ORGANIZATIONAL STRATEGIC LEARNING CAPABILITY: EXPLORING THE DIMENSIONS

by

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(Under the Direction of Wendy Ruona)

ABSTRACT

Organizations must be extremely agile in the rapidly shifting global context of 21st century business. To do this, organizations must approach strategy making from a learning approach and develop *strategic learning capability—the capacity of an organization to retool rapidly to create and execute new strategy through learning at the individual and system levels in response to changes and uncertainties in complex environments*. While the literature related to strategic learning has grown during the past decade, knowledge around strategic learning capability needs elaboration so that scholars and leaders can more deeply understand what it really is, how it works, and how best to facilitate it.

This study was designed to conceptualize strategic learning capability by translating and interpreting the related literature to develop empirical dimensions that could be tested and used in a survey instrument. The resulting survey instrument included fifty-nine items that were developed through a review of the literature, a brainstorming session of HRD practitioners, and communications with experts in the field and committee members. The instrument also included ten items concerning financial and

knowledge performance (Watkins & Marsick, 1997) to examine the predictability of strategic learning capability on outcome variables. 237 organizational leaders involved in or able to judge strategy making from a variety of types of organizations were utilized for this study.

Based on responses on a five-point performance scale, strategic learning capability items were identified and prioritized, and seven dimensions were discovered: (1) *External Focus*, (2) *Strategic Dialogue*, (3) *Strategic Engagement*, (4) *Customer-Centric Strategy*, (5) *Disciplined Imagination*, (6) *Experiential Learning*, and (7) *Reflective Responsiveness*. In addition, the potential predictability of strategic learning capability dimensions on financial and knowledge performance were further investigated. Finally, mean differences in the seven dimensions of strategic learning capability by organizational and individual characteristics were tested.

INDEX WORDS: Strategic learning capability, Strategy, Strategic Planning, Strategic implementation, Strategy process, Strategic Human Resource Development (HRD), Strategic Human Resources (HR), Sensemaking, Decision making, Organizational learning

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DEDICATION

To the glory of God

To my father (Heungqui Moon)

To my mother (Boklim Park)

But he knows the way that I take;

When he has tested me, I will come forth as gold. (Job 23:10)

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CHAPTER ONE

INTRODUCTION

In the 21st century, strategy is the key to sustainability for organizations. Little is predictable, and few organizations can guarantee their success or even their long-term survival. As organizations face uncertainties, they must become increasingly agile to respond quickly and efficiently to the needs of internal and external customers. Organizations need agility and ambidexterity to develop and implement innovative and competitive strategies that foster a unique and valuable position in the industry (Porter, 1996). Outstanding companies continually create a series of strategies and develop processes to work towards them so that they become embedded in the organization's DNA (Collins, 2001).

Nonetheless, organizations have difficulty developing strategies. According to 2011's *Critical Human Capital Issues*, one of the top ten critical issues of low market performers is strategy development. This suggests that strategy development is neither simple nor easy. For instance, one of the leading American video rental businesses, Blockbuster, filed for bankruptcy in September, 2010, because it could not outperform its rivals, such as Netflix, Hulu, and iTunes, and had not kept up with fast changing technology (Carr, 2010). Blockbuster lost its strong market share and its customers to its competitors due to its inability to rapidly innovate its business model. Similarly, many other low-performing organizations will not survive without competitive and responsive strategies.

Traditionally, strategy development has been approached primarily from a formal planning perspective, which relies on preserving and rearranging organizational components (e.g., various strategies, products, and structures). However, some literature sheds light on strategy development facilitated by learning via an emergent, rather than deliberate, strategy (Mintzberg, 1987a; Sloan, 2006) and highlights a learning approach to strategy development (de Geus, 1988). Applying such an approach, however, requires a paradigm shift that is often quite challenging for organizational leaders. While a new paradigm requires many shifts in thinking, the notion of the capacity to learn strategically has become compulsory for organizations that want to remain viable.

A strategic learning capability—an organization's capacity to learn and unlearn during the strategy development process to generate strategic knowledge and drive strategic change (Anderson et al., 2009)—is increasingly important for now and in the future. Organizations that can learn strategically as an ongoing process will be more adaptable to the external environment (Pietersen, 2010). However, organizations need more guidance and support to develop and embed strategic learning capability within their companies (Grundy, 1994).

One specific methodology that emerged in the 1990s to foster strategic learning capability was scenario planning, an organizationally based social-reasoning process, which utilizes dialogue and conversation (Wright & Goodwin, 2009) to imagine possible futures (Korte & Chermack, 2006). Companies that have used scenario planning for strategy development have been hailed in the literature as exemplars for maintaining a fit with the external environment. One such company is Royal Dutch/Shell, which used with

scenarios to explore the future (de Geus, 1988; Schwartz, 1991), and more examples are detailed in the literature (Chermack, 2011; Klein & Linneman, 1981; Ringland, 2008).

While scenario planning appears to have great potential as a powerful methodology to facilitate and foster strategic learning, more research needs to be done, and, perhaps, additional methodologies that facilitate strategic learning will emerge in the future. What is also clear is that more research is needed to fully understand strategic learning as a capability—that is, what it really is, how it works, and how best to facilitate it. As Yorks (2005) asserted, "learning [,] when skillfully promoted within the political economy of an organization's internal power structure and external strategic niche, is a potential force for leveraging individual and organizational performance" (p. 4). This study forwards strategic learning capability as a very powerful force for influencing organizational and strategic success—as it is the basis for strategy development and implementation.

Strategic Learning in the Literature

The concept of strategic learning was coined by Henry Mintzberg (1987a), a strategy guru, and further developed by Pietersen (2002; 2010). According to Mintzberg, learning occurs as strategy emerges over time, until it gets formalized. Pietersen (2002) introduces strategic learning situated in the strategy development process of reinventing strategy, which allows continuous renewal of strategic knowledge in constant change. At the individual level, strategic learning is targeted at creating winning strategies in order to learn to think strategically via intuition and creativity (Mintzberg, 1994b; Sloan, 2006). Understanding strategic learning at multiple levels is pivotal in that it continually

incorporates learning and unlearning throughout the strategic planning and strategy implementation process in order to enhance organizational adaptability.

Strategic learning has been portrayed differently by various scholars as a social learning process (Burgelman, 1988; Eden & Ackermann, 2001), as strategic thinking (Casey & Goldman, 2010; Liedka, 1998), and as a strategic behavior design process (Kuwada, 1998). Recently, emerging literature (Gibbert, 2004; Szulanski & Amin, 2001) has emphasized applying disciplined imagination to strategy making. Disciplined imagination allows diverse options, encourages creative thinking that is grounded in reality, and ensures that these options are rigorously evaluated and systematically developed and implemented. Through strategic learning, organizations can build the capacity to prepare proactively for future uncertainties (de Geus, 1988).

On the other hand, while strategic learning has been elucidated over the past decade in terms of its processes, domains, and actions, it still needs elaboration in four areas. First, strategic learning should be explicated from strategic planning and implementation. Second, the theoretical background of strategic learning and its process in organizational learning needs to be articulated more clearly. Third, the need for a quantitative measurement of strategic learning capability should be addressed in order to explore its empirical dimensions. Lastly, the predictability of strategic learning capability on organizational outcome variables should be explored.

First, previous studies have blended strategic learning and strategic planning and implementation processes. We need a better way to understand how these processes are inter-related and, then, explicitly differentiate between these complex processes. Strategic planning can be divided into a strategy generation—developing strategic alternatives

based on a thorough understanding of external and internal environments—and a strategy formation/decision process—making strategic choices that favor one alternative (Deiser, 2009). In strategic planning, strategic learning promotes a creative search (Pandza & Thorpe, 2009), a challenge to the imagination (Gibbert, 2004), and intuitive processes (Mintzberg, 1994b), incorporating both a process (Burgelman, 1988; Grundy, 1994) and a mechanism (Kuwada, 1998) to innovatively design strategic behaviors during strategy implementation. In terms of the domain, strategic learning involves both cognitive (Burgelman, 1988; Pietersen, 2002) and behavioral processes (Kuwada, 1998). Coming to a decision-making point involves a cognitive process of sense making among individuals, while strategic implementation involves both cognition and strategic behaviors in their execution.

Second, there is a gap in the literature because, although scholars have discussed how organizational learning and strategic learning are inter-related (Yorks, 2005), little attention has been given to how one supports the other in specific aspects. Strategic learning is a kind of organizational learning that enables organizations and systems to successfully pursue their core strategies and achieve a competitive advantage (Marsick, 2006). The important notion of strategic learning incorporates learning (Argyris & Schon, 1978) and unlearning (Hedberg & Starbuck, 2001), which is illustrated in organizational learning but within the context of strategy development. Scholars have arduously worked on theory building in scenario planning as the disciplined imagination of strategy making (e.g., Chermack, Lynham, Lincoln, & McWhorter, 2011), which is one way to facilitate strategic learning. Indeed, more theory building effort toward strategic learning is needed. Strategic learning theory is trans-disciplinary in that it is grounded in both organizational

learning and strategy theory, but it is still considered a mid-range theory, which needs more development.

A third challenge is that few methods exist to measure strategic learning capability. A case study method of exploring strategic learning (Wyer, Donohoe, & Matthews, 2009) enlightens important aspects of strategic learning in depth, which broadens the understanding of conditions to facilitate strategic learning via dialogue and illustrates learning sources, such as discovery and experimentation. Although this action research-based case study unfolds a deep understanding of strategic learning, it is limited to small business enterprises and is not generalizable. On the other hand, van der Merwe, Chermack, Kulikowich, and Yang (2007) have developed a measurement of the quality of strategic conversation and engagement during the process of strategy making, which allows diagnosing the level of an individual's conversation quality and communication. Siren (2012) developed an instrument of strategic learning capability grounded in knowledge management, information transfer processes, and strategic sensemaking constructed from a strategic knowledge perspective. Although the instrument is integrative of strategic learning, the study focused on strategic contents rather than strategic capacity itself.

Regardless of the several attempts to measure strategic learning capability, an integrative approach to find meaningful dimensions of strategic learning capability will be desirable. Therefore, this study tries to capture the complex nature of the interplay between sensemaking and decision making as related to strategic learning capability and to discover new dimensions in the strategy process. Rigorous measures based on concrete concepts around strategic learning capability are needed to deepen our understanding and

further theory building in this area. In order to examine the level of strategic learning capability, instrument development is a must.

Finally, few studies have addressed strategic learning capability as a driver to financial and knowledge performance. Yet, little is actually known about ways in which developing strategic learning capability is a stepping-stone in enhancing financial and knowledge performance within the organization. Therefore, this study seeks to investigate whether the empirical dimensions of strategic learning capability can have an effect on financial or knowledge performance.

Framework for Strategic Learning Capability

Thus, this study attempts to address the gaps in the literature by understanding and extending strategic learning theory. Following Benson and Clark's (1982) instrument development and validation guide, this study tries to translate the important concepts of strategic learning capability into items. Using the developed instrument, empirical dimensions of strategic learning capability will be identified. The measurement framework focuses on strategic learning capability as a driver to foster financial and knowledge performance (See *Figure 1-1*). Additionally, differences in the level of strategic learning capability by organizational and individual characteristics are further explored. A detailed review of the literature will be provided in Chapter 2, but a brief description follows to frame this study.

New Dimensions of Strategic Learning Capability

Strategic learning capability is defined as the capacity of an organization to retool rapidly to create and execute new strategies through learning at the individual and system levels in response to changes and uncertainties in complex environments. Strategic

learning capability represents the way in which firms develop and adapt strategically over time (Anderson et al., 2009) and remain responsive and flexible to a strategy process (Pietersen, 2010). The relationship of strategic learning capability with outcome variables enables organizations to build interventions in specific areas for the growth of tangible and intangible assets.

Organizational and Individual Demographics

Identifying the differences in the levels of strategic learning capability by organizational characteristics will provide the most current state of organizational capacity in the strategy process by industry, employee numbers, and their revenues. In addition, examining the perceptions toward strategic learning capability by individual characteristics will reveal perceptional differences in understanding strategic learning capability by individuals' roles and responsibilities. Organizational and individual demographics will provide general background information of the study participants.

Financial and Knowledge Performance

The biggest challenges HRD practitioners face today incorporate understanding organizational strategy and playing a central role in implementing the organizational strategy (Becker, Huselid, & Ulrich, 2001). Measuring financial performance means that HRD cares about building business success and wants to be a strategic partner to reach the organizational goal. In addition, analyzing what dimensions of strategic learning capability are related to financial performance will reveal the particular areas needed for a strategic alignment. Assessing financial performance and how it relates to the implementation of organizational strategy will effectively link people, strategy, and performance.

Gaining competitive advantage can be accomplished through knowledge integration in that it can ultimately result in organizational effectiveness. In order to make informed decisions, the quality of knowledge becomes more important, because the type of strategy and the direction of strategy implementation can be changed based on the information provided. Given that embedding a strategic learning capability incorporates many sources of strategic knowledge, the relationship between the two variables is inter-dependent. Assessing how strategic learning capability affects knowledge performance will be valuable.

