องค์กรของฉัน ส่งเสริมพนักงานที่กล้าคิดกล้าทำอย่างสมเหตุสมผล	LO15
16. องค์กรของฉัน สนับสนุนพนักงานให้คิดจากมุมมองระดับโลก (เช่น แนวโน้มความต้องการ ความสนใจระดับนานาชาติ)	LO16
17. องค์กรของฉัน ร่วมมือกับชุมชนภายนอกเพื่อให้บรรลุความต้องการที่มีร่วมกัน	LO17
18. องค์กรของฉัน สนับสนุนให้พนักงานหาคำตอบในการแก้ปัญหาจากหน่วยงานอื่น ๆ ทั่วทั้งองค์กร	LO18
19. ในองค์กรของฉัน ผู้นำเป็นพี่เลี้ยง โค้ชที่ดูแลให้คำแนะนำกับลูกน้องของตน	LO19
20. ในองค์กรของฉัน ผู้นำมองหาโอกาสที่จะเรียนรู้อยู่ตลอดเวลา	LO20
21. ในองค์กรของฉัน ผู้นำทำให้มั่นใจว่าการดำเนินธุรกิจมีความสอดคล้องกับค่านิยมขององค์กร	LO21

ฉบับที่ 2 แบบสอบถามพฤติกรรมการแบ่งปันความรู้ จำนวน 19 ข้อ

ข้อความ	Item Code
1. ฉันส่งต่อเอกสาร ข้อมูล (เช่น ไฟล์ข้อมูล คลิปวิดีโอ) ที่เป็นประโยชน์ในการทำงานให้พนักงานที่เกี่ยวข้องในองค์กร	EKD1
2. เมื่อฉันได้เอกสาร ข้อมูลใหม่ ฉันส่งต่อให้กับพนักงานที่เกี่ยวข้องในองค์กร	EKD2
3. ฉันส่งต่อเอกสาร ข้อมูลที่เกี่ยวกับงานให้ตามที่พนักงานในองค์กรต้องการ	EKD3
4. เมื่อมีโอกาส ฉันถ่ายทอด (เช่น เล่า/อธิบาย/แสดงวิธี/สอน) ความรู้จากประสบการณ์ทำงานของฉันแก่พนักงานในองค์กร	TKC1
5. ฉันเสนอแนะแนวทางการแก้ปัญหาให้กับพนักงานในองค์กร	TKC2
6. ฉันบอกเล่าเคล็ดลับความสำเร็จในการทำงานให้พนักงานในองค์กรโดยไม่ปิดบัง	TKC3
7. ฉันบอกเล่าวิธีการปรับปรุงแก้ไขข้อผิดพลาดในการทำงานของฉันให้พนักงานในองค์กร	TKC4
8. เมื่อฉันได้เรียนรู้สิ่งใหม่ ๆ จาก<u>การฝึกอบรมภายในองค์กร</u> และเห็นว่าเป็นประโยชน์กับงาน ฉันถ่ายทอดให้กับพนักงานในองค์กร	TKC5
9. เมื่อฉันได้เรียนรู้สิ่งใหม่ ๆ จาก<u>การฝึกอบรม/เรียนภายนอกองค์กร</u> (เช่น สถาบันการศึกษา) และเห็นว่าเป็นประโยชน์กับงาน ฉันถ่ายทอดให้กับพนักงานในองค์กร	TKC6
10. ฉันได้รับเอกสารข้อมูลที่เป็นประโยชน์ในการทำงานจากพนักงานในองค์กร	PKR1
11. ฉันได้รับเอกสารข้อมูลใหม่ จากพนักงานคนอื่นในองค์กร	PKR2
12. เมื่อมีโอกาส ฉันสอบถาม/ขอความรู้จากพนักงานในองค์กร ตามความสามารถ/ความถนัดที่เขามี	AKA1
13. เมื่อพนักงานในองค์กรถ่ายทอดความรู้ในการทำงานให้ฉัน ฉันสอบถามข้อสงสัยที่มีให้กระจ่าง	AKA2
14. ฉันได้รับการบอกเคล็ดลับ ความสำเร็จในการทำงานจากพนักงานในองค์กร	PKR3
15. ฉันได้รับการบอกเล่าวิธีการปรับปรุงแก้ไขข้อผิดพลาดในการทำงานจากพนักงานในองค์กร	PKR4
16. ฉันได้รับข้อมูลและคำแนะนำในการทำงานจากพนักงานคนอื่นในองค์กรโดยไม่ต้องขอ	PKR5
17. หากมีโอกาส ฉันเข้าร่วมกิจกรรมส่งเสริม/แบ่งปันความรู้ในองค์กร เช่น การสัมมนา การฝึกอบรมต่าง ๆ	AKA3
18. ฉันสอบถามขอความรู้จากพนักงานในองค์กรที่ผ่านการฝึกอบรม/เรียนในหัวข้อที่เกี่ยวข้องกับงานของฉัน	AKA4
19. หากพนักงานในองค์กรที่ฉันถามไม่สามารถให้ความรู้ที่ฉันต้องการได้ ฉันถามต่อว่าจะไปหาข้อมูลนั้นได้จากใคร/ที่ใด	AKA5

