THE RELATIONSHIPS AMONG THE LEARNING TRANSFER SYSTEM, MANAGERS' CREATIVE LEARNING TRANSFER, AND JOB PERFORMANCE

A Dissertation

by

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ABSTRACT

To survive and thrive in the ever-changing global environment, organizations must constantly innovate and transform in the market by obtaining, applying, and creating new knowledge. In particular, given the importance of managers' excellent leadership for organizational performance, organizations must find a way to enhance managers' creative application of leadership knowledge to novel business situations (i.e., creative learning transfer). Over the past 110 years, research on learning transfer has proliferated because new knowledge and application of it to business must be at the heart of competitive advantages of an organization. Despite numerous empirical inquiries and advancement on learning transfer, there are still four major research gaps to be closed: (1) lack of a comprehensive instrument to measure predictors of creative learning transfer; (2) paucity of empirical research on learning transfer guided by sound theories; (3) ignorance of the importance of creative learning transfer in literature; and (4) little attention to a motivational factor as a mediator between transfer predictors and transfer outcomes. To fill the gaps, an overarching purpose of the present study was to examine the relationships among the learning transfer system, managers' creative learning transfer, and job performance.

The targeted population of the current study was managers who worked for large companies in South Korea and completed leadership training programs in the companies. Based on a non-experimental research design, an electronic 76-item survey was used to collect quantitative and qualitative data from 16 companies that agreed to participate in

the current study. After data screening, the valid sample consisted of 753 managers from the companies, which may represent 16 industries in the country. To analyze the quantitative data, a series of exploratory and confirmatory factor analyses (EFA/CFA) was conducted, followed by structural equation modeling (SEM) analyses. For the qualitative data, a thematic analysis was conducted.

Three major findings emerged from the current study. First, the Learning Transfer System Inventory (LTSI) Version 4 was successfully validated in an international context. Second, the nomological network among the learning transfer system, creative learning transfer, and job performance was confirmed. Third, seven themes of enablers and barriers for creative learning transfer were identified for use in the future research. HRD professionals may obtain critical implications from the current study to help organizational managers apply learned leadership knowledge and skills to novel business situations to create more competitive work systems, products, and/or services. The current study may serve as the bedrock on which researchers can theorize the concept of creative learning transfer, elaborating on organizational knowledge creation theory.

DEDICATION

To My Family

Soyoung Han, Jiah Kim, and Jihoo Kim

To My Parents-in-Law

Jaegu Han and Yesoon Lim

To My Parents

Iksu Kim and Younglye Seo

And

To Their Sacrifice for Me

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CHAPTER I

INTRODUCTION

Learning transfer has been defined as the application of newly learned knowledge, skills, and attitudes to the workplace (Holton, Bates, Bookter, & Yamkovenko, 2007). In this knowledge era, the rapidly changing environment calls for a shift in our thinking of learning transfer in an organization. That is, Human Resource Development (HRD) professionals have to increase "creative transfer" (Dixon-Krausse, 2006, p. 18; Haskell, 1998, p. 47; Roussel, 2014, p. 55) that not only facilitates an application of learned knowledge but also encompasses knowledge creation of learners to adjust to the change. One intention of organizations for investing their resources in training and development (T&D) is to improve individual and organizational performance by increasing learning transfer (L. A. Burke & Hutchins, 2008). For example, the expenditures for U.S. employee trainings that were intended to enhance job-related knowledge and skills were estimated at $130 billion per year (Egan, 2008). In Germany, large companies spent over €1,000 per employee a year for training (Schneider, Pältz & Stauche, 2014). Due to the lack of natural resources in South Korea (Korea, hereafter), human resource has been emphasized as a critical asset for national and organizational level labor competitiveness, leading to a significant amount of investment in T&D and other educational interventions (Song, Joo, & Chermack, 2009). Nonetheless, according to Wright and Holwerda (Working Paper), Korea exhibited comparatively low levels of knowledge creation and learning transfer capability

compared with other regions in their study such as Africa, Central and Eastern Europe, and the Middle East.

Meanwhile, HRD practitioners are subject to the limitations inherent in T&D in that learned knowledge and skills are typically forgotten either gradually or rapidly after completing a training program (Jaber & Sikström, 2004). Without an effective intervention in place to facilitate long-term retention and learning transfer, HRD practitioners would not be able to enhance the effectiveness of the training programs nor contribute to improving the employees' job performance. Moreover, if HRD professionals fail to increase learning transfer, they will end up with wasting valuable resources and losing the credibility necessary for them to play a critical role at a strategy table. Therefore, it is critical that HRD professionals develop interventions to address the learning transfer issue and assist organizations in retaining a competitive advantage in the marketplace.

Solving the learning transfer problem requires the HRD function to utilize a systems perspective (Swanson, 2001). Systems theory suggests that a change in one part of an organization can affect other parts (Burke, 2011). As a system, learning transfer consists of various subsystems such as organizational environment, managerial support, self-efficacy, opportunities to use what was learned, and motivation to apply knowledge and skills to the jobs (Bates, Holton, & Hatala, 2012). Thus, HRD professionals must take into account all influences of the learning transfer predictors on training effectiveness.

However, traditional HRD professionals have held a very limited view of their role and responsibility for increasing training effectiveness. Traditional HRD practitioners have spent much of their time developing a well-designed, fancy, and fun classroom-based training program focusing on participants' favorable reactions to it (Gill, 1995). This misguided practice is rooted in Kirkpatrick's (1959; 1976; 1994) traditional four-level evaluation model, which assumes that favorable reaction to training (Level 1) would result in desired learning (Level 2), behavior (Level 3), and eventually organizational changes (Level 4). In reality, the learners' reactions do not necessarily impact the training outcomes nor add values that the organization needs (Holton, 1996; Ruona, Leimbach, Holton, & Bates, 2002). Moreover, HRD functions can no longer rely only on the training content to prepare their employees for the ever-changing global market in which customer needs, technology, economic status, business boundaries, and even their jobs are constantly changing (Dixon-Krausse, 2006; Gill, 1995; Roussel, 2014).

Given the rapid change in all spheres of business, companies must constantly innovate, create, and transform to survive in the market. It is imperative for HRD professionals to find a way to enhance the *creative application* of learning to the jobs because new knowledge must be at the heart of competitive advantages of an organization (Berge, de Verneil, Berge, Davis, & Smith, 2002). In this sense, it cannot be emphasized too much that the HRD professionals must build a work environment in which employees are able to apply learned knowledge and skills to novel situations and tasks to create a more competitive work system, product, and/or service. Although the

research of learning transfer has a long history of almost 110 years (Barnett & Ceci, 2002) and is somewhat abundant, there are still many problems that HRD professionals are facing in terms of fostering creative learning transfer and job performance.

Problem Statement

Despite numerous empirical inquiries and advancement on learning transfer, there are still four major research gaps to be closed: (1) lack of a comprehensive and parsimonious instrument to measure predictors of learning transfer; (2) paucity of empirical research on learning transfer guided by sound theories; (3) ignored importance of creative learning transfer in the literature; and (4) little attention to a motivational factor as a mediator between transfer predictors and outcome variables.

Researchers have striven to solve the training transfer problem by identifying and analyzing the factors that affect learning transfer and its outcomes. Baldwin and Ford (1988) suggested a model of learning transfer and classified the identified transfer predictors into three categories: learner characteristics, training design, and work environment. Learner characteristics can be represented as individual differences including such factors as motivation, personality, skill, and ability (Blume, Ford, Baldwin, & Huang, 2010). Training design refers to various factors such as content design and instrumental methods (Lim & Morris, 2006). Work environment factors are equated with culture or climate such as peer or supervisor support for transfer (Chen, Holton, & Bates, 2006).

Since Baldwin and Ford (1988) suggested the three categories, progress has been made in developing a measure of transfer predictors (Bates et al., 2012; Chen, Holton, &

Bates, 2005; Holton, 1996; Holton, 2005; Kontoghiorghes, 2004). In particular, Holton (2005) integrated the three categories into the model of the learning transfer system (Holton, 2005), which was defined as "all factors in the person, training, and organization that influence transfer of learning to job performance" (p. 44). Holton's (2005) model was a research-based conceptual map that served as the bedrock to develop the Learning Transfer System Inventory (LTSI) in the U.S. context to assess the learning transfer system (Holton, 2005; Holton et al., 2007). In spite of the contributions of the existing body of research to our understanding of the enablers and barriers of learning transfer, there are still four limitations.

First, a lack of a comprehensive instrument to measure learning transfer predictors is the major obstacle hindering HRD professionals from moving forward (Holton et al., 2007). Currently, the LTSI is the only instrument that has been validated for use in measuring comprehensive 16 learning transfer factors across different organizational and cultural boundaries (Bates et al., 2012). In Korea, an initial effort to validate the LTSI was made by Lee (2010) in his doctoral dissertation, yielding a Korean version of the LTSI in which 12 factors were extracted having the identical item structure with the original LTSI. However, a different item structure was identified in the remaining four factors. Furthermore, the LTSI used by Lee (2010) was Version 3, but the most recent one is Version 4 that was published by Bates et al. (2012). Also, the validation process was limited to an exploratory factor analysis (EFA) with no confirmatory factor analysis (CFA). Application of the Western instrument to an Eastern cultural context calls for caution because the discrepancies in language as well as culture

embedded in the target respondents may obstruct assessing the very psychometric properties that were originally designed to be measured (Wang, Tolson, Chiang, & Huang, 2010).

Second, it has been consistently pointed out that there is no sound theory guiding research into learning transfer (Axtell, Maitlis, & Yearta, 1997; Baldwin & Ford, 1988; Cheng & Ho, 2001; Holton, Bates, & Ruona, 2000; Yamnill & McLean, 2001). This has led to the paucity of published research in which structural relationships among transfer predictors have been examined. A majority of the researchers of empirical studies investigating the relationships between transfer predictors and their outcome variables have limited the focus to the direct relationships between them (e.g., Blume et al., 2010; Devos, Dumay, Bonami, Bates, & Holton, 2007; Facteau, Dobbins, Russell, Ladd, & Kudisch, 1995; Lim & Morris, 2006). Although several researchers (e.g., Colquitt, LePine, & Noe, 2000; Egan, 2008; Noe & Schmitt, 1986) examined the structural relationships by proposing mediators among transfer predictors, they lacked either a theoretical background to explain the relationships or sufficient number of research variables to represent the complicated phenomenon of learning transfer. Capturing the structural relationships based on a solid theory is critical to locate and solve transfer problems at the root cause (Holton, 1996). A stronger and more comprehensive theory that withstands rigorous empirical testing needs to be adapted in this area of research.

Third, the importance of creative learning transfer has been overlooked in the existing literature. An extensive literature search resulted in the identification of only one PhD dissertation (Dixon-Krausse, 2006) and three books (Roussel, 2014; Haskell,

1998; Haskell, 2001) that addressed the concept of creative learning transfer. Creative learning transfer has been defined as a level or type of learning transfer that leads to new and innovative concepts by integrating two seemingly discrete concepts and by creating a new concept (Haskell, 1998; Roussel, 2014). Changes in the nature of work and roles, such as leading or managing a team in a dynamic organizational situation, require a HRD professional to prepare learners to be more adaptable. Creative learning transfer is especially critical for "open skills" (Blume et al., 2010, p. 1072) and knowledge acquired in a management or leadership training to be applied to the workplace. The concept of creative learning transfer was traditionally explained using a similar concept called far transfer, which is defined as "the extent to which the trainee applies the training to situations that are novel or different from the ones in which he or she was trained" (Laker, 1990, p. 210). Taking a close look at the concept of far or creative learning transfer enables a researcher to find a relationship of it with knowledge creation. In other words, the transfer predictors are likely to have positive effects on creative learning transfer encompassing individual knowledge creation. There is no doubt that knowledge creation should be one of the most critical aspects of learning transfer for competitive advantage (Berge et al., 2002). However, no empirical research in which creative learning transfer was examined in relation to knowledge creation was identified.

Finally, the factor of transfer motivation has not received sufficient attention as a mediator between transfer predictors and outcome variables (Egan, 2008; Gegenfurtner, Veermans, Festner, & Gruber, 2009). Although the theory of planned behavior (Ajzen, 1991) and work motivation theory (Vroom, 1964) have implied that transfer motivation

should precede an actual learning transfer, empirical evidence examining the relationship between them remain insufficient to draw firm conclusions (Gegenfurtner et al., 2009). With regard to this issue, Gegenfurtner et al. (2009) suggested that more empirical research employing mediator analyses should be accumulated to confirm the role of transfer motivation in a learning transfer process or system.

To improve job performance through dynamic learning transfer, HRD professionals must develop a process or system in which learners are motivated to apply what they learned to their workplace in an active and creative way. Therefore, the four research gaps discussed above must be fully addressed through rigorous research with deliberate purposes.

Purpose of the Study

Given the four research gaps, the purpose of this study was to examine the relationships among the learning transfer system, Creative Learning Transfer, and Job Performance. Toward the overarching purpose, two sub-purposes were pursued in the current study: (1) to examine validity of the Learning Transfer System Inventory data in a Korean context; and (2) to investigate the theoretical structural relationships among the learning transfer system, Creative Learning Transfer, and Job Performance, especially positioning a motivational factor as a mediator between the learning transfer system and Creative Learning Transfer.

Theoretical Framework

Learning transfer is a complicated phenomenon, which can hardly be explained by a single theory. For the purpose of the current study, the thesis was built on the basis

of one theoretical model and two theories with the following rationales: (1) the HRD Evaluation and Research Model (Holton, 2005) was chosen to identify influential predictors of learning transfer; (2) the theory of planned behavior (Ajzen, 1991) was used as a framework to postulate structural relationships among the research variables; (3) and organizational knowledge creation theory (Nonaka & Takeuchi, 1995) was adopted to capture the nature of creative learning transfer. These model and theories are essential to frame and justify each part of the holistic research model of the current study. A graphical representation of the theoretical framework for the current study is depicted in Figure 1.

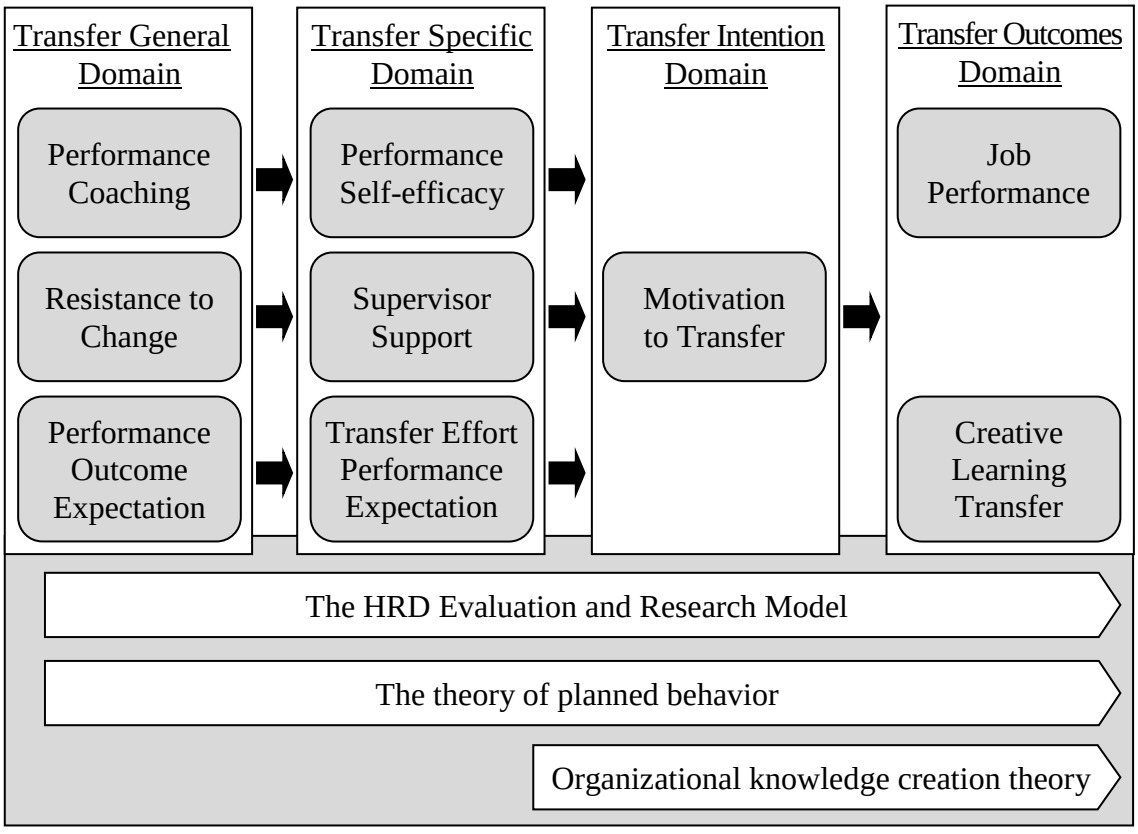

***Figure 1*. Theoretical framework for creative learning transfer and job performance.**

The HRD Evaluation and Research Model (Holton, 2005) was applied to identifying the major factors that influence employees' Creative Learning Transfer and individual Job Performance. The HRD Evaluation and Research Model (HRD ERM) serves as the bedrock to develop the LTSI containing two domains of 16 factors (Holton, 2005; Holton et al., 2007): Training General Domain comprising five factors of (1) Performance Outcome Expectation, (2) Performance Coaching, (3) Resistance to Change, (4) Performance Self-efficacy, and (5) Transfer Effort Performance Expectation; and Training Specific Domain comprising 11 factors of (1) Motivation to Transfer, (2) Personal Capacity, (3) Supervisor Support, (4) Supervisor Opposition, (5) Peer Support, (6) Personal Outcome Positive, (7) Personal Outcome Negative, (8) Opportunity to Use, (9) Content Validity, (10) Transfer Design, and (11) Learner Readiness. Although all 16 factors were chosen and analyzed for the overarching purpose of this study, the last three factors of the Training Specific Domain including Content Validity, Transfer Design, and Learner Readiness were not the focus of the current study in developing a research model. The three factors were dropped during development of a research model based on a critique of the traditional T&D function that overly emphasized an isolated training program as the locus of change without making an alliance with other subsystems in organizations (Gill, 1995; Holton, 2005). Consequently, based on the HRD ERM, 13 predictors of learning transfer were determined as candidates that could be included in the research model of the current study. The HRD ERM was also used to suggest that Creative Learning Transfer and Job Performance are affected by the selected predictors. On the bottom parts of Figure 1, an arrow-shaped white box of 'The HRD Evaluation

and Research Model' signifies that the HRD ERM underlies the rationale of selecting the 13 predictors of Creative Learning Transfer and Job Performance. Of the 13 predictors, seven factors were selected, as presented across the first three domains from the left to the right in Figure 1, on the basis of the theory of planned behavior.

The purpose of applying the theory of planned behavior (Ajzen, 1991) to this study was threefold: (1) to deconstruct the two conceptual domains (i.e., *Training* General and *Training* Specific) of the LTSI, and reconstruct them into the *Transfer* General and *Transfer* Specific Domains; (2) to develop a more parsimonious and manageable research model by applying the reconstructed two domains and selecting seven transfer predictors out of the predetermined 13 factors; and (3) to identify the relationships among the select seven transfer predictors and two outcome variables in the research model. According to the theory of planned behavior, human behavior is determined by intention that is influenced by attitude toward the behavior, subjective norm, and perceived behavioral control.

As a central factor in the theory, an individual's intention to perform a given behavior represents the motivational factors that impact a behavior (Ajzen, 1991). From this point of view, Motivation to Transfer (or transfer motivation) should be the most proximal predictor to Creative Learning Transfer and individual Job Performance. In addition, the theory of planned behavior (Ajzen, 1991) was used to suggest that the influence of general attitudes and cognition on specific behavioral intentions is mediated by other, more situation-specific attitudes or perceptions. Thus, it could be assumed that the effects of five factors in the Training General Domain on Motivation to Transfer

would be mediated by the remaining eight factors in the Training Specific Domain. However, whether each factor is situation-general or situation-specific should be determined in the context of learning transfer, which is the behavior of interest in the current study. Although Holton et al. (2007) categorized Performance Self-efficacy and Transfer Effort Performance Expectation into the *Training* General Domain, these two factors should be viewed as being situation-specific in the learning transfer context. By definitions, the two factors capture the specific *transfer*-related perceptions. In contrast, the remaining three factors (i.e., Performance Coaching, Resistance to Change, and Performance Outcome Expectation) in the *Training* General Domain are designed to assess general perceptions of an organizational environment that might be conducive to increasing *transfer* of learning (Bates et al., 2012). For this reason, the first domain that is most distant from the Transfer Outcomes Domain in Figure 1 was named *Transfer* General Domain, and included the three situation-general factors. Likewise, the next domain was named *Transfer* Specific Domain of which factors were determined by applying implications of the other three factors of the theory of planned behavior to developing the theoretical framework of the current study.

The other three critical factors in the theory of planned behavior are attitude toward the behavior, subjective norm, and perceived behavioral control (Ajzen, 1991). These three factors are behavior-specific and play the role of mediators between behavior-general factors and intentions to perform a specific behavior. Attitude toward the behavior refers to "the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question" (Ajzen, 1991, p. 188) and

corresponds to Transfer Effort Performance Expectation of the HRD ERM. As the second determinant of intention, subjective norm is "the perceived social pressure to perform or not to perform the behavior" (Ajzen, 1991, p. 188) and corresponds to Supervisor Support or Supervisor Opposition. The third determinant, perceived behavioral control is defined as "the perceived ease or difficulty of performing the behavior and it is assumed to reflect past experience as well as anticipated impediments and obstacles" (Ajzen, 1991, p. 188) and corresponds to Performance Self-efficacy. Consequently, the Transfer Specific Domain comprised the three factors in Figure 1. Taken together, seven factors in the HRD ERM were included in the research model predicated on the theory of planned behavior: (1) Motivation to Transfer, (2) Performance Self-efficacy, (3) Supervisor Support, (4) Transfer Effort Performance Expectation, (5) Performance Coaching, (6) Resistance to Change, and (7) Performance Outcome Expectation. On the bottom parts of Figure 1, an arrow-shaped white box of 'The theory of planned behavior' symbolizes that the theory undergirds the rationale of positioning each domain of factors on the research model and postulating relationships among them, which are delineated by the black arrows on the upper portion of the figure.

Last, organizational knowledge creation theory (Nonaka & Takeuchi, 1995) was adopted to identify the phases of *individual* and *organizational* knowledge creation practices and the nature of creative learning transfer. According to the theory, organizational knowledge is created through five phases: sharing tacit knowledge, creating concepts, justifying concepts, building an archetype, and cross-leveling knowledge. Organizational knowledge creation theory was also used to suggest that

organizational knowledge creation must encompass *individual knowledge creation*, which is the most salient feature of creative learning transfer in the current study. Creative learning transfer can be viewed as "leveraged learning" (Haskell, 1998, p. 31) and a continuous knowledge creation process in that an organization is reengineered and reinvented "by transferring its new-found knowledge into new products" (Haskell, 1998, p. 79). Therefore, creative learning transfer can be conceptualized as a theoretical construct that represents the phases of knowledge creation practice at the individual level. Furthermore, the theory was utilized to emphasize organizational intention to achieve a goal as a critical enabler of organizational knowledge creation. This enabling condition was used to shed light on the potential relationship between Motivation to Transfer and Creative Learning Transfer in a sense that the organizational intention corresponds to an individual's motivation to achieve his/her goal at the individual level. On the bottom portions of Figure 1, an arrow-shaped white box of 'Organizational knowledge creation theory' denotes that the theory buttresses the construct of Creative Learning Transfer and the theorized relationship between the Transfer Intention and Transfer Outcomes Domains.

In sum, the current study was guided by a theoretical framework that integrates the HRD ERM, the theory of planned behavior, and organizational knowledge creation theory. The theoretical framework serves as a simplified representation to elaborate the research model of the current study, which is presented in the next section. However, the theoretical framework does not fully illuminate all possible relationships among the transfer predictors and their outcome variables (i.e., Creative Learning Transfer and Job

Performance). To examine the possible links among the transfer factors, an extensive literature review was required, which is addressed in more detail in the literature review sections of Chapter II.

Research Questions and Hypotheses

The overarching research question for the current study was as follows: What are the relationships among the learning transfer system, managers' Creative Learning Transfer, and individual Job Performance? To answer the overarching research question, sub-research questions and hypotheses were developed as follows:

Research Question 1: Does the perception of the learning transfer system in a Korean cultural context result in a different first-order factor structure for the LTSI from the structure that emerged in the U.S. context?

Research Question 2: What structural relationships emerge among the predetermined seven transfer predictors in the learning transfer system, Creative Learning Transfer, and Job Performance?

Research Question 3: What are the enablers and barriers of creative learning transfer that were not captured by the LTSI?

To answer Research Question 2, eight main hypotheses based on the theoretical framework that incorporates the HRD ERM (Holton, 2005), the theory of planned behavior (Ajzen, 1991), and organizational knowledge creation theory (Nonaka & Takeuchi, 1995) were developed and investigated as follows (for a visual representation of the research model, see Figure 2):

Hypothesis 1: The positive effects of Performance Coaching on Performance Self-efficacy and Supervisor Support will be manifested by positive structural path coefficients.

Hypothesis 2: The negative effects of Resistance to Change on Performance Self-efficacy, Supervisor Support, and Transfer Effort Performance Expectation will be manifested by negative structural path coefficients.

Hypothesis 3: The positive effects of Performance Outcome Expectation on Supervisor Support and Transfer Effort Performance Expectation will be manifested by positive structural path coefficients.

Hypothesis 4: The positive effects of Supervisor Support on Performance Self-efficacy, Transfer Effort Performance Expectation, and Motivation to Transfer will be manifested by positive structural path coefficients.

Hypothesis 5: The positive effects of Transfer Effort Performance Expectation on Performance Self-efficacy and Motivation to Transfer will be manifested by positive structural path coefficients.

Hypothesis 6: The positive effect of Performance Self-efficacy on Motivation to Transfer will be manifested by a positive structural path coefficient.

Hypothesis 7: The positive effects of Motivation to Transfer on Creative Learning Transfer and Job Performance will be manifested by positive structural path coefficients.

Hypothesis 8: The positive effect of Creative Learning Transfer on individual Job Performance will be manifested by a positive structural path coefficient.

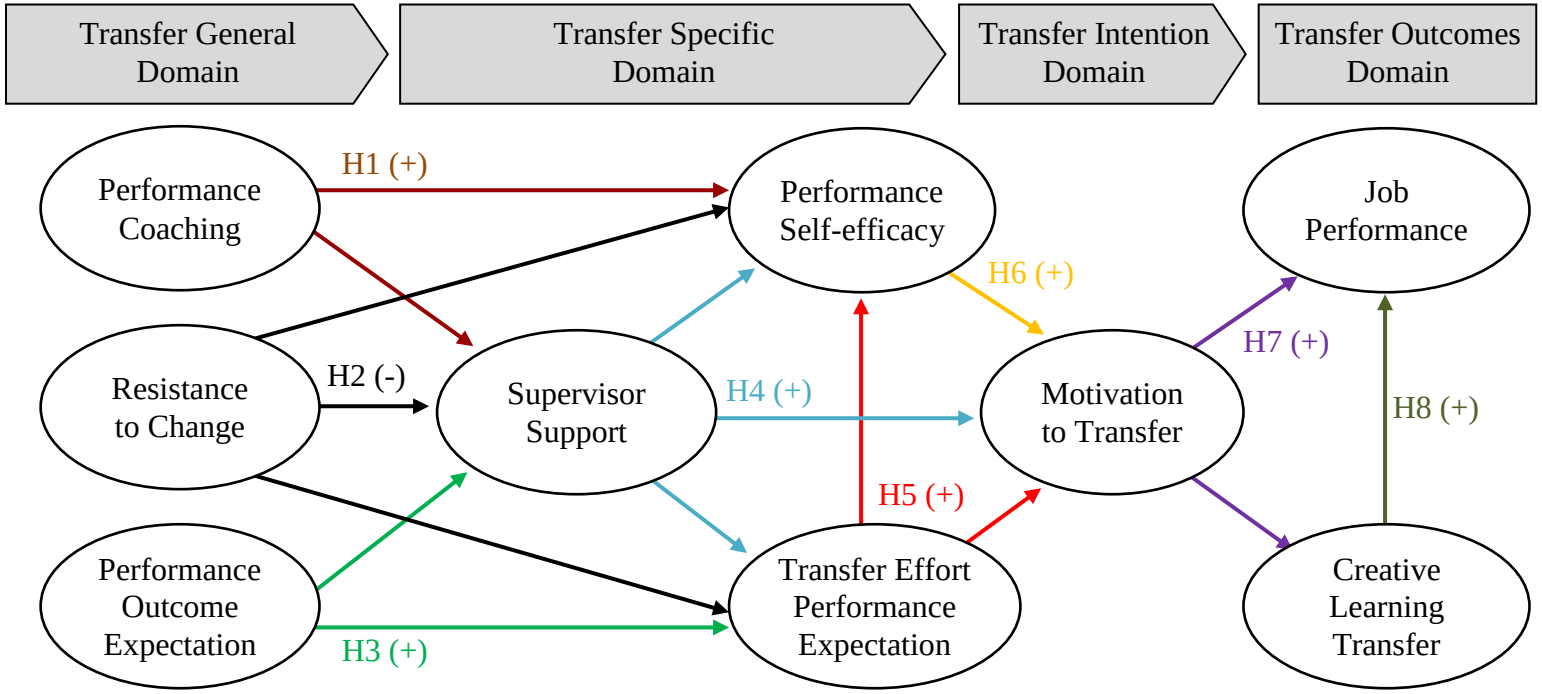

***Figure 2*. The research model.**

As shown in Figure 2, the research model of the current study consists of four domains of factors as they were determined by the theoretical framework: Transfer General, Transfer Specific, Transfer Intention, and Transfer Outcomes. The eight hypotheses for Research Question 2 are distinguished by the arrows in eight colors on the research model. For instance, Hypothesis 1 (i.e., H1 in the research model) is represented by the two arrows in maroon. The (+) or (-) signs next to each character of H on the research model denote a hypothesized positive or negative structural path coefficient, respectively.

Significance of the Study

In a preliminary effort to improve employees' work performances and primarily based on the theory of planned behavior, the current study was aimed at validating the factor structure of the LTSI and examining the structural relationships among the learning transfer system, Creative Learning Transfer, and Job Performance. The factor structures of the LTSI were explored and confirmed in a Korean company setting. Considering that a lack of a comprehensive measure to assess the enablers and barriers of learning transfer in Korea was the major obstacle to further transfer research, the current study may contribute to opening the door that leads HRD researchers and practitioners to improving the training effectiveness in Korea.

Given that human resources and knowledge base are the essential assets for an organization to become more cost-effective, innovative, and competitive, the results of the structural relationship analysis of the LTSI may have a significant contribution for the Korean companies by determining where and how to enhance individual creative

learning transfer, which, in turn, would improve job performance through training. Most importantly, it should be noted that the results of the current study are strongly supported by the theory of planned behavior that has undergone a recurrent refinement and development based on extensive empirical data in various disciplines including psychology, management, organizational behavior, to name a few. Thus, the results of the current study may provide HRD practitioners with a sturdy rationale for them to invest resources in certain transfer interventions, which were identified in the current study, to improve training effectiveness in their organizations.

In the current study, a critical implication emerges in terms of theorizing the latent construct of creative learning transfer and its structural relationships with predictors. Creative learning transfer was conceptualized by adapting the phases of knowledge creation practice that were advocated by organizational knowledge creation theory (Nonaka & Takeuchi, 1995). The current study was a critical initial attempt to conceptualize, operationalize, and measure the creative learning transfer construct. Future researchers aiming to frame and measure the creative learning transfer construct may obtain significant insights from the results of the current study. In addition, as Holton et al. (2000) pointed out, no researcher has clearly verified a "nomological network" (p. 335) of the factors in the learning transfer system. A nomological network can be defined as an interlocking system of relationships or linkages among the constructs that constitute a theory (Cronbach & Meehl, 1955; Holton et al., 2007). Thus, the structural relationships based on solid theories in the current study may be viewed as

a sort of *reference point* upon which to compare the results obtained in other cultural contexts to develop an HRD theory.

Human resources have been emphasized as a critical asset for national competitiveness in Korea because of the lack of natural resources in the nation (Song et al., 2009). For this reason, Korea may be representative of many other countries in which human resources are strategically valued for economic growth of the nation. In this sense, the current study conducted in the Korean context would provide significant implications for the countries that share the same interests with Korea. Finally, the current study may shed light on how to motivate employees to enhance creative learning transfer. We are living in the era in which changes are prevailing and thus new knowledge is at the heart of competitive strategies (Berge et al., 2002). It cannot be emphasized too much that HRD interventions must contribute to increasing creative learning transfer which was overlooked in the existing body of literature.

Operational Definition of Terms

1. Learning transfer: A progression of events from pretraining experiences to the acquisition of cognitive knowledge and skills, to the capability to apply new learning to job-related tasks, to the application of learning to tasks and activities beyond those initially targeted by the training (Holton et al., 2007, p. 390).

2. Learning transfer system: All factors in the person, training, and organization that influence transfer of learning to job performance" (Holton, 2005, p. 44).

3. Training General Domain: The factors in this domain of the LTSI are less program-specific and represent more general factors that may influence any training program

conducted. For these items, trainees were instructed to "think about training in general in your organization" (Holton et al., 2000, p. 340).

4. Training Specific Domain: This domain contains factors that affect the particular training program the trainee was attending. The instructions for this section directed respondents to "think about this specific training program" (Holton et al., 2000, p. 340).

5. Transfer General Domain: A group of factors that are designed to measure employees' general perceptions of their overall organizational environment, which compared with Transfer Specific Domain is relatively distant from Motivation to Transfer.

6. Transfer Specific Domain: A group of factors that are designed to measure employees' specific perceptions of transfer-related predictors, which compared with Transfer General Domain is relatively proximal to Motivation to Transfer.

7. Near transfer: The extent to which the individual applies what was acquired in training to situations that mirror the ones in which he or she was trained (Laker, 1990, p. 210).

8. Far transfer: the extent to which the trainee applies the training to situations that are novel or different from the ones in which he or she was trained (Laker, 1990, p. 210).

9. Creative learning transfer: Learning transfer that leads to new and innovative concepts by integrating two seemingly discrete concepts and by creating a new concept (Haskell, 1998).

10. Organizational knowledge creation: The capability of a company as a whole to create new knowledge, disseminate it throughout the organization, and embody it in products, services, and systems (Nonaka & Takeuchi, 1995, p. 3).

11. Individual knowledge creation: An individual behavior of creating new knowledge in the process of applying new learning to workplace.