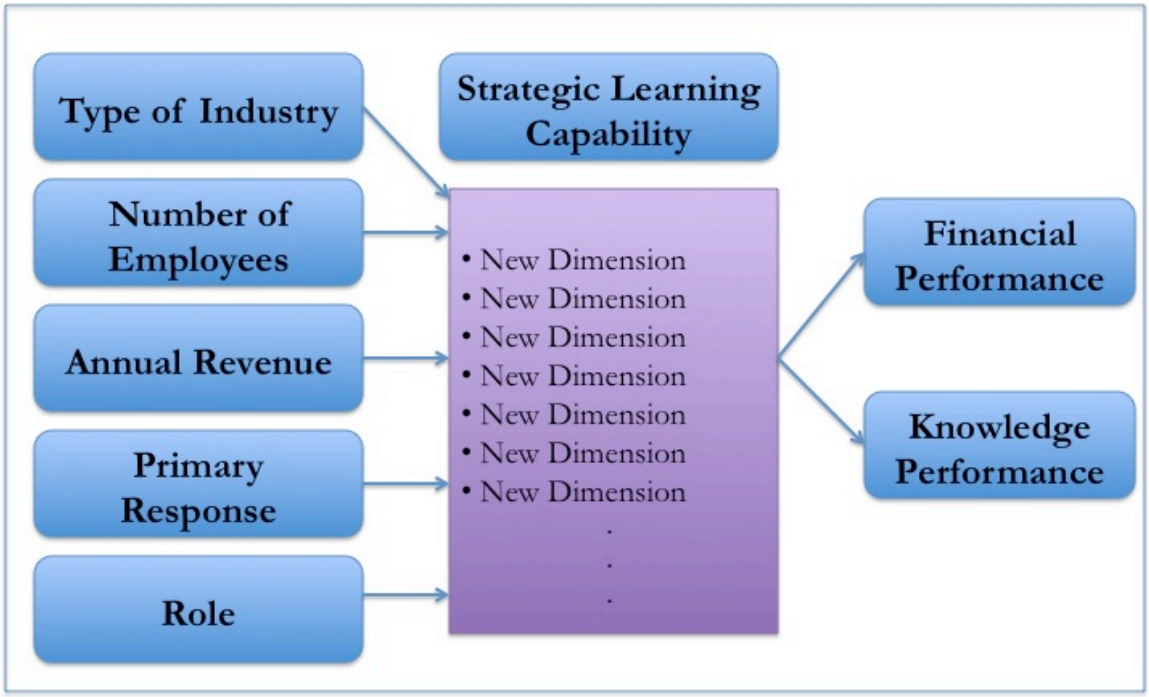

Figure 1-1. Measurement Framework

Statement of the Problem

The art of strategy making is increasingly important to organizations in 21st century. How can organizations create a strategy that helps them maintain a competitive advantage in the rapidly shifting market? Creating a unique, inimitable strategy will

change the dynamics, as well as increase the chances for sustainability of an organization. Companies like Google, Apple, Facebook, and Wal-Mart have learned this lesson through continuously creating innovative strategies. Yet, many organizations still struggle with developing a strategy that enables them to respond well to industry dynamics and outperform their competitors. In order to create a competitive strategy, understanding strategy-making processes from a learning perspective is essential. Therefore, how to build and enhance the strategic learning capability of an organization becomes crucial to both research and practice. The field of HRD should be more responsive and reactive to the current organizational external environment and help an organization become more agile (Ruona, Lynham, & Chermack, 2003). In order to build and enhance the strategic learning capability of an organization, viable and prompt actions need to be taken in order to discover challenging areas of strategic learning capability.

Understanding strategic learning is critical, but the processes of strategic learning, strategy generation, strategy formulation, and strategy implementation are mingled, and thus, articulating and explicating strategic learning capability from strategy development and implementation processes is an important agenda. Furthermore, the concept of strategic learning capability needs to be redefined concretely—grounded in organizational learning, strategy theory, and HRD—to develop conceptual models and instruments. Finally, developing a quantitative instrument of strategic learning capability is needed to examine the organizational capacity in the strategy process. Therefore, this study attempts to build an integrative framework to understand learning in the strategy-

making process and to navigate and explore key dimensions of strategic learning capability empirically.

Purpose of the Study and Research Questions

The purpose of this study is to explore the empirical dimensions of strategic learning capability (SLC). The following research questions guide this study:

1. How do strategic planners rate an organization's performance with respect to strategic learning capability activities?
2. Based on strategic planners' ratings, can the empirical dimensions of strategic learning capability be developed?
3. To what extent does strategic learning capability explain the observed variation in financial and knowledge performance?
4. To what extent do organizational and personal characteristics explain the observed variation in the dimensions of strategic learning capability?

Significance of the Study

Strategically-driven human resource development (HRD) has been a popular concept in the field of HRD, but HRD professionals have mostly focused on the strategic positioning of HRD within organizations rather than presenting HRD as a crucial function of the strategic and tactical activities of businesses (Yorks, 2005). According to Christensen's (2006) strategic human resource framework, learning and development are components which are valued equally with employee relations, performance management, organizational development, and workforce planning and staffing. Yet, the notions of learning and development that traditionally focus on individual development

need to be reinvented to extend their functions to encompass organization and strategy (Deiser, 2009).

This study can contribute to the knowledge base by suggesting an integrative framework for understanding learning in the strategy-making process and exploring key dimensions. Secondly, this study examines whether strategic learning capability will help organizations form strategy in innovative ways, as suggested in the literature, to be agile, entrepreneurial, and responsive to continually changing macro-environmental dynamics. Finally, this study explores whether strategic learning capability embedded within an organization enhances financial and knowledge performance. By studying these constructs, this study will provide a deeper understanding of learning in the strategy realm.

This study makes important practical contributions to HRD by expanding the paradigm of strategic learning in terms of learning dimensions, learning embedded in practice, and the contributions of learning. Corporate learning and development have been limited to the skill development of employees (Deiser, 2009). According to Deiser's three domains of learning, people excellence, organization excellence, and strategy excellence, strategy excellence is the most complex and difficult domain to foster. This study explicates organizational learning bounded by strategy contexts, which may help practitioners better leverage learning from people to organization and strategy. By more fully understanding the strategic learning capability of an organization and its effects on strategy generation, formulation, and implementation, the findings yielded in this study may stimulate needed clarity on the concepts and help identify the interventions HRD professionals need to implement to enhance strategic learning capability.

CHAPTER TWO

REVIEW OF THE LITERATURE

This chapter aims to provide rationales concerning the four research questions posited in Chapter One based on the literature. Specifically, this chapter includes four major sections. The first section includes a review of strategic learning, its definitions, distinctiveness, and contributions. The second section is composed of various underlying theories of strategic learning. In the third section, sensemaking and decision making are reviewed as key domains of strategic learning capability. In the fourth section, knowledge and financial performance are examined as a critical outcome of strategic learning capability. Lastly, based on the literature review and discussion, research questions are proposed in the summary of this chapter.

Strategic Learning

Strategic learning capacity plays an important role in this study in that it explains organizational capacity from a learning perspective in the strategic process. First, definitions of strategic learning and existing strategic learning models are reviewed to operationalize the concept. Second, the distinctiveness of strategic learning compared to strategic planning and strategic implementation is demonstrated. Lastly, contributions of strategic learning to the strategic process are illustrated.

Definitions of Strategic Learning

The definition of strategic learning has further evolved and has been elaborated. Strategy guru, Mintzberg (1987a) identifies the possibility of fostering learning via an

emergent strategy. Strategic learning is situated in the strategy development process of a reinventing strategy, which allows continuous renewal of strategic knowledge in constant change (Burgelman, 1983; Pietersen, 2002). On the other hand, from the perspective of organizational behavior, strategic learning is highlighted as an ability to generate mechanisms for the strategic behavior design process (Kuwada, 1998). In terms of strategic thinking, strategic learning incorporates learning to think strategically at the individual level (Sloan, 2006). Lastly, from the strategic change perspective, strategic learning works as problem solving in that an organization creates an open system to deal with complex issues (Grundy, 1994). Thus, strategic learning can be understood in the context of strategy making, generating organizational behavior, and problem-solving processes. While strategic learning can be applied to any contexts, this study focuses on strategic learning in and around the strategy development process, which involves learning (Mintzberg, 1987a) and unlearning (Argyris & Schon, 1996) repeatedly during strategic planning and the implementation of the strategic process. A table of strategic learning definitions is provided (See Table 2-1).

Anderson, Covin, and Slevin (2009) distinguish strategic learning capability from other manifestations of learning in that strategic learning creates new knowledge and change as an organizational capacity. Strategic learning capability perceives learning from a capability perspective, which allows the capacity to determine whether or not organizations can continually execute strategic learning. Other scholars (Kuwada, 1998; Pietersen, 2010) have used the term strategic learning capability, but strategic learning capability is a key to "the question of how firms develop and adapt strategically over time" (Anderson et al., 2009). Anderson et al. identify two specific aspects of strategic

learning capability: “new strategically relevant knowledge” and “the likely enactment of strategic change as their consequences” (p. 220). Therefore, strategic learning capability can be understood as being both cognitive and behavioral.

Strategic learning cannot be facilitated in a single domain, but requires the interplay of three different domains in the strategy development process. Some complicated factors are lumped together for organizations to learn strategically, including the affective, behavioral and cognitive domains.

The affective. In terms of strategic learning enablers at the individual level, we need to acknowledge the emotions attached to work, system, and process influences learning. For example, a must-win attitude and feeling initiates the strategic thinking process, and Sloan’s (2006) illustration clearly supports this notion:

> The affective deals with feelings and requires paying attention to intuition—taboos in the realm of strategy planning—imperatives in the process of strategy thinking. The affective aspect of strategic thinking is what enables the learning process to be highly nonlinear, unexplainable with words, not easily measured, and felt (p. 56).

Vince’s (2004) idea coincides with Sloan’s idea in a somewhat different way in that learning occurs when individuals deal with anxiety consciously and unconsciously. In terms of strategic planning, we need to consider emotional factors of individuals in order to foster strategic learning.

The behavioral. Strategic process research addresses behavior issues at individual, group, and organizational levels (Vanttinen & Pyhalto, 2009). Without developing the strategic mindsets of individuals, behavior can still change in strategic

implementation. Starbuck, Barnett, and Baumard (2008) assume that behaviors can be improved regardless of a learner's misperceptions toward environments or "the causal relationships between actions and outcomes" (p. 16). As long as organizations have "an internalized, contrived selection mechanism," strategic behavior can be generated (Kuwada, 1998, p.74). Yet, there is a drawback in that noncognitive theory can build up routines that may not contribute to performance. In other words, this pattern of behavior is reactive rather than proactive. Instead of stimulus and response, strategic learning at implementation can become mechanical and automatic. Therefore, we should help individuals build strategic behavior with cognition about change and learn how to map the strategy with strategic actions effectively.

The cognitive. Scholars have examined the cognitive domain of learning. From a cognitive perspective, strategic learning capability is an ability to generate new strategic knowledge. According to Sloan (2006), strategic learning capability means the ability to build patterns and activities through strategic thinking. Garavan and McCarthy (2008) assert that cognitive and behavior perspectives are both imperative in strategic learning in that the former focuses on the evolution of knowledge, whereas the latter focuses on the adaptive capacity. In addition, Sloan (2006) agrees with the proposition that cognition alone cannot drive strategic learning, since it is mostly information gathering and analysis; however, cognition is a mandate in the strategic planning process.

In summary, an integrated understanding of the three domains suggests that the cognitive and behavioral domains have dialectic relationships to learning: "For example, people may stubbornly adhere to cognitions that support habitual behaviors, and people often revise their cognitions to align them with their behaviors" (Starbuck et al., 2008, p.

17). Other literature stresses the behavioral perspective (e.g., strategic change) of strategic learning capability, because strategic thinking alone will not be able to pervade management action on a regular basis (Grundy, 1998).

Table 2-1. *Definitions of strategic learning*

Theorists	Premises	Definition
Burgelman, 1988	Strategy making	Strategy making as a social learning process, which allows strategic content to become strategic action at the operational level (p. 81).
Grundy, 1994	Strategy change; multiple level	An open process of exploring complex and ambiguous issues affecting organizations, teams and individuals. This process involves reflecting and debating on the linkages, tensions, and conflicts between issues and seeing these in the wider context (p. 21).
Kuwada, 1998	Knowledge management	Strategic learning generates mechanisms for the strategic behavior design process as part of the organization's learning process (Burgelman, 1991).
Thomas, Sussman, & Henderson, 2001	Knowledge management	Strategic learning involves "altering the fundamental sensemaking and knowledge management structures of the organization in potentially radical ways" (p. 332).
Pietersen 2002, 2010	Strategy making	Strategic learning refers to reinventing strategy "as a process to generate continuous renewal in times of constant change" (2002, p. 4).
Voronov & Yorks, 2003	Strategy making	A process of routine behavior and activity, including formal planning meetings but also informal conversations throughout the organization out of which the realized strategies emerge, and to which organizational members react, and this stimulates further reflection and rethinking of the strategy (p.14).
Sloan, 2006	Strategic thinking	Strategic learning is a three stage "informal learning process of thinking strategically"—preparation, experience, re-evaluation (p.51).

The function of the affective domain in strategic learning provides a new perspective from which to examine strategic learning along with the cognitive and the behavioral domains. The affective and cognitive domains work toward strategic learning

in strategic planning, and the behavioral domain works towards strategic implementation, respectively.

Applying a Disciplined Imagination to Strategic Learning

A disciplined imagination is imagining every possibility and, then, applying rules to evaluate the full set of given alternatives (Szulanski & Amin, 2001). Disciplined imagination is one way to construct a theory (Weick, 1989), but it has been used to develop scenarios in strategy making. Both theory building and strategy making are similar in that they are based on processes formulating multiple plausible solutions to a problem (Chermack, 2007). Problems are tackled to formulate solutions through trial and error. In order to do that, Weick (1989) suggests the specific steps: (1) choose the form of problem statement, (2) proclaim when their thought trials have solved the problem they pose, and (3) choose a sequence that resembles artificial selection.

In the emerging literature, some scholars (Szulanski & Amin, 2001) discuss increasing the quality of an organization's strategy-making process that is possibly reflected in the degree of disciplined imagination. They define discipline as "the consistent application of rules to evaluate the full set of given alternatives" (p. 541). Strategic planning can be a disciplined approach, when it is applied based on selection criteria with greater diversity (Weick, 1989, p. 516), which requires continuously maintaining focus and control throughout the process of strategy formulation (Szulanski & Amin, 2001).

Assuming that strategy is an invention and a product of someone's imagination that is unseen or untouched (Mintzberg, 1987c), strategy making by imagination is not completely new. An imaginative strategy-making process allows a deliberate effort to

generate and evaluate more options in strategy formulation for the higher success (Szulanski & Amin, 2001), which enables seeing new opportunities through the lens of imagination (Hamel & Prahalad, 1989). While practicing disciplined imagination, any questions can be asked, and answers can be fielded or mentally simulated (Weick, 2002).

Gibbert (2004) introduces three types of crafting strategy imaginatively with empirical evidence—descriptive, creative, and challenging imagination. In descriptive imagination, the essence of strategy lies in the need to describe the outside world in terms of industry structure and dynamics. Creative imagination is not the synonym of creativity but seeks to induce "new possibilities through the combination, recombination or transformation of things or concepts" (p. 670). Challenging imagination stimulates a deconstruction of things or concepts previously known, which challenges "the clarity generated by description and the sense of progress that comes from creativity" (p. 670).

In Siemens' case study, all three imaginative strategy-making processes have relative importance at different points. Creative imagination is dominant when the firm focuses on utilizing internal firm resources and capabilities. Descriptive imagination is needed to analyze the industry context and to redefine core competences. Finally, challenging the imagination is needed to purposefully deconstruct organizational routines and culture. Therefore, applying disciplined imagination to strategy making integrates learning with strategic discipline in order to make enhanced strategies (Mintzberg, 1994b; 1987a). The practice of disciplined imagination allows the fielding of various questions fielding and the simulation of various answers (Weick, 2002).