ฉบับที่ 3 แบบสอบถามการปฏิบัติงานตามบทบาท จำนวน 20 ข้อ

ข้อความ	Item Code
1. เมื่อเทียบกับพนักงานคนอื่นที่มีตำแหน่งและระดับเดียวกันแล้ว ผลงานของฉันมีปริมาณมาก	IP1
2. เมื่อเทียบกับพนักงานคนอื่นที่มีตำแหน่งและระดับเดียวกันแล้ว ผลงานของฉันมีคุณภาพสูง	IP2
3. เมื่อเทียบกับพนักงานคนอื่นที่มีตำแหน่งและระดับเดียวกันแล้ว งานของฉันมีความถูกต้องในระดับสูง	IP3
4. ฉันให้บริการอย่างดียิ่งแก่พนักงานทุกระดับในองค์กร (เช่น เพื่อนร่วมงาน หัวหน้า ลูกน้อง เป็นต้น) และ/หรือผู้รับบริการภายนอกองค์กรของฉัน	IP4
5. ฉันคอยมองหาโอกาสในการเติบโตในสายอาชีพอยู่ตลอดเวลา	IP5
6. ฉันพัฒนาทักษะที่จำเป็นเพื่อความก้าวหน้าในอาชีพของฉันเสมอ	IP6
7. ฉันกำลังเจริญก้าวหน้าในอาชีพของฉัน	IP7
8. ฉันประสบความสำเร็จในสายอาชีพตามเป้าหมายที่ฉันตั้งไว้	IP8
9. ฉันมีความคิดใหม่ ๆ ที่เกี่ยวกับงานอยู่เสมอ	IP9
10. ฉันนำความคิดใหม่ ๆ มาใช้ในการทำงานอยู่เสมอ	IP10
11. ฉันค้นหาวิธีการปรับปรุงการทำงานให้ดีขึ้นอยู่เสมอ	IP11
12. ฉันพัฒนากระบวนการทำงาน และการทำงานแต่ละวันของฉัน ให้ดีขึ้นอยู่เสมอ	IP12
13. ฉันทำงานเป็นส่วนหนึ่งของทีมได้อย่างดี	IP13
14. ฉันมีความสามารถในการขอข้อมูลการทำงานจากสมาชิกในทีม	IP14
15. ฉันทำ (เช่น ช่วยเหลือ ติดตามงาน) จนมั่นใจว่าทีมของฉันทำงานได้สำเร็จ	IP15
16. ฉันให้ความช่วยเหลือตามที่สมาชิกในทีมของฉันต้องการเสมอ	IP16
17. ฉันทำสิ่งต่าง ๆ เพื่อช่วยเหลือเพื่อนร่วมงาน แม้จะไม่ใช่งาน ส่วนของฉัน	IP17
18. ฉันทำงานเพื่อผลประโยชน์โดยรวมขององค์กร	IP18
19. ฉันทำสิ่งต่าง ๆ เพื่อสนับสนุนให้องค์กรก้าวหน้า	IP19
20. ฉันอาสาให้ความช่วยเหลืออยู่ตลอด เพื่อช่วยให้องค์กรเป็นสถานที่ที่น่าทำงาน	IP20