12. Knowledge: Justified true belief emphasizing a dynamic human process of justifying personal belief toward the truth (Nonaka & Takeuchi, 1995, p. 58).

13. Explicit knowledge: Knowledge that could be represented in words and numbers and shared in the form of documents, formal logics, and specifications (Polanyi, 1966).

14. Tacit knowledge: Knowledge that is highly personal and hard to formalize, making it difficult to express to and share with others (Polanyi, 1966).

15. Job performance: An individual's relative task proficiency that is either formal or informal as well as either objective or subjective.

CHAPTER II

LITERATURE REVIEW

The relationships among the factors in the learning transfer system, managers' Creative Learning Transfer, and Job Performance were the focus of the current study. In the following sections, the theoretical framework underlying the current study, a review and critique of previous research leading to the motive of the current study, and a brief overview of the research context including the target training programs in Korean companies are presented.

Theoretical Framework

The current study was guided by the underlying theoretical framework built upon the HRD Evaluation and Research Model (Holton, 1996; 2005), the theory of planned behavior (Ajzen, 1991), and organizational knowledge creation theory (Nonaka & Takeuchi, 1995). In particular, this model and these theories were used to identify influential predictors of creative learning transfer and to illuminate the structural relationships among the predictors and two outcome variables. The rationales to use this model and these theories as well as their roles in developing the research questions and model are discussed herein.

The HRD Evaluation and Research Model

A model of learning transfer is a useful tool to grasp the transfer process and relevant HRD elements encompassing it. For the current study, the HRD Evaluation and Research Model (Holton, 1996; 2005) was applied to identify the major factors that

influence employees' Creative Learning Transfer and Job Performance. In an effort to diagnose and understand the influences of HRD intervention on outcomes, Holton (1996; 2005) proposed the HRD Evaluation and Research Model (HRD ERM) based on a critique of Kirkpatrick's (1959; 1976; 1994) traditional evaluation model. Since Kirkpatrick (1959) developed the four-level evaluation model for training effectiveness, the model has gained overwhelming popularity in for-profit organizations because of its straightforward system and focus on business outcomes (Bates, 2004). Kirkpatrick suggested four levels of evaluation: (L1) learners' reaction to instruction; (L2) learning in an instructional setting; (L3) behavioral change; and (L4) organizational results. Despite its valuable contributions to developing evaluation theories, research, and practices, Kirkpatrick's model entails several shortcomings. Using the criteria for good theories or models that Klimoski (1991) suggested on the basis of Dubin's (1976) work, Holton (1996) concluded that Kirkpatrick's evaluation model met none of the components of the criteria. As Klimoski (1991) noted, theories or models should include six components:

1. Concepts, constructs, or categories that are the subject matter.
2. Relationships among concepts, constructs, or categories.
3. Boundaries or limits within which relationships among concepts, constructs, or categories will hold.
4. System states and their changes
5. Propositions at the level of concepts or constructs; hypotheses at the level of observable indicators or variables.

6. Predictions of phenomena of interest.

According to Holton (1996; 2005), one of the biggest risks of the four-level model arises when an HRD intervention fails to achieve an intended outcome because the model attributes the failure to the intervention itself. For example, if Level 3 (behavioral change) were not successful, the only possible explanation for the problem that the four-level model suggests would be limited to the failure of the intervention that allegedly caused poor results on Level 1 (response) and 2 (learning). However, the problem might have been linked to a poor transfer climate rather than the intervention itself. Misguided by Kirkpatrick's evaluation model, traditional HRD practitioners paid much of their attentions to learners' favorable reaction to a training program to increase training effectiveness, while ignoring other factors that should have been improved by an organization development initiative (Gill, 1995; Holton, 1996; 2005). Critiquing this limitation of Kirkpatrick's evaluation model, Holton (1996; 2005) alternatively suggested the HRD ERM, which embraces the concept of trainability that Noe (1986) proposed to explain the difference in training effectiveness among participants of a training program. Trainability was assumed to be a function of ability, motivation, and perceived work environment. In other words, individuals' training effectiveness differs depending on the three factors in the function. In Holton's (1996; 2005) model, these three factors constitute the three main categories along with the secondary influences category, all of which have direct or indirect impacts on the outcomes category including learning, individual, and organizational performance (see Figure 3).

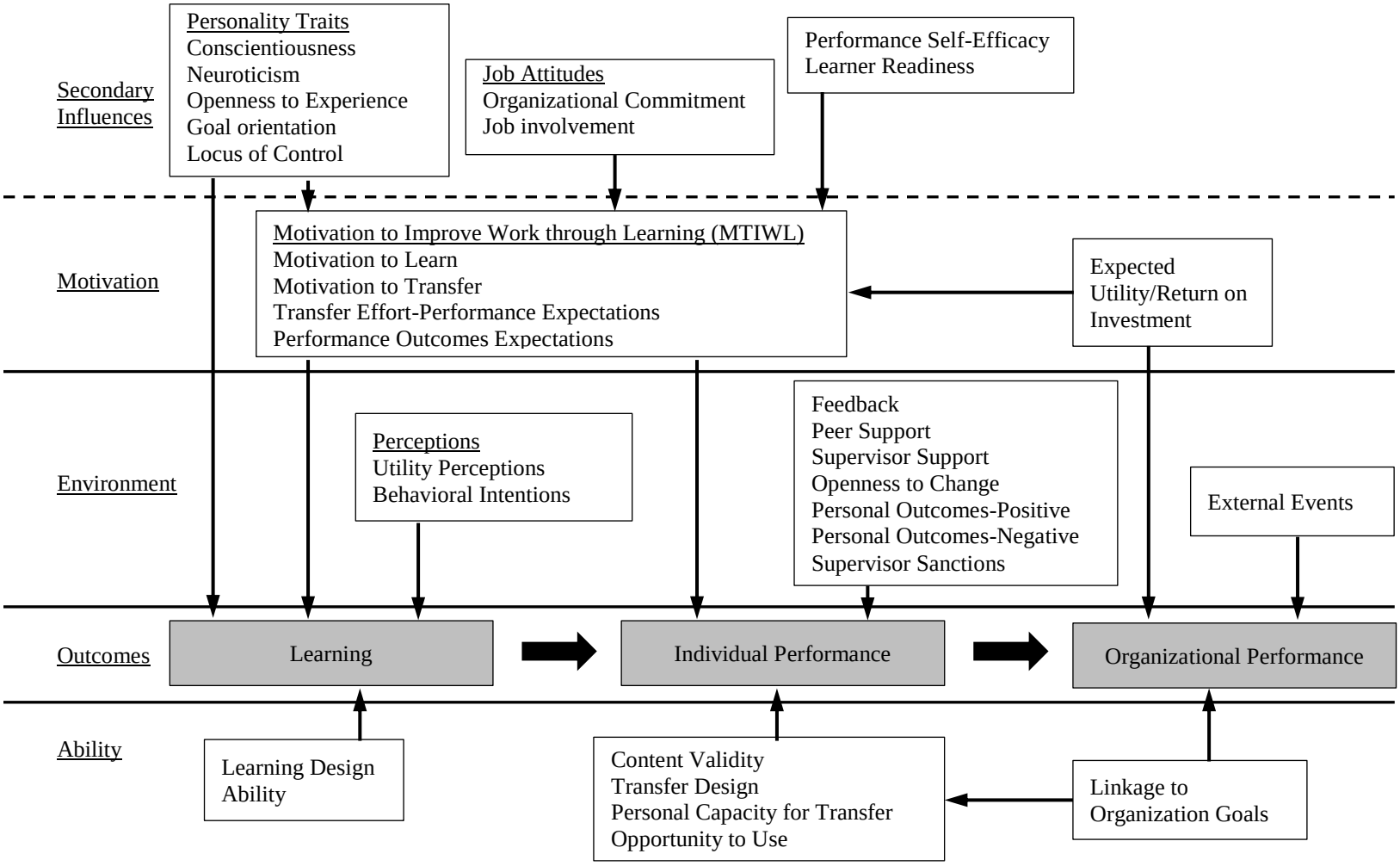

***Figure 3*. Holton's (2005, p. 51) HRD Evaluation and Research Model.**

According to Holton (1996), Holton et al. (2000), Holton (2005), and Holton et al. (2007), the HRD ERM includes almost all of the major factors and relationships from previous empirical research of learning transfer. To test the model, Holton and his colleagues conducted a series of follow-up empirical studies and narrowed the list of factors in the original HRD ERM down to 16 predictors that were framed into the LTSI (Holton et al., 2000; Holton, 2005). The 16 predictors of learning transfer are classified into two construct domains of the LTSI: Training General and Training Specific (Holton et al., 2000; Holton, 2005). Employees' general perceptions of training programs in their organizations are represented in the Training General Domain, which comprises five factors: (1) Performance Outcome Expectation, (2) Performance Coaching, (3) Resistance to Change, (4) Performance Self-efficacy, and (5) Transfer Effort Performance Expectation. On the other hand, the Training Specific Domain refers to a group of factors that concerns employees' perception of a specific training program that they have attended, and includes 11 factors: (1) Motivation to Transfer, (2) Personal Capacity, (3) Supervisor Support, (4) Supervisor Opposition, (5) Peer Support, (6) Personal Outcome Positive, (7) Personal Outcome Negative, (8) Opportunity to Use, (9) Content Validity, (10) Transfer Design, and (11) Learner Readiness. Collectively, these 16 factors were also conceptually classified into four categories: motivation, work environment, ability, and secondary influences (Holton et al., 2007). The 16 factors, their original conceptual domains, and categories are presented in Table 1.

Table 1
Conceptual Domains and Categories of the Factors in the LTSI

G/S	First Order Factor	Conceptual Category
G	Performance Coaching	Work environment
	Resistance to Change	
S	Supervisor Support	
	Supervisor Opposition	
	Peer Support	
	Personal Outcome Positive	
	Personal Outcome Negative	
	Learner Readiness	Secondary influences
G	Performance Self-efficacy	
S	Opportunity to Use	Ability
	Personal Capacity	
	Content Validity	
	Transfer Design	
G	Transfer Effort Performance Expectation	Motivation
	Performance Outcome Expectation	
S	Motivation to Transfer	

Note. Adapted from Holton et al. (2007), G = Training General Domain; S = Training Specific Domain.

Although all 16 factors were chosen and analyzed to examine the validity of the LTSI, the three factors of Content Validity, Transfer Design, and Learner Readiness in the Training Specific Domain were not the focus of the current study in developing a research model. The three factors were dropped during development of a research model based on a critique of the traditional T&D practice that overly emphasized an isolated training program as the locus of change without making an alliance with other

subsystems in organizations (Gill, 1995; Holton, 1996; 2005). In so doing, it seeks not to deny the importance of training characteristics but rather to highlight the other 13 intervening variables between training practices and learning transfer, which were relatively overlooked in literature and practices (Baldwin & Ford, 1988; Blume et al., 2010).

The Theory of Planned Behavior

The intention of applying the theory of planned behavior (Ajzen, 1991) to this study was threefold: (1) to deconstruct the two conceptual domains (i.e., Training General and Training Specific) and four categories (i.e., motivation, work environment, ability, and secondary influences) of the LTSI, and reconstruct them into the Transfer General and Transfer Specific Domains; (2) to develop a more parsimonious and manageable research model by applying the reconstructed two domains and selecting seven transfer predictors out of the predetermined 13 factors; and (3) to identify the relationships among the select seven transfer predictors and two outcome variables in the research model. According to the theory of planned behavior, human behavior is determined by intention that is influenced by attitude toward the behavior, subjective norm, and perceived behavioral control. As a central factor in the theory, an individual's intention to perform a given behavior represents the motivational factors that impact a behavior (Ajzen, 1991). From this point of view, Motivation to Transfer (or transfer motivation) should be the most proximal predictor to Creative Learning Transfer and individual Job Performance. As shown in Figure 2, Motivation to Transfer is positioned in the Transfer Intention Domain based on the theoretical proposition (Ajzen, 1991).

In addition, the theory of planned behavior is used to suggest that the influences of general attitudes and cognition on specific behavioral intentions are mediated by other, more immediate situation-specific factors. Thus, it could be assumed that the effects of five factors in the Training General Domain on Motivation to Transfer would be mediated by the remaining eight factors in the Training Specific Domain. Although Holton et al. (2007) categorized Performance Self-efficacy and Transfer Effort Performance Expectation into the *Training* General Domain (see Table 1), these two factors should be viewed as being situation-specific in the learning transfer context. By definitions, the two factors capture the specific *transfer*-related perceptions. In contrast, the remaining three factors (i.e., Performance Coaching, Resistance to Change, and Performance Outcome Expectation) in the *Training* General Domain are designed to assess general perceptions of an organizational environment that might be conducive to increasing *transfer* of learning (Bates et al., 2012). To articulate the conceptual difference of the remaining three factors that are used to measure employees' overall perceptions of their organizations and thus are less transfer-specific, the term *Transfer* General Domain will be used hereafter. On the other hand, to denote a group of more situation-specific predictors that directly assess the transfer-related perceptions, the term *Transfer* Specific Domain will be used. The three factors in the Transfer General Domain (i.e., Performance Coaching, Resistance to Change, and Performance Outcome Expectation) are positioned on the very left side on the research model (see Figure 2). In Table 2, the conceptual structure of the predetermined 13 factors in the LTSI is

deconstructed and reconstructed into two domains and three categories in accordance with the theory of planned behavior, which is discussed in more detail below.

Table 2
Reconstruction of the LTSI Factors with the Theory of Planned Behavior

G/S	First Order Factor	Reconstructed Category
G	Performance Coaching	-
	Resistance to Change	
	Performance Outcome Expectation	
-	Motivation to Transfer	Intention
S	Transfer Effort Performance Expectation	Attitudes toward the behavior
	Personal Outcome Positive	
	Personal Outcome Negative	
	Supervisor Support	Subjective norm
	Supervisor Opposition	
	Peer Support	
	Performance Self-efficacy	Perceived behavioral control
	Opportunity to Use	
	Personal Capacity	

Note. G = Transfer General Domain; S = Transfer Specific Domain.

The other critical theoretical factors in the theory of planned behavior are attitude toward the behavior, subjective norm, and perceived behavioral control (Ajzen, 1991). These three factors are behavior-specific and play the role of mediators between behavior-general factors (i.e., Performance Coaching , Resistance to Change, and Performance Outcome Expectation) and intentions to perform a specific behavior (i.e., Motivation to Transfer). Thus, the group of the LTSI factors corresponding to the three

behavior-specific factors in the theory of planned behavior was named Transfer Specific Domain as shown in Table 2.

Attitude toward the behavior refers to "the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question" (Ajzen, 1991, p. 188). When applied to the transfer context, attitude toward the behavior refers to the extent to which employees value learning transfer and its outcomes, which could be measured by three constructs of Transfer Effort Performance Expectation, Personal Outcome Positive, and Personal Outcome Negative on of the LTSI (see Table 2). Although Holton et al. (2007) conceptually classified Transfer Effort Performance Expectation into the Motivation category (see Table 1), they acknowledged that Transfer Effort Performance Expectation was not a direct measure of Motivation to Transfer. In a similar vein, Clark, Dobbins, and Ladd (1993) found that training motivation was influenced by the expectation that the training would result in a valuable outcome (i.e., an improved job performance). Taken together, Transfer Effort Performance Expectation along with Personal Outcome Positive and Personal Outcome Negative is classified into the category of attitude toward the behavior in Table 2. Among the three factors, Transfer Effort Performance Expectation was included in the research model because the factor could best represent the corresponding category with its focus on job performance as a valuable outcome of transfer.

As the second determinant of intention, subjective norm is "the perceived social pressure to perform or not to perform the behavior" (Ajzen, 1991, p. 188) and corresponds to Supervisor Support, Supervisor Opposition, and Peer Support. According

to Ajzen (1991), subjective norm is affected by an employee's normative beliefs, which are concerned with the likelihood that the employee's supervisor or colleagues approve or disapprove of his/her conducting a given behavior. Subjective norm is typically measured by asking individuals to rate the extent to which their supervisor or peers would support or oppose their performing a given behavior (Ajzen, 1991), which is the case in the three factors of Supervisor Support, Supervisor Opposition, and Peer Support in the LTSI. Of the three factors, Supervisor Support was chosen to be included in the research model because, in general, supervisors, managers, or superiors are the most "important referent individuals" (Ajzen, 1991, p. 195) to employees in a company. In the research model, it was hypothesized that Supervisor Support influences the other Transfer Specific factors because supervisors or managers play a critical role as transfer agents in a company (Bates, 2003).

The final determinant of intention, perceived behavioral control, is defined as "the perceived ease or difficulty of performing the behavior and it is assumed to reflect past experience as well as anticipated impediments and obstacles" (Ajzen, 1991, p. 188). The perceived behavioral control is somewhat similar to the concept of the expectancy of success that is found in Atkinson's (1964) theory of achievement motivation. However, the most compatible view with perceived behavioral control is Bandura's (1977; 1986) concept of perceived self-efficacy (Ajzen, 1991). Of special importance in perceived behavioral control are the availability of resources, opportunities, and capability that are required to perform a given task. Thus, the perceived behavioral control may correspond to Performance Self-efficacy, Opportunity to Use, and Personal

Capacity to Transfer on the LTSI. As Ajzen (1991) indicated, Performance Self-efficacy was entered into the research model because it is the best representative of the perceived behavioral control factor. To sum up, seven factors in the HRD ERM were included in the research model within the framework of the theory of planned behavior: Motivation to Transfer, Performance Self-efficacy, Transfer Effort Performance Expectation, Supervisor Support, Performance Coaching, Resistance to Change, and Performance Outcome Expectation.

Organizational Knowledge Creation Theory

According to Haskell (1998; 2001), creative learning transfer is defined as learning transfer that leads to new and innovative concepts both by integrating two seemingly discrete concepts and by creating a new concept. Creative learning transfer is "leveraged learning" (Haskell, 1998, p. 31) and is an organization's capacity to generate new knowledge "multiplied by its adeptness at generalizing them throughout the company" (Haskell, 1998, p. 50). Thus, creative learning transfer can be viewed as a continuous knowledge creation process in that an organization is reengineered and reinvented "by transferring its new-found knowledge into new products" (Haskell, 1998, p. 79). By definition, it appears that knowledge creation is the most salient characteristic of creative learning transfer that occurs when newly learned knowledge is applied to a novel situation or context. Although the definition of creative learning transfer has been established in the literature, its theoretical background is still at an infancy stage. An examination of the nature and process of creative learning transfer requires an understanding of how knowledge is disseminated in an organization, applied to the

workplace, and created at the individual and organizational levels. For this reason, organizational knowledge creation theory (Nonaka & Takeuchi, 1995) was used to identify the characteristics of creative learning transfer by disentangling the phases of organizational and individual knowledge creation practice from a theoretical perspective. Organizational knowledge creation theory was also used to undergird the relationships among Motivation to Transfer, Creative Learning Transfer, and Job Performance.

According to organizational knowledge creation theory (Nonaka & Takeuchi, 1995), organizational knowledge is generated through five phases: (1) sharing tacit knowledge, (2) creating concepts, (3) justifying concepts, (4) building an archetype, and (5) cross-leveling knowledge. These five phases may be used to illuminate the process of creative learning transfer in which learners acquire, share, integrate, apply, adapt, create, generalize, and justify new knowledge in their workplace. The theory was also used to suggest that organizational knowledge creation must encompass *individual knowledge creation*, which is one of the salient features of creative learning transfer in the current study. Furthermore, the theory was used to emphasize organizational intention to achieve a goal as a critical enabler of organizational knowledge creation. This enabling condition was used to shed light on the potential relationship between Motivation to Transfer and Creative Learning Transfer in a sense that the organizational intention corresponds to an individual's motivation to achieve his/her goal at the individual level. In a similar vein, the empirical evidences underlying organizational knowledge creation theory were considered to postulate the relationship between Creative Learning Transfer and Job Performance.

In sum, the research model of the current study was developed based on the HRD ERM (Holton, 1996; Holton et al., 2000; Holton, 2005; 2007), the theory of planned behavior (Ajzen, 1991), and organizational knowledge creation theory (Nonaka & Takeuchi, 1995). However, this model and these theories do not fully elucidate all possible relationships among the transfer predictors and their outcome variables (i.e., Creative Learning Transfer and Job Performance). To scrutinize the possible links among the transfer factors, an extensive literature review was required, which is addressed in more detail in the following sections. A graphical representation of the theoretical framework for the current study was delineated in Figure 1 of Chapter I.

The Learning Transfer System

Holton (2005) refined the HRD ERM and proposed the model of the learning transfer system. The learning transfer system was defined as "all factors in the person, training, and organization that influence transfer of learning to job performance" (Holton, 2005, p. 44). In this section, the concept of learning transfer, predictors of learning transfer, and the model of the learning transfer system are reviewed.

The Concept of Learning Transfer

There are various definitions of learning transfer within the literature. For example, Holton et al. (2007) defined learning transfer as "a progression of events from pretraining experiences to the acquisition of cognitive knowledge and skills, to the capability to apply new learning to job-related tasks, to the application of learning to tasks and activities beyond those initially targeted by the training" (p. 390). Inherent in this concept is the notion that learning transfer is achieved by "maintenance" and

"generalization" of learned knowledge and skills, which is essential for individual performance (Holton et al., 2007, p. 389). Similarly, Blume et al. (2010) and Baldwin and Ford (1988) viewed learning transfer as both the extent to which the newly learned knowledge and skills are applied to different workplace settings (i.e., generalization) and the extent to which the application of knowledge and skills persists over time (i.e., maintenance).

Based on a quasi-experimental field research in the Netherlands, Vermeulen and Admiraal (2009) proposed a slightly different contention that learning transfer should be regarded as a two-way process, in which knowledge and skills are applied from the learning situation to the workplace and vice versa. They pointed out that the traditional concept of learning transfer failed to notice the recurrent process in which learning transfer occurs continuously with new learning in the transfer process. In this view, they defined the learning transfer as "a recurrent process of learning and performance that takes place both in the training context and in the work context" (Vermeulen & Admiraal, 2009, p. 54). This approach to learning transfer presumes work performance and conceptualizes learning transfer as maintained or recurring behavior with the emphasis on new learning that is evoked by application of learned knowledge to the workplace. The new learning during the transfer process is triggered by sharing knowledge, asking the manager for support, and reflecting on the experience of application.

By distinguishing training transfer from learning transfer, Haskell (1998) emphasized the adaptive aspect of learning transfer. According to him, learning transfer

tends to be more generative or creative than training transfer for the following reasons: learning is more knowledge based, less concrete, more long-run oriented, more connected to other knowledge, more meaningful to the learner, more process than product oriented, less superficial and more depth of understanding oriented, and more learner centered than instructional method driven. Contrary to some HRD definitions of training transfer, learning transfer is a process of problem solving and entails learners' use of analogies, metaphors, and generic learning (Haskell, 1998; 2001). From this perspective, Haskell (2001) equated learning transfer with "our use of past learning when learning something new and the application of that learning to both similar and new situations" (p. xiii). This view of learning transfer is based on the notion that no training situation is exactly the same as the application context in the workplace, where business management and operation practices are featured by ever-increasing complexity and change.

In keeping with the definition and concept proposed by Haskell (1998; 2001), Roussel (2014) defined learning transfer in an organizational context as "the use by individuals of the knowledge, know-how, and skills learned during training in work contexts comprising a certain degree of newness, with the priority objective of improving their performance" (p. 53). Using this definition, Roussel (2014) contended that learning transfer is not only a matter of generalizing and maintaining what was learned, but also involves particularization which allows for determination of what is and is not adapted to a specific situation. Although learning transfer necessitates a certain degree of generalization to identify invariants that could be applied to all situations, it

also requires developing a different approach to application adapted to each situation encountered (Roussel, 2014). Consequently, learning transfer entails a contextualization (or particularization) that evokes creative problem solving, generation of certain concepts and knowledge, and eventually new learning.

While the reviewed definitions of learning transfer have unique emphases and foci, they share common ground: learning transfer is not isolated from learning itself; rather, it is a recurrent back and forth process of learning and application, which, in essence, encompasses a creative endeavor from the learners' side due to the differences between the training situation and the transfer context. The notions of generalization and maintenance are seemingly equated with the point of view that training situation and transfer context are the same because of the very nature of the generalizability concept. However, in their definitions of learning transfer, the advocates of the notions explicitly acknowledge the discrepancy existing between training context and transfer situation (Baldwin & Ford, 1988; Blume et al., 2010; Holton et al., 2007). This common ground across different definitions of learning transfer emerges because these are general definitions encompassing all types of learning transfer. In the following section, specific types of learning transfer are addressed.

Classification of Learning Transfer

Learning transfer has a long history that goes back almost 110 years to two different theories: transfer through identical elements (Thorndike & Woodworth, 1901) and transfer through principles (Judd, 1908). For transfer to occur, psychological and physical fidelity between training and transfer contexts has been emphasized in the

identical elements theory, while learning a general principle has been regarded as being more critical in the principle theory. As a result, primarily two different types of learning transfer have been proffered within the literature: near transfer which is rooted in the identical element theory and far transfer which is undergirded by the principle theory. According to Laker (1990), near transfer is defined as "the extent to which the individual applies what was acquired in training to situations that mirror the ones in which he or she was trained," while far transfer is viewed as "the extent to which the trainee applies the training to situations that are novel or different from the ones in which he or she was trained" (p. 210). As the definitions imply, emphasized in near transfer is the relevance of the training program to tasks, the specificity of the training, mastery leading to automaticity, and the procedural nature of the tasks. On the other hand, far transfer can be better facilitated through understanding of principles, use of novelty, and encouragement to apply what was learned to a novel situation going beyond the specifics of the immediate job. Learning transfer is also classified in terms of a temporal dimension, which suggests that newly learned knowledge, skills, and attitudes should be maintained over time after the very initial trial (Laker, 1990).

The types of learning transfer ranging from near to far transfer can be further expanded. Haskell (2001) suggested a general scheme comprised of six levels of learning transfer, which included nonspecific, application, context, near, far, and creative learning transfer. The six levels of learning transfer and their descriptions are presented in Table 3. In the general scheme of learning transfer, Haskell (2001) maintained that only Levels 4, 5, and 6 were considered to be significant because those three levels of

transfer require new learning to make the transfer possible. From this view, Levels 1, 2, and 3 were regarded as a simple application of the same learning with no requirement of new learning (Haskell, 1998; 2001).

Table 3
Haskell's (2001) General Scheme of Learning Transfer

Level	Type	Description
1	Nonspecific transfer	All learning is learning transfer because all learning is connected to past learning.
2	Application transfer	Application of what was learned to a specific situation and the identical task that was learned in a training program.
3	Context transfer	Application of what was learned to a slightly different situation.
4	Near transfer	Application of previous knowledge to new situations that are closely similar but not identical to previous situations.
5	Far transfer	Application of what was learned to situations that are quite dissimilar to the original learning context.
6	Creative transfer	Application of learned knowledge to novel situations and tasks in a manner that leads to creating a new concept.

Although Haskell (2001) classified each level of learning transfer based on a degree of similarity between training and transfer contexts, there was a limitation because variation of content or task was not taken into account in his scheme. For this reason, Roussel (2014) provided a four-level learning transfer taxonomy containing only the last four levels in Haskell's scheme: context, near, far, and creative learning transfer. Roussel's (2014) taxonomy is in succession to Haskell's (2001) scheme, but the former is based on more consistent criteria including variation of content or task between

training situation and work context. By definition, creative learning transfer is distinguished from far transfer (Haskell, 2001; Roussel, 2014). While far transfer assumes major changes in both the training context and work situation, creative learning transfer assumes not only major changes in the training context and work situation, but also the discovery of a new area of application. Among the four levels, creative learning transfer was considered to be most relevant and critical due to the highly fluctuating nature of the work contexts in a contemporary organizational setting (Roussel, 2014).

Predictors of Learning Transfer

Despite different theoretical origins (e.g., identical element and general principle) and perspectives on transfer, what the transfer research stream indicated in common is the viewpoint that learning transfer is a complex and dynamic process encompassing numerous predictors (Blume et al., 2010). In their critical review of 63 empirical studies of learning transfer published between the period of 1907 and 1987, Baldwin and Ford (1988) proposed the Model of the Transfer Process that they used to review the learning transfer predictors in the literature. They classified the identified learning transfer predictors into three categories: learner characteristics, training design, and work environment. In the model, the three categories were conceptualized as training inputs that produce training outputs (i.e., learning and retention) that, in turn, lead to conditions of learning transfer (i.e., generalization and maintenance). As classified in Table 4, the three categories comprised numerous factors that were found in the previous studies.

Table 4

Predictors of Learning Transfer Identified in Empirical Literature

Year	Author	Predictors of Learning Transfer		
		Learner Characteristics	Training Design	Work Environment
(1988)	Baldwin and Ford	• Ability – Trainee success in training – Intellectual ability – Aptitude • Personality – Need for achievement – Locus of control • Motivation – Trainee confidence – Motivation to succeed in training – Motivation to learn – Motivation to Transfer – Self-expectancies	• Principles of learning – Identical elements – General principles – Stimulus variability – Conditions of practice • Sequencing • Training content	• Managerial support for transfer • Opportunity to use • Favorable organizational climate • Salary • Promotions
(2001)	Cheng and Ho	• Individual – Locus of control – Self-efficacy • Motivational – Career/Job attitudes – Organizational commitment – Decision/Reaction to training	• Posttraining interventions – Feedback – Relapse prevention	• Supports in organization • Continuous learning culture • Task constraints

Table 4 (*continued*)

Year	Author	Predictors of Learning Transfer		
		Learner Characteristics	Training Design	Work Environment
(2002)	Russ-Eft	• Self-talk	• Persuasive message • Realistic training previews • Voluntary vs. Mandatory • Advance organizers • Guided discovery • Error-based learning • Metacognitive instruction • Learner control • Mastery vs. Performance • Practice • Coaching, feedback, and scaffolding • Relapse prevention • Posttraining follow-up • Self-management	• Supervisor support • Supervisor sanction • Workload • Opportunity to use • Peer support • Goal setting
(2007)	Burke and Hutchins	• Cognitive ability • Self-efficacy • Pre-training motivation • Motivation to learn • Motivation to Transfer • Ex-/Intrinsic motivation • Negative affectivity • Conscientiousness • Openness to experience • Extroversion • Perceived utility • Career planning • Organizational commitment • Locus of control	• Needs analysis • Learning goals • Content relevance • Practice and feedback • Over-learning • Cognitive overload • Active learning • Behavioral modeling • Error-based examples • Self-management • Technological support	• Strategic link • Transfer climate • Supervisor support • Peer support • Opportunity to perform • Accountability

Table 4 (*continued*)

Year	Author	Predictors of Learning Transfer		
		Learner Characteristics	Training Design	Work Environment
(2009)	Gegenfurtner et al.	• Attitude toward training • Motivation to learn • Personality traits • Work commitment • Motivation to transfer	• Training framing • Intervention design • Learning	• Organizational culture • Job characteristics • Social support
(2010)	Blume et al.	• Age, Gender, Education • Experience • Cognitive ability • Conscientiousness • Neuroticism • Agreeableness • Extraversion • Openness • Locus of control • Learning goal orientation • Performance goal orientation • Pretraining self-efficacy • Motivation • Voluntary participation • Job involvement • Utility reactions • Affective reactions • Overall reactions • Posttraining knowledge • Posttraining self-efficacy	• Pretraining optimistic preview • Posttraining goal-setting • Posttraining relapse prevention	• Work environment • Constraint • Support • Climate

First, Baldwin and Ford (1988) regarded learner characteristics as individual differences including such factors as ability, personality, and motivation: (a) the ability factors pertained to trainee success in training, intellectual ability, and aptitude; (b) the personality factors consisted of need for achievement and locus of control; and (c) the motivation factors included trainee confidence, motivation to succeed in training, motivation to learn, transfer motivation, and self-expectancies. Second, training design referred to various factors in the three subcategories: principle of learning, sequencing, and training content (Baldwin & Ford, 1988). In particular, the principles of learning were divided into four areas: (a) the identical element principle that emphasizes the similarity between training and transfer settings; (b) the general principle that is focused on the general rules and theoretical principles underlying the training content; (c) stimulus variability; and (d) conditions of practice including feedback and overlearning. Third, work environment factors included favorable organizational climate, salary and promotions, and a manager's support for transfer (Baldwin & Ford, 1988).

Baldwin and Ford's (1988) Model of the Transfer Process is most frequently cited in literature (Blume et al., 2010), which implies that the way of categorizing transfer predictors has infiltrated various subsequent transfer research. As shown in Table 4, in their review of 170 empirical studies published in the last several decades, Burke and Hutchins (2007) classified the empirically verified predictors of learning transfer into three categories: learner characteristics, intervention design and delivery, and work environment influences, which corresponds to Baldwin and Ford's (1988) classification of transfer predictors. Based on their integrative literature review of the 31

empirical studies that were published between 1986 and 2008, Gegenfurtner et al. (2009) categorized numerous learning transfer predictors into individual, training-related, and organizational factors, each of which parallel learner characteristics, training design, and work environment, respectively, in Table 4. They identified several factors that were not included in the previous meta-analytic literature reviews. In particular, the training framing factor in the training design category referred to three strategies to facilitate learners' favorable attitudes toward training: (a) voluntary participation, (b) realistic training preview, and (c) learners' input for training. Blume et al. (2010) meta-analyzed 89 empirical studies spanning the period of 1988 and 2008 as well as the studies reviewed by Baldwin and Ford (1988), and found that almost all of the previous transfer researchers had focused on training-specific factors in the categories of trainee characteristics, training interventions, and work environment. Some variables such as self-efficacy and utility reactions were categorized into learning outcomes and learner reactions, respectively. According to Burke and Hutchins (2007), however, these last two categories (i.e., learning outcomes and learner reactions) can be integrated into learner characteristics. All of the learning transfer predictors identified by Blume et al. (2010) were also incorporated in Table 4.

Some researchers applied the categorization scheme to their studies of learning transfer predictors with a slight variation. In their meta-analytic literature review of the empirical studies that were published between 1989 and 1998, Cheng and Ho (2001) categorized the learning transfer predictors into three: individual, motivational, and environmental factors. The individual and motivational factors could be integrated into

the category of learner characteristics. The motivational category included career/job attitudes, organizational commitment, decision/reaction to training, and posttraining interventions. In particular, the posttraining interventions referred to feedback and relapse prevention, which were regarded as one of the training design factors in other studies (Blume et al., 2010; L. A. Burke & Hutchins, 2007; Russ-Eft, 2002). Thus, the factor was moved from the learner characteristics to the training design category, as shown in Table 4, to maintain consistency in categorizing the factors across the studies. Russ-Eft (2002) classified the learning transfer predictors into four elements: pretraining, training design, transfer environment, and posttraining. In Table 4, the original elements were reorganized for the same reason of reclassifying the learning transfer predictors that were identified by Cheng and Ho (2001).