A Review of the Existing Strategic Learning Models

To better understand strategic learning, we should more deeply understand the learning processes. After reviewing two empirical (Grundy, 1994; Pietersen, 2002, 2010) and four theoretical models (Casey & Goldman, 2010; Crossan, Lane, White, & Djurfeldt., 1995; Nair, 2001; Sloan, 2006), some characteristics are identified which indicate that most strategic learning models require multiple level approaches and various steps.

Learning to think strategically. Casey and Goldman (2010) create an integrative model of learning to think strategically that captures the three major components relevant to learning—the learner, the process, and the context. The authors' integrative framework is useful, because they discuss strategy, cognition, and adult learning to support their model and provide a rationale for choosing multiple theories. They consider learning to think strategically includes individual thinking activities as well as organizational influencers, such as the team structure and organizational typology. They put more emphasis on individual strategic thinking and the role of a strategic thinker's benefit to an organization.

Integrative organizational learning model. Nair's (2001) integrative effort of reviewing organizational learning literature offers new perspectives on organizational learning processes. Different lenses are applied to examine organizational learning—one sees learning as a progress function or learning/experience curve effect, and the other sees it as a process facilitating organizational adaptation and growth as well as development and sustenance of competitiveness (Nair, 2001). The progress function has not been able to answer how exactly organizations learn. The process function exhibits an

evolutionary trend. Based on the perspective of organizational learning as a process facilitating adaptation and growth, four phases have been identified, which are labeled here as the problem, conceptualization, action, and evaluation phases. Yet, when and how individual learning becomes organizational learning is still unclear.

4I processes. Crossan et al.'s (1999) 4I processes—intuiting, interpreting, integrating, and institutionalizing—enlighten organizational learning processes on three levels. The framework is built upon the concept of exploitation—"the efficient production within well-defined and routine parts of the business" and exploration—"processes equally important [as exploitation] but less tangible and concrete" (p. 1090). A competitive position of a firm is dynamic, which goes through feedback loops. Crossan et al.'s (1999) dynamic process of 4I is significant in that they articulate how the process of individual learning becomes organizational learning and how organizational learning becomes group and individual learning as the feed-forward learning and the feedback learning respectively. The 4I model bridges organizational learning with strategic learning through institutionalization, which stores strategic knowledge as forms of organizational elements such as structures, systems, procedures, routines, and strategies.

Three-stage informal learning process. For a better understanding of learning to think strategically, Sloan (2006) develops a three-stage informal learning process—preparation, experience, and re-evaluation. The preparation stage requires readiness for learning, and she emphasizes an intuition to motivate learners in order to drive learning. In the experience stage, prior successful life experience is not a single event but a series of them, so experience alone cannot facilitate strategic learning, and thus, critical

reflection should accompany it. At the reevaluation stage, learning occurs through personal reflection, which helps understanding and widens perspectives.

The strategic learning process. Strategic learning can be situated in a strategy development process when it is interpreted as a model that includes action steps. Pietersen's (2002; 2010) five key competencies clearly elaborate the process of strategy development—(1) insight (learn), (2) focus, (3) alignment (align), (4) execution (execute), and (5) renewal. The first two steps—learn and focus—are the fundamentals for an organization's strategy creation and facilitate an outside-in learning process. The third and fourth steps carry out strategy implementations. Strategy creation and strategy implementation are mutually reinforcing processes, and the cycle is repeated continuously. The fifth step incorporates all five competencies. Pietersen's model best describes the strategy formation process out of the six models.

SARTRE. Grundy's (1994) six phased model, SARTRE, which is an acronym for surfacing, analyzing, reshaping, targeting, resolving, and experimenting helps organizations to solve problems at the business, the group, and the individual levels. The SARTRE is similar to Pietersen's strategic model in that they both help strategic learning in practice. This model requires thinking and learning strategically at the business, the group, and the individual levels simultaneously and investigates how to deal with the complex and uncertain issues of organizations as well as these impacts at different levels.

A comprehensive chart comparing and contrasting six models is illustrated in Table 2-2. Two models are grounded in organizational learning, and four models represent the nature of strategic learning. Each model is unique in its underlying theories and processes, but Sloan's (2006) three-stage model and Casey and Goldman's (2010)

strategic thinking in action model share the same purpose—facilitating strategic thinking. However, their underlying theories are different—informal learning and experiential learning respectively, which is reflected in their learning processes.

Pietersen's (2002; 2010) strategic learning model and Grundy's (1994) SARTRE model are based on practice, but each has distinctive characteristics in terms of its purpose and process. The former pursues growth in individual and organizational renewal, and the latter pursues problem solving in business situations. Regarding the applicable levels of all six models, authors of all six models describe that they are situated in multiple levels, but it is doubtful that these models can be effectively applied from the individual to organizational levels. For example, the two models of Sloan (2006) and Casey and Goldman (2010) deal with the individual capacity to think strategically but not the organizational. Ultimately, it is believed that individuals' strategic thinking will benefit organizations, but the specific process of leveraging individual learning to organizational learning is not explained by the authors (e.g., Sloan, 2006; Casey & Goldman, 2010).

Strategic Learning Defined and Operationalized for This Study

Based on scholars' conversations, strategic learning capability represents both cognition (Sloan, 2006) and strategic behavior (Kuwada, 1998; Thomas et al., 2001). Generating strategic knowledge indicates the cognitive domain, and creating strategic change indicates both the cognitive and behavioral domains. The capacity to learn and unlearn accompanies the interplay of cognition and strategic behavior.

A comprehensive chart of strategic learning models (i.e., Table 2-2.) is as follows:

Table 2-2. *Strategic Learning Models*

	Org learning as a process facilitating adaptation and growth, (Nair, 2001)	Learning/Renewal in organizations, 4I (Crossan, Lane, & White, 1999)	Strategic learning process at Org level (Pietersen, 2002, 2010)	Three-stage model of strategic learning (Sloan, 2006)	Phases of Strategic Learning: SARTRE (Grundy, 1994)	Strategic thinking in action (Casey & Goldman, 2010)
Model Orientation	Theory-based	Theory-based	Practice-based	Theory-based	Practice-based	Theory-based
Applicable Levels	Individual, Group, & Organization levels	Individual, Group, & Organization levels	Organization level	Individual & Organization levels	Individual, Team/Group, & Organization levels	Individual & Organization levels
Components	N/A	N/A	Strategy creation, Strategy implementation	Experience, Critical reflection, Personal reflection	External, Internal, & Psychological contexts	Learner, Process, & Contexts
Underlying Theories	Organizational learning	Organizational learning	Strategy	Informal/incidental learning	N/A	Experiential learning, Adult learning theories
Purpose of Model	To build learning organizations	To illustrate how individual learning becomes organizational learning	Personal growth and Organizational renewal	Facilitating strategic thinking	Problem solving at the business, the group, and the individual levels	Enhancing strategic thinking of individuals and their benefits to organizations
Processes	Problem, Conceptualization, Action, and Evaluation phases	Feed-forward and Feedback processes: Intuiting, Interpreting, Integrating, and Institutionalizing	Learn, Focus, Align, Execute	Preparation, Experience, and Re-evaluation	Surfacing, Analyzing, Reshaping, Targeting, Resolving, and Experimenting	Scanning, Questioning, Conceptualizing, and Testing

None of the aforementioned models fully reflect learning aspects at multiple levels during the strategy development process. After reviewing the existing models, I conclude that the strategic learning model is a dyadic process of learning (Mintzberg, 1987a) and unlearning (Argyris & Schon, 1996; Hedberg, 1981; Tsang & Zahra, 2008) repeatedly during strategic planning and implementation (i.e., *Figure 2-1*). Therefore, strategic learning incorporates strategy removal and adoption of new strategy. It is important to note that this model is not a stage model nor is it sequential. Rather, this model represents the ongoing process of learning in strategy development.

The extent to which learning and unlearning interplay in strategic planning and implementation varies. If the existing cognitive structure is firm and stable, it is more difficult for unlearning to happen. Thus, for unlearning and learning to occur most effectively, the organizational structure should be flattened, flexible, and decentralized, and the organizational culture, processes, and characteristics should be reflective of a learning organization. As types of organizational change, learning and unlearning involve a transformation between two points in time, which implies unlearning at one point in time and learning at a later point in time or vice versa (Tsang & Zahra, 2008). As an organization repeats the cycle of strategic planning and implementation, it will eventually enhance its adaptive capacity (Pietersen, 2010). *Figure 2-1*. illustrates learning and unlearning continually in the strategic process.

Distinctiveness of Strategic Learning

Strategic learning is distinctive from strategic planning and implementation. Strategic learning is illustrated as a social learning process (Burgelman, 1988; Eden & Ackermann, 2001) and a strategic behavior design process (Kuwada, 1998), which affects

the decision-making process of organizations. Its practices are disciplined imagination (Szulanski & Amin, 2001), scenario planning (Chermack, 2010; van der Heijden, 1996), strategic conversation (Zula & Chermack, 2007), and reasoning by analogy (Gavetti & Rivkin, 2005). The distinctive nature of strategic learning is described and compared with strategic planning and implementation in the section below.

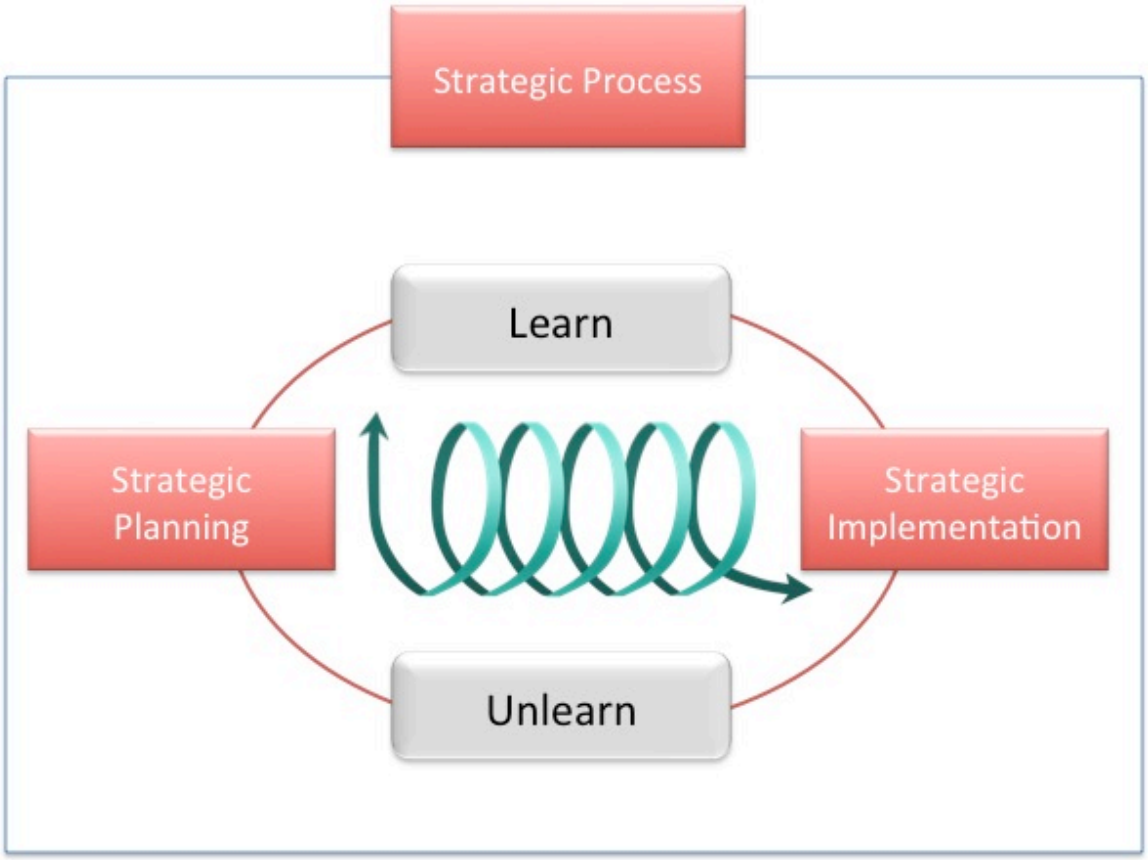

Figure 2-1. Strategic Learning Model 1.0

Strategic planning vs. Strategic learning. The traditional way to understand the strategy-making process was based on strategic planning, which allows the rearranging of organizational components such as structures, cultures, and systems (Mintzberg, 1999), but strategic change does not occur through rearranging old ones (Mintzberg, 1994a). Strategic planning is an overly simplified process (Vanttinen & Pyhalto, 2009), not a strategy development process but working towards it (Mintzberg, 1994a). Pietersen

(2010) indicates that strategic planning and strategic learning are two separate approaches and emphasizes that we should change our approach from strategy as planning to strategy as learning. Strategic learning is highlighted in strategic planning, because there is a limitation on creating competitive strategies through a formal strategic planning process. This paradigm shift allows us to assume that the characteristics of the strategy-making process are similar to those of learning rather than planning. In other words, learning will be coupled with planning in strategy making (De Geus, 1988). Planning should be undertaken as initiatives before strategy implementation.

Strategic implementation vs. Strategic learning. Strategy implementation follows after the strategic planning process and requires an action plan and real work. Pietersen (2010) perceives it as part of the strategic learning process, which is the learning-by-doing stage. On the other hand, some scholars (Burgelman, 1988; Kuwada, 1998; Thomas et al., 2001) agree that strategy making accompanies the learning processes but develops it further into strategic action at an operational level. In this process, many organizational contextual factors interact for learning to occur (Vanttinen & Pyhalto, 2009).

In this strategic implementation, strategic learning capability is enlightened as an ability to generate mechanisms for the strategic behavior design process (Kuwada, 1998). This allows for changes in the systems and the knowledge management structure within organizations (Thomas, Sussman, & Henderson, 2001), which is a similar notion to organizational learning. Therefore, strategic learning involves an organizational learning process that has mechanisms to build strategic behavior and knowledge. Accordingly, these organizational processes enhance strategic implementation. Strategic behaviors are

operationalized into organizational activities such as mission statement, trend analysis, and competitor analysis (Johnson, 2005).

Strategic learning vs. Planning vs. Implementation. Strategic learning incorporates an iterative process of learning and unlearning during the strategic planning and implementation. Scholars (Grundy, 1994; Starbuck, Barnett, & Baumard, 2008) also agree that strategic learning acts as a generator for managing change proactively or reactively. Strategic change is part of strategic implementation in that it drives changes to resource allocations, skill sets, and relation networks (Deiser, 2009). Chances always exist that strategy might fail, but it can create a learning opportunity. Strategic learning enables the gearing up of strategy implementation and returning to strategy generation.