APPENDIX C

DEMOGRAPHIC DATA FOR QUESTIONNAIRE
DEVELOPMENT AND VALIDATION

Table C1 Demographic Data of 320 Participants for KSBS Development

Variable	Frequency	Percentage
Gender		
Male	113	35.31
Female	203	63.44
Age		
Range	22-52	
Mean (S.D.)	34.23 (6.16)	
Education level		
High school or vocational certificate	62	19.38
High vocational certificate or associate's degree	90	28.13
Bachelor degree	136	42.50
Master degree	23	7.19
Doctoral degree	0	0
Position level		
Executive (Director/Manager)	21	6.56
Supervisor/Leader	118	36.88
Staff	174	54.31
Service years at this company		
Less than 1 year	24	7.50
1-5 years	88	27.50
6-10 years	100	31.25
11-15 years	61	19.06
16-20 years	22	6.88
More than 21 years	22	6.88
Total work experience		
Less than 1 year	11	3.44
1-5 years	39	12.19
6-10 years	79	24.69
11-15 years	87	27.19
16-20 years	47	14.69
More than 21 years	42	13.13

Table C2 Demographic Data of 285 Participants for Questionnaire Validation

Variable	Frequency	Percentage
Gender		
Male	95	33.33
Female	189	66.32
Age		
Range	21-53	
Education level		
Mean (S.D.)	37.14 (7.39)	
High school or vocational certificate	58	20.35
High vocational certificate or associate's degree	87	30.58
Bachelor degree	107	37.54
Master degree	26	9.12
Doctoral degree	0	0
Position level		
Executive (Director/Manager)	13	4.56
Supervisor/Leader	137	48.07
Staff	124	43.51
Service years at this company		
Less than 1 year	16	5.61
1-5 years	80	28.01
6-10 years	50	17.54
11-15 years	38	13.33
16-20 years	38	13.33
More than 21 years	63	22.11
Total work experience		
Less than 1 year	4	1.40
1-5 years	36	12.63
6-10 years	61	21.40
11-15 years	46	16.14
16-20 years	49	17.19
More than 21 years	84	29.47

APPENDIX D

ITEM ANALYSIS AND EXPLORATORY FACTOR ANALYSIS
(EFA) OF THE KNOWLEDGE SHARING BEHAVIOR SCALE
(KSBS)

Table D1 Details of t-values and Corrected Item Total Correlation (CITC) of KSBS

Dimension	Item	Direction	t-value	p-value	CITC (r)	Selection
1. Knowledge Donation (KS1-KS16)	KS1	+	10.09	.000	0.51	✓
	KS2	+	10.53	.000	0.54	✓
	KS3	+	11.56	.000	0.54	✓
	KS4	-	10.81	.000	0.42	✓
	KS5	+	12.01	.000	0.62	✓
	KS6	-	7.84	.000	0.37	✓
	KS7	-	13.91	.000	0.51	✓
	KS8	+	12.13	.000	0.58	✓
	KS9	+	12.73	.000	0.63	✓
	KS10	+	13.30	.000	0.62	✓
	KS11	+	15.34	.000	0.72	✓
	KS12	+	14.31	.000	0.70	✓
	KS13	-	13.71	.000	0.55	✓
	KS14	+	14.59	.000	0.64	✓
	KS15	+	15.06	.000	0.66	✓
	KS16	-	16.70	.000	0.58	✓
2. Knowledge Collection (KS17-KS32)	KS17	+	11.21	.000	0.66	✓
	KS18	+	11.31	.000	0.55	✓
	KS19	+	9.92	.000	0.51	✓
	KS20	-	12.67	.000	0.52	✓
	KS21	+	13.54	.000	0.64	✓
	KS22	+	16.61	.000	0.78	✓
	KS23	+	11.86	.000	0.56	✓
	KS24	+	13.22	.000	0.64	✓
	KS25	+	14.27	.000	0.64	✓
	KS26	+	6.38	.000	0.31	✓
	KS27	+	13.38	.000	0.65	✓
	KS28	+	11.41	.000	0.61	✓
	KS29	-	10.47	.000	0.45	✓
	KS30	+	8.69	.000	0.46	✓
	KS31	+	13.25	.000	0.61	✓
	KS32	-	16.13	.000	0.58	✓