A Model of the Learning Transfer System

Holton's (2005) model of the learning transfer system grew out of Holton's (1996; 2005) HRD ERM, and serves as a framework that is used to define 16 constructs comprising the LTSI. The 16 factors of the LTSI represent transfer predictors most commonly identified in transfer research and have been validated in numerous construct validation studies (Bates et al., 2012; Holton, 2003). Because learning transfer refers to a type of individual behavior, it would be most appropriate to assess individual perceptions of transfer predictors because those perceptions will result in the individual's actual behavior (Holton, 2003). As the HRD ERM is based on Noe's (1986) concept of trainability, so to is Holton's (2005) model of the learning transfer system. Trainability was viewed as a function of motivation, ability, and perceived work environment for

learning and transfer (Noe & Schmitt, 1986; Noe, 1986). From this point of view, the 16 factors were conceptually classified into four categories: (1) the motivation category consisted of Motivation to Transfer, Transfer Effort Performance Expectation, and Performance Outcome Expectation factors; (2) the ability category consisted of Opportunity to Use, Personal Capacity, Content Validity, and Transfer Design factors; (3) the work environment category consisted of Supervisor Support, Supervisor Opposition, Performance Coaching , Peer Support, Resistance to Change, Personal Outcome Positive, and Personal Outcome Negative factors; and (4) the secondary influences category consisted of Learner Readiness and Performance Self-efficacy factors (Holton et al., 2007).

These 16 factors in the learning transfer system model and the LTSI are used to measure all predictors that influence learning transfer and individual job performance. In the learning transfer system model, it was hypothesized that secondary influences including trainee characteristics would have indirect impacts on individual performance through motivation and the other factors in the last three categories would have direct impacts on the individual performance (Holton, 2005). The definitions of the 16 factors in the model of the learning transfer system and the LTSI as well as the structure of the factors with the four categories are presented in Table 5. By measuring trainees' perceptions after training, the LTSI can be used to assess the trainees' psychometric properties concerned with the predictors of learning transfer, which is one of the focal points of the current study. However, the model of the learning transfer system still suffers from three limitations: (1) the model does not illuminate the possible

"nomological network" (or structural relationships) among the 16 factors (Holton et al., 2000, p. 335); (2) the role of motivational factor as a mediator between other transfer predictors and individual performance was not addressed; and (3) no empirical study was conducted to validate the model of the learning transfer system and the factor structure of the LTSI in the Korean context.

Table 5
Definition of the Factors in the Learning Transfer System Inventory

Factors	Definitions	Category
Motivation to Transfer	Trainees' desire to use the skills and knowledge learned in a training program or a work setting.	Motivation
Transfer Effort Performance Expectation	Expectation that learning transfer efforts will contribute to improving job performance.	
Performance Outcome Expectation	Expectation that increased job performance will lead to valuable and meaningful recognition.	
Learner Readiness	State of individuals that make it possible for them to participate actively in a given learning activity.	Secondary influences
Performance Self-efficacy	Individuals' general confidence that they will be able to overcome obstacles that hinder learning transfer.	
Supervisor Support	Extent to which supervisors or managers provide opportunities for learning transfer.	Work environment
Supervisor Opposition	Degree of opposition, negative feedback, and lack of assistance to learning transfer from supervisors or managers.	
Performance Coaching	Formal and informal process of equipping employees with the knowledge and skills to improve their job performance.	
Peer Support	Degree of support from peers for learning transfer.	

Table 5 (*continued*)

Factors	Definitions	Category
Resistance to Change	Extent to which current organizational culture is perceived by employees to hinder or disapprove learning transfer.	Work environment
Personal Outcome Positive	Extent to which employees believe that learning transfer leads to positive outcomes for the employees.	
Personal Outcome Negative	Degree to which employees perceive that not transferring learning will result in negative outcomes for the employees.	
Opportunity to Use	Extent to which trainees are given the opportunity, tasks, and resources to transfer learning on the job.	Ability
Personal Capacity	Extent to which employees' workload, time, and personal energy promote or inhibit learning transfer.	
Content Validity	Degree to which trainees perceive that the knowledge and skills taught in training are consistent with job requirements and performance expectations.	
Transfer Design	Extent to which training has been designed to link learning with job requirements by using the relevant training methods, examples, and instructions.	

Source: Holton et al. (2007, pp. 398-399)

Transfer General and Transfer Specific Factors in the Learning Transfer System

As examined in the section of *theoretical framework* of this chapter, three factors in the LTSI were categorized into the Transfer General Domain: Performance Coaching, Resistance to Change, and Performance Outcome Expectation. In addition, three factors of Supervisor Support, Transfer Effort Performance Expectation, and Performance Self-efficacy were chosen as representative factors among the nine factors in the Transfer Specific Domain (see Figure 2 and Table 2). According to Ajzen and Fishbein (1980) and the theory of planned behavior (Ajzen, 1991), individuals' general perceptions have

impacts on specific behaviors only indirectly by affecting the factors that are more proximately linked to the specific behavior under investigation. In a similar vein, Holton et al. (2000) viewed transfer climate (e.g., supervisor or peer support for transfer) as a mediating construct in the relationship between the organizational context (e.g., Resistance to Change) and an individual's work behavior (e.g., learning transfer). Building on his empirical findings in 2004, Kontoghiorghes (2014) presented a learning transfer model in which high performance organizational culture including "change driven culture" influences positive learning transfer climate comprising "supervisor support" (p. 75) for transfer. Therefore, it can be hypothesized that the three factors in the Transfer General Domain influence the three representative factors in the Transfer Specific Domain, which have direct impacts on a motivational factor of transfer (see Figure 1 and 2). These hypotheses are supported by several empirical studies of learning transfer. In particular, the interfactor correlations of Performance Coaching with Supervisor Support and Performance Self-efficacy were reported as ranging from .46 to .76 and from .20 to .57, respectively (Bates et al., 2012; Devos et al., 2007; Weldy, 2007). The interfactor correlation of Resistance to Change with Supervisor Support, Performance Self-efficacy, and Transfer Effort Performance Expectation were reported as ranging from -.06 to -.29, from -.08 to -.22, and from -.10 to -.42, respectively (Bates et al., 2012; Devos et al., 2007; Weldy, 2007). The interfactor correlations of Performance Outcome Expectation with Supervisor Support and Transfer Effort Performance Expectation were reported as ranging from .43 to .64 and from .31 to .64,

respectively (Bates et al., 2012; Devos et al., 2007; Weldy, 2007). Thus, three hypotheses were developed as follows:

Hypothesis 1: The positive effects of Performance Coaching on Performance Self-efficacy and Supervisor Support will be manifested by positive structural path coefficients.

Hypothesis 2: The negative effects of Resistance to Change on Performance Self-efficacy, Supervisor Support, and Transfer Effort Performance Expectation will be manifested by negative structural path coefficients.

Hypothesis 3: The positive effects of Performance Outcome Expectation on Supervisor Support and Transfer Effort Performance Expectation will be manifested by positive structural path coefficients.

Transfer Specific and Motivational Factors in the Learning Transfer System

According to the theory of planned behavior (Ajzen, 1991), three factors of Supervisor Support, Performance Self-efficacy, and Transfer Effort Performance Expectation in Transfer Specific Domain have impacts on Motivation to Transfer. Employing a meta-analysis of 89 quantitative studies, Blume et al. (2010) found that among the work environment factors supervisor support had the highest and most consistent relationship with learning transfer. It was also found that self-efficacy and supervisor support had direct effects on transfer intention or learning transfer (Al-Eisa, Furayyan, & Alhemoud, 2009; Devos et al., 2007; Hill, Smith, & Mann, 1987). Clark et al. (1993) found that training motivation was influenced by the expectation that the training would result in a valuable outcome such as improved job performance, which

implies the impact of Transfer Effort Performance Expectation on Motivation to Transfer. All of these empirical evidences support the hypotheses that the three factors in the Transfer Specific Domain influence Motivation to Transfer. Meanwhile, in a meta-analytic path analysis, it was found that the effect of supervisor support on training outcomes was partially mediated by self-efficacy (Colquitt et al., 2000). Ford, Quinones, Sego, and Sorra (1992) also found a significant relationship between managerial support and self-efficacy.

According to the rationalist view of social interaction theory (Nonaka & Takeuchi, 1995), human cognition is a deductive process, but an individual's perception is never isolated from social interaction. Therefore, it can be assumed that a supervisor's support for transfer could increase employees' expectations that a transfer effort would result in performance improvement, because the employees' performances are appraised by their supervisor. Clark et al. (1993) found that "supervisor training transfer climate" (p. 302) had a significant effect on the extent to which the training course was expected to increase job performance. Logically, it is also likely that the more expectations of performance through transfer effort, the more Performance Self-efficacy of individuals, because self-efficacy refers to an individual's belief about his or her successful ability to perform a given task. These two assumptions are supported by significant interfactor correlations between Supervisor Support and Transfer Effort Performance Expectation as well as Transfer Effort Performance Expectation and Performance Self-efficacy (Bates et al., 2012; Devos et al., 2007; Weldy, 2007). Consequently, three additional hypotheses were drawn as follows:

Hypothesis 4: The positive effects of Supervisor Support on Performance Self-efficacy, Transfer Effort Performance Expectation, and Motivation to Transfer will be manifested by positive structural path coefficients.

Hypothesis 5: The positive effects of Transfer Effort Performance Expectation on Performance Self-efficacy and Motivation to Transfer will be manifested by positive structural path coefficients.

Hypothesis 6: The positive effect of Performance Self-efficacy on Motivation to Transfer will be manifested by a positive structural path coefficient.

Motivational Factor, Creative Learning Transfer, and Job Performance

Along with the theory of planned behavior (Ajzen, 1991), work motivation theory (Vroom, 1964) suggests that motivation precedes action. In addition, organizational knowledge creation theory (Nonaka & Takeuchi, 1995) implies that individual motivation is a critical determinant of creative learning transfer. In the learning transfer system model, Job Performance (or individual performance) is theorized to be influenced by the complex relationships of intervening variables and primary learning outcomes. Job performance is largely explained by a motivational factor within the literature (Ajzen, 1991; Locke, 1968; Vroom, 1964). In his attempt to integrate existing knowledge of the relation between motivation and job performance into the expectancy theory, Vroom (1964) contended that the "level of performance varies directly with the strength of individuals' needs for achievement" (p. 267). Locke (1968) also supported the view that intentions are important determinants of job performance. Within the context of learning transfer, therefore, the motivational

construct is hypothesized as being the most proximal to learning transfer leading to job performance (Egan, 2008). However, empirical evidence demonstrating the relationship between transfer motivation and actual learning transfer remain insufficient to draw firm conclusions (Egan, 2008; Gegenfurtner et al., 2009). In spite of its sound theoretical basis, no empirical study was identified in which an indirect effect of transfer motivation on job performance through actual learning transfer was investigated. Furthermore, creative learning transfer is a relatively new concept that needs to be examined in depth to analyze its empirical relationship with job performance. Taken together, two more hypotheses deserved to receive attention:

Hypothesis 7: The positive effects of Motivation to Transfer on Creative Learning Transfer and Job Performance will be manifested by positive structural path coefficients.

Hypothesis 8: The positive effect of Creative Learning Transfer on individual Job Performance will be manifested by a positive structural path coefficient.

Creative Learning Transfer

Creative Learning Transfer was a focal variable in the current study. In this section, the definition and features of creative learning transfer, definitions and types of knowledge, knowledge conversion process, knowledge creation phase, and conceptual relationship between creative learning transfer and knowledge creation are addressed. Organizational knowledge creation theory (Nonaka & Takeuchi, 1995) was utilized to conceptualize creative learning transfer to examine the nature of the construct.

Definition and Feature of Creative Learning Transfer

Creative learning transfer have been defined as a level of transfer that leads to new and innovative concepts both by integrating two seemingly discrete concepts and by creating a new concept (Haskell, 1998; 2001). This level of learning transfer assumes the discovery of a new field of transfer as well as major differences of real workplace from a training situation, emphasizing creativity and innovative character (Roussel, 2014). Creative learning transfer is leveraged learning and is an organization's competence to create new knowledge multiplied by its capacity of generalizing the knowledge throughout the organization (Haskell, 1998). Thus, creative learning transfer can be viewed as a continuous knowledge creation process in that an organization is reengineered and reinvented "by transferring its new-found knowledge into new products" (Haskell, 1998, p. 79). In reality, nothing occurs exactly the same way several times, and two situations are never completely identical (Haskell, 2001). Thus, learning transfer is not a matter of simple application of knowledge. Instead, transfer requires an individual's creative endeavor based on a cognitive appraisal of the differences between the training context and the transfer situation, leading to creating new concepts and the way of doing things (Roussel, 2014). By definition, it appears that knowledge creation is the most salient characteristic of creative learning transfer that occurs when newly learned knowledge is applied to a novel situation or context. Haskell (1998, 2000) maintained that the use of metaphors, analogical reasoning, and mental models were prevailing in far or creative learning transfer, which is very similar to the way that new concepts are created in accordance with organizational knowledge creation theory

(Nonaka & Takeuchi, 1995). Although the definition of creative learning transfer has been established in the literature, its theoretical background is still at an infancy stage. An examination of the nature and process of creative learning transfer requires an understanding of how knowledge is disseminated in an organization, applied to the workplace, and created at the individual and organizational levels. For this reason, organizational knowledge creation theory (Nonaka & Takeuchi, 1995) needs to be examined to identify the characteristics of creative learning transfer by disentangling the phases of organizational and individual knowledge creation practice.

Definitions and Types of Knowledge

The definition of knowledge varies depending on one's epistemological and ontological stances. In their organizational knowledge creation theory, Nonaka and Takeuchi (1995) defined knowledge as "justified true belief," emphasizing "a dynamic human process of justifying personal belief toward the truth" (p. 58). A traditional classification of knowledge divides it into explicit and tacit knowledge (Polanyi, 1966). Drawing on Polanyi's (1966) distinction between tacit and explicit knowledge, Nonaka and Konno (1998) suggested that explicit knowledge could be represented in words and numbers and shared in the form of documents, formal logics, and specifications. On the other hand, tacit knowledge was viewed as being highly personal and hard to formalize, making it difficult to express to and share with others. For example, subjective hunches and intuition could fall into the category of tacit knowledge. In most business applications, explicit knowledge management was most commonly discussed because it could be quantified (Ringhand, 2009). After the failure of initial explicit knowledge

management efforts, organizations began to acknowledge that the most important organizational knowledge assets were embedded in the tacit as well as explicit knowledge of employees (Ardichvili, 2002). In organizational knowledge creation theory (Nonaka & Takeuchi, 1995), tacit and explicit knowledge are the key concepts used to explain the phenomena of both knowledge conversion and knowledge creation processes in an organization.

Knowledge Conversion Process

Nonaka and Takeuchi (1995) used the term knowledge conversion to emphasize a social interaction between tacit and explicit knowledge, in which the two types of knowledge interchange into each other within and between individuals. According to them, knowledge conversion involves four modes: socialization, externalization, combination, and internalization. First, socialization is a process of sharing experiences, thereby allowing an individual to acquire tacit knowledge such as technical know-how. In this mode, tacit knowledge is converted into other tacit knowledge. Second, the externalization process is indicative of articulating tacit knowledge into explicit knowledge through creating concepts, writings, analogies, or models. This mode is promoted by dialogue or collective reflection. Third, the combination mode involves a process of synthesizing explicit concepts into a knowledge system. Thus, in this mode, explicit knowledge is combined with other preexisting bodies of explicit knowledge. Lastly, internalization is a process of converting explicit knowledge into tacit knowledge. This mode is critical for an individual to create a valuable knowledge asset that cannot be easily copied or imitated. Through the four modes of knowledge conversion,

knowledge becomes amplified in both quantity and quality at the ontological dimension (i.e., individual, group, organization, and inter-organization levels). Knowledge conversion is an essential element for knowledge creation to take place.

Knowledge Creation Phase

The concept of knowledge conversion is integrated into the five-phase model of knowledge creation with the addition of a time dimension. In other words, knowledge conversion between tacit and explicit knowledge constantly emerges during the sequential five phases of the organizational knowledge creation process. Nonaka and Takeuchi (1995) defined organizational knowledge creation as "the capability of a company as a whole to create new knowledge, disseminate it throughout the organization, and embody it in products, services, and systems" (p. 3). According to them, organizational knowledge creation is realized through the five phases: sharing tacit knowledge, creating concepts, justifying concepts, building an archetype, and cross-leveling knowledge. As noted earlier, these five phases of knowledge creation accompany the four modes of knowledge conversion: socialization mode at the sharing tacit knowledge phase, externalization mode at the creating concepts and justifying concepts phases, combination mode at the building an archetype phase, and the internalization mode at the recursive process from the cross-leveling knowledge phase to the sharing tacit knowledge phase. A brief description for each of the five phases is presented in Table 6.

Table 6
Description of the Five Phases of Knowledge Creation

Phase	Description
Sharing tacit knowledge	Individuals share their past experiences and untapped rich tacit knowledge through face-to-face dialogue.
Creating concepts	Individuals and teams verbalize the shared tacit knowledge into explicit words or phrases using a metaphor or analogy, resulting in a newly created concept.
Justifying concepts	Individuals and an organization determine the applicability of the newly created concepts in terms of usefulness of them for the organization and society.
Building an archetype	Individuals and an organization converts the justified concepts into a more visualized and pertinent organizational archetype such as a prototype or an operating mechanism.
Cross-leveling knowledge	Intra-organizationally, the new knowledge taking the form of an archetype expands horizontally and vertically across the organization, triggering a new cycle of knowledge creation. Inter-organizationally, the new knowledge of an organization mobilizes others outside the organization through dynamic interaction.

Source: Nonaka and Takeuchi (1995)

Organizational knowledge creation is promoted by five enabling conditions: organizational intention to achieve its goal, autonomy, fluctuation and creative chaos, redundancy, and requisite variety. In particular, organizational intention is defined as "an organization's aspiration to its goals" (Nonaka & Takeuchi, 1995, p. 74), which corresponds to an individual's motivation to achieve his/her goals at the individual level. Organizational intention is the most critical criterion for an organization to judge the truthfulness of the newly created organizational knowledge. If the knowledge were compatible with the organizational intention or motive, the knowledge would be valued. To foster organizational knowledge creation, top or middle managers should motivate

employees to make a commitment to fundamental values by formulating an organizational intention and presenting it to them (Nonaka & Takeuchi, 1995). Song, Yoon, and Uhm (2012) developed an instrument to measure the *organizational* knowledge creation practice based on the five phases of knowledge creation in the corporate context of Korea. Nonaka and Takeuchi's (1995) theory is critical to frame the creative learning transfer construct, which is one of the outcome variables in the current study. However, organizational knowledge creation theory is heavily focused on knowledge sharing with others rather than knowledge application to the jobs to explain the creative nature of them. Thus, making a connection between knowledge creation and creative learning transfer requires a further examination of the conceptual relationship between the former and the latter.

Creative Learning Transfer and Knowledge Creation

Although they used the term *organizational* knowledge creation, Nonaka & Takeuchi (1995) asserted that the organization cannot create knowledge on its own and "knowledge is created only by individuals" (p. 59). The individual-level knowledge creation is well justified through the "two dimensions of knowledge creation" model (Nonaka & Takeuchi, 1995, p. 57) that comprises epistemological and ontological dimensions in which a knowledge creation spiral emerges. The epistemological dimension, which is graphically depicted on the vertical axis, spans from tacit to explicit knowledge. The ontological dimension, which is represented on the horizontal axis, includes *individual*, group, organization, and inter-organizational knowledge levels within the epistemological dimension. This two-dimensional knowledge creation model

suggests that individual knowledge creation is an essential requisite for organizational knowledge creation. It is evident that organizational knowledge creation is impossible without employees who make a commitment to individual knowledge creation by forming the recursive process of converting tacit knowledge into explicit knowledge and vice versa.

At the individual level, according to Nonaka, von Krogh, and Voelpel (2006), knowledge creation can be understood as "a continuous process through which one overcomes the individual boundaries and constraints imposed by information and past learning by acquiring a new context, a new view of the world and new knowledge" (p. 1182). By interacting and sharing knowledge with others, an individual increases the capacity to identify a problem and apply his or her knowledge to the job to solve the problem (Nonaka et al., 2006). This notion of knowledge creation at the individual level may go in concert with the principle of creative learning transfer. According to Laker (1990), near transfer could impede far or creative learning transfer when a training program is context-bound. While training contexts and content identical to the actual work environment may enhance near transfer, they may disturb creative learning transfer because the knowledge and skills are bound to the identical situations, imposing constraints or boundaries on the learners. Achieving creative learning transfer by overcoming the constraints of near transfer inevitably requires creative activities from learners because creative learning transfer necessitates a creative application of knowledge and skills to a novel situation or task. It should be noted that knowledge

creation (or creative learning transfer) is a series of processes of an individual's purposeful efforts to apply knowledge to the work (Nonaka & Takeuchi, 1995).

From this view, creative learning transfer can be regarded as a process of knowledge creation. This point of view is supported by similarity of descriptions between creative learning transfer and knowledge creation. According to Haskell (1998), creative learning transfer is about how to increase productivity and profits by applying intellectual capital to "product development, technological and defense conversion, and invention" (p. 73). Meanwhile, knowledge creation was defined as capability of a company "to create new knowledge, disseminate it throughout the organization, and embody it in products, services, and systems" (Nonaka & Takeuchi, 1995, p. 3). Thus, creative learning transfer should be viewed as a recursive knowledge creation process, in which employees improve their job performance by transferring their new-found knowledge into new products, processes, strategies, cultures, and the way of doing things (Haskell, 1998). It should be noted that learning transfer occurs at the individual level (Holton et al., 2000; Holton et al., 2007). In Table 6, the first four phases could correspond to creative learning transfer at the individual level, but the last phase is not applicable because it concerns the organizational level. A conceptual framework that integrates the two concepts of creative learning transfer and knowledge creation is delineated in Figure 4.

As shown, organizational knowledge creation theory (Nonaka & Takeuchi, 1995) contributes to conceptualizing how creative learning transfer evolves. In Figure 4, creative learning transfer is illustrated as a recursive process of sharing tacit knowledge,

creating concepts, justifying concepts, and building an archetype. A detailed description of each phase is presented next to the corresponding phase on the diagram.

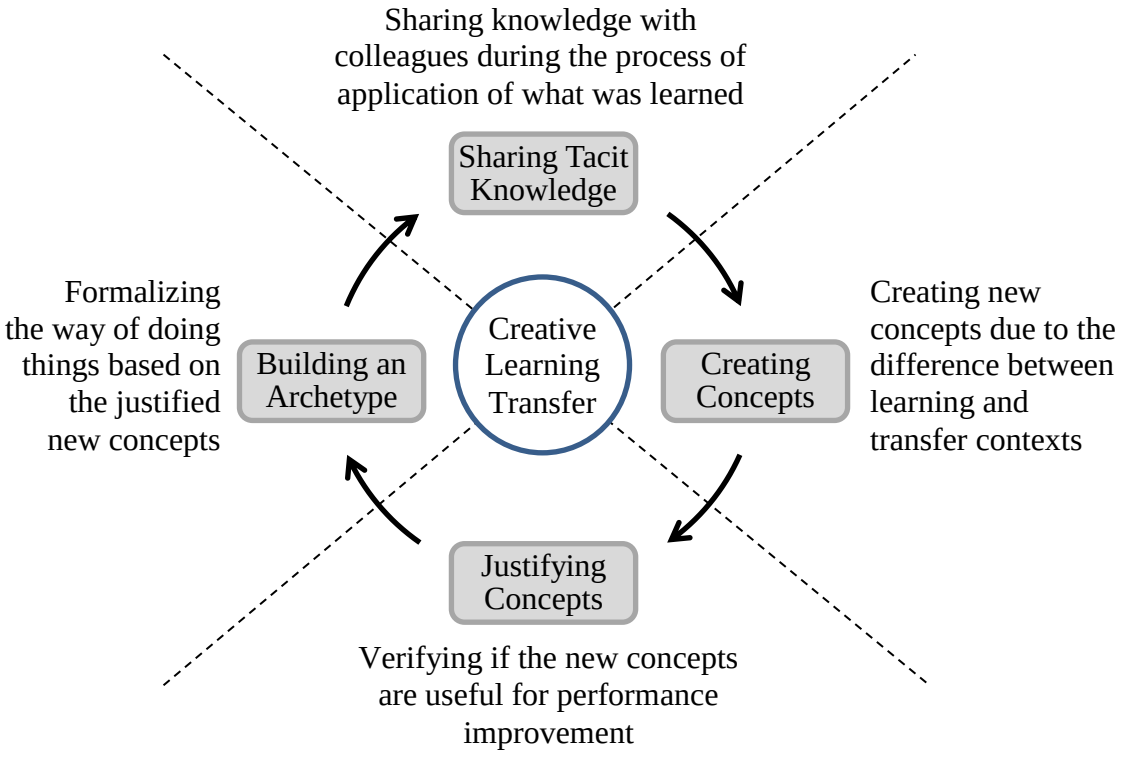

***Figure 4*. Conceptualization of creative learning transfer based on organizational knowledge creation theory.**

Job Performance

An ultimate goal of a training program in a company is to improve employees' job performance, which, in turn, is expected to enhance organizational competitiveness. In this section, definitions, types, and sources of job performance as well as the significance of individual job performance as a connector between creative learning transfer and organizational outcomes were reviewed.

Definition and Types of Job Performance

Job performance is the final dependent variable in the current study. Holton (2005) defined individual performance as an individual change resulting from the learning being applied on the job. Thus, the term job performance includes behaviors related to individual goal achievement in an organization, but is not limited to only behavioral changes. Compared with learning outcomes that are primarily internal behaviors, individual job performance is viewed as a more external, overt, and visible one (Holton, 2005). More specifically, job performance traditionally has been regarded as an individual's task proficiency or achievement on specific dimensions, such as the quality and quantity of work (Meyer, Paunonen, Gellatly, Goffin, & Jackson, 1989; Somers & Birnbaum, 1998). Job performance includes a different range of more specific behaviors and abilities, depending on the nature of a position. For example, ability to get along with others may be considered part of a manager's job performance because a managerial position requires a great deal of interaction with other employees (Black & Porter, 1991; Porter & Lawler, 1968).

Job performance can be either formal or informal. In contrast to the informal, formal job performance is officially appraised on a regular basis with an evaluation system set up by the organization (Khanna & Sharma, 2014). Furthermore, objective job performance is distinguished from the subjective in that the former involves directly quantifiable and verifiable indices such as sales volume, sales growth rate, and market share (Aggarwal & Thakur, 2013; Siders, George, & Dharwadkar, 2001). Management by Objectives (MBO) provides a good example of incorporating objective measures into

job performance (Antoni, 2005). Objective job performance measures are not necessarily superior to subjective measures. Objective measures may consist of more tangible aspects of performance that are not very important to the organization, whereas subjective measures may be less tangible, but represent more critical aspects of performance for the organization's success such as quality of leadership and supervision (Porter & Lawler, 1968). Thus, objective and subjective job performance measures should supplement one another to provide holistic information of individual performance.

Types of job performance are also discussed on whether the measurement is absolute or relative. In absolute performance appraisal, each employee's actual performance is compared with his or her performance standards, whereas in relative appraisal the employees being rated are directly compared against each other (Roch, Sternburgh, & Caputo, 2007). According to Kim (2010), social comparison theory (Festinger, 1954) implies that a relative performance appraisal would be more accurate than an absolute one in organizations. This implication of social comparison theory was further endorsed by Goffin, Jelley, Powell, and Johnston's (2009) study in which they reported on a criterion-related validity of relative performance appraisals that was better than that of an absolute appraisal approach. In the current study, job performance was defined as an individual's relative task proficiency that is either formal or informal as well as either objective or subjective.

Sources of Job Performance

An employee's job performance can be measured from various sources including him/herself as well as someone other than the person whose performance is being

appraised (Porter & Lawler, 1968). First, an employee's supervisor usually conducts the performance appraisal in the organization (Werner & DeSimone, 2009). Although the supervisor's rating is the most preferred method by employees (Gosselin, Werner, & Hallé, 1997), the supervisor's rating must be supplemented by other sources of appraisals because supervisors might be biased (Werner & DeSimone, 2009). The second source of performance measures is an employee's self-rating. Although self-rating of job performance is a useful measure for research purposes (Porter & Lawler, 1968), it has been suggested that self-rating tends to be more lenient than supervisory rating (Harris & Schaubroeck, 1988; Murphy & Cleveland, 1991). According to the study by Harris and Schaubroeck (1988), performance ratings from supervisor and from self did not agree, as indicated by a correlation of only .35 between the two sources. Third, 360-degree performance appraisals encompassing supervisor, self, and peers have been commonly used to measure individual job performance. The main advantage of using 360-degree performance appraisal is that the raters observe the employee from different perspectives, which allows them to supplement their appraisals of one another (Werner & DeSimone, 2009).

Significance of Individual Job Performance

In the research model of the current study, individual job performance is the paramount outcome variable to be improved. As shown in Figure 3, individual job performance is critical because it is a prerequisite for enhancing organizational performance. Organizational performance may be affected by organizational knowledge creation, which also entails knowledge creation at the individual level (Nonaka &

Takeuchi, 1995). In a similar vein, individual job performance is likely influenced by individual knowledge creation, which is a major feature of creative learning transfer (see Figure 4). Taken together, individual job performance is positioned at the center of the relationship between creative learning transfer and organizational performance. Although a relationship between learning transfer and job performance was not explicitly delineated in the HRD ERM (see Figure 3), the influence of learning transfer on job performance has been taken for granted by numerous researchers (Bates, Holton, Seyler, & Carvalho, 2000; L. A. Burke & Hutchins, 2007; 2008; Holton et al., 2000; J. Kim & Callahan, 2013; Yamnill & McLean, 2005). However, I failed to identify any empirical research in which the relationship between learning transfer and job performance was investigated, regardless of what source of job performance (i.e., supervisor, self, or peer rating) was used. To increase training effectiveness, researchers must find a way in which learning transfer plays a pivotal role in improving employees' job performance. In this sense, an examination of Hypothesis 8 was justified.

CHAPTER III

METHODOLOGY

This chapter includes descriptions of the study design, the population of the study, sample of the study and its demographic characteristics, data collection procedures, the instruments used to collect data, data screening, and the techniques and methods to analyze the data.

Study Design

The overarching purpose of this study was to examine the relationships among the learning transfer system and the two transfer outcome variables comprised of managers' Creative Learning Transfer and Job Performance. Of special interest to the current research was the nomological network (i.e., structural relationships) among the predetermined seven transfer predictors from the 16 in the LTSI and the two outcome variables. Toward the research purpose, three major research questions and eight hypotheses were developed for the current study. A cross-sectional survey design was applied to investigate the three research questions and eight hypotheses. I chose this research design because the methodology allows a researcher to measure the participants' cognitive perceptions which are critical determinants of certain behaviors. Social cognitive theory (Bandura, 2001) and the theory of planned behavior (Ajzen, 1991) suggest that employees' cognitive appraisals of themselves and their organizations have critical influences on behavioral intention. In other words, people react primarily to perceived subjective environments rather the actual objective environments. Thus, it is

necessary to measure employees' perception of transfer predictors, which are assumed to have an impact on Motivation to Transfer, Creative Learning Transfer, and Job Performance because intention influences behavior. Based on a non-experimental research design, an electronic survey was used to collect data from voluntary participants in 16 large companies in such business areas as IT, chemical products, semiconductors, food producers and retailers, and insurance in Korea. The population of the current study was Korean managers who worked for the large companies. I took a purposive sampling approach to collect data from a sample of the target population. To answer Research Question 1, a series of EFAs were conducted with basic descriptive statistics, followed by a series of CFAs to confirm the factor structures that resulted from the exploratory procedures. For Research Question 2, a structural equation modeling (SEM) analysis was performed. With regard to Research Question 3, thematic analysis was the most appropriate approach to analyze the intricacy of the qualitative data set that contained information about enablers and barriers of creative learning transfer.

Population

The population of the current study was managers in Korean large companies that run the businesses in diverse industries such as robotics, chemical products, IT, semiconductors, food producers and retailers, electronic appliances, logistics and transportation, finance, insurance, and stock market. The selection of the managers in large companies as population was based on the following four reasons: (1) with a well-established educational system, the companies in Korea invests a large amount of resources in a variety of T&D programs, and thus are highly interested in measuring

training effectiveness; (2) given the relatively large number of employees, various job functions, and diverse businesses in the industries, it is likely that knowledge could be more actively created through the creative learning transfer practice; (3) with the large companies' diverse business areas, the potential to generalize the research results to other industries is higher; (4) due to an intensive interest in measuring training effectiveness, the large companies tend to be very supportive in terms of gathering data and discussing the practical implications of the current study. Regardless of job, rank, and position, the population of the current study included all managers who worked for large companies in Korea.

Study Sample

The sample of the current study was all of the 1,125 managers who worked for the 16 large companies in Korea and had completed a leadership training program in the companies. Based on a non-experimental cross-sectional research design, a purposive sampling approach was taken because one of the focuses of the current research was on examining the level of creative learning transfer of those who had taken an in-house leadership development course. Generally speaking, management or leadership programs require learners to be more creative in transfer than do other task skills training programs (Cheng & Ho, 2001). In addition, it is recommended that learning transfer be measured at least three months after completing a training (Cheng & Ho, 2001). Because the current study was intended to measure creative learning transfer, the three-month-timeframe, at the minimum, was strictly applied to the measurement. The feasibility of measuring Job Performance was also considered. Consequently, the sample was

determined based on the following five criteria: (1) Managers who worked for large Korean companies of which industries do not overlap with one another so that the sample companies can represent the entire industries; (2) Managers who had completed a leadership course; (3) Managers who had completed the leadership program between January 2013 and March 2014, that is, at least three months before participating in the survey on July or August, 2014; (4) Managers who had their objective performance appraisal results for the year of 2013; and (5) Managers who voluntarily participated in the online survey for the current study.

The reason for considering only the voluntary respondents as the sample rather than random sampling was that the authority to require them to complete the survey was not present in accordance with the Institutional Review Board (IRB) guidelines. In other words, the advantages of a random sampling approach might have been reduced due to the possible non-responses of the randomly selected employees. Alternatively, all of the targeted 1,125 managers in the companies were invited to attend the online survey instead of randomly selecting a sample from them. After deleting missing data and outliers, the final cases were 753. This sample size far exceeds the cases-per-variable ratio of 5, 10, or 20 criterion for multivariate analyses (Bentler & Chou, 1987; Hair, Black, Babin, & Anderson, 2010; Kline, 2011) depending on the types of analyses in the current study. The ratio per analysis is provided in the Data Analysis section of this chapter. The descriptive statistics of the participants' demographics are summarized in the Results section of Chapter IV.