Contributions of Strategic Learning to the Strategic Process

Three major contributions of a strategic learning framework are discussed below. Strategic learning enhances personal growth as well as organizational renewal (Pietersen, 2002). Strategic thinkers continue to grow and learn through the strategic planning and in the implementation process, which leads to organizational strategy renewal. I will discuss and advocate that (1) a strategic learning framework brings ongoing learning in the strategic process, (2) strategic learning fosters inimitable strategy, and (3) strategic learning contributes to the decision-making process of strategic thinkers.

Ongoing learning. A strategic learning framework fosters ongoing learning in the strategic planning and implementation process in that organizations pursue learning and development that is reinvented and realigned with organizational strategy (Deiser, 2009). Individuals should be able to integrate learning into organizations as "an everyday strategy for enacting organizational purposes" (Watkins, 1991, p. 252). Learning is

imperative during strategy planning, and some changes are needed in order to facilitate learning in strategy experiments (Govidarajan & Trimble, 2004). However, traditional and disciplined planning approaches (e.g., Govidarajan & Trimble, 2004) hindered learning within strategic activities. Yet, Szulanski and Amin (2001) suggest applying discipline and imagination to strategy-making capabilities. Imagination increases diverse options and encourages creative thinking, whereas "discipline grounds the process in reality and ensures that these options are rigorously evaluated and systematically developed and implemented" (Szulanski & Amin, 2001, p. 547). Disciplined imagination as strategy making offers a new approach, but it might not guarantee the success of strategy implementation. What is needed is the ongoing process of strategic learning where learning and unlearning occur repeatedly until the new strategy gets implemented successfully.

Create inimitable strategy. Strategic learning is not a problem-solving process. Most problem-solving processes produce technical solutions, which work as substitutes prior to long-term, innovative, and adaptable strategies. Strategic learning is not a single event or an experiment of approaching problems at the surface level, but requires dialogues and discourses to deal with the underlined problems in depth. For example, strategic learning allows an organization to create an open system to deal with complex issues and to reflect and debate on conflicts between issues (Grundy, 1994). Thus, strategic learning occurs to individuals who are deeply involved in the issue and work diligently to create inimitable strategies. Organizations implementing a strategic learning are better proceed to attain a competitive advantage in the market (Pietersen, 2010).

Contributing to the decision-making process. A strategic learning framework contributes to the decision making process of strategic thinkers. Strategic learning occurs in quality conversation, skillful conversation, and dialogue, which lead to informed choices in manager's decision-making (van der Merwe, Chermack, Kulikowich, & Yang, 2007). When strategic conversation is structured and embedded in the accepted and shared organizational theory-in-use, learning becomes active and iterative (van der Heijden, 1996).

Strategic implementation is not only executing the strategy, but also learning from what we do (Pietersen, 2010). Many contingent factors such as personal characteristics, cognitive complexity, risk propensity (Hitt & Tyler, 1991, p.332), and an irrational instinctive element (Deiser, 2009, p.77) influence the decision making process, and the strategy literature has mostly focused on the strategic decision process itself (Papadakis, Lioukas, & Chambers, 1998). However, strategic learning adds flexibility and adaptability to the decision making process by learning and unlearning strategy. During experiments and pilot-tests, strategic thinkers learn from the results, and modify their strategy (Pietersen, 2010). This kind of process incorporates more creativity and critical thinking into their thinking processes (Liedtka, 1998). Accordingly, strategic learning offers managers more strategic choices to choose from as well as allowing organizations to become more adaptive.

Summary of Section on Strategic Learning

Strategic learning incorporates both learning and unlearning during the strategic planning and implementation process. The distinctive nature of strategic learning, compared to organizational learning, learning organization and collective learning,

requires incorporating the unlearning process, which means organizations sometimes throw away past experiences and behaviors (Tsang & Zahra, 2008) or subtract an obsolete strategy from an existing organizational knowledge depository (Argyris & Schon, 1996). This section clearly defines the construct of strategic learning capability in order to operationalize the concept in quantitative measures.

Theoretical Underpinnings of Strategic Learning

Strategic learning is grounded in four theories from different literatures: strategy, adult learning, collective learning, organizational learning, and unlearning. The strategy theory wraps around strategic learning at the individual, group, and organizational level. The adult learning theory focuses on how organization members learn to think strategically through informal/ incidental learning (Marsick & Watkins, 2001) and experiential learning (Kolb, 1984, 2002), and on organization members being reflective and rethinking strategy (Sloan, 2006). Collective learning theory allows creating space for insight generation from a cognitive approach (Garavan & McCarthy, 2008). Organizational learning theory supports learning in strategy creation and execution through organizational systems and processes (Argyris & Schon, 1978). Unlearning involves intentionally removing unsuccessful organizational patterns. (Hedberg & Starbuck, 2001; Mintzberg, 1987a). The theories in various disciplines provide a unique perspective to understand strategic learning. I will discuss these four theoretical bases to more deeply understand strategic learning: (1) strategy, (2) adult learning, (3) collective learning, (4) organizational learning, and (5) unlearning.

Strategy

Strategy theory provides an overarching view in understanding strategic learning. According to various definitions, strategy is not a product but a pattern or habit (Mintzberg, 1987a) via a strategic thinking process (e.g., plan, ploy, pattern, position, and perspective), strategic position (Porter, 1996), an intense focus (Pietersen, 2010), strategic intent (Hamel & Prahalad, 1989), and core competencies (Prahalad & Hamel, 1994). Strategy provides images of organizations for those who are inside as well as those outside (Mintzberg, 1987b). Moreover, strategy is the roadmap of organizations that focus people together toward organizational goals. Discussing qualities of strategy, good strategy is about what an organization cannot do as well as what it can do (Rumelt, 2011). Good strategy requires selection criteria for actions and interests. Strategies are everywhere, and the use of strategy is determined by individual and organizational capacity (Mintzberg, 1987a). Strategy can be discussed in terms of process, function, and learning.

Strategy as process. The use of strategy also depends on the process and the context. In strategic planning, strategy mirrors the realities of the company's environment and involves the resource allocation process (Christensen, 1997). Furthermore, it becomes the sum of an organization's strategic choice reflecting its market in strategic implementation (Hax & Majluf, 1988; Mintzberg, 1987a; Pietersen, 2010). Thus, from a process perspective, strategy is context-specific, which reflects organizational characteristics as well as external environments (Hax & Majluf, 1988).

Strategy as function. Strategy works as a double-edged sword (Mintzberg, 1987b)—it works to keep the organizational stability but forces change in situations and

vice versa. Yet, as external environments change, an established strategy becomes of no use. Even though organizations need a strategy rooted in stability, a deliberate strategy might not always become a realized strategy, but an emergent strategy, which becomes the realized strategy. Thus, the use of strategy can be determined by the organizational capacity towards goals and objectives of an organization. Indeed, organizations need strategy, but strategy needs to be retooled in order to avoid its becoming outdated. Therefore, strategy should be aligned with goals and objectives of organizations first, and with people and organizational processes second (Deiser, 2009).

Strategy as learning. Mintzberg (1987a) coined the definition of strategic learning, and he initiated in-depth discussion of strategic learning by asserting that successful strategies are accompanied by "deliberation and control with flexibility and organizational learning" (p.70). This opens up the possibility of fostering learning via an emergent strategy. In that sense, strategic learning is facilitated by emergent strategies rather than deliberate strategies. Thus, strategic learning is situated in the strategy development process of reinventing strategy, which allows continuous renewal of strategic knowledge in constant change (Pietersen, 2002). van der Heijden's (1996) processual paradigm well elaborates this notion of strategy as learning. Organizations need a space for ideas to be created and processed, which involves the "interwovenness of action and thinking" (van der Heijden, 1996, p.36). Pietersen (2002; 2010) further elaborates the concept of strategic learning by defining strategic learning as an organizational learning process occurring during strategy formation and implementation through iterative processes of learning and change. His strategic learning cycle—learn,

focus, align, and execute—is practical and helps organizations to adapt to the external environment.

Adult Learning

Learning theories add real value to the strategic learning process from an individual perspective, and adult learning theories capture the distinctive nature of strategic learning in individual reflection on the surroundings involving complex and ambiguous situations. In emerging literature, scholars (e.g., Casey & Goldman, 2010; Sloan, 2006; Nicolaides & Yorks, 2009; Voronov & Yorks, 2003; Yorks, & Nicolaides, 2010) enlighten the importance of the individual's role in strategic learning. Learning to think strategically can be facilitated by informal learning (e.g., Sloan, 2006; Vanttinen & Pyhalto, 2009), discourse and dialogue (Isaacs, 1993; Sloan, 2006), and experiential learning (Kolb, 1984, 2002; Casey & Goldman, 2010). The learning theories explain some aspects of learning in strategy development pursuing short-term or long-term goals.

Learning to think strategically. Learning itself is not the end result of strategic learning, but strategic learning should be targeted at creating innovative and adaptive winning strategies in order to learn to think strategically (Sloan, 2006). Traditional strategic planning impedes strategic thinking. The nature of formal planning often prevents strategists from thinking strategically (Mintzberg & Lampel, 1999).

Mintzberg (1994b) emphasizes strategic thinking, which generates intuition and creativity. Understanding intuition is crucial at the individual and the collective levels in terms of sensemaking, interpretation, and the development of shared meaning (Sadler-Smith, 2008). It is important to note that individuals are the agents who can intuit—not organizations. In order to build a strategic mindset, navigating the relationship between

intuition and the strategic mindset is required. Intuition can be created through journaling and mind-mapping exercises (Sadler-Smith & Burke, 2007).

Liedtka (1998) defines strategic thinking in a broader context, which "denote[s] all thinking about strategy" (p.121). Strategic thinking is not "an intellectual exercise in what is likely to happen… strategic thinking is using analogies and qualitative similarities to develop create new ideas" (Stacey, 1992, as cited in Liedtka, 1998, p.121). Strategic thinking involves the cognitive process.

In terms of learning to think strategically, Nicolaides and Yorks (2009) emphasize the developmental capacity of an individual who can go through the meaning making process in the strategic learning process. The meaning making process requires critical reflection "where assumptions are challenged and beliefs are tested" (Mezirow, 1991, as cited in Casey & Goldman, 2010, p.174). Critical reflection is grounded in double-loop learning (Argyris, 1991) and critical reflective learning (Mezirow, 1978). Accordingly, a continuous dialogue and questioning process will allow critical reflection for new strategies.

Learning to think strategically will be a benefit to organizations (Casey & Goldman, 2010), but the process of strategic thinking requires a cognitive process which depends on an individual's understanding of the environment of the strategy (Hax & Majluf, 1988). However, the challenge lies in how to facilitate strategic conversation and dialogue in organizations. Organizational efforts to support the environment for individuals to learn to think strategically will be imperative.

Informal learning. Does informal learning fully capture the nature of strategy-making process? We have to identify whether the informal learning process is only

applicable for short-term problem-solving using deductive reasoning and little external facilitation. Considering the context of informal learning, strategy can emerge through the informal learning process, but it might not be used for long-term organizational goals. Long-term strategy is rarely created through strategic planning, but through continuous learning through strategic thinking, which leverages individual learning and organizational learning (Sloan, 2006). To create an innovative long-term strategy, Sloan (2006) further develops Marsick & Watkins' (2001) work into three-stage informal learning process—preparation, experience, and re-evaluation and emphasizes reflection to trigger strategic thinking.

Experiential learning. Experience initiates learning (Casey & Goldman, 2010). We learn from successful experiences as well as failures, which allows the possibility of individuals' learning through failed strategies. Kolb's (1984) experiential learning cycle lead individuals to reflect on experiences. Still, learning from failed strategy via experimentation plays a significant role in the strategy development process (Mintzberg, 1994a; Pietersen, 2010). Pietersen (2010) emphasizes cultural support that enables risk-taking and learning from mistakes for experiential learning to occur. The atmosphere of accepting failure by leadership becomes crucial in that it is the source of learning when it occurs early.

Transformative learning. In terms of developing a strategic mindset in leaders, capacity for transformative learning is significant (Nidolaides & McCallum, 2011), and thus we need to focus on how transformative learning contributes to building a strategic mindset of leaders. Transformative learning explains the role and requirement of leadership and the importance of adaptability through the deconstruction of meaning

previously held, which will naturally culminate in unlearning. In the meantime, leaders are forced to challenge the way of doing things around their organizations (Gibbert, 2004). Therefore, transformative learning undertakes strategic transformation of leadership and its culture in the agile times (McGuire & Rhodes, 2009). In order to build a strategic mindset of leaders, transformative learning can facilitate a shift in frame of reference (e.g., meaning perspectives, habits of mind, and mindsets) (Mezirow, 1991), which requires single-loop, double-loop, and triple-loop learning.

Collective learning

Strategic learning at the group level involves collective learning in that it is related to decision making by a group of top management or decision makers rather than a single decision maker (Gavetti & Warglien, 2007). Collective learning elucidates creating insights in groups, teams, and networks through a cognitive approach (Garavan & McCarthy, 2008; Sadler-Smith, 2008). In addition, the collective learning framework allows multilevel perspective so that it helps to understand any collaborative effort of learning of individuals, groups, and organizations. Any individual involved in collective learning learns through networking and working together and uses the knowledge to earn a competitive advantage (Garavan & McCarthy, 2008). The significance in this theory incorporates development of the shared meaning (Bood & Postma, 1997; Sadler-Smith, 2008) and shared mental model (Senge, 1990) in the collective learning process.

The collective learning process involves dialogue, which is defined as "a sustained collective inquiry into the processes, assumptions, and certainties that compose everyday experience" (Isaacs, 1993, p.25). Dialogue cultivates an environment for individuals to engage in creation of shared meaning. The powerful contribution of the

dialogue is possibility of changing "people's ways of thinking and acting in their systems" (p.27).

Unlearning

Scholars have realized the importance of organizational forgetting as well as learning (Prahalad & Hamel, 1994). Unlearning is conceptually incorporated into learning (Huber, 1991). An integrative approach was taken to understand organizational unlearning as distinguished from organizational learning. Unlearning is selectively forgetting patterns from the past (Hamel & Prahalad, 1994; Mintzberg, 1987a). Based on a review of definitions, Tsang and Zahra (2008) reveal that organizations discard four types of knowledge: obsolete, misleading, redundant, and unsuccessful. It is important to identify the difference between the intentional discarding of routines (i.e., unlearning) and the unintentional loss of routines (i.e., forgetting). Yet unlearning, even intentional, does not always guarantee performance improvement—that is, replacing old routines with new ones is not always better (Tsang & Zahra, 2008). With regard to organizational behavior, organizational routines should be removed from the firm's memory to unlearn. Therefore, Huber (1991) corresponds to the aforementioned point that "unlearning serves primarily to emphasize a decrease in the range of potential behaviors, rather than to indicate a qualitatively different process" (p.104).