Table D2 Summary of EFA Results of the Final Version of the 19-item KSBS

Dimension	Items	Factor Loading	Eigenvalue	% of Variance	Cumulative %
Tacit Knowledge Contribution (TKC)	TKC 1 (KS5)	0.54			
	TKC 2 (KS8)	0.75			
	TKC 3 (KS9)	0.80	3.74	19.70	19.70
	TKC 4 (KS10)	0.80			
	TKC 5 (KS11)	0.64			
	TKC 6 (KS12)	0.60			
Proactive Knowledge Acquisition (PKA)	AKA1 (KS21)	0.68			
	AKA2 (KS22)	0.68			
	AKA3 (KS27)	0.77	3.45	18.17	37.87
	AKA4 (KS28)	0.70			
	AKA5 (KS30)	0.56			
Reactive Knowledge Receiving (RKR)	PKR1 (KS17)	0.57			
	PKR2 (KS18)	0.75			
	PKR3 (KS23)	0.73	2.93	15.43	53.30
	PKR4 (KS24)	0.71			
	PKR5 (KS26)	0.69			
Explicit Knowledge Donation (EKD)	EKD1 (KS1)	0.80			
	EKD2 (KS2)	0.84	2.68	14.11	67.41
	EKD3 (KS3)	0.75			

APPENDIX E

BACK-TRANSLATION OF THE KNOWLEDGE SHARING BEHAVIOR SCALE (KSBS)

Table E1 Back-Translation of the 19-item Knowledge Sharing Behavior Scale

1. I share useful work-related information (e.g. data files, video clips) to related staff in my organization.

2. When I have new work-related information, I share it with the related staff in my organization.

3. I send work-related information to other staff per their request.

4. I relay (explain, teach or demonstrate) knowledge from my experience to other staff members.

5. I suggest solutions to fix problems to the staff in my organization.

6. I fully reveal my successful work-related tips and techniques to the staff in my organization.

7. I tell how to fix my mistakes at work to the staff in my organization.

8. When I learn something new and useful for work from <u>internal trainings</u>, I relay it to the staff in my organization.

9. When I learn something new and useful for work from <u>external trainings</u>, I relay it to the staff in my organization.

10. I receive useful work-related information (e.g. data files, video clips) from the staff in my organization.

11. I receive new work-related information from the staff in my organization.

12. When I have a chance, I ask the staff to share their knowledge and expertise.

13. When other staff members relay work-related knowledge to me, I ask questions until my doubts are cleared up.

14. I am told by other staff members in my organization about their successful work-related tips and techniques.

15. I am told by other staff in my organization about how they fix mistakes at work.

16. I receive information and work suggestions from staff without asking.

17. If I have a chance, I participate in knowledge-sharing activities such as seminars and other trainings.

18. I ask for knowledge from the staff that attended training related to my work.

19. If the staff members that I ask do not know the answers, I ask about whom I should talk to.

BIOGRAPHY

NAME   Kotchaworn Chuymanee

ACADEMIC BACKGROUND   Bachelor's Degree with a Major in
Clinical Psychology from Kasetsart
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Master's Degree in Counseling
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PRESENT POSITION   -