Data Collection Procedure

The goal for the sample size was 700 to achieve a reasonable sample size for factor analysis and structural equation modeling. The instrument was administered at least three months after the target samples had completed the training programs so that the data could reflect the participants' past and current "actual experiences" (p. 65) of learning transfer in their organization (Holton, 2003). If data were gathered at the end of a program, the data would represent only a forecast. The head of the HR function of each company was contacted to ask them to participate in this study. Sixteen companies agreed to take part in this study. Upon agreement of the decision maker of each company, the survey link on the Qualtrics online survey system was distributed by an HR staff to the target sample of each company from July to August 2014. Out of the total 1,125 employees who completed a leadership program, 967 individuals voluntarily participated in answering the online questionnaire, yielding a total response rate of 86%. Of those 967 cases, 810 individuals completed all items. After deleting 57 outliers, the final valid sample size was 753, yielding the valid response rate of 67%. The data cleaning process is described in detail in the Data Screening section of this chapter.

Instrumentation

The survey instrument consisted of five sections: the LTSI Version 4 (Bates et al., 2012), Knowledge Creation Practice Inventory (Song et al., 2012), Job Performance (Black & Porter, 1991), two open-ended questions to gather qualitative data in terms of additional enablers and barriers of creative learning transfer entailing knowledge creation, and demographic questions. The LTSI Version 4 contained 48 items that were

developed to measure 16 theoretical constructs. The Knowledge Creation Practice Inventory (KCPI) consisted of 12 items to measure four constructs of knowledge creation practices. The LTSI and KCPI have three items per each theoretical construct. All items of the LTSI and KCPI were measured on a Likert-type scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The Job Performance (JP) measure consists of six items with one item to obtain an Objective Job Performance (OJP) appraisal result for 2013 and with the other five to obtain respondents' self-ratings on their Job Performances (SJP) on a Likert-type scale ranging from C (poor performance) to A (exceptional performance). In the LTSI, reverse scored items were Resistance to Change, Supervisor Opposition, and Personal Capacity. No item in the other measures was reverse scored. The total number of items of the LTSI, KCPI, and JP measure was 66. Two open-ended questions to gather qualitative data were designed to find emerging themes that the LTSI might have failed to capture in the Korean context. An example of the open-ended questions is as follows: What enables you to apply what you learned in the training program to your work in a creative or adaptive way? The full set of questions is listed in Appendix 1. The demographic section included seven items to obtain the following information: (1) company name, (2) gender, (3) length of service in the organization, (4) length of service in the industry, (5) job position, (6) the title of the training program, and (7) the month of the year 2013 when the respondent completed the training program.

Measuring the Factors in the Learning Transfer System

An effort to use the LTSI in the Korean context to measure a variety of transfer predictors would be a cost-effective alternative because the effort could eliminate the need for designing a new instrument. Given the wide use and abundant validation studies of the LTSI in the international context (Bates et al., 2012), its applicability to the Korean context seems to be promising. In this section, a justification of using the LTSI and a translation process to generate the LTSI-Korean version are provided.

Rationales of Using the LTSI

The LTSI Version 4 (Bates et al., 2012) was chosen for the Korean context based on the following rationale: (1) the LTSI is the only comprehensive instrument that covers many of the variables that are identified in previous literature including learner characteristics, transfer design, and work environment domains; (2) the construct validity of the LTSI was established in diverse cultural contexts through rigorous research (Bates et al., 2012; Holton et al., 2007); (3) evidence of predictive validity of the LTSI was provided in several studies including the significant effects of work environment factors (Bates et al., 2000) and Motivation to Transfer (Seyler, Holton, Bates, Burnett, & Carvalho, 1998) on individual performance; (4) reliability estimates (Cronbach's alpha) of the LTSI Version 4 were acceptable, ranging from .71 to .85 (Bates et al., 2012); and (5) the 16 factors of the LTSI enabled the researcher to develop a creative learning transfer model (i.e., the research model) that is integral to enhancing job performance by using HRD strategies. With regard to the construct validity of the LTSI in previous research, the empirical evidence was reported in the contexts of

Germany (Bates, Kauffeld, & Holton, 2007), Jordan (Khasawneh, Bates, & Holton, 2006), Portugal (Velada, Caetano, Bates, & Holton, 2009), Taiwan (Chen et al., 2005), Thailand (Yamnill & McLean, 2005), Ukraine (Yamkovenko, Holton, & Bates, 2007), and the USA (Holton et al., 2007). Nonetheless, researchers should be cautious when applying a Western instrument to an Eastern context because the differences in language and culture embedded in the target population may interrupt an assessment of the psychometric properties that were originally intended to be measured (e.g., Wang et al., 2010). Thus, a rigorous forward-backward translation process was applied.

Translation Procedure of the LTSI

Since the current study included a cross-cultural validation study of the LTSI, the instrument was translated from English to Korean through a rigorous forward-backward translation process (Chen et al., 2005) to maximize the comparability of the two versions of the LTSI. First, four bilingual Korean experts (an HR faculty member at a university in the U.S. and three PhD students at a university in the U.S.) translated the English version of the LTSI into Korean (i.e., Step 1: forward translation). The four Korean versions were integrated into one through a discussion process among the four translators, yielding an initial draft of the LTSI-Korean version. Through this process, the subject matter experts assured face validity, whereby all of the original 16 scales were adopted. Second, two bilingual Korean experts (faculty members at universities in the U.S.) independently translated the initial draft of the Korean version back into English (i.e., Step 2: backward translation). One more faculty member was asked to be involved in the backward translation than for the forward process because the former

required more expertise, which means it might have otherwise suffered a misinterpretation during the backward translation process. Some minor discrepancies in the meaning found in the items between the two backward translated English versions of the LTSI were discussed and adjusted in accordance with the purpose of the study, resulting in one English version (see the *italicized* English items of the LTSI in Appendix 1). For example, the word "my supervisor" was revised to "my superior" because the sample included supervisors and managers. Third, the backward translated LTSI draft was reviewed by the original author of the instrument to evaluate the functional equivalence of the meaning compared with the original version (i.e., Step 3: subjective evaluation). Fourth, the original author of the LTSI conducted an empirical evaluation by asking a small group of native English speakers to rate each item in terms of similarity in item meaning between the two English versions (i.e., Step 4: objective evaluation). Finally, a revised draft of the Korean version was pilot-tested by administering it to six Korean employees (i.e., Step 5: pilot test) in the sample companies, resulting in the final LTSI-Korean version (LTSI-K) that was used in the current study (see the Korean items of the LTSI in Appendix 1).

Measuring Creative Learning Transfer

To conceptualize the process of creative learning transfer, organizational knowledge creation theory (Nonaka & Takeuchi, 1995) was adapted because the most peculiar characteristic of creative learning transfer is newly created knowledge and concepts (see Figure 4). Song et al. (2012) developed an instrument to measure the knowledge creation practice based on the five phases of knowledge creation: sharing

tacit knowledge, creating concepts, justifying concepts, building an archetype, and cross-leveling knowledge. The Knowledge Creation Practice Inventory (KCPI) consisted of five factors (i.e., the five phases of knowledge creation), each of which had two items. Later, Song (working paper) removed the last factor (i.e., cross-leveling knowledge) and added one more item to each factor, resulting in a four-factor 12-item version of the KCPI. The KCPI is available in both forms of Korean and English items because the instrument was developed and validated in the Korean corporate context (see the KCPI in the Appendix 1). Reliability estimates (Cronbach's alpha) of the KCPI were reported as ranging from .70 to .80 (Song et al., 2012).To increase the conceptual correspondence of knowledge creation to creative learning transfer, the original items of the KCPI were slightly modified such that the latent psychometric properties of creative learning transfer could be measured through the modified KCPI. Specifically, the phrase of "When applying what I learned to my job," was added to each of the items of the KCPI to contextualize the meaning of the items to the situation of learning transfer. For example, the original item of the KCPI "I share my experiences with other people." was modified to "When applying what I learned to my job, I share my training experiences with other people." A sample item for each of the proposed latent variable of Creative Learning Transfer is as follow:

- Sharing Tacit Knowledge: When applying what I learned to my job, I share my training experiences with other people.
- Creating Concepts: When applying what I learned to my job, I develop new ideas through constructive dialogue by using figures and diagrams.

- Justifying Concepts: When applying what I learned to my job, I engage in continued dialogue through reflection among the members for developing new ideas.
- Building an Archetype: When applying what I learned to my job, I combine existing and new concepts in meaningful ways.

Measuring Job Performance

Although the supervisor's rating is the most preferred method of job performance evaluation by employees (Gosselin et al., 1997), the supervisor's rating must be supplemented by multisource appraisals because supervisors can be biased (Werner & DeSimone, 2009). For the current study, both the supervisor-rated Objective Job Performance (OJP) based on the Management by Objective (MBO) practice and participants' self-rated Subjective Job Performance (SJP) were included in the Job Performance (JP) data. Due to the difficulty of accessing the performance appraisal systems of the sample companies, the supervisor's rating was gained by asking respondents to report their formal performance appraisal results for the year of 2013. Because the annual performance reviews are conducted on January in the companies and the first survey was activated on July 2014, the performance appraisal results for 2013 was the latest one representing the target managers' Objective Job Performance. In the target companies, senior managers rated subordinate managers' performance (OJP) on a five-point scale: C (poor), B- (needs improvement), B0 (meets expectations), B+ (above average), and A (exceptional). In the companies, each grade was assigned to 5%, 10%, 55%, 20%, and 10% of total employees, respectively. With regard to the self-rating of

Job Performance (SJP), the measure covered five areas that were suggested by Black and Porter (1991): (1) overall performance compared to peers; (2) ability to get along with others compared to peers; (3) ability to complete tasks on time compared to peers; (4) quality of performance (as opposed to quantity of performance) compared to peers; and (5) achievement of work goals compared to peers. An instrument with five items was obtained from Carden's (2007) work for use in the current study. Researchers (Carden, 2007, p. 194; S. W. Kim, 2010, p. 271) used the instrument on a 7-point Likert scale to measure employees' relative performance levels compared to their colleagues (i.e., 1 = upper 5%, 2 = upper 10%, 3 = upper 25%, 4 = middle 50%, 5 = lower 25%, 6 = lower 10%, and 7 = lower 5%). Reliability estimates (Cronbach's alpha) ranged from .87 to .93 (Black & Porter, 1991; Carden, 2007; S. W. Kim, 2010). In the current study, the scale was modified to a 5-point scale (i.e., C, B-, B0, B+, and A) that was used for the annual performance appraisal (OJP) in the companies. By doing so, scale consistency between the SJP and OJP appraisals, as well as the LTSI and the KCPI, was maintained.

Two Open-ended Questions

Researchers have demonstrated how environmental factors constrained employee behaviors (Peters & O'Connor, 1980; Peters, Fisher, & O'Connor, 1982). Similarly, Blumberg and Pringle (1982) suggested that environment either "enables or constrains that person's task performance" (p. 565). In general, barriers are less frequently studied than enablers for a certain behavior (Johns, 2006); yet, barriers are more likely critical for comprehending employee behaviors in organizations (Stewart & Nandkeolyar, 2007). From this perspective, two open-ended questions were designed to gather qualitative

data to find enablers and barriers of creative learning transfer after completion of a training program. More specifically, the two questions were used to identify: (1) supportive factors for creative learning transfer; and (2) constraints against creative learning transfer after completing the leadership training program. To avoid any confusion of respondents, the jargon such as creative learning transfer or knowledge creation was not used in the two open-ended questions. Instead, the questions were designed by using the respondents' working language (see the open-ended questions in Appendix 1).

Data Screening

It is recommended that researchers screen their original data before creating a data file to analyze research questions (Hair et al., 2010; Meyers, Gamst, & Guarino, 2013). The data screening process is essential to ensure that not only are the data an accurate representation of what was measured but also meet the underlying assumptions of any analyses. Based on this recommendation, the raw data for the current study were screened for accuracy, missing data, outliers, multivariate normality, univariate normality, linearity, and multicollinearity and singularity.

Accuracy

The first step of the data screening was to conduct a value cleaning in which a researcher makes sure that the values of all variables in the raw data are within the limits of reasonable expectation (Meyers et al., 2013). For example, a variable rated on a 5 point Likert-type scale is expected to have the values ranging from 1 to 5 otherwise the value is out-of-bounds. For a value cleaning, frequency tables of all variables were

examined excluding the three open-ended questions, which is a convenient way to identify the existence of out-of-range values across the variables (Meyers et al., 2013). The result of the value cleaning of the 73 variables on 967 cases revealed that the values entered in the raw data file were in-bounds.

Missing Data

A way of handling missing data should be chosen cautiously because the missing data can affect the results of the data analyses depending on the amount and patterns (Cohen, Cohen, West, & Aiken, 2013; Hair et al., 2010; Meyers et al., 2013; Tabachnick & Fidell, 2007). In general, the existence of missing data under 10% (Cohen et al., 2013; Hair et al., 2010) or more conservatively 5% (Meyers et al., 2013; Tabachnick & Fidell, 2007) can be ignored unless the missing data appears in a systemic nonrandom fashion. The various patterns of missing data can be categorized into three types as follows (Hair et al., 2010; Meyers et al., 2013): missing completely at random (MCAR); missing at random (MAR); and not missing at random (NMAR). MCAR refers to the cases in which missing data on a given variable Y are unrelated to the other values of the variable Y and are unrelated to other variables in the data set. MAR designates the cases in which the missing values of Y depend on one or more other variables in the data set, but not on Y itself. Missing data are termed NMAR if a cause of the missing values of Y is related to Y itself. If the pattern of data conforms to MCAR or MAR, the missing values are considered ignorable unless there is a large number of missing data (Meyers et al., 2013). If the data has an NMAR structure, then the missing data are nonignorable.

In the present study, 91 of the 967 cases in the raw data were judged to be inadmissible because the participants rarely answered the survey questions, resulting in 876 cases that needed further examination for data screening. Of those 876 cases, 66 had missing values on 11 or more variables out of the 73 quantitative and demographic variables. Although the proportion of 7.5% (66/876) can be regarded as ignorable in handling the missing values (Cohen et al., 2013; Hair et al., 2010), a more conservative rule of 5 % threshold was followed to minimize the possibility of any erroneous decision (Meyers et al., 2013; Tabachnick & Fidell, 2007). To determine the extent of randomness in the missing data, Little's MCAR test using IBM-SPSS 18 was run on the 73 variables across the 876 cases (Meyers et al., 2013). The null hypothesis for the omnibus test of MCAR is that the missing data mechanism is completely random. The test result was not statistically significant ($\chi^2 = 347.286$, $df = 312$, $\alpha = .082$), implying that the missing data had an MCAR structure. Thus, the listwise deletion option was chosen to retain the same number of cases in all analyses, resulting in 810 cases with no missing values. The listwise is a missing value deletion method, by which all of the cases that have missing values on any of the variables being analyzed are removed from the data set. The proportion of the deleted respondents was 7.5% (66/876), which met the criteria of both 10% (Cohen et al., 2013; Hair et al., 2010) and MCAR (Meyers et al., 2013) to remove the cases with missing values.

Outliers

Outliers are unusually high or low values on a single variable (univariate) or on a unique combination of variables (multivariate) that make the observation noticeably

different from the others (Hair et al., 2010; Meyers et al., 2013). Outliers can cause violations of the normality assumption and distort the results of the data analysis. Univariate outliers on continuous variables can be identified by an inspection of each variable's standard z score with a mean of 0 and a standard deviation of 1 (Hair et al., 2010). As a general heuristic, cases with z scores exceeding ± 2.5 in small samples (80 or fewer observations) or ± 4 in large samples are considered outliers. After inspecting the data set for univariate outliers, multivariate outliers can be detected by computing the Mahalanobis distance (D^2) of each case and by converting the D^2 measures into probabilities on the chi-square distribution. The D^2 measure is a multidimensional version of a z-score. It measures the distance of a case from the centroid (multidimensional mean) of a distribution, given the covariance (multidimensional variance) of the distribution. The probabilities of the D^2 measure beyond a stringent alpha level (i.e., .001) are indicative of multivariate outliers (Hair et al., 2010; Meyers et al., 2013).

For the univariate outlier test, IBM-SPSS 18 was used to examine the 66 variables in the LTSI, KCPI, and JP, by applying the criteria of ± 4 z scores because the sample size was large (n=810). Based on the standard z score test, seven items of four factors were detected as univariate outliers: Performance Outcome Negative (PN), Performance Self-efficacy (SE), Transfer Effort Performance Expectation (TP), and Subjective Job Performance (SJP). The numbers of outlier cases for the seven items were as follows: 3 cases on PN1 (z = 4.031); 1 case on PN2 (z = 4.263); 1 case on PN3 (z = 4.153); 3 cases on SE1 (z = – 4.296); 7 cases on TP1 (z = – 4.0789) and TP2 (z = –

4.015), respectively; and 3 cases on SJP4 (z = – 4.047). Based on the results, these outliers were retained because the maximum 0.86% of the outlier cases among the total (i.e., 7/810) was less than the criteria for deletion (1% or 2% of n) and not very extreme (Cohen et al., 2013). With regard to the multivariate outlier test, IBM-SPSS 18 was used to compute the D^2 measures and their probabilities for all of the 810 cases. The results indicated 57 multivariate outliers, which was 7% (57/810) of the total cases. These cases were considered for possible deletion according to the 1% or 2% deletion criteria (Cohen et al., 2013). Before making a decision, the data were run both with and without the multivariate outlier cases to analyze the hypothesized research model. The results indicated that the outliers had significant effects on the model-fit and parameter estimation. Consequently, the 57 cases were deleted, resulting in the 753 cases with no outliers.

Multivariate Normality

An implicit assumption of all multivariate techniques including factor analysis and structural equation modeling (SEM) is multivariate normality (Hair et al., 2010; Meyers et al., 2013; Tabachnick & Fidell, 2007). As the combination of two or more variables, multivariate normality means that the individual variables' distributions are normal (univariate normality) and that their combinations are also normally distributed (Hair et al., 2010; Kline, 2011). Although it is imperfect, assessing and achieving univariate normality for all variables is often sufficient to guarantee multivariate normality (Hair et al., 2010). Moreover, it is not only impractical, but also difficult to examine all aspects of multivariate normality (Kline, 2011). In the current study,

univariate normality was assessed to examine multivariate normality and remedy any nonnormality.

Univariate Normality

Univariate normality can be assessed by using the Shapiro–Wilks test, Kolmogorov-Smirnov test, kurtosis, and skewness (Hair et al., 2010; Meyers et al., 2013). The Shapiro–Wilks and Kolmogorov-Smirnov tests are used to calculate the level of significance for the deviations from a normal distribution. Both of these tests are too sensitive in a large sample size to ignore minor departures from normality. Kurtosis refers to the height of the distribution compared with the normal distribution. Skewness denotes the extent of symmetry around the mean of the distribution. If the measures of kurtosis and skewness are zero, the distribution is normal. The range of the kurtosis and skewness between ± 1 is considered an indication of a normal distribution (Meyers et al., 2013). A data transformation technique can be used to remedy a detected nonnormality issue of the variables.

In the current study, the kurtosis and skewness measures instead of the Shapiro-Wilks and Kolmogorov-Smirnov tests were used to assess univariate normality because of the large sample size (n=753). The 66 variables in the LTSI, KCPI, and JP were analyzed by using IBM-SPSS 18. The results indicated no extreme kurtosis or skewness of any variables. The kurtosis measures for all items ranged from –.583 (CA2) and .827 (PN1) except two items: TP1 (1.036) and TP2 (1.199). The skewness measures fell between –.713 (STK3) and .534 (PN1). For the two variables of TP1 and 2 that exceeded the criteria of normality (i.e., ± 1), no data transformation was performed for three

reasons: (1) the departures from a completely normal distribution are not so extreme (Hair et al., 2010); (2) the original variables are more comparable in the analysis interpretation phase (Kline, 2011); and (3) a large sample size diminishes a possible threat of nonnormality in multivariate analyses (Meyers et al., 2013). Therefore, the original data set after outlier deletion was retained for the future analyses.

Linearity

The multivariate techniques for the current study (i.e., factor analysis and SEM) require an assumption that the variables are related to each other in a linear fashion. Linearity is an aspect of multivariate normality. Bivariate scatterplots are often examined as a typical way of assessing linearity between two variables. If both variables have normal distributions and linear relationship to each other, the scatterplot will be elliptical. However, the examination of linearity in all possible pairs of variables is impractical when dealing with a large number of variables.

For the practicality of assessing linearity, 10 variables were randomly selected out of the 66 in the LTSI, KCPI, and JP and the bivariate scatterplot analysis using IBM-SPSS 18 was conducted, which resulted in 45 pairs of scatterplots. Although they were not perfectly elliptical, these scatterplots were judged by the researcher to represent enough linearity in the 45 relationships of the variables to proceed with the next analyses.

Multicollinearity and Singularity

Multicollinearity and singularity refer to statistical problems in which two or more predictor variables are very closely related (Meyers et al., 2013; Tabachnick & Fidell, 2007). Multicollinearity involves a very high correlation, while singularity entails

redundancy in variables (Tabachnick & Fidell, 2007). Multicollinearity and singularity can distort the interpretation of analysis results because the close relationships among the predictors make it difficult to determine the key variable that yielded the result. A bivariate correlation matrix and squared multiple correlation (SMC) are used to detect multicollinearity and singularity. Correlations of .9 and above on a bivariate correlation matrix (Tabachnick & Fidell, 2007) and SMCs of .9 and above are considered the indications of multicollinearity and singularity (Cohen et al., 2013; Meyers et al., 2013; Tabachnick & Fidell, 2007).

To examine the bivariate correlation matrix of the 66 variables of the data, IBM-SPSS 18 was run and no indication of multicollinearity and singularity was found. To obtain the SMCs, a preliminary analysis of the research model (Figure 2) using Amos 18 was conducted because the observed variables in the nine factors were subject to multicollinearity and singularity during the structural equation modeling (SEM) analysis; the other observed variables were used only for factor analysis, which means that the variables are free from a multicollinearity issue (Tabachnick & Fidell, 2007). In obtaining the SMCs, Amos was preferred over IBM-SPSS because the former presents SMCs, while the latter provide Tolerance, which is 1 – SMC. Because the JP factor was measured by two types of job performance variables, which are supervisor-rated objective JP (OJP) and self-rated subjective JP (SJP), I analyzed two models: the first model had the one OJP item as the JP factor; and the second model contained five SJP items in the JP factor. Thus, two sets of SMCs (see Appendix 2) were obtained and

indicative of no sign of multicollinearity and singularity in both models. Finally, 753 cases with the 66 variables in the LTSI, KCPI, and JP were retained for the current study.

Data Analysis

The data analyses for the three research questions included descriptive statistics of the data, a series of exploratory factor analyses (EFA) and confirmatory factor analyses (CFA), reliability analyses, SEM, and thematic analysis. To examine Research Question 1, a series of EFAs and reliability analyses were conducted using IBM-SPSS 18, followed by a series of CFAs using Mplus 7.3 to confirm the factor structures that resulted from the exploratory procedures. For Research Question 2, SEM using Mplus 7.3 was the most appropriate approach to analyze the complicated structural relationships among the chosen nine latent variables in Figure 2 (Hair et al., 2010). To answer Research Question 3, thematic analysis (Braun & Clarke, 2006; Guest, MacQueen, & Namey, 2012) was performed on the qualitative data. The details of the data analysis techniques for the current study are presented in the following sections of this chapter.

Descriptive Statistics

Descriptive statistics were used to examine the number of the respondents, the means, the standard deviations, and the range of the scores of all items of the survey instruments.

Factor Analysis (FA)

Factor analysis (FA) is one of the statistical methods used to develop and/or validate an instrument through exploratory FA (EFA) and confirmatory FA (CFA) for a

set of variables (Mertler & Vannatta, 2010). Scholars agree that the combination of EFA and CFA provide stronger evidence for validity of an instrument to assess the presence of sound attributes (Hinkin, 2005; Nunnally & Bernstein, 1994).

Exploratory Factor Analysis (EFA)

In EFA, observable variables are allocated into a smaller number of components to explore the underlying structure among variables. EFA is used in the early stages of developing or validating an instrument in new contexts or with a new population (Hinkin, 2005; Tabachnick & Fidell, 2007). In general, two types of methods are used to extract factors from the observed variables: component analysis and common factor analysis. To validate the LTSI, KCPI, and JP, common factor analysis (i.e., principle axis factoring in IBM-SPSS 18) was chosen for two reasons (Hair et al., 2010): (1) the primary objective of EFA was identification of the latent dimensions, not data reduction; and (2) little prior knowledge about the amount of specific and error variance of the items was available. Also, the number of factors to be extracted in each instrument was fixed on the basis of an *a priori criterion* to test hypotheses about the factor structures and to replicate the structures that were established through EFA and CFA in other contexts (Hair et al., 2010; R. A. Johnson & Wichern, 1992). Oblique (direct oblimin, Delta = 0) rotation was selected as the rotation method because the corresponding factors in each instrument were assumed to be correlated to one another in the instrument (Hair et al., 2010; Tabachnick & Fidell, 2007).

The anticipated increase in validity assumes that the FA is conducted on the basis of a hold-out sample approach, where a sample is split into two groups, of which one

group is used for the EFA and the other is for CFA. Of the 753 cases, 376 cases (753/2) were randomly selected for EFA using IBM-SPSS 18. The remaining 377 cases were set aside for CFA. As the LTSI consists of the Training Specific (33 items) and Training General (15 items) Domains, the cases-per-variable ratios were 11.4 (376/33) for the LTSI Training Specific Domain, 25.0 (376/15) for the LTSI Training General Domain, 31 (376/12) for the KCPI, and 75.2 (376/5) for the SJP. These results indicated that all of the EFAs met the sample size criteria, a minimum cases-per-variable ratio of 5 (Hair et al., 2010).

Confirmatory Factor Analysis (CFA)

The primary objective of CFA is to confirm hypothetical relations among variables that were established in the previous EFA or a theory (Hair et al., 2010; Hinkin, 2005). CFA can be a relatively simple portion of a larger SEM, where the CFA is referred to as a measurement model. In that case, CFA might be unnecessary because SEM does the same analysis through a measurement model test (Meyers et al., 2013). However, A CFA was performed independently from SEM because the larger structural model (Figure 2) was not designed to include all of the factors from the three instruments. Mplus 7.3 was used to confirm the three instruments' factor structures that had emerged from the previous EFAs. The cases-per-variable ratios for CFAs were the same as those in the previous EFAs except those of LTSI Training Specific Domain and KCPI of which the ratios slightly increased due to deletion of items during the EFA process. Thus, sample size requirements for CFAs were met (Hair et al., 2010).

Criteria to evaluate the model accuracy vary, but five criteria are typically used to assess the fit of the model to the data: chi-square (χ^2), Tucker-Lewis Index (TLI), Comparative Fit Index (CFI), Standardized Root Mean Residual (SRMR), and Root Mean Square Error of Approximation (RMSEA). The χ^2 statistic is used to test the difference between the predicted (i.e., measurement model) and the observed model (i.e., the data). A significant χ^2 statistic indicates that the model does not fit the data. However, due to the sensitivity of χ^2 test in a large sample size (Hair et al., 2010; Meyers et al., 2013), the TLI, CFI, SRMR, and RMSEA were used to make a decision on the model fit. The TLI is computed by comparing the normed χ^2 values for the null and specified measurement model (Hair et al., 2010). The TLI value equal to or greater than .90 represents a good model fit. The CFI is an incremental fit index that assesses fit relative to the independence model (a poor fit) and the saturated model (a perfect fit). In general, a CFI with .90 (desirably .95, or above) is indicative of a good model fit, and values between .80 and .89 are deemed to be adequate but marginal fit (Meyers et al., 2013; Tabachnick & Fidell, 2007). The SRMR is the standardized average differences between the measurement model and the data, and should be equal to or less than .08 (Tabachnick & Fidell, 2007). The RMSEA is the average of the residuals between the observed covariance in the data and the predicted model. A RMSEA of .08 or below (Meyers et al., 2013) is considered an indication of good fit. Maximum Likelihood (ML) estimation was applied to all analyses.

Reliability Analysis

Reliability refers to the extent to which a variable or set of variables is consistent in what it is intended to measure (Hair et al., 2010). A reliability statistic is useful to determine whether or not the results of using the selected instruments are consistent. Reliability is a required condition for validity. Within the classical test theory, Cronbach's coefficient alpha (α) is the most commonly used reliability coefficient, and is an index of internal consistency, quantifying the degree to which respondents respond in a consistent manner to the items in the instrument. General criteria to interpret Cronbach's α are as follows (Meyers et al., 2013): $\alpha \geq .90$ is excellent; $.85 \leq \alpha < .90$ is very good; $.80 \leq \alpha < .85$ is good; $.75 \leq \alpha < .80$ is acceptable; and $.70 \leq \alpha < .75$ is borderline acceptable for research purposes. To examine reliability, Cronbach's α using IBM-SPSS 18 was computed for each instrument and all three instruments combined.

Structural Equation Modeling (SEM)

SEM is a multivariate data analysis technique that is used to determine if a series of theoretical relationships specified at the conceptualization stage are simultaneously supported by the data (Hair et al., 2010). SEM is particularly useful in testing theories that involve multiple structural relationship equations. Just as in any statistical technique in nonexperimental design, the results of an SEM analysis cannot generally be interpreted as evidence for causation (Kline, 2011). SEM is conceptually akin to path analysis because both of the techniques are used to investigate simultaneous structural relationships among variables. However, SEM is distinguished from path analysis in that the former is used to analyze relationships among both latent variables (i.e., factors) and

manifest variables (i.e., observed variables), which is not the case in the latter (Meyers et al., 2013). To examine the research model (Figure 2), SEM analyses using Mplus 7.3 were conducted because the model contained both latent and manifest variables.

The sample size and number of items for computing the cases-per-variable ratio differed depending on whether the Objective Job Performance (OJP) or Subjective Job Performance (SJP) was entered in the SEM research model. When the OJP was used to represent Job Performance in the research model, the valid sample size was 471. This was the number of managers who had completed the leadership training at least three months before the annual performance reviews. Thus, the cases-per-variable ratio was 14.7 (471/32). On the other hand, the number of managers who had completed the leadership training at least 3 months before their self-rating of Job Performance (SJP) was 753. Also, SJP was measured by five items, while OJP was measured by one item. Thus, the cases-per-variable ratio for SEM SJP model was 20.9 (753/36). Both of the models met the selected sample size requirement (Hair et al., 2010).

Generally, SEM is performed along with the two-step rule, where the measurement model is first tested, followed by a structural model test. However, the measurement model during the SEM analysis was not tested because the structures of the full sets of variables in the three instruments had already been tested and validated through EFA/CFA processes. Because the SEM is an extended technique of CFA, the SEM results were interpreted according to the indices that were used in the CFA to assess the model-data fit: χ^2, TLI, CFI, SRMR, and RMSEA. Criteria for good fit provided in the CFA section were applied in the SEM.

Thematic Analysis

Thematic analysis is a widely used qualitative analysis method to capture the complexities within a textual data set (Braun & Clarke, 2006; Guest et al., 2012). Thematic analysis involves identifying, analyzing, and reporting themes within data. A theme refers to meaning or a level of patterned response in the data that is related to the research question (Braun & Clarke, 2006). Coding is the primary vehicle for developing themes in qualitative data by recognizing critical moments in the data and encoding it prior to interpretation (Guest et al., 2012). The interpretation of these codes can include comparing theme frequencies and graphically displaying relationships among different themes.

Following the recommendation of Braun and Clarke (2006), the qualitative data were analyzed in four phases. First, all of the textual responses were reviewed and screened, resulting in a valid data set for the subsequent analysis. Second, initial codes from the qualitative data were generated and entered into a Microsoft Excel spreadsheet. Third, based on clustering and thematic coding, the initial codes were categorized into subthemes to find main themes. Finally, frequencies of both subthemes and main themes were counted and tabulated the results. An inductive thematic approach was taken to analyze the qualitative data because the purpose of the analysis was to find enablers and barriers for creative learning transfer that might not have been captured by the deductive theory-driven approach (see Figure 1).

CHAPTER IV

RESULTS AND FINDINGS

In this chapter, the results from the quantitative and qualitative data analyses are reported: descriptive statistics, factor analyses including EFA and CFA, reliability analyses, SEM, and thematic analysis. IBM-SPSS 18, Mplus 7.3, and Microsoft Excel were used to analyze the data.

Descriptive Statistics

Descriptive statistics of 753 valid respondents' demographic characteristics (6 items) and responses to all of the 66 quantitative items in the LTSI (48 items), KCPI (12 items), and JP (6 items) were computed using IBM-SPSS 18.

Demographic Characteristics

The respondents' demographic variables and characteristics are presented in Tables 7, 8, and 9. Sixteen industries in which the respondents worked, as well as the respondents' length of service in the industry and the company, are summarized in Table 7. More than half the respondents (51.4%) were from the areas of Distribution Business (n = 91, 12.1%), Tourism (n = 89, 11.8%), Food (n = 81, 10.8%), Petrochemistry (n = 73, 9.7%), and Financier (n = 53, 7%). As for the length of service in the industry, the number of years ranged from less than 1 year to more than 20 years. A majority had work experiences in the industry for 6 to 20 years: 11-15 years (n = 257, 34.1%); 6-10 years (n = 200, 26.6%); and 16-20 years (n = 187, 24.8%). Similarly, most of the

respondents' length of service in the company ranged from 6 to 20 years (n = 563, 74.8%), in addition to the range from 1 to 5 years (n = 157, 20.8%).