Hedberg and Starbuck (2001) identify the prolonged success of an organization as a hindrance to unlearning radically and to reinventing strategically. Moreover, things that prevent companies from creating the future are "an installed base of thinking—the unquestioned conventions, the myopic view of opportunities and threats, and the unchallenged precedents that comprise the existing managerial frame" (Hamel &

Prahalad, 1994, p.61). It is more difficult to unlearn if organizations' cognitive structures are firmly established and integrated (Hedberg & Wolff, 2001, p.539). On the other hand, factors such as change of leadership (Hedberg & Wolff, 2001) facilitate unlearning because the existing mental model of leadership is completely replaced.

The notion of unlearning supports the strategy-making process of challenging imagination. During the challenging imagination of the strategy-making process, old paradigms are challenged and routines are defied, which leads to deleting a function of past success from a specific paradigm (Gibbert, 2004). Challenging imagination can also be partially explained by transformative learning in that it challenges decision makers' assumptions as well as their mental models.

For example, under pressure of low-end models from Japanese companies, top management in Porsche decided to discontinue any entry-level cars (Hamel & Prahalad, 1989). This can be discussed in various ways in that strategic learning can be used as a tool for change, or unlearning is necessary to execute strategic learning. Unlearning occurs continually during strategic learning in both strategic planning and implementation.

Organizational Learning

Organizational learning can be defined in multiple ways depending on how the organization is defined. If an organization is a group of individuals, does that indicate that it has a capacity to think, experiment, and learn? Is an organization a culture consisting of beliefs, values, languages, and cognitive constructs?

Learning in organizations has been, and still is, important in the field of HROD. Organizational learning literature offers a framework to examine how an organization

learns. Whether organizations learn through individuals by informal and incidental learning (Marsick & Watkins, 1990) and situated learning (Brown & Deguid, 1989; Lave & Wenger, 1991) or organizations learn by themselves is a matter of constant debate. An organization learns through individuals, but individual learning does not guarantee organizational learning. I agree that organizational learning is more than the sum of individual learning (Argyris & Schon, 1978, 1996; Fiol & Lyles, 1985; Senge, 1990; Marsick & Watkins; 1999) and incorporates an organizational capacity to respond quickly to a fast changing environment by enhancing learning in a collaborative way (Marsick & Watkins, 1999). Even if organization members leave the organizations, their knowledge stays with the organizations, because individual knowledge is already embedded in the organizations as organizational memory.

Unlike the individual learning process, the organizational learning process is collaborative and connected to various organizational factors such as an organization's routines, standard operating procedures, its products and processes, its technologies, layout and structures, and its culture. Literature has discussed whether individual learning can be amplified into organizational learning. An integrative approach to learning in individuals, groups, and organizations through *Intuiting, Interpreting, Integrating, and Institutionalizing,* which was developed by Crossan, Lane, White, and Djurfeldt (1995), thoroughly traces individual learning that becomes embedded in organizational systems and culture, and vice versa.

Organizational learning is most closely associated with HRD's learning paradigm, which stresses that organizations are systems that support multiple levels of learning. The focus is on learning, whether it is an individual, a group, an organization, or a society. If

the entity is an organization, the learning process is systematic and mechanical, which indicates learning occurs via logistical processes (Huber, 1991). Organizations learn through available resources, the information processing capabilities, and the preference axioms of rationality, and thus, organizations make constant efforts to "improve the informational and analytical basis for organizational action and to develop consistent, stable organizational objectives" (Levinthal & March, 1993, p. 96). Individuals are involved in the learning, but the focus is not on their learning but on the organization's.

In organizations that are entities to learning, the concept of organizational memory (Daft & Weick, 1984) applies to a specific case that even if individuals leave organizations, organizations memorize tacit and explicit knowledge, which becomes foundations for the future of organizations (Hedberg & Wolff, 2001). For example, a fast food franchise introduced a new deep-dish pizza, but all of the stores faced the same problem, distributing pepperoni evenly over the pizzas. After experimenting several times to solve the problem, one successful method was implemented to distribute the pepperoni on the pizza before it was cooked in "a pattern that resembled spokes on a wheel" (Argote, 1999, p. 71). This turned out to be effective at distributing pepperoni evenly over the pizza. This new knowledge was embedded in an organizational routine and virtually diffused to all the franchises. Once the process of learning is institutionalized, organizations can continue learning through individuals and groups.

Theoretical understanding of the definitions. Organizational learning has been examined since the 1950s. The concept was first introduced by March and Simons in 1958 (Casey, 2005). Organizational learning was conceptualized in the late 1970s by

Chris Argyris, but the field of organizational learning grew rapidly since the 1990s. Argyris and Schon (1978) clearly stated how organizational learning takes place:

> Organizational learning occurs when members of the organization act as learning agents for the organization, responding to changes in the internal and external environments of the organization by detecting and correcting errors in the organizational theory-in-use, and embedding the results of their inquiry in private images and shared maps of organization. (p. 29)

A single-loop learning process is adaptive and takes place in the processes of a learning system, which is framed in a theory of action, but a double-loop learning process includes defining situations, questioning stimuli, and assembling responses, which is framed in a theory in use (Hedberg & Wolff, 2001).

The organizational learning process can be understood as a problem solving process, informal and incidental learning (Marsick & Watkins, 1990), and experiential learning (Kolb, 1984, 2002). Informal and incidental learning is based on the theory of action (Argyris & Schon, 1978) in that individuals learn through the problem solving process, and they use their experiences and memories to solve problems. However, individual learning theories can only partially explain organizational learning at the individual level. From the knowledge management perspective, we have also learned that organizations preserve knowledge, behaviors, mental maps, norms, and values via knowledge sharing so that learning continues regardless of individual turnover (Daft & Weick, 1984). Situated learning (Lave & Wenger, 1991) and community of practice (CoP) also support this notion, but situated learning is still more self-directed and

individual-focused than organizational learning, and thus, a more systemic approach is needed.

According to Fiol and Lyles (1985), organizational learning involves "the process of improving actions through better knowledge and understanding" (p. 803), which includes the content and levels of learning. The content of learning is defined as "the behavioral outcomes that reflect the patterns and/or cognitive associations that have developed" (Duncan & Weick, 1979 as cited in Fiol & Lyles, 1985, p. 806). The levels of learning mean two general levels—lower-and higher-level learning (e.g., single-loop and double-loop). The lower-level single-loop learning is the repetition of past behaviors in that learning is based on routines and temporary problems. The higher-level double-loop learning is the development of complex rules and associations regarding new actions. The various frameworks and definitions of organizational learning are summarized in Table 2-3.

Summary. Two major implications are found in a review of organizational learning—cognition and behavioral change. Organizational learning as adaptive processes (Fiol & Lyles, 1985; March, 1991) includes the occurrence of behavior change to improve performance, whereas organizational learning as knowledge creation (Argote, 1999; Nonaka, 1994) includes creating, sharing, and embedding knowledge. Drawing on the Darwinian evolutionary perspective (Nair, 2001), organizational learning was interpreted as a changing process in which the entire organization or its components adapt themselves by selectively adopting organizational routines (Argyris, 1999).

Table 2-3. *Definitions of Organizational Learning*

Scholars	Frameworks/Typology	Definitions
Argyris & Schon, 1978	Single loop, double-loop, deutero learning Theory of action/ Theory-in-use Stimulus/Response	Organizational learning is composed of single-loop and double-loop learning. This fundamental learning loop is one in which individuals act from organizational theory-in-use, which leads to the match or mismatch of expectations with outcomes, and thence to confirmation or disconfirmation of organizational theory-in-use (p. 18).
Crossan, Lane, White, & Djurfeldt, 1995	Four processes: intuiting, interpreting, integrating, and institutionalizing	Organizational learning is defined as "a process of institutionalization, in which the learning becomes embedded in the design of the systems, structures, and procedures of the organization" (p. 347).
Daft & Weick, 1984	Organizational memory	Organizational learning is interpreted as organizational memory. Individuals come and go, but organizations preserve knowledge, behaviors, mental maps, norms, and values over time. The distinctive feature of an organization's level information activity is sharing.
Duncan & Weiss, 1979	N/A	Learning is "the process within the organization by which knowledge about action-outcome relationships and the effect of the environment on these relationships is developed" (p. 84).
Fiol & Lyles, 1985	Organizational adaptation	Organizational learning is composed of the content of learning and levels of learning—which involves "the process of improving actions through better knowledge and understanding" (p. 803).
March, 1991	Exploration and Exploitation Stimulus/Response	Organizational learning is defined as an adaptation process. The decision-making process: Adaptation of goals, adaptation in attention rules, and adaptation in search rules.
Nair, 2001	Four phases—Problem, conceptualization, action, evaluation	Learning is based on the learning and experience curve effect or "facilitating organizational processes of adaptation and growth, and development and sustenance of competitiveness" (p. 506).
Nevis, DiBella, Gould, 1995	Learning system/ Learning organization	Organizational learning is illustrated as "the capacity or processes within an organization to maintain or improve performance based on experience" (p. 2).
Weick, 1991	Organizational response systems	"Individual learning occurs when people give a different response to the same stimulus, but organizational learning occurs when groups of people give the same response to different stimuli" (p. 121).

From a cognitive perspective, change can be part of learning, but learning means more than behavioral change, which implies that learning does not always lead to observable changes in behavior (Huber, 1991; Weick, 1991). Since behavioral change does not need understanding, though individuals learn new knowledge as a learning outcome, it does not always lead to real action plans. I can conclude that organizational learning can be interpreted from either a cognitive or adaptive perspective or both.

A Summary of the Theoretical Underpinnings of Strategic Learning

These various disciplines provide concrete foundations for strategic learning at multi-levels. Strategy theory explains what strategy means and how it works in organizations. Adult learning captures learning to think strategically at the individual level. Collective learning opens the collaborative effort of learning in groups and organizations. Unlearning incorporates removing old behaviors and patterns intentionally. Organizational learning provides foundations to strategic learning. The five theories of strategy, adult learning, collective learning, unlearning, and organizational learning deepens the understanding of strategic learning and unfolds the possibility of building a conceptual model.

Dimensions of Sensemaking

Sensemaking refers to those processes of interpretation and meaning production (Brown, 2000) which involve turning circumstances into a situation that is explicitly comprehensible in words and will be turned into action (Weick, Sutcliffe, & Obstfeld, 2005). The sensemaking phenomenon can be described as individuals sharing meanings they have jointly negotiated. Accordingly, individuals and groups collectively reflect on and interpret phenomena and come up with an intersubjective description (Brown, 2000).

Strategic sensemaking is a process of the scanning of, interpretation of, and taking action on organizational information (Pandza & Thorpe, 2009; Weick, 1995). These processes are connected through a feedback loop, and scanning and interpretation are the examination of experiences learned through action. The experiences are specific and concrete, whereas what is learned from the experience is abstract and encyclopedic; sensemaking engages concrete experiences as well as abstract knowledge (Weick et al., 2005). The three components of a sensemaking process are described in the following section.

Scanning. According to the dictionary, scanning is looking at all parts of something in order to detect some features. It is a cognitive process coupled with interpretation, which is related to experience learned through action (Pandza & Thorpe, 2009). Before meaning is given, scanning is perception or detection of differences or similarities of something. Prior to synthesizing data, scanning enables a creative search to envision multiple plausible opportunities.

Interpretation. Interpretation is described as a form of explanation that requires "special knowledge, imagination, or the like" in the person who tries to understand a text that is ambiguous or metaphoric, such as a poem (Weick, 1995). Meaning is created through the lens or the framework of an individual or a group. Interpretation of sensemaking triggers action that generates strategic change in an organization (Pandza & Thorpe, 2009).

Action. Scanning and interpretation serve as stepping-stones into action. Action involves meaning production (Brown, 2000) and new knowledge (Weick et al., 2005). "Action-taking generates new data and creates opportunities for dialogue, bargaining,

negotiation, and persuasion that enrich the sense of what is going on" (Weick et al, 2005, p. 415-416). It could be a common understanding that leads to action-taking (Weick, 1995).

Weick et al. (2005) emphasizes the interplay of interpretation and action in that each plays its critical role. Action is the central focus, whereas interpretation is the core phenomena. He believes that sensemaking can be an orderly process of action and interpretation as "people organize to make sense of equivocal inputs and enact this sense back into the world to make that world more orderly" (p. 410). Action to scanning is a one-way relationship, because scanning involves interpretation before action. Scanning, interpretation, and action are interconnected, but the question lies in what comes first—sensemaking or action (Pandza & Thorpe, 2009). The following figure (i.e. *Figure 2-2*) illustrates the relationship between scanning, interpretation, and action.

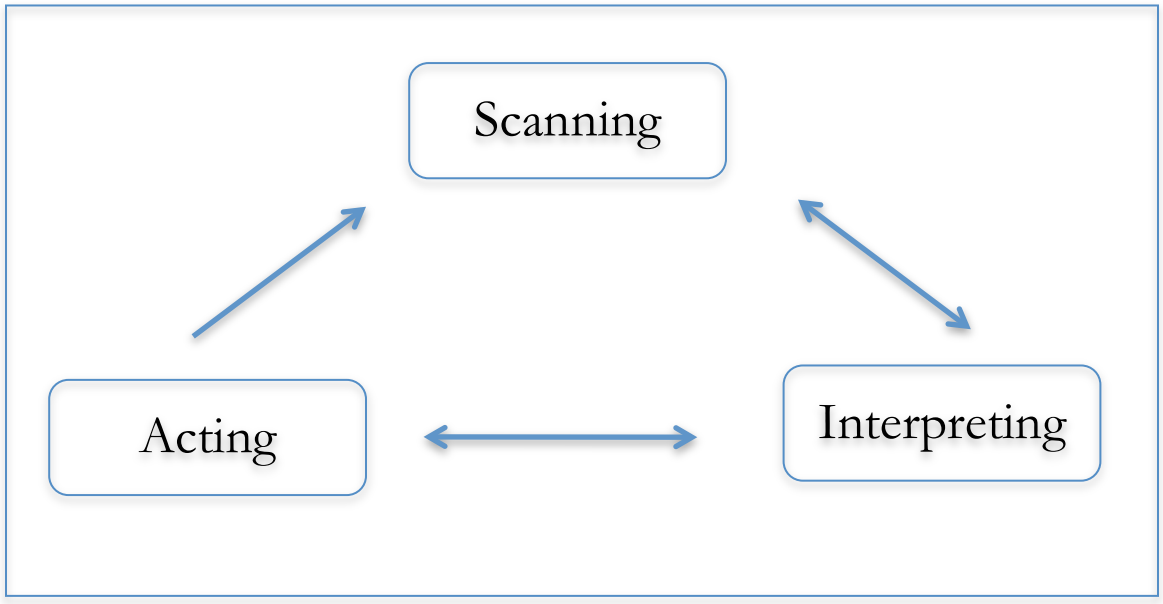

Figure 2-2. The Sensemaking Process

Pandza and Thorpe (2009) differentiate strategic sensemaking into initial sensemaking and retrospective sensemaking and highlight their distinctiveness. Initial sensemaking involves an individual's cognitive process of scanning and interpreting information from the external environment and from internal learning, which leads to a change in purposeful action.