Table 7
Demographic Characteristics: Industry and Length of Service

Variable	Characteristic	Frequency	%	Cumulative %
Industry	Food	81	10.8	10.8
	Distribution Business	91	12.1	22.8
	Tourism	89	11.8	34.7
	Petrochemistry	73	9.7	44.4
	Financier	53	7.0	51.4
	R&D	17	2.3	53.7
	Agriculture materials	36	4.8	58.4
	Steel Products	38	5.0	63.5
	Chemical Products	28	3.7	67.2
	Semiconductor	48	6.4	73.6
	IT	28	3.7	77.3
	Engineering	32	4.2	81.5
	Logistics and Transportation	26	3.5	85.0
	Auto Insurance	41	5.4	90.4
	Life Insurance	35	4.6	95.1
	Stock Market	37	4.9	100.0
Length of Service in the Industry	Less than 1 Year	21	2.8	2.8
	1-5 Years	22	2.9	5.7
	6-10 Years	200	26.6	32.3
	11-15 Years	257	34.1	66.4
	16-20 Years	187	24.8	91.2
	More than 20 Years	66	8.8	100.0
Length of Service in the Company	Less than 1 Year	3	.4	.4
	1-5 Years	157	20.8	21.2
	6-10 Years	237	31.5	52.7
	11-15 Years	219	29.1	81.8
	16-20 Years	107	14.2	96.0
	More than 20 Years	30	4.0	100.0
	Total	753	100.0	

Table 8
Demographic Characteristics: Job Position and Gender

Variable	Characteristic	Frequency	%	Cumulative %
Job Position	Department Manager	449	59.6	59.6
	Deputy General Manager	201	26.7	86.3
	General Manager	103	13.7	100.0
Gender	Male	679	90.2	90.2
	Female	74	9.8	100.0
	Total	753	100.0	

As shown in Table 8, demographic characteristics in job positions represent a pyramid structure of managerial ranks that consist of General Managers on the top (n = 103, 13.7%), Deputy General Managers in the middle (n = 201, 26.7%), and Department Managers on the bottom (n = 449, 59.6%) in the Korean companies. In Table 8, it is also illustrated that a majority of managers in the companies were Male (n = 679, 90.2%).

Table 9
Demographic Characteristics: The Month of Completing the Training

Variable	Month of Completion	Frequency	%	Cumulative %
The Month of Completing the Leadership Training	April, 2013	20	2.7	2.7
	May, 2013	55	7.3	10.0
	June, 2013	85	11.3	21.2
	July, 2013	81	10.8	32.0
	August, 2013	111	14.7	46.7
	September, 2013	119	15.8	62.5
	October, 2013	134	17.8	80.3
	November, 2013	127	16.9	97.2
	December, 2013	21	2.8	100.0
	Total	753	100.0	

The months when the respondents completed their leadership training program are presented in Table 9. The months of completing the leadership program ranged from April to December in 2013. Given that annual performance reviews are conducted during January of each year in the companies, the number of managers who completed the leadership program at least 3 months before the annual review was 471 (62.5%), ranging from April to September. On the contrary, 282 managers (37.5%) had their performance appraised within 3 months after completing the leadership program, by taking the program during October, November, or December. Consequently, the sample size for SEM with Objective Job Performance (OJP) was determined as 471.

Descriptive Statistics for the Quantitative Items

Descriptive statistics for the 66 quantitative items were separated into three tables: Training Specific Domain of the LTSI (11 factors and 33 items) in Table 10, Training General Domain of the LTSI (5 factors and 15 items) in Table 11, KCPI (4 factors and 12 items) in Table 12, and JP (1 OJP and 5 SJP items) in Table 13. The statistics were calculated using IBM-SPSS 18. As the statistics indicate, the sample of the current study consisted of 753 managers. The means and the standard deviations (SD) along with the minimum (Min) and maximum (Max) scores for each item are reported in the three tables. The means for the 16 factors in the LTSI were 2.83 (SS), 2.04 (SO), 2.95 (PS), 3.38 (PP), 2.17 (PN), 3.16 (LR), 3.11 (OU), 2.93 (CA), 3.12 (CV), 3.30 (TD), 3.60 (MT), 3.57 (SE), 2.50 (RC), 3.44 (PC), 3.68 (TP), and 3.38 (PO). The means for the 4 factors in the KCPI were 3.43 (STK), 3.42 (CCO), 3.39 (JCO), and 3.42 (BAA). The means for the OJP and SJP were 3.31 and 3.77, respectively. Nine items (SO1, SO2, SO3, CA1, CA2,

CA3, RC1, RC2, and RC3) in the LTSI were reverse scored and marked as 'Reversed' in Tables 10 and 11.

Table 10
Descriptive Statistics for the LTSI: Training Specific Domain

Factor	Item	N	Min	Max	Mean	SD
Supervisor Support	SS1	753	1	5	2.75	.824
	SS2	753	1	5	2.69	.832
	SS3	753	1	5	3.06	.791
Supervisor Opposition	SO1 (Reversed)	753	1	5	2.06	.739
	SO2 (Reversed)	753	1	5	2.08	.743
	SO3 (Reversed)	753	1	5	1.97	.760
Peer Support	PS1	753	1	5	2.95	.755
	PS2	753	1	5	2.88	.784
	PS3	753	1	5	3.01	.793
Personal Outcome Positive	PP1	753	1	5	3.24	.846
	PP2	753	1	5	3.34	.830
	PP3	753	1	5	3.56	.754
Personal Outcome Negative	PN1	753	1	5	2.18	.693
	PN2	753	1	4	2.15	.648
	PN3	753	1	4	2.18	.666
Learner Readiness	LR1	753	1	5	3.15	.881
	LR2	753	1	5	3.17	.829
	LR3	753	1	5	3.17	.864
Opportunity to Use	OU1	753	1	5	3.19	.798
	OU2	753	1	5	2.98	.770
	OU3	753	1	5	3.15	.745
Personal Capacity	CA1 (Reversed)	753	1	5	2.99	.783
	CA2 (Reversed)	753	1	5	2.86	.824
	CA3 (Reversed)	753	1	5	2.96	.828
Content Validity	CV1	753	1	5	3.04	.814
	CV2	753	1	5	3.14	.814
	CV3	753	1	5	3.17	.757
Transfer Design	TD1	753	1	5	3.29	.774
	TD2	753	1	5	3.34	.795
	TD3	753	1	5	3.28	.774

Table 10 (*continued*)

Factor	Item	N	Min	Max	Mean	SD
Motivation to Transfer	MT1	753	1	5	3.61	.698
	MT2	753	1	5	3.62	.738
	MT3	753	1	5	3.56	.725

Table 11
Descriptive Statistics for the LTSI: Training General Domain

Factor	Item	N	Min	Max	Mean	SD
Performance Self-efficacy	SE1	753	1	5	3.70	.593
	SE2	753	1	5	3.61	.664
	SE3	753	1	5	3.39	.712
Resistance to Change	RC1 (Reversed)	753	1	4	2.19	.738
	RC2 (Reversed)	753	1	5	2.72	.826
	RC3 (Reversed)	753	1	5	2.58	.812
Performance Coaching	PC1	753	1	5	3.33	.727
	PC2	753	1	5	3.46	.717
	PC3	753	1	5	3.52	.660
Transfer Effort Performance Expectation	TP1	753	1	5	3.68	.603
	TP2	753	1	5	3.74	.630
	TP3	753	1	5	3.61	.643
Performance Outcome Expectation	PO1	753	1	5	3.53	.705
	PO2	753	1	5	3.51	.733
	PO3	753	1	5	3.10	.807

Table 12
Descriptive Statistics for the KCPI

Factor	Item	N	Min	Max	Mean	SD
Sharing Tacit Knowledge	STK1	753	1	5	3.32	.737
	STK2	753	1	5	3.45	.702
	STK3	753	1	5	3.52	.718

Table 12 (*continued*)

Factor	Item	N	Min	Max	Mean	SD
Creating Concepts	CCO1	753	1	5	3.39	.736
	CCO2	753	1	5	3.39	.696
	CCO3	753	1	5	3.46	.684
Justifying Concepts	JCO1	753	1	5	3.44	.716
	JCO2	753	1	5	3.38	.718
	JCO3	753	1	5	3.35	.713
Building an Archetype	BAA1	753	1	5	3.40	.694
	BAA2	753	1	5	3.38	.670
	BAA3	753	1	5	3.47	.670

Table 13
Descriptive Statistics for the JP

Item/Factor	Item	N	Min	Max	Mean	SD
Objective Job Performance (Item)	OJP	753	1	5	3.31	.816
Subjective Job Performance (Factor)	SJP1	753	1	5	3.66	.707
	SJP2	753	1	5	3.76	.714
	SJP3	753	1	5	3.86	.714
	SJP4	753	1	5	3.82	.685
	SJP5	753	1	5	3.75	.695

Results of Factor Analyses

In this section, the results of a series of EFAs and CFAs for the three scales (i.e., LTSI, KCPI, and SJP) are presented. The OJP item was excluded from the procedure because the single item was not intended to measure a latent factor, but an observed variable, Objective Job Performance of respondents. Of the total 753 cases, the random

376 (subsample 1) and 377 cases (subsample 2) were used for EFA and CFA, respectively.

Results of Exploratory Factor Analysis

As the first step for EFA, Bartlett's test of sphericity and the Kaiser–Meyer–Olkin's measure of sampling adequacy (MSA) test were conducted to examine the appropriateness of factor analysis for the three scales (Hair et al., 2010; Meyers et al., 2013). A significant Bartlett's sphericity value indicates that the correlation matrix of the entire variables in a scale has significant correlations among at least some of the variables, and thus the variables can be factor analyzed. The MSA index can be interpreted as follows: MSA $\geq$ .80 is meritorious; .70 $\leq$ MSA < .80 is middling; .60 $\leq$ MSA < .70 is mediocre; .50 $\leq$ MSA < .60 is miserable; and MSA < .50 is unacceptable (Hair et al., 2010).

Four criteria were applied to determining the factor structures of the scales: a priori, percentage of variance, size of factor loadings, and simple structure (Hair et al., 2010; Meyers et al., 2013). First, the a priori criterion is justified because an attempt was made to extract the hypothesized number of factors for the LTSI, KCPI, and JP based on the original authors' works in which a series of rigorous EFA and CFA procedures were followed (Hair et al., 2010; R. A. Johnson & Wichern, 1992). This a priori approach is more exploratory in nature than CFA because the former does not specify what items should define each factor, while the latter does (Hair et al., 2010; Kline, 2011; Meyers et al., 2013; Tabachnick & Fidell, 2007). Second, the percentage of variance criterion refers to a requirement that usually 60% or a larger amount of the total variance be

explained by the extracted factors. Third, the size of factor loading criterion requires that items with factor loadings equal to or greater than .40 be retained in an EFA procedure, when the sample size is larger than 200 (Meyers et al., 2013). Fourth, the last criterion does not allow a cross-loading, where an item loads on more than one factor with factor loadings equal to or greater than .40 (Meyers et al., 2013). Because interfactor correlations were assumed based on previous research, principal axis factoring with an oblique rotation method (Delta = 0) was chosen in IBM-SPSS 18.

Exploratory Factor Analysis of the LTSI

Since the LTSI consists of the Training Specific and the Training General Domains, the EFA results are presented separately (Bates et al., 2012).

Training Specific Domain. The 33 items in this domain were analyzed and the number of factors to extract was set at 11 in accordance with the a priori hypothesized structure of the scale (Bates et al., 2012). Bartlett's sphericity test was significant (χ^2 = 9384.630, df = 528, p = .000), indicating sufficient correlation between the variables to proceed with the analysis. The MSA index was .927, indicating that the present data were suitable for EFA. As presented in Table 14, a total of 11 factors cumulatively accounted for 72.70% of the total variance, meeting the 60% of variance criterion for factor extraction. As the Rotation Sums of Squared Loadings column of Table 14 shows, the eigenvalues of the 11 factors after rotation ranged from 3.354 to 8.741. The pattern matrix with pattern coefficients was used to examine the factor structure of the 33 items because an oblique rotation was conducted. As shown in Table 15, 32 of the 33 items loaded onto the hypothesized factors: Opportunity to Use (OU1 and OU2); Personal

Outcome Negative (PN1, PN2, and PN3); Personal Outcome Positive (PP1, PP2, and PP3); Supervisor Opposition (SO1, SO2, and SO3); Learner Readiness (LR1, LR2, and LR3); Personal Capacity (CA1, CA2, and CA3); Supervisor Support (SS1, SS2, and SS3); Transfer Design (TD1, TD2, and TD3); Motivation to Transfer (MT1, MT2, and MT3); Content Validity (CV1, CV2, and CV3); and Peer Support (PS1, PS2, and PS3). The factor loadings of the 32 variables ranged from –.423 to .967, meeting the factor loading criterion for extraction. The only item that did not have a sufficient loading onto a hypothesized factor was OU3, which was the following item in the original English version; *I will get opportunities to use this training on my job*. Therefore, the OU3 was excluded from subsequent analyses. The salient initial eigenvalue of the first factor (12.79) implied a potential common method variance (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), which warranted a follow-up test through CFA.

Table 14
Total Variance Explained: The Training Specific Domain of the LTSI

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	12.794	38.771	38.771	12.529	37.968	37.968	4.130
2	4.035	12.227	50.998	3.782	11.462	49.430	3.354
3	1.760	5.333	56.331	1.516	4.593	54.024	6.896
4	1.724	5.224	61.555	1.489	4.513	58.536	3.756
5	1.436	4.350	65.906	1.115	3.380	61.916	6.058
6	1.308	3.965	69.870	.999	3.027	64.943	4.239
7	.906	2.746	72.617	.687	2.082	67.025	7.878

Table 14 (*continued*)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
8	.849	2.572	75.189	.604	1.831	68.857	6.760
9	.741	2.247	77.436	.523	1.585	70.441	7.123
10	.689	2.088	79.523	.396	1.201	71.642	6.597
11	.572	1.732	81.255	.349	1.058	72.701	8.741
12	.485	1.469	82.725				
13	.454	1.376	84.100				
14	.432	1.311	85.411				
15	.413	1.253	86.664				
16	.395	1.197	87.861				
17	.366	1.110	88.971				
18	.350	1.060	90.031				
19	.337	1.020	91.051				
20	.328	.994	92.044				
21	.315	.955	92.999				
22	.297	.901	93.900				
23	.266	.807	94.707				
24	.256	.775	95.482				
25	.248	.752	96.234				
26	.219	.663	96.897				
27	.189	.573	97.470				
28	.181	.549	98.019				
29	.167	.507	98.525				
30	.146	.442	98.967				
31	.125	.380	99.347				
32	.123	.373	99.720				
33	.092	.280	100.000				

Note. Extraction Method: Principal Axis Factoring.

Table 15

Pattern Matrix: The Training Specific Domain of the LTSI

Item	Factor										
	1	2	3	4	5	6	7	8	9	10	11
OU1	.533										
OU2	.499										
PN2		.942									
PN3		.908									
PN1		.562									
PP2			.967								
PP1			.827								
PP3			.579								
SO2				.952							
SO3				.839							
SO1				.809							
LR3					.818						
LR1					.752						
LR2					.738						
CA2						.772					
CA1						.742					
CA3						.718					
SS1							.929				
SS2							.905				
SS3							.469				
TD2								-.943			
TD3								-.484			
TD1								-.445			
MT1									-.729		
MT2									-.688		
MT3									-.666		
CV2										-.732	
CV1										-.725	
CV3										-.475	
OU3											

Table 15 (*continued*)

Item	Factor										
	1	2	3	4	5	6	7	8	9	10	11
PS2											-.913
PS3											-.765
PS1											-.423

Note. Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalization. OU = Opportunity to Use; PN = Personal Outcome Negative; PP = Personal Outcome Positive; SO = Supervisor Opposition; LR = Learner Readiness; CA = Personal Capacity; SS = Supervisor Support; TD = Transfer Design; MT = Motivation to Transfer; CV = Content Validity; PS = Peer Support.

Training General Domain. The 15 items in this domain were analyzed and the number of factors to extract was set at 5 in agreement with the a priori predetermined structure in a previous study (Bates et al., 2012). Bartlett's sphericity test was significant (χ^2 = 3080.403, df = 105, p = .000), and the MSA index was .890, which indicated that the present data were appropriate for EFA. As presented in Table 16, the 5 factors cumulatively accounted for 65.32% of the total variance, therefore meeting the 60% of variance criterion for extraction. As the Rotation Sums of Squared Loadings column of Table 16 shows, the eigenvalues of the 5 factors after rotation ranged from 3.074 to 4.180. The pattern matrix in Table 17 shows that all of the 15 items loaded onto the hypothesized factors: Transfer Effort Performance Expectation (TP1, TP2, and TP3); Resistance to Change (RC1, RC2, and RC3); Performance Coaching (PC1, PC2, and PC3); Performance Self-efficacy (SE1, SE2, and SE3); and Performance Outcome Expectation (PO1, PO2, and PO3). The factor loadings of the 15 variables ranged from .481 to .964, therefore meeting the factor loading criterion for extraction. Thus, all of the 15 items were retained for future analyses.

Table 16

Total Variance Explained: The Training General Domain of the LTSI

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	6.452	43.016	43.016	6.116	40.774	40.774	4.145
2	1.853	12.351	55.367	1.600	10.666	51.439	3.074
3	1.223	8.151	63.518	.884	5.893	57.332	4.109
4	1.078	7.184	70.703	.733	4.889	62.221	4.146
5	.803	5.355	76.058	.465	3.097	65.318	4.180
6	.661	4.409	80.466				
7	.465	3.100	83.566				
8	.411	2.743	86.308				
9	.404	2.695	89.004				
10	.346	2.304	91.307				
11	.326	2.175	93.483				
12	.304	2.026	95.509				
13	.265	1.765	97.274				
14	.241	1.603	98.877				
15	.168	1.123	100.000				

Note. Extraction Method: Principal Axis Factoring.

Table 17

Pattern Matrix: The Training General Domain of the LTSI

Item	Factor				
	1	2	3	4	5
TP2	.878				
TP1	.800				
TP3	.635				
RC2		.964			
RC3		.891			
RC1		.481			

Table 17 (*continued*)

Item	Factor				
	1	2	3	4	5
PC3			.803		
PC2			.736		
PC1			.705		
SE2				-.893	
SE3				-.698	
SE1				-.622	
PO2					.794
PO1					.633
PO3					.528

Note. Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalization. TP = Transfer Effort Performance Expectation; RC = Resistance to Change; PC = Performance Coaching; SE = Performance Self-efficacy; PO = Performance Outcome Expectation.

Exploratory Factor Analysis of the KCPI

In accordance with the four facets of organizational knowledge creation theory *within* an organization (Nonaka et al., 2006; Song et al., 2012) and a recursive process of creative learning transfer (see Figure 4 in Chapter 2), it was hypothesized that the 12 items in the KCPI loaded on four factors. Bartlett's sphericity test was significant (χ^2 = 3506.456, df = 66, p = .000), and the MSA index was .941, suggesting that the present data can be used for EFA. In the initial EFA, the four factors accounted for 72.79% of the 12 items submitted. Two items (BAA1 and JCO1) did not load onto their theoretical factors. As demonstrated in Tables 18 and 19, removing those items produced a simple structure with four factors, accounting for 72.89% of the variance of the 10 items submitted. As the Rotation Sums of Squared Loadings column of Table 18 indicates, the eigenvalues of the four factors after rotation ranged from 4.002 to 5.281. The pattern

matrix in Table 19 shows that the 10 items loaded on their theoretical factors: Justifying Concepts (JCO2 and JCO3); Sharing Tacit Knowledge (STK1, STK2, and STK3); Creating Concepts (CCO1, CCO2, and CCO3); and Building an Archetype (BAA2 and BAA3). The two factors (JCO and BAA) that had only two variables were judged to be reliable because the two variables in each factor were highly correlated with each other (r > .70) and relatively uncorrelated with other variables (Tabachnick & Fidell, 2007), as demonstrated in Table 20. The factor loadings of the 10 variables ranged from .425 to –.947, meeting the factor loading criterion for extraction. Interfactor correlations ranged from .474 to .804, suggesting a higher order factor structure (Thompson, 2004).

Table 18
Total Variance Explained: The KCPI

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	6.249	62.487	62.487	5.983	59.825	59.825	4.227
2	1.021	10.212	72.699	.777	7.770	67.596	4.002
3	.588	5.879	78.577	.301	3.007	70.603	5.281
4	.474	4.740	83.317	.228	2.284	72.887	4.972
5	.417	4.174	87.491				
6	.300	3.001	90.492				
7	.277	2.765	93.257				
8	.264	2.639	95.896				
9	.228	2.280	98.176				
10	.182	1.824	100.000				

Note. Extraction Method: Principal Axis Factoring.

Table 19

Pattern Matrix: The KCPI

Item	Factor			
	1	2	3	4
JCO3	.766			
JCO2	.590			
STK2		.906		
STK3		.760		
STK1		.425		
CCO2			-.867	
CCO1			-.787	
CCO3			-.599	
BAA3				-.947
BAA2				-.737

Note. Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalization. JCO = Justifying Concepts; STK = Sharing Tacit Knowledge; CCO; Creating Concepts; BAA = Building an Archetype.

Table 20

Correlation Matrix: The KCPI

	STK1	STK2	STK3	CCO1	CCO2	CCO3	JCO2	JCO3	BAA2	BAA3
STK1										
STK2	.580**									
STK3	.548**	.756**								
CCO1	.524**	.532**	.578**							
CCO2	.522**	.509**	.559**	.703**						
CCO3	.526**	.516**	.545**	.684**	.708**					
JCO2	.485**	.433**	.408**	.563**	.603**	.667**				
JCO3	.557**	.471**	.471**	.549**	.574**	.655**	.743**			
BAA2	.512**	.474**	.476**	.617**	.621**	.689**	.691**	.687**		
BAA3	.496**	.443**	.506**	.587**	.617**	.672**	.649**	.645**	.796**	

Note. **. Correlation is significant at the 0.01 level (2-tailed). n=376. STK = Sharing Tacit Knowledge; CCO; Creating Concepts; JCO = Justifying Concepts; BAA = Building an Archetype.

Exploratory Factor Analysis of the SJP

As was established in previous studies (Carden, 2007; S. W. Kim, 2010) using both EFA and CFA, the 5 items of SJP were a priori hypothesized to define one factor. The current data satisfied all of the criteria for EFA and factor extraction. Bartlett's sphericity test was significant (χ^2 = 1069.570, df = 10, p = .000), and the MSA index was .875. As shown in Table 21, one factor accounted for 62.72% of the variance of the 5 items after rotation. The pattern matrix showed that the 5 items loaded on their hypothesized factor, Subjective Job Performance. The factor loadings of SJP1, SJP2, SJP3, SJP4, and SJP5 were .780, .597, .834, .857, and 861, respectively.

Table 21
Total Variance Explained: The SJP

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.481	69.622	69.622	3.136	62.721	62.721
2	.612	12.238	81.859			
3	.372	7.434	89.294			
4	.279	5.575	94.869			
5	.257	5.131	100.000			

Note. Extraction Method: Principal Axis Factoring.

Results of Confirmatory Factor Analysis

In order to evaluate how well the measurement models established in the EFA stage fit the data, a series of CFAs were conducted with subsample 2 (n = 377). Mplus 7.3 was used to analyze the data. Due to the large sample size, the χ^2 value was

estimated, but was not used in assessing the model-data fit (Hair et al., 2010; Kline, 2011; Tabachnick & Fidell, 2007).

Confirmatory Factor Analysis of the LTSI

In the same way as the EFA was conducted, the measurement models of the Training Specific and the Training General Domains of the LTSI were analyzed separately (Bates et al., 2012).

Training Specific Domain. In the 11-factor correlated model of the Training Specific Domain of the LTSI, the 32 items that resulted from the exploratory procedure were arranged in the 11 hypothesized factors. The CFA results revealed that the 11-factor model was a good fit for the data. Although the χ^2 (762.309) was statistically significant ($df = 409$, $p < .001$) as it was anticipated due to its sensitivity in a large sample data, the TLI (.946) and CFI (.955) values were above the .90 cutoff (Hair et al., 2010; Meyers et al., 2013). The obtained SRMR (.049) and RMSEA (.048) with a 90% confidence interval (CI) of .043 to .053 provided additional support for model fit. Even the upper bound of RMSEA (.053) was lower than the .08 threshold suggested by Meyers et al. (2013). The standardized factor loadings (i.e., regression weights, $p < .001$) ranged from .603 (LR3) to .955 (PN2), exceeding the minimum standard of .5 for convergent validity of each factor (Hair et al., 2010). The standardized interfactor correlations ($p < .05$) ranged from .112 to .831, indicating that there is sufficient discriminant validity among factors (≤ .90, Kline, 2011). Six interfactor correlations were not significant ($p > .05$): SS-SO, SO-PS, SO-LR, SO-CV, PN-CA, and PN-MT correlations.

To address the issue of potential common method variance (CMV) that had been raised during the EFA procedure, two follow-up analyses were conducted. First, Harman's single-factor model was tested where all of the 32 Training Specific items were loaded onto a single CMV factor (Podsakoff et al., 2003). The χ^2 value was statistically significant ($\chi^2 = 8426.813$, df = 496, $p < .001$). However, model fit indices (CFI = .540; RMSEA = .144 [90% CI: .140 – .148]) demonstrated a very poor model fit, and thus absence of CMV. Second, an unmeasured latent CMV factor analysis was run because Harman's single-factor test is known to be highly conservative in detecting CMV (Podsakoff et al., 2003). A latent CMV factor was added to the 11-factor correlated CFA model, in which all of the 32 items loaded onto the CMV factor with no correlations with the 11 first-order factors (R. E. Johnson, Rosen, & Djurdjevic, 2011). The result showed a problem where the latent variable covariance matrix was not positive, indicating that the CMV model did not fit the data at all. Taken together, no evidence for CMV was detected.

Training General Domain. The CFA results for the Training General Domain of the LTSI indicated that the 5-factor model with 15 items fit the data well: TLI = 0.942; CFI = .956; SRMR = .039; and RMSEA = .063 (90% CI: .053 – .074). However, the χ^2 test was statistically significant ($\chi^2 = 201.461$, df = 80, $p < .001$). The standardized factor loadings ($p < .001$) ranged from .566 (RC1) to .912 (RC3), providing the evidence of convergent validity (Hair et al., 2010). The standardized interfactor correlations ($p < .001$) ranged from .296 to .647, indicating that there are no problems with discriminant validity for the Training General Domain CFA model (≤ .90, Kline, 2011).

Confirmatory Factor Analysis of the KCPI

Based on the EFA results that suggested higher-order factor structure of the KCPI, two measurement models were estimated: a first-order factor and a second-order factor models.

First-order factor model. In the first-order factor model, the 10 KCPI items that resulted from the exploratory procedure were arranged in the four theoretical factors. Although the χ^2 value (90.041) was statistically significant (df =29, $p < .001$), the other indices (TLI = .964; CFI = .977; SRMR = .037; and RMSEA = .075 [90% CI: .058 – .092]) indicated that the model fit the data well. The standardized factor loadings ($p < .001$) were equal to or greater than .675, indicating appropriate convergent validity. The standardized interfactor correlations ($p < .001$) ranged from .710 to .879, suggesting a higher-order factor structure.

Second-order factor model. As shown in Figure 5, the 10 KCPI items were arranged in the four theoretical factors, each of which was related to an overall higher-order Creative Learning Transfer (CLT) factor. Model fit indices (TLI = .964; CFI = .975; SRMR = .039; and RMSEA = .075 [90% CI: .058 – .092]) indicated a good model-data fit. However, the χ^2 test was statistically significant ($\chi^2 = 96.510$, df =31, $p < .001$). The standardized factor loadings ($p < .001$) ranged from .675 to .890. The factor loadings of the first-order factors onto the second-order Creative Learning Transfer factor were .800 (STK), .936 (CCO), .935 (JCO), and .924 (BAA).

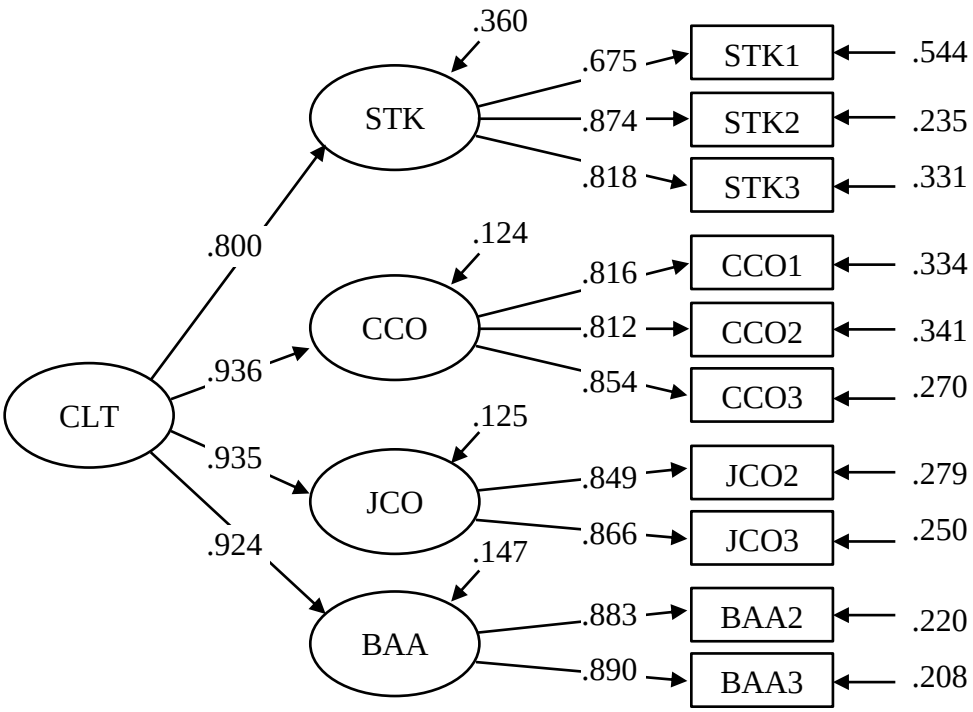

Figure 5. **Second-order factor model of the KCPI.**

Confirmatory Factor Analysis of the SJP

The CFA results for the self-rated Subjective Job Performance measurement model contained a good CFI value (.956), indicating that the one-factor model with 5 items fit the data well. However, not only was the χ^2 test statistically significant (χ^2 = 22.056, df = 5, $p < .001$), but also the RMSEA estimate (.095, 90% CI: .057 – .137) approached the .10 cutoff, which is indicative of a poor-fitting models (Tabachnick & Fidell, 2007). Thus, the TLI and SRMR values were examined to judge the fitness of the model with the data. Taken together, the additional fit indices (TLI = .958, SRMR = .024) indicated good fit. The standardized factor loadings ($p < .001$) ranged from .561 to .819, meeting the requirement for convergent validity.

Results of Reliability Analysis

Reliabilities were estimated for the four scales that were established from the series of EFA and CFA procedures: Training Specific Domains of the LTSI, Training General Domain of the LTSI, KCPI, and SJP. IBM-SPSS 18 was used to obtain the reliabilities (Cronbach's α), which are presented in Table 22.

Table 22
Estimates of Reliability

Scale	Factor	N of Items	Cronbach's α
Training Specific Domain of the LTSI	Supervisor Support (SS)	3	.890
	Supervisor Opposition (SO)	3	.884
	Peer Support (PS)	3	.870
	Personal Outcome Positive (PP)	3	.905
	Personal Outcome Negative (PN)	3	.884
	Learner Readiness (LR)	3	.792
	Opportunity to Use (OU)	2	.730
	Personal Capacity (CA)	3	.818
	Content Validity (CV)	3	.841
	Transfer Design (TD)	3	.877
	Motivation to Transfer (MT)	3	.892
Training General Domain of the LTSI	Performance Self-efficacy (SE)	3	.815
	Resistance to Change (RC)	3	.816
	Performance Coaching (PC)	3	.813
	Transfer Effort Performance Expectation (TP)	3	.869
	Performance Outcome Expectation (PO)	3	.816
KCPI (Creative Learning Transfer)	Sharing Tacit Knowledge (STK)	3	.826
	Creating Concepts (CCO)	3	.870
	Justifying Concepts (JCO)	2	.849
	Building an Archetype (BAA)	2	.883
JP	Subjective Job Performance (SJP)	5	.873

Note. n=753.

According to the general criteria to interpret the Cronbach's α (Meyers et al., 2013), one reliability was excellent ($\alpha \geq .90$), 10 were very good ($.85 \leq \alpha < .90$), 8 were good ($.80 \leq \alpha < .85$), one was acceptable ($.75 \leq \alpha < .80$), and the remaining one was borderline acceptable ($.70 \leq \alpha < .75$) for research purposes. In particular, all of the factors in the research model (Figure 2 in Chapter I) had either good or very good reliabilities ranging from .813 to .892. The factors that are used in the research model were highlighted in Table 22. The four factors in the KCPI were used to construct the Creative Learning Transfer (CLT) factor in the research model (see Figures 1 and 5).

Results of Structural Equation Modeling

The correlations among observed and/or latent variables are used in SEM analysis to estimate parameters in a structural model (Kline, 2011; Raykov & Marcoulides, 2011). Mplus 7.3 was used to compute the bivariate correlations (r) among the supervisor-rated Objective Job Performance (observed variable) and other latent variables that were highlighted in Table 22: Supervisor Support, Motivation to Transfer, Performance Self-efficacy, Resistance to Change, Performance Coaching, Transfer Effort Performance Expectation, Performance Outcome Expectation, Creative Learning Transfer, and Subjective Job Performance. The sample size for computing the correlations differed depending on whether Objective Job Performance (OJP) or Subjective Job Performance (SJP) was entered in the SEM research model. When OJP was used to represent Job Performance in the research model, the valid sample size was 471 out of 753 because the three-month-timeframe was applied to measure Creative Learning Transfer (Cheng & Ho, 2001), and thus Job Performance as well. In other

words, the remaining 282 responses were excluded from the analysis because their Job Performance was measured within three months after completing the leadership programs (see Table 9). On the other hand, the sample size was 753 when the SJP was modeled as the Job Performance variable in the SEM research model. All respondents' self-rated SJP was measured at least three months after their completion of leadership programs. Consequently, two types (i.e., OJP and SJP) of correlation matrices and SEM models were investigated.

Results of Correlation Analysis with Objective Job Performance

As shown in Table 23, all of the correlations were statistically significant ($p < .05$) with the exception of seven pairs of variables with Objective Job Performance (OJP). Resistance to Change (RC) had negative correlations with other variables. As a pivotal factor Supervisor Support (SS) had significant correlations with all of the other variables except OJP. As one of the outcome variables, Creative Learning Transfer (CLT) was also correlated with all of the other variables. The only significant correlation for Objective Job Performance was with Creative Learning Transfer.

Table 23
Bivariate Correlation Matrix for OJP Analysis

	PC	RC	PO	SS	SE	TP	MT	CT
RC	-.439*							
PO	.64*	-.451*						
SS	.571*	-.321*	.513*					
SE	.59*	-.325*	.596*	.449*				
TP	.483*	-.284*	.703*	.432*	.636*			
MT	.507*	-.308*	.471*	.522*	.54*	.569*		

Table 23 (*continued*)

	PC	RC	PO	SS	SE	TP	MT	CT
CLT	.651*	-.292*	.498*	.577*	.667*	.552*	.625*	
OJP	.109	.006	.052	.076	.125	.06	.065	.153*

Note. * p < .05 (Two-tailed). n = 471. RC = Resistance to Change; PO = Performance Outcome Expectation; SS = Supervisor Support; SE = Performance Self-efficacy; TP = Transfer Effort Performance Expectation; MT = Motivation to Transfer; CLT = Creative Learning Transfer; OJP = Objective Job Performance.

Results of Correlation Analysis with Subjective Job Performance

As shown in Table 24, all of the correlations were statistically significant (p < .05) with the exception of four pairs of variables with Subjective Job Performance (SJP). Resistance to Change (RC) had negative correlations with other variables as in the correlation matrix for Objective Job Performance analysis. Supervisor Support (SS) had significant correlations with all of the other variables except Subjective Job Performance. Creative Learning Transfer (CLT) was also correlated with all of the other variables. Subjective Job Performance was correlated with Resistance to Change, Performance Self-efficacy (SE), Motivation to Transfer (MT), and Creative Learning Transfer.

Table 24
Bivariate Correlation Matrix for SJP Analysis

	PC	RC	PO	SS	SE	TP	MT	CT
RC	-.457*							
PO	.659*	-.42*						
SS	.554*	-.328*	.498*					
SE	.609*	-.347*	.593*	.454*				
TP	.485*	-.259*	.699*	.42*	.609*			
MT	.479*	-.3*	.487*	.526*	.531*	.59*		

Table 24 (*continued*)

	PC	RC	PO	SS	SE	TP	MT	CT
CLT	.619*	-.306*	.501*	.588*	.69*	.558*	.647*	
SJP	.109	-.114*	.003	.013	.332*	.085	.108*	.253*

Note. * p < .05 (Two-tailed). n = 753. RC = Resistance to Change; PO = Performance Outcome Expectation; SS = Supervisor Support; SE = Performance Self-efficacy; TP = Transfer Effort Performance Expectation; MT = Motivation to Transfer; CLT = Creative Learning Transfer; SJP = Subjective Job Performance.

Results of Structural Equation Modeling with Objective Job Performance

The present structural model, as shown schematically in Figure 6, was used to assess the direct and indirect effects of seven latent predictors on Creative Learning Transfer and Objective Job Performance. Mplus 7.3 was used to obtain all of the standardized (STDYX) parameters. On the schematic diagram, the parameters were statistically significant ($p < .05$), and non-significant values were not presented. Thus, the dotted arrows signify non-significant path coefficients.

Although the χ^2 test was statistically significant ($\chi^2 = 1032.130$, df = 442, $p < .001$), and SRMR (.090) was over .08, the other indices were within a range that would be associated with good fit: TLI = .929; CFI = .937; and RMSEA = .053 (90% CI: .049 – .057). The path coefficients ranged from .187 (between Creative Learning Transfer and Objective Job Performance) to .676 (between Performance Outcome Expectation and Transfer Effort Performance Expectation).

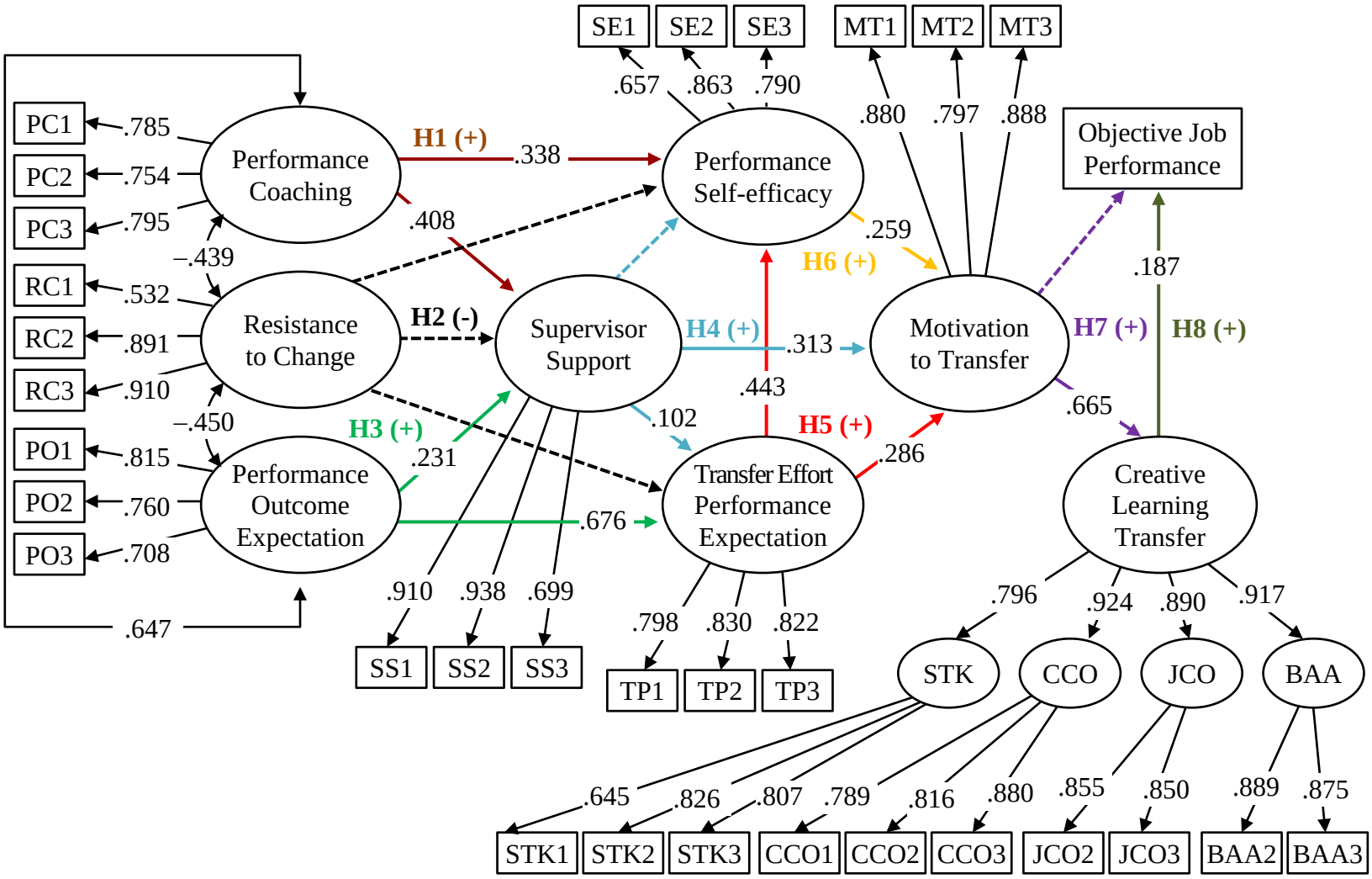

***Figure 6*. Results of structural equation modeling with Objective Job Performance.**

Overall, five hypotheses (H1, H3, H5, H6, and H8) were fully supported, two (H4 and H7) were partially supported, and one (H2) was rejected. The squared multiple correlations (R^2) ranged from .025 (Objective Job Performance) to .515 (Performance Self-efficacy). The R^2 for Objective Job Performance (OJP) was .025, suggesting that 2.5% of the OJP variance is accounted for by this structural model. The R^2 estimates are presented in Table 25.

Table 25
Squared Multiple Correlations (R^2) in the SEM OJP Model

Factor/Variable	R^2	S.E.
Supervisor Support (SS)	.365	.042
Transfer Effort Performance Expectation (TP)	.508	.046
Performance Self-efficacy (SE)	.515	.043
Motivation to Transfer (MT)	.491	.039
Creative Learning Transfer (CLT)	.442	.042
Objective Job Performance (OJP)	.025	.015

Note. S.E. = Standard Error. n = 471.

Results of Structural Equation Modeling with Subjective Job Performance

In this model, the Objective Job Performance item was replaced with a Subjective Job Performance factor that consisted of five observed items. In Figure 7, the parameters were statistically significant ($p < .05$), and non-significant values were not presented. Except the significant χ^2 test ($\chi^2 = 1503.603$, df = 571, $p < .001$) and SRMR (.083), the goodness of fit diagnostics [TLI = .939; CFI = .945; and RMSEA = .047 (90% CI: .044 – .049)] indicated that the model provided a good overall fit.

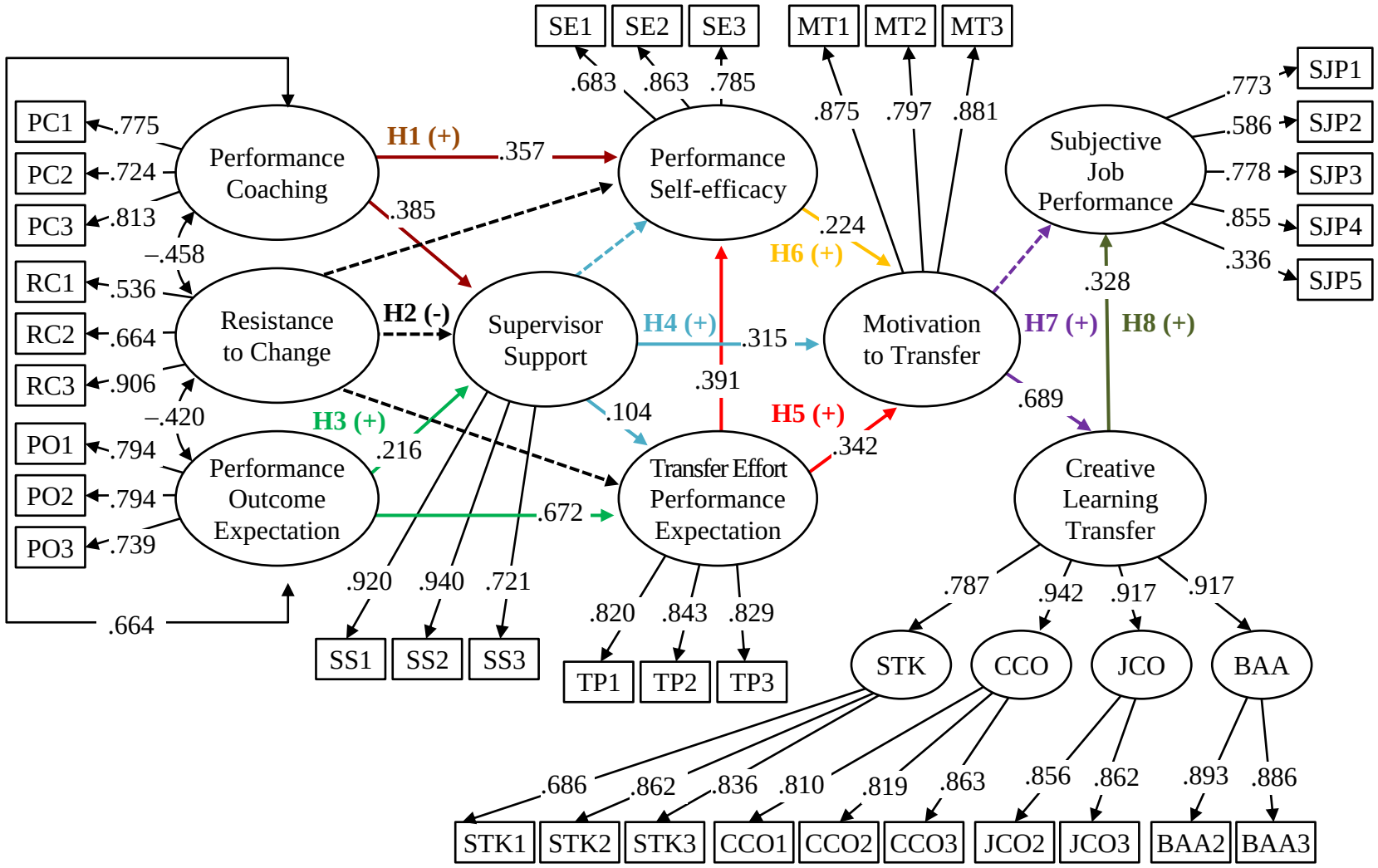

***Figure 7*. Results of structural equation modeling with Subjective Job Performance.**

The path coefficients ranged from .104 (between Supervisor Support and Transfer Effort Performance Expectation) to .689 (between Motivation to Transfer and Creative Learning Transfer). In this model, five hypotheses (H1, H3, H5, H6, and H8) were fully supported, two (H4 and H7) were partially supported, and one (H2) was rejected. The squared multiple correlations (R^2) ranged from .070 (Subjective Job Performance) to .512 (Motivation to Transfer). The R^2 for Subjective Job Performance (SJP) was .070, suggesting that 7% of the SJP variance was accounted for by this structural model. The R^2 estimates are presented in Table 26.

Table 26
Squared Multiple Correlations (R^2) in the SEM SJP Model

Factor	R^2	S.E.
Supervisor Support (SS)	.342	.033
Transfer Effort Performance Expectation (TP)	.507	.034
Performance Self-efficacy (SE)	.500	.036
Motivation to Transfer (MT)	.512	.031
Creative Learning Transfer (CLT)	.475	.032
Subjective Job Performance (SJP)	.070	.021

Note. S.E. = Standard Error. n = 753.

Results of Thematic Analysis

Along with the 66 quantitative variables, two open-ended questions were included in the survey instrument to gather data to investigate Research Question 3 in terms of enablers and barriers of creative learning transfer. Of the total 753 respondents to the quantitative items, 277 individuals completed the first open-ended question about enablers, and 472 individuals answered the second one about barriers. Thematic analysis

was conducted to find emerging themes in the qualitative data using Microsoft Excel. Frequencies of all codes comprising the themes were included in the result tables (Tables 27 and 28) for an exploratory purpose for later research.

Enablers of Creative Learning Transfer

As a result of the four-phase analysis (Braun & Clarke, 2006), initially 333 codes were generated from the 277 responses to the question of enablers. The initial codes were used to find subthemes and main themes, which are presented in Table 27. Four main themes and 16 subthemes were tabulated in order of frequency: *Organizational Culture* with five subthemes (139 codes); *Training Program* with three subthemes (99 codes); *Individual Characteristics* with five subthemes (74 codes); and *Work System* with three subthemes (21 codes).

Table 27
Enablers of Creative Learning Transfer

Main Theme	Subtheme	Frequency of Codes
Organizational Culture	*Supportive Organizational Culture*	37
	Senior Support	37
	Change-oriented Culture	30
	Peer Support	25
	Fair Performance Reward	10
	Subtotal	139
Training Program	*Effective Training Method*	49
	Relevance of Training Content	46
	Follow-up Training	4
	Subtotal	99

Table 27 (continued)

Main Theme	Subtheme	Frequency of Codes
Individual Characteristics	*Individual Ability*	33
	Motivation	17
	Creativity	11
	Positive Individual Attitudes	8
	Sense of Responsibility	5
	Subtotal	74
Work System	*Sufficient Time to Transfer*	15
	Effective Work Process	3
	Reasonable Workload	3
	Subtotal	21
	Total	333

Note. n = 277.

Of the 16 subthemes, the most frequent one was *Effective Training Method* (49), followed by *Relevance of Training Content* (46), *Supportive Organizational Culture* (37), and *Senior Support* (37). The first two frequent subthemes constituted the main theme of the *Training Program*, while the other two generated the main theme of *Organizational Culture*. The most frequent subthemes in *Individual Characteristics* and *Work System* were *Individual Ability* (33) and *Sufficient Time to Transfer* (15), respectively.

Barriers of Creative Learning Transfer

With regard to barriers of creative learning transfer, initially 561 codes were generated from the 472 responses to the corresponding question. Frequency of initial codes, subthemes, and main themes are presented in Table 28. Four main themes and 13 subthemes were tabulated in order of frequency: *Work System* with three subthemes (207 codes); *Organizational Culture* with five subthemes (204 codes); *Training Program*

with three subthemes (144 codes); and *Individual Characteristics* with two subthemes (6 codes).

Table 28
Barriers of Creative Learning Transfer

Main Theme	Subtheme	Frequency of Codes
Work System	*Lack of Time to Transfer*	129
	Heavy Workload	75
	Ineffective Work Process	3
	Subtotal	207
Organizational Culture	*Unsupportive Organizational Culture*	85
	Change-resistant Culture	72
	Senior Opposition	27
	Short-sighted Performance Reward	17
	Peer Opposition	3
	Subtotal	204
Training Program	*Irrelevance of Training Content*	120
	Ineffective Training Method	14
	Lack of Follow-up Training	10
	Subtotal	144
Individual Characteristics	*Lack of Motivation*	4
	Individual Inability	2
	Subtotal	6
	Total	561

Note. n = 472.

Of the 13 subthemes, the most frequent one was *Lack of Time to Transfer* (129), followed by *Irrelevance of Training Content* (120) and *Unsupportive Organizational Culture* (85). The first three frequent subthemes constituted the main theme of *Work System, Training Program,* and *Organizational Culture*, respectively. The most frequent subtheme in *Individual Characteristics* was *Lack of Motivation* (4).

CHAPTER V

DISCUSSIONS, IMPLICATIONS, AND LIMITATIONS

This chapter consists of three major sections: discussions, implications, and limitations. In the first section, the research questions and corresponding hypotheses are discussed on the basis of the analysis results and findings. In the second section, implications of the current study for HRD research, practice, and theory are provided. Limitations of the current study are discussed in the third section.

Discussions

In this section, the two quantitative and one qualitative research questions (RQ) of the current study are discussed by interpreting the results and comparing them to those of literature. For the second RQ, the results of testing the eight hypotheses are discussed.

RQ 1: Validity of the LTSI Data in Korea

RQ 1 was developed to examine whether or not the properties of the LTSI data collected from the Korean companies were represented by the same factor structure as one that emerged in the U.S. context. The results of EFA and CFA of the LTSI data indicated that the instrument was applicable to the Korean context with acceptable pattern coefficients, reliabilities, and convergent and discriminant validities among the factors in both the Training Specific and Training General Domains. The Training Specific scale of the LTSI was validated to measure the 11 factors in the domain: Supervisor Support, Supervisor Opposition, Peer Support, Personal Outcome Positive,

Personal Outcome Negative, Learner Readiness, Opportunity to Use, Personal Capacity, Content Validity, Transfer Design, and Motivation to Transfer. All of the factors were measured by three items except the Opportunity to Use factor, which had two items. Although one item (OU3) of the Opportunity to Use factor had been dropped during the EFA process, The Training Specific scale was judged to be valid to use in the Korean context because the lowest reliability (Cronbach's $\alpha = .730$) of the factor with two items was still within the acceptable range for research purposes (Tabachnick & Fidell, 2007). The problematic item (OU3) had a factor loading on both Opportunity to Use (.243) and Content Validity (–.286) factors, showing that the item was interpreted by respondents as having dual meanings. In other words, it appears that the respondents also interpreted the item, besides its original meaning, in relation to the relevance of the training content to their jobs. The original English item of OU3 was translated into a Korean item that corresponded to a backward-translated English item; *I will have opportunities to apply what I learned from the training program to my job tasks*. In the Korean context, it is likely that the broad meaning of *opportunities* caused confusion among respondents, having them evaluate how much the training content was relevant to their jobs (Content Validity), and thus the extent to which the training created opportunities to use what they had learned. With regard to common method variance (CMV) that may deteriorate the internal validity of a higher order factor model (R. E. Johnson et al., 2011; Podsakoff et al., 2003), no CMV bias was found.

On the other hand, the Training General scale of the LTSI was found to be valid in the Korean context to measure the five factors in the domain: Performance Self-

efficacy, Resistance to Change, Performance Coaching, Transfer Effort Performance Expectation, and Performance Outcome Expectation with no single problematic item. All of the factors were measured by three items. The good or very good reliability estimates ($.80 \leq \alpha \leq .90$) of the five factors demonstrated that the managers responded in a consistent manner to the 15 items in the Training General Domain.

Taken together, this research yielded the LTSI-Korean (LTSI-K) version with 47 items (three items per factor except Opportunity to Use with two items) to measure 11 factors in the Training Specific Domain and five factors in the Training General Domain. The standardized factor loadings of .05 or higher during the CFA provided an evidence for convergent validity of the LTSI-K, suggesting that the measures of each item within a factor represent the same latent construct (Hair et al., 2010). Furthermore, discriminant validity of the LTSI-K was supported by absence of high cross-loadings during the EFA ($\leq .40$, Hair et al., 2010) and absence of high interfactor correlations during the CFA ($\leq .90$, Kline, 2011). These results indicate that individual measured items within a factor represent only one latent construct, and thus a factor captures some unique properties that other factors do not in each domain of the LTSI-K.

RQ 2: Structural Relationships among Learning Transfer Factors

RQ 2 was developed to investigate the structural relationships among the seven major predictors of learning transfer, Creative Learning Transfer, and Job Performance based on the theoretical foundation of the current study (see Figure 1). To answer RQ 2, eight hypotheses were developed on a research model (see Figure 2), which required the use of structural equation modeling (SEM). In accordance with the two types of Job

Performance consisting of Objective Job Performance (OJP) and Subjective Job Performance (SJP) in the current study, the eight hypotheses were tested on the two types of sub-models: SEM with OJP (see Figure 6) and SEM with SJP (see Figure 7). Interpretations and discussions of the results are followed.

Hypothesis 1: The Positive Effects of Performance Coaching

According to Hypothesis 1, the positive effects of Performance Coaching on Performance Self-efficacy and Supervisor Support would be manifested by positive structural path coefficients. Based on the empirical data of the current study, Hypothesis 1 was fully supported. The path coefficients from Performance Coaching to Performance Self-efficacy in both SEM with OJP ($\gamma = .338$) and SEM with SJP ($\gamma = .357$) were significant ($p < .05$). The path coefficients from Performance Coaching to Supervisor Support in both SEM with OJP ($\gamma = .408$) and SEM with SJP ($\gamma = .385$) were also significant ($p < .05$). These results indicate that Performance Coaching is a predictor of Performance Self-efficacy and Supervisor Support regardless of whether Objective Job Performance or Subjective Job Performance is an ultimate outcome variable of learning transfer. These positive effects of Performance Coaching on both Performance Self-efficacy and Supervisor Support provide evidence of influence that the Transfer General factors have on Transfer Specific factors (see Figure 2 and Table 2). Therefore, these results bolster the applicability of the theory of planned behavior (Ajzen, 1991) to the learning transfer situation. In addition, these results not only buttress but also expand the previous empirical findings that indicated the positive interfactor correlations of

Performance Coaching with Performance Self-efficacy and Supervisor Support (Bates et al., 2012; Devos et al., 2007; Weldy, 2007).

Hypothesis 2: The Negative Effects of Resistance to Change

Hypothesis 2 is as follows: The negative effects of Resistance to Change on Performance Self-efficacy, Supervisor Support, and Transfer Effort Performance Expectation would be manifested by negative structural path coefficients. Based on the empirical data of the current study, Hypothesis 2 was rejected. All of the path coefficients from Resistance to Change (RC) to Performance Self-efficacy (SE), Supervisor Support (SS), and Transfer Effort Performance Expectation (TP) in both the SEM with OJP and the SEM with SJP models were not significant ($p > .05$). These results indicated that RC is not a predictor of SE, SS, and TP in the SEM models. The results suggested that the effects of RC on SE, SS, and TP might have been confounded by the two correlated factors (MacKinnon, Krull, & Lockwood, 2000; Meyers et al., 2013): Performance Coaching (PC) and Performance Outcome Expectation (PO).

According to MacKinnon et al. (2000), the confounding effect takes place when the association between an independent and dependent variable reduces or cancels out due to the addition of a confounding variable to the structural equation. Thus, two follow-up analyses were independently conducted to scrutinize the potential confounding situations. First, PC was removed from the two SEM models, which yielded the significant ($p < .05$) RC–SE and RC–SS path coefficients: in the SEM OJP model, –.117 and –.113, respectively; and in the SEM SJP model, –.158 and –.146, respectively. These results demonstrated that both RC–SE and RC–SS were confounded

by PC. In other words, once the influence of PC on SE and SS were statistically accounted for, the correlations of RC with SE and SS would cancel out.

Second, PO was removed from the two SEM models, which yielded the significant ($p < .05$) RC–TP path coefficient (–.173) in the SEM OJP model and the RC–SS (–.084) and RC–TP (–.147) path coefficients in the SEM SJP model. These results demonstrated that RC–TP in the SEM OJP model and RC–SS and RC–TP in the SEM SJP model were confounded by PO. That is, once the influence of PO on SS and TP were statistically accounted for, the correlations of RC with TP in the SEM OJP model as well as with SS and TP in the SEM SJP model would cancel out. Taken together, these results revealed that the effects of Resistance to Change on the three factors in the Transfer Specific Domain were counterbalanced because of the effects of Performance Coaching and Performance Outcome Expectation. Thus, researchers would need to pay more attention on these two factors than Resistance to Change.

Hypothesis 3: The Positive Effects of Performance Outcome Expectation

As stated in Hypothesis 3, the positive effects of Performance Outcome Expectation on Supervisor Support and Transfer Effort Performance Expectation would be manifested by positive structural path coefficients. Based on the empirical data of the current study, Hypothesis 3 was fully supported. The path coefficients from Performance Outcome Expectation on Supervisor Support in both SEM with OJP ($\gamma = .231$) and SEM with SJP ($\gamma = .216$) were significant ($p < .05$). The path coefficients from Performance Outcome Expectation on Transfer Effort Performance Expectation in both SEM with OJP ($\gamma = .676$) and SEM with SJP ($\gamma = .672$) were also significant ($p < .05$). These

results indicate that Performance Outcome Expectation is a predictor of Supervisor Support and Transfer Effort Performance Expectation regardless of whether Objective Job Performance or Subjective Job Performance is an ultimate outcome variable of learning transfer. Along with Hypothesis 1, these results provide evidence of influence that the Transfer General factors have on Transfer Specific factors, as underpinned by the theory of planned behavior (Ajzen, 1991). In addition, these results supplement the previous empirical findings that were reported for the positive interfactor correlations of Performance Outcome Expectation with Supervisor Support and Transfer Effort Performance Expectation (Bates et al., 2012; Devos et al., 2007; Weldy, 2007).

Hypothesis 4: The Positive Effects of Supervisor Support

According to Hypothesis 4, the positive effects of Supervisor Support on Performance Self-efficacy, Transfer Effort Performance Expectation, and Motivation to Transfer would be manifested by positive structural path coefficients. Based on the empirical data of the current study, Hypothesis 4 was partially supported. First, the path coefficients from Supervisor Support (SS) to Performance Self-efficacy (SE) were not significant ($p > .05$) in both SEM OJP and SEM SJP models. These results contradict previous research that found significant relationship between managerial support and self-efficacy (Ford et al., 1992) as well as mediating effect of self-efficacy between managerial support and training outcomes (Colquitt et al., 2000). Despite the medium to large correlations ($.30 < r < .50$, $p < .05$) between SS and SE (see Table 23 and 24), it appeared that the influence of Performance Coaching (PC; $\gamma = .338$ and .357 in Figure 6 and 7, respectively, $p < .05$) on SE offset the effects of SS on SE. A closer look

identified a "confounding model" (MacKinnon et al., 2000, p. 174) that consists of SS, SE, and PC acting as the confounding factor. The confounding effect of PC on the relationship between SS and SE was confirmed by the result of the same follow-up analysis as the one used in the Hypothesis 2 discussion.

Second, the path coefficients from SS to Motivation to Transfer (MT) were significant ($p < .05$) in both SEM OJP ($\beta = .313$) and SEM SJP ($\beta = .315$) models. Thus, it was found that the superior managers' support was a critical motivator for the subordinate managers to apply the leadership training to their jobs. This result corresponds to the previous research (Al-Eisa et al., 2009; Devos et al., 2007; Hill et al., 1987) in which the direct effect of managerial support on employees' motivation to transfer the training to the job was reported.

Third, the path coefficient from SS to Transfer Effort Performance Expectation (TP) was significant ($p < .05$) in both SEM OJP ($\beta = .102$) and SEM SJP ($\beta = .104$) models. Given the medium to high correlations ($.30 < r < .50$, $p < .05$) between SS and TP in both models (see Table 23 and 24), it appeared that the direct effect of Performance Outcome Expectation (PO; $\gamma = .676$ and .672 in Figure 6 and 7, respectively, $p < .05$) on TP attenuated the influence of SS on TP. The confounding effect of PO was confirmed by the same follow-up analysis as the one used in the Hypothesis 2 discussion to detect the effect (MacKinnon et al., 2000).

Overall, the findings of the confounding effects of PC and PO on SS indicate that the significant effect of SS on SE and TP would be offset when other organizational factors in the Transfer General Domain are entered in a structural model. These findings

appear to represent the theoretical rational (Ajzen, 1991; Bates, 2003) of the current study by which SS was chosen as the mediator between the Transfer General Domain and the other two factors in the Transfer Specific Domain: The superior managers are not only the most "important referent individuals" (Ajzen, 1991, p. 195) to managers, but also "effective transfer agents" (Bates, 2003, p. 253) of the organization. In the absence of the Transfer General factors, the superior managers' support would substitute for the Transfer General factors' effects, acting as an agent of them. On the contrary, in the presence of the Transfer General factors, the superior managers' agential effect would be counterbalanced. It appears that the subordinate managers' perception of their superior managers as agents of the organization pertains to the superior managers' evaluations of the subordinates' job performance (Eisenberger, Stinglhamber, Vandenberghe, Sucharski, & Rhoades, 2002).

Hypothesis 5: The Positive Effects of Transfer Effort Performance Expectation

Hypothesis 5 is as follows: The positive effects of Transfer Effort Performance Expectation on Performance Self-efficacy and Motivation to Transfer would be manifested by positive structural path coefficients. Based on the empirical data of the current study, Hypothesis 5 was fully supported. The path coefficients from Transfer Effort Performance Expectation to Performance Self-efficacy in both SEM with OJP ($\beta = .443$) and SEM with SJP ($\beta = .391$) were significant ($p < .01$). The path coefficients from Transfer Effort Performance Expectation to Motivation to Transfer in both SEM with OJP ($\beta = .286$) and SEM with SJP ($\beta = .342$) were also significant ($p < .05$). These results indicate that Transfer Effort Performance Expectation is a predictor of

Performance Self-efficacy and Motivation to Transfer regardless of whether Objective Job Performance or Subjective Job Performance is an ultimate outcome variable of learning transfer. Of relevance to these results is the previous finding that training motivation was influenced by the expectation that the training would result in performance improvement (Clark et al., 1993).

Hypothesis 6: The Positive Effects of Performance Self-efficacy

As stated in Hypothesis 6, the positive effect of Performance Self-efficacy on Motivation to Transfer would be manifested by a positive structural path coefficient. Based on the empirical data of the current study, Hypothesis 6 was fully supported. The path coefficients from Performance Self-efficacy on Motivation to Transfer in both SEM with OJP ($\beta = .259$) and SEM with SJP ($\beta = .224$) were significant ($p < .05$). These results indicate that Performance Self-efficacy is a predictor of Motivation to Transfer regardless of whether Objective Job Performance or Subjective Job Performance is an ultimate outcome variable of learning transfer. Of relevance to these results are previous studies (Al-Eisa et al., 2009; Devos et al., 2007; Hill et al., 1987) in which a direct effect of self-efficacy on transfer intention or learning transfer was reported.

Hypothesis 7: The Positive Effects of Motivation to Transfer

According to Hypothesis 7, the positive effects of Motivation to Transfer on Creative Learning Transfer and Job Performance would be manifested by positive structural path coefficients. Based on the empirical data of the current study, Hypothesis 7 was partially supported. The path coefficients from Motivation to Transfer to Creative Learning Transfer in both SEM with OJP ($\beta = .665$) and SEM with SJP ($\beta = .689$) were

significant ($p < .05$). However, the path coefficients from Motivation to Transfer to Job Performance were not significant ($p > .05$). These results demonstrate two facts: Motivation to Transfer is a predictor of Creative Learning Transfer regardless of whether Objective Job Performance or Subjective Job Performance is an ultimate outcome variable of learning transfer; and Motivation to Transfer has no direct effect on Job Performance, independent of the ways in which the performance was appraised.

Given the lack of empirical research examining the relationship between transfer motivation and actual learning transfer (Egan, 2008; Gegenfurtner et al., 2009), the findings of Hypothesis 7 provide a missing piece of the puzzle that may be used to depict the importance of transfer motivation in the entire learning transfer system. Furthermore, it was found that Motivation to Transfer had a large effect (Kotrlik & Williams, 2003) on Creative Learning Transfer ($R^2 \geq .260$ in Table 25 and 26), which is an underemphasized and unexplored concept, compared with that of near transfer. On the other hand, the non-significant effect of Motivation to Transfer on Job Performance does not correspond to the published literature (Ajzen, 1991; Locke, 1968; Vroom, 1964) in which intention was viewed as a determinant of job performance. This result suggests that transfer motivation should be distinguished from work motivation or intention.

Hypothesis 8: The Positive Effects of Creative Learning Transfer

Hypothesis 8 is as follows: The positive effect of Creative Learning Transfer on individual Job Performance would be manifested by a positive structural path coefficient. Based on the empirical data of the current study, Hypothesis 8 was fully supported. First, the path coefficient from Creative Learning Transfer on Objective Job Performance (OJP)

was significant ($\beta = .187$, $p < .05$). In this model, a small effect size (Kotrlik & Williams, 2003) was reported for OJP ($R^2 = .025$), indicating that 2.5% of the total variance of OJP was explained by the model. Second, the path coefficient from Creative Learning Transfer on Subjective Job Performance (SJP) was significant ($\beta = .328$, $p < .05$). This model also yielded a small effect size for SJP ($R^2 = .070$), suggesting that 7% of the total variance of SJP was accounted for by the model. As presented in Figures 6 and 7, the two models demonstrated that Creative Learning Transfer mediated the indirect effect of Motivation to Transfer on Job Performance. Despite the statistically small effect sizes for OJP and SJP, these findings may make a meaningful contribution to the literature for two reasons: (a) given that managers' job performances are determined by numerous factors, the effects of applying the single leadership training program to the job are practically significant; and (b) the current study is a first attempt to verify the influence of Creative Learning Transfer on Job Performance.

RQ 3: Enablers and Barriers for Creative Learning Transfer

Research Question 3 was developed to identify enablers and barriers for creative learning transfer that may not have been measured by the LTSI-K. To capture the emerging themes from the open-ended questions, three steps were taken: first, the enablers in Table 27 and the barriers in Table 28 were integrated by matching two similar subthemes across the two tables and merging the subthemes into a theme; second, the total frequency of codes in each theme was calculated by adding the frequency of positive codes for enablers (Table 27) to that of the negative codes for barriers (Table 28) in the corresponding subthemes across the two tables; and, finally, each of the themes

were compared with the factors of the LTSI-K to find unique emerging themes that did not correspond to the factors. The unique themes stemming from the qualitative data as well as duplicate themes with one of the factors in the LTSI-K are presented in Table 29. By definition of the factor, Personal Capacity corresponded to two themes: *Sufficient / Lack of Time to Transfer* and *Reasonable / Heavy Workload*.