Retrospective sensemaking allows managers "to understand the appropriateness and usefulness of the development of novel knowledge" to align with business goals (Pandza & Thorpe, 2009, p. 124). This process involves learning from mistakes and diagnosing the behavior, which is illustrated as the complex cognition of the experience of now and then (Weick et al., 2005).

Sensemaking is discussed in three ways from a strategic capability perspective—communicative, interpretive, and analytical (Neill, McKee, & Rose, 2007). Communicative refers to strategic information, exchange shared through communication among members of a decision making team. Organizations make sense of their environment through communication. Interpretation involves the capacity to interpret one's environment in a multidimensional manner via a schema that is an information-seeking structure existing in organizations. Analysis engages multiple participants representing different points of view. Neill et al. (2007) highlights that organizations with strategic capability are better able to communicate, interpret, and analyze information in order to get to the decision-making point.

The important role of sensemaking seems to hold up as an individual and organizational conduit for learning (Kuwada, 1998). Sensemaking allows not only information gathering among individuals but also integrating knowledge and de-

embedding the knowledge across the multiple-levels of the organization, which involves creative authoring by both individuals and groups who construct meaning from knowledge (Brown, 2000). The definition of sensemaking is generally congruent among scholars, and thus, in this study, the definition of organizational sensemaking is an interplay of scanning, interpreting, and acting on organizational information (Neill, McKee, & Rose, 2007). The following table illustrates various definitions of sensemaking.

Table 2-4. *Definitions of Sensemaking*

Scholars	Definition
Brown, 2000	Sensemaking refers to those processes of interpretation and meaning production whereby individuals and groups reflect on and interpret phenomena and produce intersubjective accounts (p. 45-46).
Feldman, 1989	Sensemaking is an interpretive process that is necessary "for organizational members to understand and to share understandings about such features of the organization in terms of what it is about, what it does well and poorly, what the problems it faces are, and how it should resolve them" (p. 19, as cited in Weick, 1995, p. 5).
Harris, 1994	Sensemaking is culturally shaped by a group of individuals.
Neill, McKee, & Rose, 2007	Sensemaking is a bundle of collective routines that shape what information is assimilated, how it is interpreted, and which actions are considered (p. 731-732)
Pandza & Thorpe, 2009	Strategic sensemaking is an uncertainty-reducing cognitive process of *initial* sensemaking that activates purposeful action and *retrospective* sensemaking that enables managers to understand the appropriateness and usefulness of the development of novel knowledge and its fit into business opportunity" (p. 124).
Sackman, 1991	Organizational members attribute meaning to events, which are mechanisms that "include the standards and rules for perceiving, interpreting, believing, and acting that are typically used in a given cultural setting" p. 5.

Thomas, Clark, & Gioia, 1993	Sensemaking indicates the reciprocal interaction of information seeking, meaning ascription, and action, which means that environmental scanning, interpretation, and "associated responses" are all included.
Weick, Sutcliffe & Obstfeld, 2005	Sensemaking portrays organizing as the experience of being thrown into an ongoing, unknowable, unpredictable streaming of experience.

Dimensions of Decision Making

Organizational decision making includes ambiguity, which is pervasive in organizations, ongoing processes, and repeated decisions (Shapira, 1997). Decision making implies making implicit choices into explicit ones. Researchers continuously investigate the actual process of decision making (Cyert & March, 1963; Papadakis, Lioukas, & Chambers, 1998) and the concepts required to understand decision making (Nutt, 1993). Organizational decision making is "the execution of a choice made in terms of objectives from among a set of alternatives on the basis of available information" (Cyert & March, 1963, p. 19). Nutt (1993) describes the decision process as "a stream of action-taking steps that begins with claims by stakeholders drawn from signals that seem important and ends when a decision has been adopted" (p. 227). Drucker (1967) refers to decision making as "a systematic process with clearly defined elements and in a distinct sequence of steps" (p. 19), which is clearly illustrated into a five-step decision process—(1) establish a context for success, (2) frame the issue properly, (3) generate alternatives, (4) evaluate the alternatives, and (5) choose the alternative that appears best (Harvard, 2006). This process is similar to the three phases of the strategy process—strategy generation, strategy formulation, and strategy execution (Deiser, 2009).

Papadakis, Lioukas, and Chambers (1998) provided an integrative framework to understand strategic decision making, which includes a broader context interacting with

other factors, such as the nature of strategic decision making and decision process characteristics. Rationality is one of the important characteristics of the decision process. Scholars (Hart, 1992; Slevin & Covin, 1997) have discussed rationality and bounded-rationality in strategic decision making to a varying degree. If the decision-making process follows a systematic process in pursuing goals, it represents strategic decision-making rationality. Bounded rationality describes the constrained situations that decision makers face due to "limited computational capabilities in coping with the complexity of change" (Pandza & Thorpe, 2009, p. 121). Under the condition of bounded rationality, decision makers generate emergent strategies but also engage in "sensible problem-solving strategies to help compensate for their limitations" (Eisenhardt, 1989, p. 573). Systematic and orderly strategic decision processes, which are referred to as procedural rationality, are less favored in high-uncertainty environments (Slevin & Covin, 1997).

External factors that affect strategic decision making are heterogeneity, dynamism, hostility (Papadakis et al., 1998), and industry characteristics (Hitt & Tyler, 1991). In terms of internal factors, organizational culture, such as belief systems and paradigms (Deiser, 2009), planning formality (Papadakis et al., 1998), and identity challenges (Laroch, 1995), are the acknowledged idea of strategic decisions initiating changes. Strategic choices are made by decision-makers within organizations, but constrained by external environments (Hitt & Tyler, 1991).

In terms of the speed of decision making, a high level of comprehensiveness slows the strategic decision process, whereas limited participation and centralized power accelerate decision making (Eisenhardt, 1989). In Leidner and Elam's study (1995), the decision making speeds for senior and middle managers were positively related to

executive information systems. How fast organizations make decisions becomes important as organizations pursue agility.

Based on the information provided for decision-making, decisions are mostly made as a result of a decision maker's cognition, "because individuals approach complex decisions with previously constructed heuristics or cognitive models that are reflected in personal characteristics" (Hitt & Tyler, 1991, p. 332). The interesting interplay lies in "the experience of cognition [that] is anchored in the role of experience in interpretation of and response to changes in the environment" (Mitchell, Shepherd, & Sharfman, 2011, p. 686). Strategic choices are domain specific activities accompanying strategy and also incorporating implementation strategy (e.g., reward systems). However, decision-makers frequently disappear behind organizational processes and routines (Laroch, 1995), because decisions are not the product of individual strategists (Gavetti & Warglien, 2007). In this study, organizational decision making refers to "the execution of a choice made in terms of objectives from among a set of alternatives on the basis of available information" (Cyert & March, 1963, p. 19).

Interplay of Sensemaking and Decision Making

A first version of our strategic learning model was introduced in 2012 (Moon & Ruona) and attempted to describe learning and unlearning in the strategic planning and implementation processes. That first model is meaningful in that it captured the organizational capacity to learn and unlearn in two phases of the iterative strategy process. Since then, our first model has evolved by expanding the strategy process from two to three phases. In addition, our second version of the model (see *Figure 2-3*)

"unpacks" the learning/unlearning processes by focusing on sensemaking and decision making during the three phases of the strategic process.

Decision making and sensemaking are tightly-coupled processes in that "decision-making is an effort to develop meaning as well as determine choice, which is embedded in sensemaking" (Neill et al., 2007, p. 734). As it is noted, it is inseparable in its activities and processes. According to Weick's description, sensemaking is an ongoing process of scanning, interpreting, and acting. Scanning and interpreting are cognitive and trigger actions, while the action phase is mostly behavioral and overlaps with decision making. The inter-relationship of scanning, interpretation, and action described in Figure 2-2 is present, as sensemaking traveres the three phases of decision-making. Sensemaking is divergent in its character—concrete and reflective; whereas, decision making is convergent—concrete and reflective. Although they are co-mingled processes in many aspects, they are separable by searching and highlighting their own distinctiveness in the strategy process to simplify reality.

The capacity to learn and unlearn plays with every dynamic of sensemaking and decision making, because learning encompasses the aspects of adaptation, such as decision making (Kolb, 1984). Disciplined imagination (Weick, 2002) and experiential learning (Casey & Goldman, 2010; Kolb, 1984) theories have been incorporated to explain the dynamics of the sensemaking dimension. And, theories related to behavioral decision theory (Cyert & March, 1963), unlearning (Hedberg & Starbuck, 2001; Tsang & Zahra, 2008) and experiential learning (Kolb, 1984) have been utilized to further understand the decision-making dimension. Figure 2-3 describes the interplay between sensemaking and decision making.

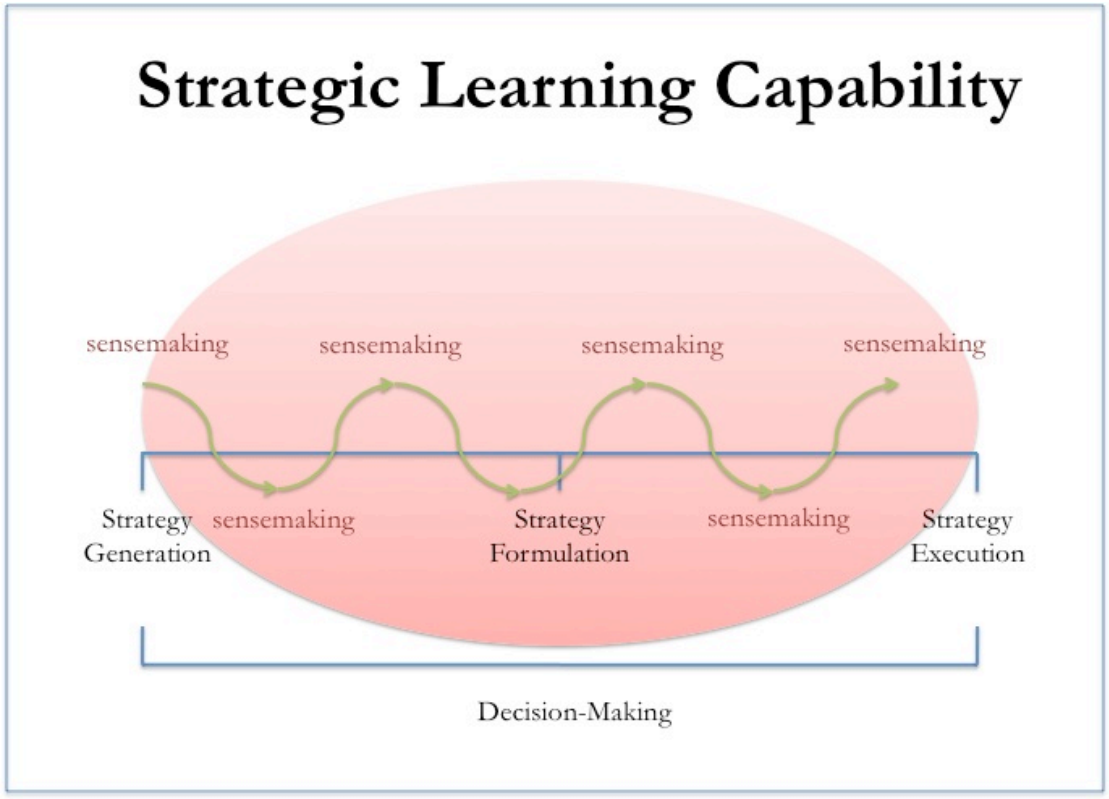

Figure 2-3. Strategic Learning Capability Model 2.0

Sensemaking and Decision Making as Critical Aspects of Strategic Learning Capability

Chakravarthy, Mueller-Stewens, Lorange, and Lechner (2003) differentiated between strategy and process by viewing strategy as creativity and innovation and process as bureaucracy and control. Combining the two ideas, the strategy process involves a highly creative and generative element, while simultaneously involving formulation and implementation, decision, and control as agenda building. The strategy process allows the strategist to generate a plan of action that includes positioning the company, influencing the balance of the forces followed by strategic moves and anticipating shifts in the factors underlying the forces and responding to them (Porter, 1996). In this study, three phases of the strategy process—generation, formulation, and

execution –will be discussed in detail in order to explore specific sensemaking activities and processes we believe happen in each.

Strategy Generation

Strategy generation includes "all activities that help companies develop strategic alternatives based on a thorough understanding of opportunity spaces that reveal themselves when matching industry dynamics with the company's strengths and weaknesses" (Deiser, 2009, p. 73). In terms of unfolding ideas, sensemaking plays a precursory role to decision making. Different kinds of sensemaking activities can be involved at this phase, such as collective learning, disciplined imagination, risky dialogue, and scanning. During the strategy generation phase, every plausible idea is opened up through disciplined imagination, and existing frameworks are challenged or broadened through risky dialogue. Scanning the internal and external environment happens continuously and intensively. Collective learning allows shared meaning creation through dialogue, which is even further activated among individuals, groups, and organizations during strategy formulation.

Strategy Formulation

The process of formulating innovative strategy is fundamentally about making choices. Deiser (2009) emphasizes that the strategic direction of an organization is always a combination of "explicit executive intentions" and "the blind emergence of reality" (p. 77). Regardless of the effort companies make during strategy generation, they have to be aware that uncertainties and irrationality always exist when making decisions. This breeds power games among stakeholders, which involves the irrational element of strategic choices backed up with facts and reliable predictions only.

Scholars agree that strategy formulation is making strategic choices (Burgelman, 1988; Mintzberg, 1994b; Nutt, 1993), but subtle differences exist in terms of discussing the definition of it. In Burgelman's perspective (1998), decision-making is accomplished by examining individuals and their interpretations, further explained into multi-levels in organizations to produce organizational strategy. Nutt (1993) defines formulation as "a process that begins when signals, such as performance indicators, are recognized by key people and ends when one or more options have been targeted for development" (p. 226). Mintzberg (1994a) adds an important point to the strategy formulation process in helping us to understand that strategy making is a process of synthesis rather than analysis. All of these ideas are assimilated to provide some sense of reliability that leads to decisions. While strategy formulation involves a high level of decision making, there are also two important kinds of sensemaking happening during this phase. Strategy formulation is making choices by considering all the constraints but not being restricted by them. At this phase, sensemaking plays a key part in decision making through interpretation and collective learning to make meaning and decide what to do as a result. Strategic choices are made and strategies are selected/outlined, often, but not always, resulting in the artifact of a strategic plan.