Table 29
Emerging Themes for Creative Learning Transfer

Factors of the LTSI-K	Themes from Qualitative Data	*f* of PC	*f* of NC	Total
Content Validity	*Relevance / Irrelevance of Training Content*	46	120	166
Personal Capacity	*Sufficient / Lack of Time to Transfer*	15	129	144
Resistance to Change	*Change-oriented / Change-resistant Culture*	30	72	102
Personal Capacity	*Reasonable / Heavy Workload*	3	75	78
Supervisor Support / Opposition	*Senior Support / Opposition*	37	27	64
Transfer Design	*Effective / Ineffective Training Method*	49	14	63
Peer Support	*Peer Support / Opposition*	25	3	28
Performance Outcome Expectation	*Fair / Short-sighted Performance Reward*	10	17	27
Motivation to Transfer	*Motivation / Lack of Motivation*	17	4	21
N/A (Unique Themes)	*Supportive / Unsupportive Organizational Culture*	37	85	122
	Individual Ability / Inability	33	2	35
	Follow-up / Lack of Follow-up Training	4	10	14
	Creativity	11	0	11

Table 29 (*continued*)

Factors of the LTSI-K	Themes from Qualitative Data	*f* of PC	*f* of NC	Total
N/A (Unique Themes)	*Positive Individual Attitude*	8	0	8
	Effective / Ineffective Work Process	3	3	6
	Sense of Responsibility	5	0	5
Total		333	561	894

Note. *f* of PC = Frequency of Positive Codes; *f* of NC = Frequency of Negative Codes.

Seven emerging themes for creative learning transfer were determined, which were not captured by the LTSI-K: (1) *Supportive or Unsupportive Organizational Culture*; (2) *Individual Ability or Inability*; (3) *Follow-up or Lack of Follow-up Training*; (4) *Creativity*; (5) *Positive Individual Attitude*; (6) *Effective or Ineffective Work Process*; and (7) *Sense of Responsibility*. First, *Supportive or Unsupportive Organizational Culture* consisted of such positive codes as open communication, dialogue and discussion, and interdepartmental cooperation, as well as such negative codes as lack of communication, rigid organizational culture, and lack of interdepartmental cooperation. Second, the codes for *Individual Ability or Inability* included problem solving and strategic thinking skills. Third, *Follow-up or Lack of Follow-up Training* emerged from such codes as training content summaries and relapse. Fourth, *Creativity* was composed only of positive codes such as creative thinking and brainstorming. Fifth, *Positive Individual Attitude* contained only positive codes such as enthusiasm and willingness to try challenging tasks. Sixth, *Effective or Ineffective Work Process* included the codes such as idea sharing systems and lack of information sharing. Finally, *Sense of Responsibility* contained such positive codes as sense of ownership and responsibility to

manage. Although these seven themes were not measured by the LTSI-K, some of those were deemed to have relationships with creative learning transfer or, in more general, learning transfer within literature. For example, Dixon-Krausse (2006) and Roussel (2014) suggested that creative learning transfer required individuals' creativity. Posttraining follow-up and relapse prevention (Russ-Eft, 2002), accountability (L. A. Burke & Hutchins, 2007), and individuals' job attitudes (Holton, 2005; Nair, 2007) were also included in the list of possible predictors of learning transfer.

The remaining nine themes were conceptually equivalent to the nine factors of the LTSI-K. Of those nine factors, four had already been entered in the research model (Figure 2) and analyzed (Figure 6 and 7): Resistance to Change, Supervisor Support, Performance Outcome Expectation, and Motivation to Transfer. Interestingly, *Change-oriented or Change-resistant Culture* had the highest frequency of total codes (102) among the themes corresponding to the four factors, but the effect of Resistance to Change in the research model was not significant. This finding suggests that a theme with high frequency in Table 29 would not necessarily have statistically significant high impact on other variables in a structural model of creative learning transfer. In a similar vein, the remaining three factors (Supervisor Support, Performance Outcome Expectation, and Motivation to Transfer) had statistically significant effects in the research model of the current study, despite the relatively low frequencies of codes for the themes equivalent to the factors. The findings in Table 29 also indicate that creative learning transfer could be influenced by the five factors that were not included in the research model of the current study: Content Validity, Personal Capacity, Supervisor

Opposition, Transfer Design, and Peer Support. These five factors had been intentionally excluded from the research model based on the theoretical framework and purpose of the current study (see Figure 1 and Table 2).

In sum, the findings of the thematic analysis revealed 16 themes as possible predictors of creative learning transfer. Of those, seven were unique themes that were not captured by the LTSI-K, and nine were equivalent to the nine factors of the LTSI-K. Of those nine factors, four had been entered into the research model, and three of them yielded significant path coefficients. It was also found that none of the 16 themes was compatible with any of the remaining seven factors in the LTSI-K: Transfer Effort Performance Expectation, Learner Readiness, Performance Self-efficacy, Performance Coaching, Opportunity to Use, Personal Outcome Positive, and Personal Outcome Negative. Taken together, the results of the thematic analysis may provide potential creative learning transfer predictors either different from or duplicate with the LTSI-K factors. Also, the results suggest that the frequency of codes must be used only to explore a pool of the possible predictors, rather than for the purpose of determining a magnitude or statistical significance of effect that a predictor has on creative learning transfer.

Implications

Multiple implications emerged from the current empirical research. Based on the results and discussion, implications for HRD research, practice, and theory in the international context are suggested.

Implications for HRD Research

The current study provides five implications for the HRD researchers. First, researchers can administer the LTSI-K 47-item version to Korean employees in the company setting to identify both enablers and barriers for creative learning transfer and, in more general terms, learning transfer. Construct validity of the LTSI-K was ensured by face validity, good reliability, convergent validity, discriminant validity, criterion-related validity, and nomological validity (Hair et al., 2010). Although one item of the Opportunity to Use factor was dropped during the EFA procedure, the factor met all of the criteria for establishing construct validity. Researchers who desire an equal number of items per scale (Durvasula, Netemeyer, Andrews, & Lysonski, 2006; Worthington & Whittaker, 2006) may conduct an additional validation study by adding more items in the scale or revising the problematic item. This study provides evidence of applicability of the shortest English version with 48 items of the LTSI to the international context. Given the problem that the previous version of the LTSI caused respondents' higher fatigue and refusal rate due to its lengthy 89 items (Bates et al., 2012; Nair, 2007), the current study may contribute to establishing a more practical and accessible instrument for researchers in the international context. From a long-term perspective, future research may be facilitated to examine relevance of the learning transfer structure across different cultural contexts and thus a fundamental pattern of human learning and application at work.

Second, a critical implication is drawn from theorizing the latent construct of creative learning transfer and its mediating role between learning transfer predictors and

job performance. In the current study, an initial attempt was made to measure the creative learning transfer construct within managers by contextualizing organizational knowledge creation theory (Nonaka & Takeuchi, 1995) to the leadership learning transfer situation in companies. Given the rapidly changing global business, technology, and customer needs, companies must constantly innovate, create, and transform to survive in the market. Thus, it is imperative for HRD professionals to build a work environment in which managers are able to apply learned leadership knowledge and skills to novel situations and tasks to create a more competitive work system, product, and service. In doing so, researchers may build upon the findings of the current study to frame and measure the creative learning transfer concept.

Third, the findings of the current study sufficiently supported the hypothesized relationships among the factors in the Transfer General, Transfer Specific, Transfer Intention, and Transfer Outcomes Domains (Figure 2, 6, and 7). Overall, the findings shed light on the mechanism of how to motivate managers to transfer learned leadership skills to novel situations and contexts to increase their managerial job performance. However, some of the hypotheses were either not fully or were partially supported due to "confounding effects" (MacKinnon et al., 2000, p. 178). Considering numerous variables and complex relationships among them that may affect learning transfer in the workplace (Blume et al., 2010), the results of the current study may represent a closer approximation of the reality. Researchers will need to include as many variables as possible in their research model (Cheung & Lau, 2008), while maintaining parsimony to a certain degree, to untangle the realistic and complicated relationships among the

variables. If any confounding effects were detected in the research model, researchers would need to compare their results with those of the current study to figure out the reason. The first step of the endeavor would be to test the research model of the current study in the US as well as other countries by using the framework of the four domains.

Fourth, another implication pertains to measuring Job Performance for research purposes. In the current study, two sources of job performance data of managers were obtained to test the research model: senior manager-rated Objective Job Performance and self-rated Subjective Job Performance. When each measure of job performance was independently entered into the research model (Figure 6 and 7, respectively), the two models yielded slightly different results from one another. The results indicate that the performance ratings from the two sources do not agree, which is also demonstrated with a correlation coefficient of 0.509 (n=753) between Objective and Subjective Job Performances. The disagreement can represent a different aspect of an individual's job performance (Werner & DeSimone, 2009). In this sense, the results of the two models provide richer information, compared with a sole model that contains performance ratings from a single source. However, lack of agreement also may be a sign of potential biases among raters. Thus, researchers would need to use multiple source performance appraisal information as an alternative to measuring job performance.

Fifth, the last implication for research is drawn from the thematic analysis results, which yielded the seven potential factors for creative learning transfer: (1) *Supportive or Unsupportive Organizational Culture*; (2) *Individual Ability or Inability*; (3) *Follow-up or Lack of Follow-up Training*; (4) *Creativity*; (5) *Positive Individual Attitude*; (6)

Effective or Ineffective Work Process; and (7) *Sense of Responsibility*. Although the effects of posttraining follow-up (Russ-Eft, 2002), job attitudes (Holton, 2005; Nair, 2007), and accountability (L. A. Burke & Hutchins, 2007) on learning transfer were discussed in the literature, all of the seven emerging themes still call for research in the specific context of creative learning transfer. Despite its lower frequency of codes, in particular, the theme of *Creativity* may intrigue researchers because of the generative nature of the creative learning transfer process (Dixon-Krausse, 2006; Russ-Eft, 2002). Overall, the results of the thematic analysis suggest that researchers use the frequency of codes only to explore potential predictors of creative learning transfer, not to hypothesize the corresponding themes' statistical relationships with other variables.

Implications for HRD Practice

In the current study, the research model represents a real workplace in which various factors affect job performance through creative learning transfer within structural and systemic relationships among them. The results of the hypothesized model of creative learning transfer demonstrated how the Transfer Specific Domain can mediate the effects of the Transfer General Domain on Motivation to Transfer, which in turn affects the Creative Learning Transfer that leads to managers' Job Performance. These results provide a reasonable rationale for organizations to invest their finite resources in the following three areas: Transfer General Domain; interventions to increase managerial support for learning transfer; and training programs to facilitate creative learning transfer. These three areas are discussed below.

First, organizations should improve employee's positive perceptions of two factors in the Transfer General Domain (i.e., Performance Coaching and Performance Outcome Expectation) to increase creative learning transfer and job performance. Practitioners attempting to build the work environment favorable to creative learning transfer may obtain practical implications by referring to the LTSI items designed to measure the two factors in the Transfer General Domain. By definition, Performance Coaching pertains to formal and informal processes for equipping employees with the knowledge and skills to improve their job performance (Holton et al., 2007). Thus, practitioners must develop interventions such as training, evaluation, and reward systems that can facilitate the work environment in which both employees and managers are actively willing to share suggestions, advice, and feedback about how to improve their job performance. In a similar vein, Performance Outcome Expectation refers to anticipation that increased job performance will lead to valuable and meaningful recognition (Holton et al., 2007). Therefore, an organization must have a reasonable reward system in place so that high performing managers can be fairly rewarded and recognized.

Second, the results of the current study consistently indicated that superior managers' support had *practically* significant effects (Meyers et al., 2013) on subordinate managers' Motivation to Transfer regardless of the sources of job performance evaluation. Thus, HRD practitioners must develop interventions through which superior managers are encouraged to have regular meetings with their subordinate managers before and after a leadership training program; during the meetings, they need

to set realistic goals for job performance based on the leadership training and discuss ways to apply the knowledge and skills in a novel situation. In organizations, HRD functions are usually blamed for the trainees' failure in learning transfer (Nair, 2007). The current study provides empirical support for shared responsibility between the HRD function and other departmental managers for trainees' creative learning transfer. The HRD function should no longer limit its responsibility only to implementing training events without establishing partnerships with other subsystems in the learning transfer system. HRD practitioners must obtain other departmental managers' strong support for creative learning transfer. To do so, it should be ensured that various personnel systems actively reinforce creative learning transfer. Also, reward systems and performance management strategies should be deliberately redesigned to evaluate and fortify managers' support for subordinates' creative learning transfer.

Third, the last implication for practice pertains to developing training programs to facilitate creative learning transfer that influences job performance. Organizations can no longer rely only on the principle of content relevance for creative learning transfer to prepare their employees for the fluctuating global market in which their jobs are constantly changing (Dixon-Krausse, 2006; Gill, 1995; Roussel, 2014). By definition, creative learning transfer requires use of knowledge and skills in a novel situation that is different from the training content and context (Haskell, 2001; Roussel, 2014). Also, from a practical stand point, it is not likely that an HRD function can develop a leadership training program that exactly matches all of the specific contexts and issues embedded in each manager and each department within an organization. Moreover,

specifically in the situations of exercising leadership, two situations are never completely identical (Haskell, 2001). Thus, use of leadership knowledge and skills always requires adapting them to a new context and situation. All of these above-mentioned propositions, along with the findings of the current study, require HRD practitioners to develop a training program to help employees and managers embrace the beauty of creative learning transfer and become active proponents of it. The training program should not only inspire participants to hold them accountable for their own creative learning transfer (L. A. Burke & Hutchins, 2007; Longnecker, 2004), but also impart basic knowledge of the creative learning transfer process and its foundational theory (see Figure 4).

Implications for HRD Theory

The results of the current study support the model and theories in the theoretical framework: The HRD Evaluation and Research Model (HRD ERM), the theory of planned behavior, and organizational knowledge creation theory. The HRD ERM (Holton, 2005) was used to identify the major potential predictors of learning transfer. The theory of planned behavior (Ajzen, 1991) was adopted to select the seven representative predictors of learning transfer and hypothesize relationships among them and other outcome variables in the research model. Organizational knowledge creation theory (Nonaka & Takeuchi, 1995) was the foundation to conceptualize the creative learning transfer construct. Therefore, the empirical evidence of the current study firmly bolsters the applicability of the model and two theories to the creative learning transfer context. On the other hand, the model and two theories buttress the soundness of the

nomological network for creative learning transfer that is delineated in the research model, suggesting implications for HRD theory building.

A nomological network is an interlocking system of relationships or linkages among the constructs that constitute a theory (Cronbach & Meehl, 1955; Holton et al., 2007). Thus, a comprehensive scientific theory can be represented by a nomological network in which the structural relationships among the theoretical constructs have explanatory power to illuminate a phenomenon of interest. Despite the vigorous research on learning transfer over the past decades, no researcher identified a nomological network for learning transfer based on sound theories (Axtell et al., 1997; Baldwin & Ford, 1988; Cheng & Ho, 2001; Holton et al., 2000; Yamnill & McLean, 2001). In the current study, a nomological network for creative learning transfer was conceptualized, operationalized, and confirmed. A theory building process requires ongoing refinement and development through the four phases: conceptualization, operationalization, confirmation, and application (Lynham, 2002). In this sense, the current study invites scholars to theorize the relationships among the learning transfer system, creative learning transfer, and individual job performance.

In particular, the concept of creative learning transfer could be incorporated into the HRD ERM model. With the empirical confirmation for creative learning transfer, the construct could be further theorized based on organizational knowledge creation theory. Considering the way in which creative learning transfer was conceptualized (see Figure 4), it would be prudent to theorize the concept as a part of a larger organizational knowledge creation system. Overall, the nomological network of the current study

provides promising opportunities for building HRD theories because it meets the criteria of good theories (Klimoski, 1991): theoretical constructs; relationships among the constructs; boundaries within which the relationships will hold; system states and their changes; hypothesis; and prediction of phenomena of interest.

Limitations and Future Research

The current study has several limitations in terms of the sample in the Korean context, self-report survey format, and analysis of qualitative data. First, the results of the current study might not be generalized to the entire population from which the sample was obtained because of purposive sampling and voluntary participation. Various companies from 16 industries were involved with the current study, but they may not represent the entire industries. Also, when a survey is completed on a voluntary basis, the responses are subject to both participants' and non-participants' biases (Kish, 1965; Walsh, Kiesler, Sproull, & Hesse, 1992). However, given the high response rate (78%, 876/1,125) of the entire sample (1,125 managers who completed the training), the biases are likely to be minimal. Although the current study results might be generalized only to the 16 industries in Korea (see Table 7), generalizability to the industries in other countries is not ensured. Future researchers will need to take a random sampling approach in other cultural contexts as well as in Korea. In doing so, a test of measurement invariance of the LTSI across countries is needed for multinational companies to use the instrument to enhance creative learning transfer and job performance.

Second, self-reported data may generate two limitations: possible distortion of the Objective Job Performance data and common method variance (CMV) bias. Due to the confidentiality issue of the participating companies, access to their personnel systems could not be obtained. Alternatively, respondents were asked to report their superior-rated annual performance review result on the survey online. The self-reported Objective Job Performance data may not be identical to those in the companies' personnel system. In addition, potential CMV is another limitation of the current study because the data were gathered through common method and source (i.e., self-reported online survey). CMV has a potential threat to the internal validity of a higher order factor model (R. E. Johnson et al., 2011; Podsakoff et al., 2003). Although no CMV bias was detected in the factor structure of the LTSI Training Specific Domain, the SEM research model may be subject to the CMV bias issue. Possible CMV issues in the research model were not examined because an analysis of the latent CMV remedy model to partial out the CMV (Podsakoff et al., 2003), if any, did not converge. To control for CMV, future researchers will need to take an *a priori* approach such as inclusion of control variables at the outset that are believed to be a source of CMV (e.g., social desirability, negative/positive affectivity, and leniency biases).

Finally, the last two limitations arose in the process of analyzing the qualitative data to find enablers and barriers for creative learning transfer. To ensure the credibility of a qualitative data analysis, a researcher should show the codes to the source respondent and reduce any discrepancies in meaning between the codes and the original data (Patton, 2002). However, an individual identifier was not included in the survey due

to the concern about confidentiality, which made it impossible to conduct a member check (Patton, 2002). Future researchers may find a benefit of including the individual identifier in the survey, if it is allowed. On the other hand, the inductive "human instrument" (Merriam, 2009, p. 15) approach was taken to explore emerging themes for creative learning transfer that might not have been captured by the deductive theory-driven perspective. However, the researcher's knowledge and theory-oriented bias might have influenced the entire process of extracting codes, generating themes, and interpreting the results. A researcher will be able to enhance the accuracy and objectivity of the inductive approach by cross-checking the analysis process with other researchers (Easterby-Smith, Thorpe, & Jackson, 2012).

REFERENCES

Aggarwal, A., & Thakur, G. S. M. (2013). Techniques of performance appraisal: A review. *International Journal of Engineering and Advanced Technology, 2*(3), 617-621.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179-211.

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.

Al-Eisa, A. S., Furayyan, M. A., & Alhemoud, A. M. (2009). An empirical examination of the effects of self-efficacy, supervisor support and motivation to learn on transfer intention. *Management Decision, 47*(8), 1221-1244.

Antoni, C. (2005). Management by objectives: An effective tool for teamwork? *The International Journal of Human Resource Management, 16*(2), 174-184.

Ardichvili, A. (2002). Knowledge management, human resource development, and internet technology. *Advances in Developing Human Resources, 4*(4), 451-463.

Atkinson, J. W. (1964). *An introduction to motivation.* Princeton, NJ: Van Nostrand.

Axtell, C. M., Maitlis, S., & Yearta, S. K. (1997). Predicting immediate and longer-term transfer of training. *Personnel Review, 26*(3), 201-213.

Baldwin, T. T., & Ford, J. K. (1988). Transfer of training: A review and directions for future research. *Personnel Psychology, 41*(1), 63-105.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191-215.

Bandura, A. (1986). *Social foundations of thought and action.* Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology, 52*(1), 1-26.

Barnett, S. M., & Ceci, S. J. (2002). When and where do we apply what we learn? A taxonomy for far transfer. *Psychological Bulletin, 128*(4), 612-637.

Bates, R. A. (2003). Managers as transfer agents. In E. F. Holton III, & T. T. Baldwin (Eds.), *Improving learning transfer in organizations* (pp. 243-270). San Francisco, CA: John Wiley & Sons.

Bates, R. A. (2004). A critical analysis of evaluation practice: The Kirkpatrick model and the principle of beneficence. *Evaluation and Program Planning, 27*(3), 341-347.

Bates, R. A., Holton, E. F., III, & Hatala, J. P. (2012). A revised learning transfer system inventory: factorial replication and validation. *Human Resource Development International, 15*(5), 549-569.

Bates, R. A., Holton, E. F., III, Seyler, D. L., & Carvalho, M. A. (2000). The role of interpersonal factors in the application of computer-based training in an industrial setting. *Human Resource Development International, 3*(1), 19-42.

Bates, R. A., Kauffeld, S., & Holton, E. F., III. (2007). Examining the factor structure and predictive ability of the German-version of the Learning Transfer Systems Inventory. *Journal of European Industrial Training, 31*(3), 195-211.

Bentler, P. M., & Chou, C. (1987). Practical issues in structural modeling. *Sociological Methods & Research, 16*(1), 78-117.

Berge, Z., de Verneil, M., Berge, N., Davis, L., & Smith, D. (2002). The increasing scope of training and development competency. *Benchmarking, 9*(1), 43-61.

Black, J. S., & Porter, L. W. (1991). Managerial behaviors and job performance: A successful manager in Los Angeles may not succeed in Hong Kong. *Journal of International Business Studies, 22*(1), 99-113.

Blumberg, M., & Pringle, C. D. (1982). The missing opportunity in organizational research: Some implications for a theory of work performance. *Academy of Management Review, 7*(4), 560-569.

Blume, B. D., Ford, J. K., Baldwin, T. T., & Huang, J. L. (2010). Transfer of training: A meta-analytic review. *Journal of Management, 36*(4), 1065-1105.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101.

Burke, L. A., & Hutchins, H. M. (2007). Training transfer: An integrative literature review. *Human Resource Development Review, 6*(3), 263-296.

Burke, L. A., & Hutchins, H. M. (2008). A study of best practices in training transfer and proposed model of transfer. *Human Resource Development Quarterly, 19*(2), 107-128.

Burke, W. W. (2011). *Organization change: Theory and practice*. Thousand Oaks, CA: Sage Publications.

Carden, L. L. (2007). *Pathways to success for moderately defined careers: A study of relationships among prestige/autonomy, job satisfaction, career commitment, career path, training and learning, and performance as perceived by project managers* (Unpublished doctoral dissertation). Texas A&M University, College Station.

Chen, H., Holton, E. F., III, & Bates, R. A. (2005). Development and validation of the learning transfer system inventory in Taiwan. *Human Resource Development Quarterly, 16*(1), 55-84.

Chen, H., Holton, E. F., III, & Bates, R. A. (2006). Situational and demographic influences on transfer system characteristics in organizations. *Performance Improvement Quarterly, 19*(3), 7-25.

Cheng, E. W., & Ho, D. C. (2001). A review of transfer of training studies in the past decade. *Personnel Review, 30*(1), 102-118.

Cheung, G. W., & Lau, R. S. (2008). Testing mediation and suppression effects of latent variables: Bootstrapping with structural equation models. *Organizational Research Methods, 11*(2), 296-325.

Clark, C. S., Dobbins, G. H., & Ladd, R. T. (1993). Exploratory field study of training motivation influence of involvement, credibility, and transfer climate. *Group & Organization Management, 18*(3), 292-307.

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2013). *Applied multiple regression/correlation analysis for the behavioral sciences*. Mahwah, NJ: Lawrence Erlbaum Associates.

Colquitt, J. A., LePine, J. A., & Noe, R. A. (2000). Toward an integrative theory of training motivation: A meta-analytic path analysis of 20 years of research. *Journal of Applied Psychology, 85*(5), 678-707.

Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin, 52*(4), 281-302.

Devos, C., Dumay, X., Bonami, M., Bates, R. A., & Holton, E. (2007). The Learning Transfer System Inventory (LTSI) translated into French: Internal structure and predictive validity. *International Journal of Training and Development, 11*(3), 181-199.

Dixon-Krausse, P. M. (2006). *Far and creative learning transfer in management development interventions: An ecological triangulation approach to qualitative meta-synthesis* (Unpublished doctoral dissertation). Colorado State University, Fort Collins.

Dubin, R. (1976). Theory building in applied areas. In M. D. Dunnette (Ed.), *Handbook of industrial/organizational psychology* (pp. 17-26). NY: Rand McNally.

Durvasula, S., Netemeyer, R. G., Andrews, J. C., & Lysonski, S. (2006). Examining the cross-national applicability of multi-item, multi-dimensional measures using generalizability theory. *Journal of International Business Studies, 37*(4), 469-483.

Easterby-Smith, M., Thorpe, R., & Jackson, P. (2012). *Management research: An introduction*. London: Sage.

Egan, T. M. (2008). The relevance of organizational subculture for motivation to transfer learning. *Human Resource Development Quarterly*, *19*(4), 299-322.

Eisenberger, R., Stinglhamber, F., Vandenberghe, C., Sucharski, I. L., & Rhoades, L. (2002). Perceived supervisor support: Contributions to perceived organizational support and employee retention. *Journal of Applied Psychology, 87*(3), 565-573.

Facteau, J. D., Dobbins, G. H., Russell, J. E., Ladd, R. T., & Kudisch, J. D. (1995). The influence of general perceptions of the training environment on pretraining motivation and perceived training transfer. *Journal of Management, 21*(1), 1-25.

Festinger, L. (1954). A theory of social comparison processes. *Human Relations, 7*(2), 117-140.

Ford, J. K., Quinones, M. A., Sego, D. J., & Sorra, J. S. (1992). Factors affecting the opportunity to perform trained tasks on the job. *Personnel Psychology*, *45*(3), 511-527.

Gegenfurtner, A., Veermans, K., Festner, D., & Gruber, H. (2009). Motivation to transfer training: An integrative literature review. *Human Resource Development Review, 8*(3), 403-423.

Gill, S. J. (1995). Shifting gears for high performance. *Training and Development, 44*(5), 25-31.

Goffin, R. D., Jelley, R. B., Powell, D. M., & Johnston, N. G. (2009). Taking advantage of social comparisons in performance appraisal: The relative percentile method. *Human Resource Management, 48*(2), 251-268.

Gosselin, A., Werner, J. M., & Hallé, N. (1997). Ratee preferences concerning performance management and appraisal. *Human Resource Development Quarterly, 8*(4), 315-333.

Guest, G., MacQueen, K. M., & Namey, E. E. (2012). *Applied thematic analysis*. Thousand Oaks, CA: SAGE.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis*. Upper Saddle River, NJ: Prentice Hall.

Harris, M. M., & Schaubroeck, J. (1988). A meta-analysis of self-supervisor, self-peer, and Peer-supervisor ratings. *Personnel Psychology, 41*(1), 43-62.

Haskell, R. E. (1998). *Reengineering corporate training : intellectual capital and transfer of learning*. Westport, CT: Quorum Books.

Haskell, R. E. (2001). *Transfer of learning: Cognition, instruction, and reasoning*. San Diego, CA: Academic Press.

Hill, T., Smith, N. D., & Mann, M. F. (1987). Role of efficacy expectations in predicting the decision to use advanced technologies: The case of computers. *Journal of Applied Psychology, 72*(2), 307-313.

Hinkin, T. R. (2005). Scale development principles and practices. In R. A. Swanson, & E. F. Holton III (Eds.), *Research in organizations: Foundations and method of inquiry* (pp. 161-179). San Francisco, CA: Berrett-Koehler.

Holton, E. F., III. (1996). The flawed four-level evaluation model. *Human Resource Development Quarterly, 7*(1), 5-21.

Holton, E. F., III. (2003). What's really wrong: Diagnosis of learning transfer system change. In E. F. Holton III, & T. T. Baldwin (Eds.), *Improving learning transfer in organizations* (pp. 59-79). San Francisco, CA: John Wiley & Sons.

Holton, E. F., III. (2005). Holton's evaluation model: New evidence and construct elaborations. *Advances in Developing Human Resources, 7*(1), 37-54.

Holton, E. F., III, Bates, R. A., & Ruona, W. E. (2000). Development of a generalized learning transfer system inventory. *Human Resource Development Quarterly, 11*(4), 333-360.

Holton, E. F., III, Bates, R. A., Bookter, A. I., & Yamkovenko, V. B. (2007). Convergent and divergent validity of the learning transfer system inventory. *Human Resource Development Quarterly, 18*(3), 385-419.

Jaber, M. Y., & Sikström, S. (2004). A numerical comparison of three potential learning and forgetting models. *International Journal of Production Economics, 92*(3), 281-294.

Johns, G. (2006). The essential impact of context on organizational behavior. *Academy of Management Review, 31*(2), 386-408.

Johnson, R. E., Rosen, C. C., & Djurdjevic, E. (2011). Assessing the impact of common method variance on higher order multidimensional constructs. *Journal of Applied Psychology, 96*(4), 744-761.

Johnson, R. A., & Wichern, D. W. (1992). *Applied multivariate statistical analysis*. Englewood Cliffs, NJ: Prentice Hall.

Judd, C. H. (1908). The relation of special training to general intelligence. *Educational Review, 36*, 28-42.

Khanna, M., & Sharma, R. K. (2014). Employees Performance Appraisal and its techniques: A Review. *Asian J. of Adv. Basic Sci., 2*(2), 51-58.

Khasawneh, S., Bates, R. A., & Holton, E. F., III. (2006). Construct validation of an Arabic version of the Learning Transfer System Inventory for use in Jordan. *International Journal of Training and Development, 10*(3), 180-194.

Kim, J., & Callahan, J. L. (2013). Finding the intersection of the learning organization and learning transfer: The significance of leadership. *European Journal of Training and Development, 37*(2), 183-200.

Kim, S. W. (2010). *Managerial coaching behavior and employee outcomes: A structural equation modeling analysis* (Unpublished doctoral dissertation). Texas A&M University, College Station.

Kirkpatrick, D. L. (1959). Techniques for evaluating training programs. *Journal of ASTD, 11*, 1-13.

Kirkpatrick, D. L. (1976). Evaluation of training. In R. L. Craig, & L. R. Bittel (Eds.), *Training and development handbook* (pp. 87-112). NY: McGraw-Hill.

Kirkpatrick, D. L. (1994). *Evaluating training programs: The four levels*. San Francisco, CA: Berrett-Koehler.

Kish, L. (1965). *Survey sampling*. NY: John Wiley and Sons.

Klimoski, R. (1991). Theory Presentation in Human Resource Management. *Human Resource Management Review, 1*(4), 253-271.

Kline, R. B. (2011). *Principles and practice of structural equation modeling* (3rd ed.). NY: Guilford Press.

Kontoghiorghes, C. (2014). A systemic perspective of training transfer. In K. Schneider (Ed.), *Transfer of learning in organizations* (pp. 45-64). NY: Springer.

Kontoghiorghes, C. (2004). Reconceptualizing the learning transfer conceptual framework: Empirical validation of a new systemic model. *International Journal of Training and Development, 8*(3), 210-221.

Kotrlik, J. W., & Williams, H. A. (2003). The incorporation of effect size in information technology, learning, and performance research. *Information Technology, Learning, and Performance Journal, 21*(1), 1-7.

Laker, D. R. (1990). Dual dimensionality of training transfer. *Human Resource Development Quarterly, 1*(3), 209-223.

Lee, J. G. (2010). *An integration of the relationship between transfer of learning factors and perceived organizational knowledge performance in selected Korean organizations* (Unpublished doctoral dissertation). The Pennsylvania State University.

Lim, D. H., & Morris, M. L. (2006). Influence of trainee characteristics, instructional satisfaction, and organizational climate on perceived learning and training transfer. *Human Resource Development Quarterly, 17*(1), 85-115.

Locke, E. A. (1968). Toward a theory of task motivation and incentives. *Organizational Behavior and Human Performance, 3*(2), 157-189.

Longnecker, C. (2004). Maximizing transfer of learning from management education programs: Best practices for retention and application. *Development and Learning in Organizations, 18*(4), 4-6.

Lynham, S. A. (2002). The general method of theory-building research in applied disciplines. *Advances in Developing Human Resources, 4*(3), 221-241.

MacKinnon, D. P., Krull, J. L., & Lockwood, C. M. (2000). Equivalence of the mediation, confounding and suppression effect. *Prevention Science, 1*(4), 173-181.

Merriam, S. B. (2009). *Qualitative research: A guide to design and implementation*. San Francisco, CA: Jossey-Bass.

Mertler, C. A., & Vannatta, R. A. (2010). *Advanced and multivariate statistical methods* (4th ed.). Glendale, CA: Pyrczak.

Meyer, J. P., Paunonen, S. V., Gellatly, I. R., Goffin, R. D., & Jackson, D. N. (1989). Organizational commitment and job performance: It's the nature of the commitment that counts. *Journal of Applied Psychology, 74*(1), 152-156.

Meyers, L. S., Gamst, G., & Guarino, A. J. (2013). *Applied multivariate research: Design and interpretation* (2nd ed.). Thousand Oaks, CA: SAGE.

Murphy, K. R., & Cleveland, J. N. (1991). *Performance appraisal: An organizational perspective.* Boston, MA: Allyn & Bacon.

Nair, P. K. (2007). *A path analysis of relationships among job stress, job satisfaction, motivation to transfer, and transfer of learning: Perceptions of occupational safety and health administration outreach trainers* (Unpublished doctoral dissertation). Texas A&M University, College Station.

Noe, R. A., & Schmitt, N. (1986). The influence of trainee attitudes on training effectiveness: Test of a model. *Personnel Psychology, 39*(3), 497-523.

Noe, R. A. (1986). Trainees' attributes and attitudes: Neglected influences on training effectiveness. *Academy of Management Review, 11*(4), 736-749.

Nonaka, I., & Takeuchi, H. (1995). *The knowledge creating company: How Japanese companies create the dynamic of innovation*. NY: Oxford University Press.

Nonaka, I., von Krogh, G., & Voelpel, S. (2006). Organizational knowledge creation theory: Evolutionary paths and future advances. *Organization Studies, 27*(8), 1179-1208.

Nunnally, J., & Bernstein, I. (1994). *Psychometric theory* (3rd ed.). NY: McGraw-Hill.

Patton, M. Q. (2002). In Patton M. Q. (Ed.), *Qualitative research & evaluation methods*. Thousand Oaks, CA: SAGE.

Peters, L. H., Fisher, C. D., & O'Connor, E. J. (1982). The moderating effect of situational control of performance variance on the relationship between individual differences and performance. *Personnel Psychology, 35*(3), 609-621.