Strategy Execution

Strategy execution requires the action plans and actions that help to make the necessary changes in organizations to effectively execute the strategy. This typically involves things such as change of the power equation, change of relationship networks (internal and external), change of resource allocations, and change of skill sets (Deiser, 2009). In order to implement new strategies, organizations often need to unlearn old

practices, old skill sets, old relationship networks, and old resources. Yet, people and systems most likely hold on to existing organizational habits. Thus, strategy execution must be anchored in existing values, belief systems, and underlying assumptions of an organization and the change starts from there.

Strategy execution is tied to the strategic behavior of managers' managing style and behavior (Grundy, 1994) or strategic activities "either induced by the firm's current concept of corporate strategy, or emerged by some autonomous strategic activities, that is, activities that fall outside the scope of the current concept of strategy" (Burgelman, 1988, p. 61). From an organizational perspective, strategic behavior and activities are shaped by the external environment and internal capabilities—the former is communicating with suppliers and stakeholders and meeting the needs of customers, and the latter is developing competitive organizational capabilities.

Strategic choices are made by executives within organizations, but constrained by the external environments (Hitt & Tyler, 1991). Strategic choices are domain specific activities accompanying strategy, which also incorporate implementation strategy (e.g., reward systems). "Execution is the litmus test of the viability of strategic choices" (Deiser, 2009), which means strategy execution does not confirm the selected strategy as an ultimate outcome, but as an experimentation of strategic choices. At this phase of strategy execution, retrospective sensemaking occurs, organizations learn by doing, and there is unlearning. Strategy execution involves transforming strategic knowledge into action plans. At this phase, retrospective sensemaking occurs so that organizational members can interpret the situation based on the memories. Learning is facilitated by both failed and successful experimentation. And, while implementing new strategy,

organizations engage in unlearning to let go of old habits, assumptions, etc. These sensemaking activities are not limited to each phase, as they do overlap with other stages. However, I assume that it is possible to empirically identify the most distinctive aspects at play during each phase.

Knowledge and Financial Performance

A strategic HR framework provides a lens for examining the relationships among the human resources, financial, marketing, and IT departments of an organization to gain competitive advantage by creating a winning strategy (Christensen, 2006). From a strategic HR perspective, HR practices can be distinguished into tactical and strategic. Tactical practices include administration and employee relations that can move toward being strategic, and strategic practices include managing organizational and employee performance. The emerging research emphasizes the important role of HR in the strategy process that leads to organizational performance (Becker et al., 2001; Sweem, 2010; Uen, Ahlstrom, Chen, & Tseng, 2012). Ulrich, Younger, Brockbank, and Ulrich (2013) suggest that one way to have the greatest impact on organizational performance is aligning strategy, culture, practice, and behavior. Accordingly, when organizational processes and components are aligned with organizational goals, it affects a business's performance. However, learning does not always account for knowledge creation and financial outcomes, and thus, the way in which strategic learning capability explains organizational outcomes will be valuable.

Building strategic learning capability can be associated with improved financial performance and creating strategic knowledge. Regarding organizations as economic entities, making financial benefit is a must, and it leads to businesses' health (Berman &

Knight, 2008). Organizations can make profits by offering valuable goods and services to its customers. Swanson and Holton (1999) describe financial results as "the conversion of the output units of goods or services attributable to the intervention into money and financial interpretation" (p. 100). Measuring financial outcomes is the results of performance, and measuring knowledge is that of learning (Swanson & Holton, 1999).

Strategic knowledge creation through strategic learning has been discussed among scholars (Kuwada, 1998; Pandza & Thorpe, 2009; Siren, 2012). Anderson et al. (2009) verified a firm's capacity of being able to generate strategic knowledge and using that knowledge to improve its competitive position via learning. Strategic learning incorporates creative search and exploration in that individuals actively scan their external environments (Weick, 2002); search knowledge beyond the scope of their strategy (Siren, 2012); and facilitate translating business-level knowledge into corporate-level knowledge (Kuwada, 1998). A systematic way to manage knowledge is important for strategic learning and vice versa. Knowledge is a crucial indicator as a result of strategic learning capability as well as an important intangible asset. In this study, Watkins and Marsick's (1993) definition and instrument of financial and knowledge performance are employed. Accordingly, knowledge performance is a measure "to judge whether an organization has successfully positioned itself for the knowledge era" (p. 273), and financial performance reflects "the return on knowledge assets [that] can be measured by looking at new products, inventions, number of patents, or productivity" (p. 272).

Summary of Chapter Two

In the first section of the literature review, I reviewed strategic learning, its various definitions, the notion of strategic learning capability, and existing strategic learning models and provided a rational for how I came to develop a strategic learning model. The distinctiveness of strategic learning and the contributions of strategic learning to the strategic process were also discussed. In the second section, supporting theories of strategic learning were reviewed: (1) strategy, (2) adult learning, (3) collective learning, (4) unlearning, and (5) organizational learning. In the third section, sensemaking and decision making as the critical aspects of strategic learning capability were reviewed.

An organization with a strategic learning capacity will become adaptive and flexible in response to external environments via strategic learning, which brings about strategic change, conversation, and behavior. Identifying the dimensions of strategic learning capability and the relationship of strategic learning capability with financial and knowledge performance enables top management to understand how strategic learning capability can benefit tangible and intangible assets of organizations.

As revealed in the literature, strategic learning is a multilayered concept, and thus, it is discussed from an integrative approach. The organizational learning models and the existing strategic learning model do not fully capture the notion of learning from an emergent strategy (Mintzberg, 1987a) and unlearning (Argyris & Schon, 1996). After analyzing six existing models, a new strategic learning model was developed to illustrate the ongoing processes of learning and unlearning in strategic planning and implementation. This model clarifies the aspect of learning and unlearning iteratively in strategic development.

Exploring Dimensions of Strategic Learning Capability

This study develops an instrument of strategic learning capability by integrating strategy theory (Mintzberg, 1987a; 1987b), strategic learning (Pietersen, 2010), disciplined imagination (Weick, 2002), experiential learning (Casey & Goldman, 2010; Kolb, 1984), and unlearning (Hedberg & Starbuck, 2001; Tsang & Zahra, 2008). A quantitative instrument that reflects the concept of the organizational capacity to learn strategically is critical in that it allows examining strategic learning capability inter-organizationally, per se. The initial item pool stems from strategic learning, organizational learning, and strategy literature. In light of the discussion thus far, I propose the following research questions.

RQ 1: How do strategic planners rate an organization's performance with respect to strategic learning capability activities?

RQ 2: Can the empirical dimensions of strategic learning capability be developed?

Predictability of Financial and Knowledge Performance

Measuring changes in financial performance and the value of the knowledge of the firm is the evidence of whether strategic learning capability will affect the future events of a firm or its' performance (Thomas et al., 2001). As tangible and intangible assets of organizations, financial and knowledge performance can be attained by the strategic activities of an organization. Based on the empirical dimensions of strategic learning capability, the extent to which each dimension affects financial and knowledge performance is salient to drive a business's success.

RQ 3: To what extent does strategic learning capability explain the observed variation in financial and knowledge performance?

Strategic Learning Capability by Organizational and Personal Characteristics

The level of strategic learning capability can deviate depending on the industries to which the organizations belong and the size of the company by employees and revenue. The perceptional difference of individuals toward strategic learning capability can be identified by their roles and responsibilities.

RQ 4: To what extent do organizational and personal characteristics explain the observed variation in the dimensions of strategic learning capability?

CHAPTER THREE

RESEARCH DESIGN AND METHOD

This chapter details the methods used to answer the study's research questions. The purpose of this study was to explore the empirical dimensions of strategic learning capability (SLC). Based on a review of multiple disciplines, the definition of strategic learning capability is elucidated in the context of this study. In order to achieve the research purpose, the following research questions were posed:

1. How do strategic planners rate an organization's performance with respect to strategic learning capability activities?
2. Can the empirical dimensions of strategic learning capability be developed?
3. To what extent does strategic learning capability explain the observed variation in financial and knowledge performance?
4. To what extent do organizational and personal characteristics explain the observed variation in the dimensions of strategic learning capability?

This chapter is organized into eight sections: (1) the measurement framework, (2) instrumentation, (3) the study's sample, (4) data collection, (5) a description of the respondents, (6) data preparation, (7) data analysis, and (8) limitations of the study.

The Measurement Framework

The principal measurement target in this study is strategic learning capability, and in deciding how to measure strategic learning, a variety of theories are involved in unfolding strategic learning capability. Strategic learning capability is grounded in the

body of strategy (Mintzberg, 1987a; 1987b) and organizational learning (Argyris & Schon, 1978) literature. Yet, organizational learning alone cannot fully describe the learning involved in the strategy process, and thus, disciplined imagination (Weick, 2002), experiential learning (Casey & Goldman, 2010; Kolb, 1984), and unlearning (Hedberg & Starbuck, 2001; Tsang & Zahra, 2008) theories are incorporated to explain the dynamics of sensemaking, behavioral decision theory (Cyert & March, 1963), and experiential learning (Kolb, 1984) to unpack the decision-making dimension. The three phases of the strategy process include generation, formulation, and execution; and these phases compose the decision-making process.

I developed the composite definition based on the aforementioned literature. The guiding definition of strategic learning capability is *the capacity of an organization to retool rapidly to create and execute new strategies through learning at the individual and system levels in response to changes and uncertainties in the complex environment* (Argyris & Schon, 1978; Casey & Goldman, 2010; Kolb, 1984; Mintzberg, 1987a; 1987b; Pietersen, 2010; Sloan, 2006). The operational definition is the individual's rating score on a multi-item five-point performance scale of poor to excellent in response to a questionnaire concerning the strategic learning capability of an organization.

In the process of the initial analysis, we aim to identify a unidimensional scale of SLC and that a variety of discrete sub-dimensions exist. The second set of analyses deals with how the strategic learning capability relates to the organizational and individual characteristics and outcome variables within the organizational context. For organizational characteristics, type of industry, number of employees, and annual revenue were selected; and for individual characteristics, primary response and role were selected.

For outcome variables, financial performance and knowledge performance (Marsick & Watkins, 2003) were selected. The following figure (*Figure 3-1)* illustrates the measurement model of this study.

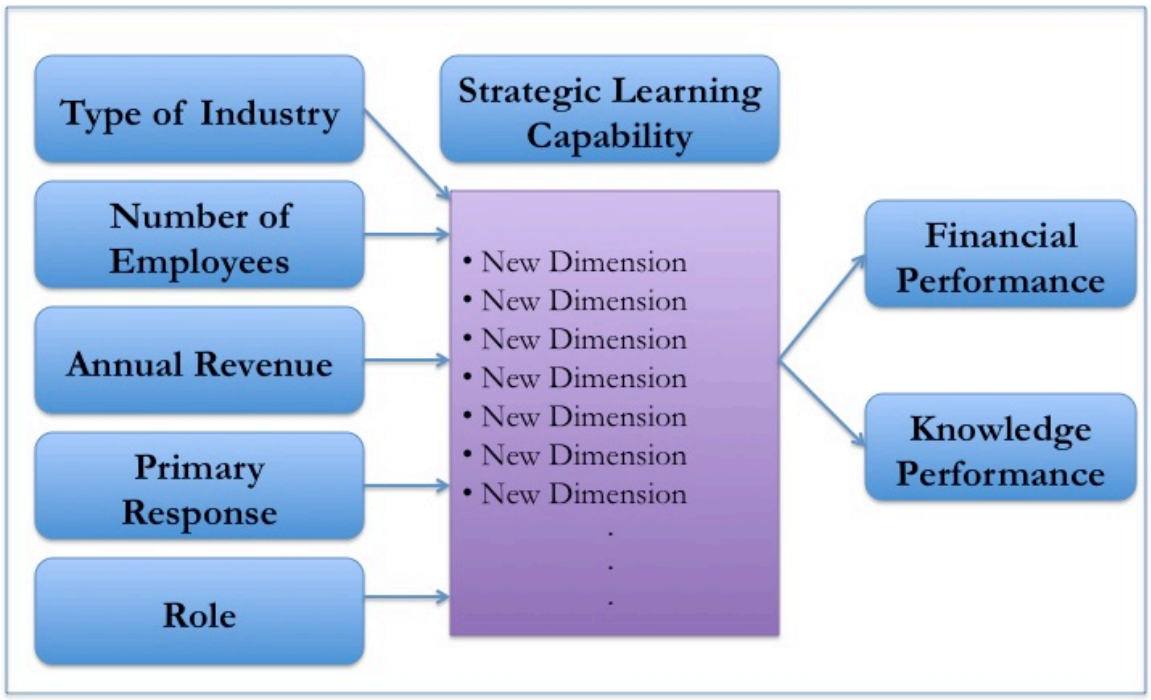

Figure 3-1. Measurement Model

Instrumentation

The instrument development involved numerous steps, ultimately generating 59 survey items related to strategic learning capability (Appendix I). In terms of developing a single construct, two criteria should be met—first, that items have been articulated to measure the same construct; second, that items must satisfy "a statistical criterion of relatedness by correlating with each other sufficiently to define an item factor in a factor analysis of items after they have been written" (Comrey, 1988, p.755).

Table 3-1. *Survey Instrument Development Process*

Section	The Steps Suggested	Actual Steps Taken
1. Planning for Instrument Development	• State purpose of test and target groups • Identify and define domain of test • Review of literature on construct of variable on interest • Give open-ended questions to target group • Interpret open-ended comments • Write objectives • Select item format	1. Development and refinement of the item pool of SLC
2. Constructing the Instrument	• Develop table of specification • Hire and train item writers • Write pool items • Content validation • Qualitative evaluation by judges • Develop new and revise items	2. Item review of SLC 3. Selecting the response scale of the survey instrument 4. Pre-pilot review of the prototype survey
3. Conducting item analysis and Evaluating the Reliability of the Instrument	• Prepare instrument for first pilot testing • First pilot administration • Debrief subjects • Calculate Reliability • Run item analysis • Revise instrument prepare for second pilot testing • Second pilot administration • Run item analysis	5. Final Review of the empirical test of the pilot survey instrument 6. Final review and the empirical test of the pilot survey instrument 7. Construction of the final study's survey instrument
4. Examining the Validation of the Instrument	• Repeat steps 9-10 as necessary • Begin validation • Administer for validation date • Continue validation	To be continued in the future study

Note. The Steps Suggested is from Benson & Clark (1982)

The construct of strategic learning capability was articulated based on multiple theories (i.e., strategy, strategic learning, organizational learning, disciplined imagination, experiential learning, and unlearning), and an empirical data-driven theory guided the final factor structure in this study. The instrument development took place by following Benson and Clark's (1982) instrument development process, but the actual steps were refined for the purpose of the study.