Peters, L. H., & O'Connor, E. J. (1980). Situational constraints and work outcomes: The influences of a frequently overlooked construct. *Academy of Management Review, 5*(3), 391-397.

Podsakoff, P. M., MacKenzie, S. B., Lee, J., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879-903.

Polanyi, M. (1966). *The tacit dimension*. London: Routledge & Kegan Paul.

Porter, L. W., & Lawler, E. E., III. (1968). *Managerial attitudes*. Homewood, IL: The Irwin-Dorsey Series in Behavioral Science.

Raykov, T., & Marcoulides, G. A. (2011). *Introduction to psychometric theory*. NY: Routledge.

Ringhand, D. G. (2009). *Assessing the relationship of knowledge management effectiveness and assessment quality improvement* (Unpublished doctoral dissertation). Northcentral University.

Roch, S. G., Sternburgh, A. M., & Caputo, P. M. (2007). Absolute vs relative performance rating formats: Implications for fairness and organizational justice. *International Journal of Selection and Assessment, 15*(3), 302-316.

Roussel, J. F. (2014). Learning transfer in organizations: An adaptive perspecive centered on the learner and the development of self-regulation. In K. Schneider (Ed.), *Transfer of learning in organizations* (pp. 45-64). NY: Springer.

Ruona, W. E. A., Leimbach, M., Holton, E. F., III, & Bates, R. A. (2002). The relationship between learner utility reactions and predicted learning transfer among trainees. *International Journal of Training and Development, 6*(4), 218-228.

Russ-Eft, D. (2002). A typology of training design and work environment factors affecting workplace learning and transfer. *Human Resource Development Review, 1*(1), 45-65.

Schneider, K., Pältz, M., & Stauche, H. (2014). Transfer of learning in German companies. In K. Schneider (Ed.), *Transfer of learning in organizations* (pp. 5-22). NY: Springer.

Seyler, D. L., Holton, E. F., III, Bates, R. A., Burnett, M. F., & Carvalho, M. A. (1998). Factors affecting motivation to transfer training. *International Journal of Training and Development, 2*(1), 16-16.

Siders, M. A., George, G., & Dharwadkar, R. (2001). The relationship of internal and external commitment foci to objective job performance measures. *Academy of Management Journal, 44*(3), 570-579.

Somers, M. J., & Birnbaum, D. (1998). Work-related commitment and job performance: It's also the nature of the performance that counts. *Journal of Organizational Behavior, 19*(6), 621-634.

Song, J. H., Yoon, S. W., & Uhm, D. (2012). Systematic and practical measurement of organizational knowledge creation: Developing and validating the knowledge creation practice inventory. *Leadership & Organization Development Journal, 33*(7), 616-631.

Song, J. H., Joo, B., & Chermack, T. J. (2009). The Dimensions of Learning Organization Questionnaire (DLOQ): A validation study in a Korean context. *Human Resource Development Quarterly, 20*(1), 43-64.

Stewart, G. L., & Nandkeolyar, A. K. (2007). Exploring how constraints created by other people influence intraindividual variation in objective performance measures. *Journal of Applied Psychology, 92*(4), 1149-1158.

Swanson, R. A. (2001). Human resource development and its underlying theory. *Human Resource Development International, 4*(3), 299-312.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston, MA: Pearson Education.

Thompson, B. (2004). *Exploratory and confirmatory factor analysis: Understanding concepts and applications*. Washington DC: American Psychological Association.

Thorndike, E. L., & Woodworth, R. S. (1901). The influence of improvement in one mental function upon the efficiency of other functions: (I). *Psychological Review, 8*, 247-261.

Velada, R., Caetano, A., Bates, R. A., & Holton, E. F., III. (2009). Learning transfer: Validation of the learning transfer system inventory in Portugal. *Journal of European Industrial Training, 33*(7), 635-656.

Vermeulen, R., & Admiraal, W. (2009). Transfer as a two-way process: Testing a model. *Journal of European Industrial Training, 33*(1), 52-68.

Vroom, V. H. (1964). *Work and motivation*. NY: Wiley.

Walsh, J. P., Kiesler, S., Sproull, L. S., & Hesse, B. W. (1992). Self-selected and randomly selected respondents in a computer network survey. *Public Opinion Quarterly, 56*, 241-244.

Wang, J., Tolson, H., Chiang, T., & Huang, T. (2010). An exploratory factor analysis of workplace learning, job satisfaction, and organizational commitment in small to midsize enterprises in Taiwan. *Human Resource Development International, 13*(2), 147-163.

Weldy, T. G. (2007). *An assessment of the relationship between the learning organization construct and the transfer of training construct* (Unpublished doctoral dissertation). University of South Alabama.

Werner, J. M., & DeSimone, R. L. (2009). *Human resource development* (5th ed.). Mason, OH: South-Western Cengage Learning.

Worthington, R. L., & Whittaker, T. A. (2006). Scale development research a content analysis and recommendations for best practices. *The Counseling Psychologist, 34*(6), 806-838.

Wright, P. M., & Holwerda, J. A. (Working Paper). Sanyo global research consortium: Global survey of MNC HR practices. *Center for Advanced Human Resource Studies, Cornell University.*

Yamkovenko, B. V., Holton, E. F., III, & Bates, R. A. (2007). The Learning Transfer System Inventory (LTSI) in Ukraine: The cross-cultural validation of the instrument. *Journal of European Industrial Training, 31*(5), 377-401.

Yamnill, S., & McLean, G. N. (2001). Theories supporting transfer of training. *Human Resource Development Quarterly, 12*(2), 195-208.

Yamnill, S., & McLean, G. N. (2005). Factors affecting transfer of training in Thailand. *Human Resource Development Quarterly, 16*(3), 323-344.

APPENDIX 1

Instrument

I. The Learning Transfer System Inventory (LTSI)

Please click the number on the 5-point scale (1, 2, 3, 4 or 5) of each item that most closely reflects your opinion about training. For the following items, please think about the management/leadership program that you have taken at the Learning Center in your company during the period of January, 2013 to March, 2014.

안녕하십니까? 설문에 참여를 결정해주셔서 감사드립니다. 본 설문은 한 화면당 평균 10 개의 문항이 보여지며, 모든 문항에 응답을 완료 하셔야 다음 화면으로 이동하실 수 있습니다. 설문을 시작하고 다음화면으로 이동하기 위해서는 화면 하단의 오른쪽에 있는 "다음 >>" 버튼을 클릭하시면 됩니다. 바쁜 업무로 인하여 중간에 설문조사 창을 닫으신 경우에는 처음 설문에 참여하셨던 것과 동일한 기기 (컴퓨터, 테블릿, 또는 스마트폰 등)로 설문조사 링크에 재접속하시면 계속 이어서 응답하실 수 있습니다. 전체 75 개 문항입니다.

다음의 35 개 문항들은 귀하께서 그룹인재개발원에서 2013 년 1 월~2014 년 3 월 사이에 수료하신 관리자/리더십과정에 대한 질문들입니다. 특정 문항에 대해 잘 기억이 나지 않는 경우가 있다면 최대한 그 교육에 대한 귀하의 전반적인 의견을

가장 잘 대변하는 응답항목에 체크(마우스 클릭) 를 부탁드립니다. "다음 >>"

버튼을 클릭하시면 응답을 시작하실 수 있습니다.

1. Prior to this training, I knew how the program was supposed to affect my performance.

   그 교육을 받기 전에, 나는 그 교육이 나의 성과에 어떤식으로 영향을 미치게

   될지 알고 있었다.

   Before participating in this training program, I knew how this training will make an effect on my performance.

2. This training will increase my personal productivity.

   그 교육은 나의 업무 생산성 향상에 도움이 된다.

   This training program will enhance my personal productivity.

3. When I leave this training, I can't wait to get back to work to try what I learned.

   그 교육을 마쳤을때, 나는 업무로 복귀하여 내가 배운것을 빨리 적용해보고

   싶었다.

   Upon completion of this training, I wanted to get back to work immediately and apply what I had learned.

4. I believe this training will help me do my current job better.

   그 교육은 현재 내 업무를 더 잘 수행하는데 도움이 된다.

   I believe that this training will help me perform my job better.

5. Successfully using this training will help me get a salary increase.

   그 교육에서 배운것을 성공적으로 활용하면 나의 월급 인상에 도움이 된다.

   The successful application of my learning from this training program will contribute to the increase of my salary.

6. If I use this training I am more likely to be rewarded.

   내가 그 교육에서 배운것을 업무에 활용한다면, 내가 회사에서 보상받을

   가능성은 더 높아진다.

   I will be more likely to be rewarded if I apply learning from this training to my job.

7. I am likely to receive some recognition if I use my newly learned skills on the job.

   내가 그 교육에서 배운 내용들을 업무에 활용한다면, 나는 회사에서 인정받게 될

   것이다.

   I will be recognized if I apply new skills learned from this training to my job.

8. Before this training, I had a good understanding of how it would fit my job-related development.

   그 교육을 받기 전에, 나는 그 교육이 내 업무관련 능력개발과 어떻게

   부합하는지를 알고 있었다.

   Before taking the training program, I knew how the training matched with my job related competency development.

9. I knew what to expect from this training before it began.

나는 그 교육을 받기 전에, 그 교육에서 무엇을 배우게 될 것인지 알고 있었다.

Before taking the training program, I knew what I am expected to learn from the training.

10. I don't have time to try to use this training on my job.

나는 그 교육에서 배운것을 업무에 적용하기 위해 시도할 만한 시간적 여유가 없다.

I don't have enough time to apply learning from this training to my work.

11. Trying to use this training will take too much energy away from my other work.

그 교육에서 배운것을 업무에 활용하기 위해 노력하면 내가 기타 다른 업무에 쏟아야 할 에너지를 너무 많이 빼앗기게 된다.

The effort to apply what I learned from this training program will take too much energy away from me in conducting other job tasks.

12. Employees in this organization will be penalized for not using what they have learned in this training.

우리 회사의 직원들은 그 교육에서 배운것을 업무에 활용하지 않으면 불이익을 받게된다.

Employees will be penalized for not applying learning from this training.

13. I will be able to try out this training on my job.

그 교육에서 배운것을 내 업무에서 시도해 볼 수 있는 기회들이 많이 있다.

I would be able to apply what I have learned from this training to my work.

14. There is too much happening at work right now for me to try to use this training.

지금 당장 업무에서 발생하는 일들이 너무 많아서 나는 그 교육에서 배운것을 활용하려고 시도해 볼 수가 없었다.

I cannot try the application of my learning from this training program because I have too much work to do.

15. If I do not use new techniques taught in this training I will be reprimanded.

내가 그 교육에서 배운 새로운 테크닉을 활용하지 않는다면, 나는 질책을 받게 된다.

If I don't apply the new techniques learned from this training, I may be penalized.

16. If I do not utilize this training I will be cautioned about it.

내가 그 교육에서 배운것을 활용하지 않는다면, 나는 그것에 대해 주의를 받게 된다.

If I don't apply the new techniques learned from this training, I may be cautioned.

17. The resources needed to use what I learned in this training will be available to me.

내가 그 교육에서 배운것을 업무에 활용할 기회를 만들기 위해 필요한 자원들은

충분하다.

I would be provided with resources necessary to apply learning from this training.

18. My colleagues will appreciate my using the new skills I learned in this training.

나의 동료들은 내가 그 교육에서 배운것을 업무에 활용할 수 있도록 그 활용가치를 인정해 준다.

My colleagues will recognize the value of applying new skills that I learned from this training program.

19. My colleagues will encourage me to use the skills I have learned in this training

나의 동료들은 내가 그 교육에서 배운 기술들을 사용하도록 장려한다.

My colleagues will encourage me to use skills learned from this training.

20. At work, my colleagues will expect me to use what I learned in this training.

나의 동료들은 내가 그 교육에서 배운것을 업무에 활용하기를 기대한다.

My colleagues will expect me to apply what I learned from this training to my work.

21. My supervisor will meet with me regularly to work on problems I may be having in trying to use this training.

나의 상사는 내가 그 교육에서 배운것을 활용하려고 시도할때 발생할 수 있는 문제들을 해결하기 위해 나와 미팅을 한다.

My superior will regularly meet with me to resolve issues that can happen when I try

applying what I learned from the training program.

22. My supervisor will meet with me to discuss ways to apply this training on the job.

    나의 상사는 내가 그 교육에서 배운것을 업무에 활용하기 위한 방안을 나와 논의한다.

    My superior will discuss with me ways to apply learning from this training to my job.

23. My supervisor will oppose the use of techniques I learned in this training.

    나의 상사는 내가 그 교육에서 배운것들을 활용하는 것에 대해 반대하는 입장이다.

    My superior will oppose my efforts to apply techniques learned from this training.

24. My supervisor will think I am being less effective when I use the techniques taught in this training.

    나의 상사는 내가 그 교육에서 배운것들을 사용하는 것이 오히려 비효과적인 일이라고 생각한다.

    My superior will think it will be less effective to apply my learned techniques from the training program.

25. My supervisor will probably criticize this training when I get back to the job.

    내가 그 교육을 수료하고 업무로 복귀했을때 나의 상사는 그 교육에 대해서 비판적인 입장이었다.

My superior will probably criticize about this training when I return to work.

26. My supervisor will help me set realistic goals for job performance based on my training.

    나의 상사는 내가 받은 그 교육에 기반하여 업무성과를 위한 현실적인 목표를 세우도록 나를 도와준다.

    My superior will help me establish realistic objectives to accomplish job performance based on what I learned from the training program.

27. The instructional aids (equipment, illustrations, etc.) used in this training are very similar to real things I use on the job.

    그 교육에서 사용된 교육용 자료들 (도구, 사례 등) 은 내가 실제로 업무에서 사용하는 것들과 유사하다.

    The training materials (equipment, illustration, etc.) used in the training programs are very similar to what I actually use in my job tasks.

28. The methods used in this training are very similar to how we do it on the job.

    그 교육에서 사용된 교육방법 (강의, 토론, 문제해결, 사례연구 등) 들은 우리가 실제로 업무를 수행하는 방식과 유사하다.

    Methods used in this training are very similar to those we actually use at work.

29. I like the way this training seems so much like my job.

그 교육의 내용은 실제 내 업무와 연계성이 높다.

I like how this training is closely related to my work.

30. It is clear to me that the people conducting this training understand how I will use what I learn.

그 교육을 담당한 사람(들)은 내가 배운것을 업무에서 어떻게 활용해야 하는지 잘 알고 있었다.

People in charge of this training clearly understand how I would apply what I have learned.

31. The trainer(s) used lots of examples that showed me how I could use my learning on the job.

강사(들)는 내가 배운것을 업무에서 어떻게 적용할 수 있는지를 보여주는 많은 예제들을 사용했다.

Instructors showed many examples on how I can apply my learning to my job tasks.

32. The way the trainer(s) taught the material made me feel more confident I could apply it in my job.

강사(들)의 적합한 교육방법 덕분에 나는 내가 배운것을 업무에 적용할 수 있을 것이라는 확신을 더 많이 갖게 되었다.

The way instructors taught the training content assured me more that I could apply

what I learned to my job tasks.

33. I will get opportunities to use this training on my job.

내가 그 교육에서 배운것을 업무에 활용할 수 있는 기회들이 많이 있다.

I will have opportunities to apply what I learned from the training program to my job tasks.

For the following items, please <u>THINK ABOUT TRAINING IN GENERAL</u> in your organization.

다음의 15 개 문항은 귀사의 사내 교육훈련 프로그램들 및 귀사에 관한 전반적인 귀하의 의견에 대한 질문들입니다. "다음>>" 버튼을 클릭하시면 응답을 시작하실 수 있습니다.

34. My job performance improves when I use new things that I have learned.

내가 배운 새로운 것들을 업무에 활용할때 나의 성과는 향상된다.

When I apply what I newly learned, my job performance is improved.

35. The harder I work at learning, the better I do my job.

내가 더 열심히 배우면 배울수록 나는 업무를 더 잘 수행하게 된다.

The more I learn diligently, the better I perform my job.

36. For the most part, the people who get rewarded around here are the ones that do something to deserve it.

나의 직장내 주변에서 보상을 받는 사람들은 보상받을 만한 성과를 낸

사람들이다.

Generally, those who are rewarded in my surroundings are the ones who do something to deserve it.

37. When I do things to improve my performance, good things happen to me.

내 업무 성과가 향상되면, 직장 내에서 나에게 보상이 주어진다.

Good things happen to me when I give efforts to improve my productivity.

38. The more training I apply on my job, the better I do my job.

내가 교육에서 배운것을 업무에 적용할수록, 나는 업무를 더 잘 수행하게 된다.

The more I apply what I have learned to work, the better I perform my job.

39. My job is ideal for someone who likes to get rewarded when they do something really good.

나의 직장은 어떠한 업무를 정말로 잘 수행했을때 보상 받기를 원하는

사람들에게 이상적인 직장이다.

My job is ideal for people who want to be rewarded for excellent work.

40. Experienced employees in my group ridicule others when they use techniques they learn in training.

우리 부서의 경험 많은 직원들은 다른 사람들이 교육에서 배운 테크닉들을

활용할때 비웃곤 한다.

Experienced employees in our department tend to laugh at others when they apply their learned techniques from training at work.

41. People in my group are not willing to put in the effort to change the way things are done.

    우리 부서의 사람들은 일하는 방식을 바꾸려고 하지 않는다.

    My departmental colleagues do not make efforts to change how they work.

42. My workgroup is reluctant to try new ways of doing things.

    우리 부서는 새로운 업무수행 방식을 시도하지 않는다.

    My department does not try new work practices.

43. People often make suggestions about how I can improve my job performance.

    사람들은 내가 어떻게 하면 업무성과를 향상시킬 수 있는지에 대해 종종 제안을 해준다.

    People often suggest how I can improve my work productivity.

44. I get a lot of advice from others about how to do my job better.

    나는 어떻게 하면 내 업무를 더 잘 수행할지에 대하여 다른 사람들로부터 많은 조언을 듣는다.

    I get many advices from others on how to better perform my tasks.

45. I never doubt my ability to use newly learned skills on the job.

    나는 새로 배운 기술들을 업무에 활용할 수 있는 내 능력을 믿어 의심치 않는다.

    I do not doubt about my ability to apply newly learned skills to my work.

46. I am sure I can overcome obstacles on the job that hinder my use of new skills or knowledge.

나는 직장에서 새로운 기술 또는 지식의 활용을 방해하는 장애물들을 극복할 수 있을 것이라고 확신한다.

I am sure that I can overcome those obstacles inhibiting my application of newly learned skills or knowledge in my work.

47. At work, I feel very confident using what I learned in training even in the face of difficult or taxing situations.

나는 직장에서 어렵거나 부담스러운 상황에 직면하더라도, 교육에서 배운것을 업무에 활용하는데 매우 자신 있다.

Even though I encounter difficult or burdened situations at work, I am very confident that I can apply what I learned from training to work.

48. People often tell me things to help me improve my job performance.

사람들은 종종 나의 업무성과를 향상시키는데 도움이 되는 얘기들을 해주곤 한다.

People often share stories with me that can help improve my job productivity.

II. Adapted Knowledge Creation Practice Inventory (KCPI)

Please click the number on the 5-point scale (1, 2, 3, 4 or 5) of each item that most closely reflects your opinion about the management/leadership program that you took at the Learning Center in your company. These items were designed to measure the extent to which you are trying to apply what you learned to your job in a creative or adaptive way.

다음의 12 개 문항은 귀하께서 그룹인재개발원에서 수료하신 관리자/리더십 교육을 실제 업무에서 어느정도 창의적으로 응용하여 적용하고 계신지에 대한 문항들입니다. 혹시, 잘 기억이 나지 않는 경우라도 최대한 귀하의 전반적인 의견을 가장 잘 대변하는 번호 (1, 2, 3, 4, 또는 5)에 체크(마우스 클릭)를 부탁드립니다. "다음>>" 버튼을 클릭하시면 응답을 시작하실 수 있습니다.

1. When applying what I learned to my job, I share my training experiences with other people.

   그 교육에서 배운것을 업무에 적용할때, 나는 그 교육에서 경험한 것을 다른 사람들과 공유한다.

2. When applying what I learned to my job, I collect work-related information and ideas from (in)formal relationship with other people.

   그 교육에서 배운것을 업무에 적용할때, 나는 내 업무에 필요한 정보나

아이디어를 다른 사람들로부터 얻는다.

3. When applying what I learned to my job, I gather work-related information from other departments.

   그 교육에서 배운것을 업무에 적용할때, 나는 내 업무에 필요한 정보를 다른 부서에서 얻기도 한다.

4. When applying what I learned to my job, I develop new ideas through constructive dialogue by using figures and diagrams.

   그 교육에서 배운것을 업무에 적용할때, 나는 그림이나 도식등을 이용하여 직원들과 생산적인 대화를 통해 새로운 아이디어를 발전시킨다.

5. When applying what I learned to my job, I develop general rules and concepts based on several possible examples.

   그 교육에서 배운것을 업무에 적용할때, 나는 여러가지 가능한 사례들에 기반해서 일반화된 개념을 만들어 낸다.

6. When applying what I learned to my job, I facilitate creative and constructive conversation among the members.

   그 교육에서 배운것을 업무에 적용할때, 나는 직원들 간의 창의적이고 건설적인 대화를 통해 업무와 관련된 새로운 개념이 생성되도록 촉진한다.

7. When applying what I learned to my job, I engage in continued dialogue through reflection among the members for developing new ideas.

그 교육에서 배운것을 업무에 적용할때, 나는 내가 새롭게 만들어낸 개념이 유용한 것인지 알아보기 위해 직원들과 지속적인 대화를 시도한다.

8. When applying what I learned to my job, I evaluate usefulness of the newly developed concepts in terms of performance improvement based on a reasonable evaluation system and organizational vision / mission.

그 교육에서 배운것을 업무에 적용할때, 나는 내가 새롭게 창출한 개념들이 성과향상에 유용한 것인지 아닌지를 합리적인 평가기준 (조직의 비전, 미션 달성 등) 에 기반하여 평가한다.

9. When applying what I learned to my job, I conduct experiments and shares the newly developed concepts with the entire organization to evaluate the value of the concepts.

그 교육에서 배운것을 업무에 적용할때, 나는 내가 새롭게 창출한 개념들의 가치를 평가해보기 위해 그 새로운 개념들을 직원들과 얘기해보고 적용해본다.

10. When applying what I learned to my job, I combine existing and new concepts in meaningful ways.

그 교육에서 배운것을 업무에 적용할때, 나는 기존의 개념들과 내가 새롭게

창출한 개념들을 의미있게 통합해본다.

11. When applying what I learned to my job, I collaborate with people from various departments to build the final model.

그 교육에서 배운것을 업무에 적용할때, 나는 다른 직원들과 협력하여 내가 창출한 새로운 개념들로부터 향후 업무수행을 위한 원칙을 도출해 낸다.

12. When applying what I learned to my job, I use newly learned knowledge stemming from the newly created concepts as the sources for the next time applications.

그 교육에서 배운것을 업무에 적용할때, 나는 내가 새롭게 창출한 개념과 그로인해 습득하게된 지식을 향후 업무에 적용해 본다.

III. Measure of Job Performance

The following items were designed to ask your job performance. This survey system gathers no identifiers linking you to this study and only the researcher will have access to the individual response. Your anonymity and confidentiality will be strictly maintained and your honest response will be critical for the current study.

If you have completed the management/leadership program during the period of January to September in 2013, then you will be asked to respond to the six questions in **Section A**. If you have completed the management/leadership program during the period

of October, 2013 to March, 2014, then you will be guided to respond to the six questions in **Section B**.

다음의 문항들은 2013 년도 귀하의 성과평가 결과에 대한 질문들입니다.

본 설문 시스템에서는 귀하의 신원을 확인할 수 있는 직접적인 정보가 수집되지

않고, 수집된 개인별 데이타는 관련법에 의거 보안이 철저하게 유지되며

교육성과 향상을 위한 프로젝트 목적으로만 사용되므로 솔직한 답변을

부탁드립니다. "다음 >>" 버튼을 클릭하시면 응답을 시작하실 수 있습니다.

1. Section A

1. In 2013, the result of my performance appraisal by my supervisor was:

   나의 상사가 평가한 나의 2013 년도 업무성과 평가 (공식적인 성과평가) 결과는?

   (1) C (lower 5%), (2) B- (middle-lower 10%), (3) B0 (middle 55%),

   (4) B+ (middle-upper 20%), (5) A (upper 10%) (6) Not Applicable

For the following five questions, please self-rate your job performance **in 2013**.

다음의 5 개 질문에 대해서는 상사의 공식적인 성과평가 결과가 아닌, 귀하께서

생각하시는 2013 년도 본인의 성과에 대해 주관적인 평가를 부탁드립니다.

2. In 2013, my overall performance compared to my peers:

   나의 동료들과 비교했을때, 내가 생각하기에 2013 년도 나의 전반적인 업무

성과는?

(1) C (lower 5%), (2) B- (middle-lower 10%), (3) B0 (middle 55%),

(4) B+ (middle-upper 20%), (5) A (upper 10%)

3. In 2013, my ability to get along with others compared to my peers:

나의 동료들과 비교했을때, 내가 생각하기에 2013 년도 나의 대인관계 능력은?

(1) C (lower 5%), (2) B- (middle-lower 10%), (3) B0 (middle 55%),

(4) B+ (middle-upper 20%), (5) A (upper 10%)

4. In 2013, my ability to complete tasks on time compared to my peers:

나의 동료들과 비교했을때, 내가 생각하기에 2013 년도에 나의 기한내 업무완료 능력은?

(1) C (lower 5%), (2) B- (middle-lower 10%), (3) B0 (middle 55%),

(4) B+ (middle-upper 20%), (5) A (upper 10%)

5. In 2013, my quality of performance (as opposed to quantity of performance) compared to my peers:

나의 동료들과 비교했을때, 내가 생각하기에 2013 년도 내 업무성과의 질적 (양이 아니라) 수준은?

(1) C (lower 5%), (2) B- (middle-lower 10%), (3) B0 (middle 55%),

(4) B+ (middle-upper 20%), (5) A (upper 10%)

6. In 2013, my actual achievement of work goals compared to my peers:

나의 동료들과 비교했을때, 내가 생각하기에 2013 년도 나의 실제 업무목표 달성 수준은?

(1) C (lower 5%), (2) B- (middle-lower 10%), (3) B0 (middle 55%),
(4) B+ (middle-upper 20%), (5) A (upper 10%)

2. Section B

1. In 2013, the result of my performance appraisal by my supervisor was:

나의 상사가 평가한 나의 2013 년도 업무성과 평가 (공식적인 성과평가) 결과는?

(1) C (lower 5%), (2) B- (middle-lower 10%), (3) B0 (middle 55%),
(4) B+ (middle-upper 20%), (5) A (upper 10%) (6) Not Applicable

For the following five questions, please self-rate your **current** job performance in 2014.

다음의 5 개 질문에서는 2014 년 현재시점 기준으로 귀하의 업무성과에 대한 귀하의 자기평가를 부탁드립니다.

2. Currently in 2014, my overall performance compared to my peers:

나의 동료들과 비교했을때, 내가 생각하기에 2014 년도 현재 나의 전반적인 업무 성과는?

(1) C (lower 5%), (2) B- (middle-lower 10%), (3) B0 (middle 55%),
(4) B+ (middle-upper 20%), (5) A (upper 10%)

3. Currently in 2014, my ability to get along with others compared to my peers:

나의 동료들과 비교했을때, 내가 생각하기에 2014 년도 현재 나의 대인관계 능력은?

(1) C (lower 5%), (2) B- (middle-lower 10%), (3) B0 (middle 55%),
(4) B+ (middle-upper 20%), (5) A (upper 10%)

4. Currently in 2014, my ability to complete tasks on time compared to my peers:

나의 동료들과 비교했을때, 내가 생각하기에 2014 년도 현재 나의 기한내 업무완료 능력은?

(1) C (lower 5%), (2) B- (middle-lower 10%), (3) B0 (middle 55%),
(4) B+ (middle-upper 20%), (5) A (upper 10%)

5. Currently in 2014, my quality of performance (as opposed to quantity of performance) compared to my peers:

나의 동료들과 비교했을때, 내가 생각하기에 2014 년도 현재 내 업무성과의 질적 (양이 아니라) 수준은?

(1) C (lower 5%), (2) B- (middle-lower 10%), (3) B0 (middle 55%),
(4) B+ (middle-upper 20%), (5) A (upper 10%)

6. Currently in 2014, my actual achievement of work goals compared to my peers:

나의 동료들과 비교했을때, 내가 생각하기에 2014 년도 현재 나의 실제 업무목표 달성 수준은?

(1) C (lower 5%), (2) B- (middle-lower 10%), (3) B0 (middle 55%),

(4) B+ (middle-upper 20%), (5) A (upper 10%)

IV. Open-ended Questions

1. What enables you to apply what you learned in the training program to your work in a creative or adaptive way? Specify 1 to 3 things.

   인재원 리더십 교육에서 배운 내용을 실제 업무에 적용하는데 도움이 되는 것은 무엇입니까?

2. What hinders you from applying what you learned in the training program to your work in a creative or adaptive way? Specify 1 to 3 things.

   인재원 리더십 교육에서 배운 내용을 실제 업무에 적용하는데 장애가 되는 것은 무엇입니까?

V. Demographic Variables

You are almost done with the survey.

이제 설문의 마지막 부분입니다.

1. What company do you work for?

   나의 회사 이름은 다음과 같다.

2. What is your gender?

   나의 성별은 다음과 같다.

   O Male (남성)

   O Female (여성)

3. How long have you worked for the company?

   내가 다니는 현재 회사에서 나의 근속년수는

   다음과 같다.

O Under 1 Year
O 1 to 5 years
O 6 to 10 years
O 11 to 15 years
O 16 to 20 years
O Over 20 Years

4. How many total working experiences of years do you have in this industry?

   나의 이전 직장 경험이 있다면 그것까지 다

   포함했을때 현재 업종에서의 나의 업무경력

   년수는 다음과 같다.

O Under 1 Year
O 1 to 5 years
O 6 to 10 years
O 11 to 15 years
O 16 to 20 years
O Over 20 Years

5. What is your job position?

   나의 직급은 다음과 같다.

   O Managers, O Deputy general managers,

   O General managers

O 과장급
O 차장급
O 부장급

6. What is the title of the management/leadership program that you completed at the Learning Center in your company?

   내가 그룹인재개발원에서 수료한 관리자/리더십

   교육의 명칭은 다음과 같다.

   O Managers' Leadership Program

O 과장리더십
O 차장리더십
O 부장리더십

O Deputy general managers' Leadership Program

O General managers' Leadership Program

7. When did you complete the management/leadership program at the Learning Center in your company?

내가 그룹인재개발원에서 관리자/리더십 교육을 수료한 때는 다음과 같다.

O January, 2013
O February, 2013
O March, 2013
O April, 2013
O May, 2013
O June, 2013
O July, 2013
O August, 2013
O September, 2013
O October, 2013
O November, 2013
O December, 2013
O January, 2014
O February, 2014
O March, 2014

Thank you so much for your participation.

설문에 참여해주셔서 대단히 감사드립니다.

APPENDIX 2

Squared Multiple Correlations (SMCs)

OJP as DV in the Model		SJP as DV in the Model	
Item	Estimate	Item	Estimate
OJP	0.01	SJP5	0.679
JCO1	0.673	SJP4	0.711
JCO2	0.707	SJP3	0.598
JCO3	0.737	SJP2	0.334
STK1	0.468	SJP1	0.632
STK2	0.751	JCO1	0.672
STK3	0.7	JCO2	0.707
BAA1	0.716	JCO3	0.737
BAA2	0.745	STK1	0.468
BAA3	0.742	STK2	0.751
CCO1	0.649	STK3	0.7
CCO2	0.675	BAA1	0.716
CCO3	0.745	BAA2	0.745
MT3	0.773	BAA3	0.742
MT2	0.638	CCO1	0.649
MT1	0.768	CCO2	0.675
SE3	0.615	CCO3	0.745
SE2	0.745	MT3	0.773
SE1	0.473	MT2	0.637
TP3	0.688	MT1	0.768
TP2	0.703	SE3	0.615
TP1	0.676	SE2	0.745
SS3	0.516	SE1	0.473
SS2	0.883	TP3	0.688
SS1	0.847	TP2	0.703
PO3	0.551	TP1	0.676
PO2	0.638	SS3	0.516
PO1	0.635	SS2	0.883

RC3	0.822	SS1	0.847
RC2	0.8	PO3	0.551
RC1	0.289	PO2	0.638
PC3	0.66	PO1	0.635
PC2	0.525	RC3	0.822
PC1	0.604	RC2	0.8
		RC1	0.289
		PC3	0.66
		PC2	0.525
		PC1	0.604

Note. OJP=Supervisor-rated Object Job Performance; SJP=Self-rated Subjective Job Performance; and DV=Dependent Variable (Exogenous Variable)

APPENDIX 3

IRB Approval Letter

DATE: June 27, 2014

MEMORANDUM

TO: Michael Beyerlein
TAMU - College Of Education - Educational Adm & Human Resource Develop

FROM: Dr. James Fluckey
Chair
Institutional Review Board

SUBJECT: Expedited Approval

Study Number: IRB2014-0354D

Title: The influence of the learning transfer system on creative learning transfer and job performance

Approval Date: 06/27/2014

Continuing Review Due: 05/15/2015

Expiration Date: 06/15/2015

Documents Reviewed and Approved:

Title
2. information sheet (english & korean)
7-2. Site Authorization Letter_Rev [redacted]
7-1. Site Authorization Letter_Rev [redacted]
3. Email for a HRD Staff (English & Korean)
6. Letter of Cultural Evaluation_Rev
9. junhee dissertation proposal_2014.05.15_final
7. letter of translation assurance
5. survey instrument (english & korean)
3. waiver of documentation of consent

Document of Consent: Waiver approved under 45 CFR 46.117 (c) 1 or 2/ 21 CFR 56.109 (c)1
Waiver of Consent:

Provisions:

Comments:

Note. In accordance with the IRB policy, the approval letter was granted to the Principal Investigator, the researcher's dissertation committee chair.

APPENDIX 4

IRB Continuing Review Approval

DATE: April 02, 2015

MEMORANDUM

TO: Michael Beyerlein
TAMU - College Of Education - Educational Adm & Human Resource Develop

FROM: Dr. James Fluckey
Chair
Institutional Review Board

SUBJECT: Continuing Review—Approval

Study Number:	IRB2014-0354D
Title:	The influence of the learning transfer system on creative learning transfer and job performance
Approval Date:	06/27/2014
Continuing Review Due:	03/01/2016
Expiration Date:	04/01/2016

Comments: The continuing review for this study has been approved.