Development and Refinement of the Item Pool of SLC

Survey items were developed based on an extensive review of the literature, a brainstorming session with HRD practitioners, and informal conversations with research committee members. Table 3-2 illustrates steps taken to generate the strategic learning capability item pool.

Table 3-2. *Steps Taken To Generate the SLC Item Pool*

Steps	Process	Cumulative Number of Items
Step I	Review of the strategy and strategic learning literature generated 65 items	65
Step II	Brainstorming session with HRD practitioners generated 21 items	86
Step III	Conversations with committee members generated 14 items	100

First, the strategic learning model (*Figure 2-2*) was developed by integrating and criticizing the existing organizational models that guided this study. Initial items were generated based on the multidisciplinary literature (e.g., strategy, strategic planning, strategic implementation, strategic thinking, scenario planning, and organizational learning) illustrating the concept of strategic learning capability. In terms of the inclusion of items, any items in the literature offering a guiding definition of strategic learning

capability were included (i.e., Anderson, Covin, & Slevin, 2009, Andrews & Smith, 1996, Argyris & Schon, 1996, Hamel & Prahalad, 1994, Gavetti & Warglien, 2007, Mintzberg, 1987a, Mintzberg, 1994b, Narver & Slater, 1990, Neil et al., 2007, van der Heijden, 1996, Schon, 1983, Pietersen, 2010, Weick, Sutcliffe, & Obstfeld, 2005). Initially, thirteen items on strategic learning capability were collected. However, further items were collected to deepen understanding of strategic learning capability around important aspects of two domains—sensemaking and decision-making. Items were also categorized into three phases of the strategy process—strategy generation, formulation, and execution—for the purpose of the itemization, to clarify the meaning of the items and avoid any overlap.

Second, 22 human resource development (HRD) practitioners in a graduate-level human resource and organization development class at the University of Georgia participated in a brainstorming session. Invitation letters were sent out before the session, and participation was voluntary. These individuals were chosen, because they understood the practice of strategic human resource development, and the brainstorming activities could also benefit them by requiring them to think strategically as HRD practitioners. The brainstorming session occurred for one hour was facilitated by the researcher and methodologist of the research committee. The researcher presented a definition for strategic learning capability and cases of organizations, both with strategic learning capability and without strategic learning capability. Participants in the session were asked to provide: (1) an example of processes and activities that help individuals in organizations learn to think strategically in order to create new strategy, (2) organizational activities and processes that enable organizations to adapt quickly and

efficiently to changes in the external environment, and (3) kinds of learning involved in individuals and organizations while executing strategies. The session was recorded with an audio recorder, and post-it notes and a flip chart were used to record responses.

Third, additional items were generated by encounters with major professors and committee members in the process of clarifying the meanings, jargons, and particular terminology. As my major advisor and I got to engage in the instrument development for over a year, we were able to translate our insights into more items.

Item Review of SLC

An evaluation of the content validity proceeded from the beginning of the item development process with the expert panel's review. Content validity was tested to examine whether the content of a test elicits a range of responses that are representative of the entire domain that a test is designed to measure (Aiken & Groth-Marnat, 2006). In terms of content validity, a panel of experts in a related field examined the content validity of the items that were developed. Item revision sessions were held many times as iterative processes. Based on the definition of strategic learning capability and each sub-domain, subject matter experts and I articulated every item. Committee members reviewed the items several times.

Selecting the Response Scales of the Survey Instrument

Selecting the rating scale is as important as constructing the item pools. I reviewed behaviorally anchored scales such as behavioral expectation scales (BES) and behavioral observation scales (BOS). BESs measure critical behaviors that are rated in terms of expectations, whereas BOSs allow rating in terms of frequency (Aiken & Growth-Marnat, 2006). Yet, none of these scales was appropriate for this study, since the

instrument was not inclined to measure expectation or frequency. Therefore, a five-point performance scale was selected for this study (i.e., poor, fair, good, very good, and excellent), because strategic learning capability assessed the quality of the activities that are possibly performed at the organizational level. Financial and knowledge performance need to be measured on a performance scale.

The Pre-pilot Review of the Prototype Survey

A critique session was held for two hours to perfect the instrument. The researcher, two methodologists, three HROD doctoral students, and three doctoral students from the Department of Adult Education attended the session.

First, all of the attendees took the survey as a pre-pilot test to analyze the overall format. Second, after taking the survey, under the guidance of the methodologist, we investigated each item in the survey to point out unclear structures, sentences, and words. Lastly, we discussed the scales of the instrument. Redundant items were reduced from 70 to 65 in this session. The content validity was tested during this process. The detailed description regarding item revision is included in Appendix C.

Table 3-3. *Overview of the Survey Instrument*

Section	Number of Items
I. Strategic Learning Capability	59
II. Knowledge and Financial Performance	10
III. Individual and Organizational Demographics	5

Selecting Outcome Measures and the Addition of Background Items

In terms of an organizational outcome variable, measurements of four items of knowledge performance and six items of financial performance (Watkins & Marsick, 1997) were used. The original scale included six items of knowledge performance, but two items were deleted due to the length of the survey. The financial performance scale was composed of (1) return on investment, (2) average productivity per employee, (3) time to market for products and services, (4) response time for customer complaints, (5) market share, and (6) cost per business transaction. The knowledge performance scale was composed of (1) customer satisfaction, (2) the number of suggestions implemented, (3) the percentage of skilled workers compared to the total workforce, and (4) the number of individuals learning new skills.

In terms of the background information of the survey participants, things taken into consideration were the type of industry, number of employees, annual revenue of the organization, the primary responsibility, and the role of the respondents. The industry was classified into seven categories based on the International Standard Industrial Classification (ISIC).

The Final Review and the Empirical Test of the Pilot Survey Instrument

A pilot instrument was developed with the pre-pilot expert feedback and members of my doctoral advisory committee. The survey was built within the Google Survey platform and formatted as if it were the final survey. The pilot test was conducted to identify (1) if the proposed data collection method is doable and (2) any items that were inadequate.

The content validity of the measure was tested again during the pilot test. The study ran for two weeks in early 2013. The pilot survey was distributed via the HROD (at UGA) alumni listserv, and 36 participants responded. Attention was paid to the timing of the reminder emails, which were set to go to non-respondents after ten days. During this time, I observed a spike in survey participation activity for the first day. After the first day, there was no participation.

The pilot test was used to ensure that observed variation exists in each survey item. Strategic learning capability and financial and knowledge performance items were not adjusted, but there were some adjustments in background items (Item # 70, 73, & 74). The content validity of the instrument was tested again during the pilot test, including questions, format, and scales.

Construction of the Final Survey Instrument

After the pilot study was administered, the results analyzed, and the survey prepared into its final form, 59 items concerning strategic learning capability, 10 items concerning financial and knowledge performance, three organizational characteristics, and two individual characteristics items were included. Once the final survey instrument was developed, a memo was sent to the committee members describing the results of the pilot test and my future intentions toward data collection. Committee members reviewed the final survey instrument and responded with any suggestions or concerns before the final instrument went live for data collection. After receiving approval from each committee member, the updated instrument and the documents were submitted to the University of Georgia's Institutional Review Board for approval. A Google survey

template was embedded in UGA's individual account accompanied with the school's logo to enhance the credibility of the survey instrument.

Target Population

Targeted participants for this survey were organizational leaders who were involved in yearly, quarterly, or everyday strategic planning practices. This study intended to reach out to various industries as well as different sizes of companies (in terms of the number of employees and revenue) so that the level of strategic learning capability could be compared by the organizational characteristics. In addition, this study attempted to reach out to individuals who held different roles and responsibilities in their organizations in order to identify the different perceptions toward the level of strategic learning capability.

For the pilot study, a somewhat homogenous sample of graduate students and alumni in the human resource and organization development (HROD) program from the University of Georgia in the Southeastern United States was selected. Yet, their organizational and individual backgrounds deviated from each other.

For the main study, a heterogeneous sample of organizational leaders who perform strategic activities as part of their job was invited to participate in this study. The samples were across organizations in the U.S.A, Europe, and Korea in order to get the maximum variances among organizations. Snowball non-probability sampling was applied to this study.

Data Collection

The data collection strategy was non-probability sampling, because I was not able to find research sites with large populations. I collected data in the following steps. First,

personal contacts were made to solicit data in various organizations. Second, the questionnaire was distributed to multiple listservs. Third, due to the low responses, new contacts and additional listservs were searched.

Initial Contact and Soliciting for Data Collection

I contacted people who worked for global companies through personal acquaintance in order to solicit data. I asked them if they could ask their human resource (HR) department to give me permission to solicit data within their organizations. A few organizations were interested in the instrument of strategic learning capability as I introduced the use of the instrument as a diagnostic tool for measuring their organizations' capacity. A company from the west coast was willing to participate in my survey, but the final approval did not come through.

My major professor, methodologists, and I decided to contact our personal networks to solicit data. In the recruitment letter, we asked participants to forward the e-mail with the survey site to 5-10 people in their networks and solicit their potential participation. Various listservs were searched to solicit data from professional and academic associations (e.g., Academy of Human Resource Development, Future Trends, Academy of Management, American Society for Training and Development, etc.), academic programs (e.g., MBA, HRD), and companies listed in Fortune 500. With approximately 35 contacts, including those acquired from professional listservs and personal networks, the survey was ready to send out.

Questionnaire Distribution

After the approval from the University of Georgia's Institutional Review Board, the data collection was conducted through the following steps. Data collection started on

March 4, 2013 and closed on May 7, 2013. Data collection included a self-administered online questionnaire across the organizations. I tried to design a formatted and well-tailored web-based survey, which would increase the response rate. Technology played a critical role in internet-based surveys that would help in collecting data promptly, but depending on the computer each participant used, the survey format varied. During the experience with the pilot study, an issue was not raised regarding the survey format, but some participants said that the survey did not open in an older version of Internet Explorer. Reflecting the feedback from the pilot study, it was recommended that the participants use Safari, Google Chrome, Firefox, or the most current version of Internet Explorer in the recruitment letter. During this time period, the online survey was monitored via Google Analytics, which tracked responses and included the following information—the average visits to the survey, the visit duration, the browsers participants used, etc.

Additional Listserv Searches and New Contacts

Not many responses were been returned two weeks into the initial data collection. Since the sampling strategy was to use the snowball method, it was difficult to send out a reminder where the survey was distributed beyond the listservs I contacted. My committee members and I had to constantly find new contacts, listservs, personal networks, newsletters of professional networks, and staff directories to recruit survey participants. In the meantime, I contacted an IT company which I had consulted as part of my class project for data collection and promised an executive report based on the findings. On special occasions, I could collect data onsite from professional workshops. With the help of committee members, I was able to contact a few more professional

listservs to solicit data. The approximate response rate was very low, although new contacts were searched and surveys were sent out almost every day. Without having formal research sites, hunting and contacting new listservs and networks was difficult.

Data Preparation

After the survey site was closed, all the responses were downloaded into an Excel spreadsheet. Data preparation and screening were important steps to run explorative factor analysis, correlation, and regression analysis. Screening data was important to avoid any violations that would affect successful computation of data. In order to make manageable data analysis, data was recoded, and missing data was handled.

Recoding Data

Categorical data was coded into assigned numbers of pre-specified values. For type of industry, seven categories were identified by International Standard Industrial Classification, but the fields of education and healthcare/medical were categorized additionally after the data screening due to the large numbers in those two groups. The number of employees and annual revenue were open- ended questions, and thus, they were categorized into different numbers of groups based on the U.S. Census Bureau and recoded into fixed numbers. Individual characteristics were also recoded into fixed numbers for further statistical analysis.

Missing Data

There were various ways to handle missing data using SPSS. If respondents missed more than seven items out of 69 questions, the data set was excluded. Yet, if the missing data was less than 10%, the data was treated using statistic software. For descriptive statistics, the number of non-missing values was used. Similarly, missing

values were excluded, and percentages were based on the number of non-missing values for frequencies. For factor analysis, cases with missing values were deleted listwise, which meant observations with missing values on any of the variables in the analysis were omitted from the analysis.

Description of the Respondents

Sample demographics were important in this study, since the results of exploratory factor analysis varied depending on the characteristics of the sample. Despite repeated attempts to meet the large sample size, the targeted sample size of 300 was not met. The sample size reached the absolute case number of 200 (Guilford, 1954) and a 3 to 1 ratio (i.e., subjects-to-variables ratio) after excluding non-management (hourly employees) and respondents in a Korean organization. A total of 237 responses were used for the analysis after eliminating 40 responses from Korean Global companies that might have slightly different characteristics and six responses from non-management technical individuals that were assumed to have a lack of knowledge in the strategic process. Organizational and individual demographics explicated the sample's distinctiveness in detail.

Organizational Demographics

For organizational demographics, types of industry, number of employees, and annual revenue were identified (Table 3-4). Originally, the types of industry were divided into seven categories, but new categories were included based on the frequency weight of the responses—education and healthcare/medical. The highest frequency among types of industry was service (26.6%), which included professional and consulting services. Uncategorized industries were non-profit, government agencies, entertainment, religious

groups, military, transportation, etc. Based on the U.S. Census Bureau, the size of the firms was categorized into four. Small enterprises were considered less than one hundred employees, and the highest frequency (31.2%) was the small enterprise group. The frequency of employees from 100 to 499 was 23.2%, from 500 to 4,999 was 17.3%, and 5,000 or more was 19.8%. Missing data was excluded from the frequency analysis. In addition, based on the U.S. Census Bureau, annual revenues were categorized into four groups. There was too much missing in terms of annual revenue, because participants were not sure of their annual revenue. The highest frequency of annual revenue was found to be from a million dollars to below a billion dollars (26.6%).

Individual Demographics

For individual demographics, the primary responsibilities and the participants' roles in their companies were identified (Table 3-5). In terms of primary responsibility, the highest frequency was in general management (26.2%). Interestingly, the second highest frequency was in human resources (20.7%). The frequency order in terms of roles was senior management (21.9%), middle management (31.2%), supervisory (7.6%), and non-management technical/professional (35.9%) respectively.

Table 3-4. *Demographic Information of the Organizations*

Category	Frequency	Percent (%)
Type of Industry (n=227)		
Manufacturing	21	8.9
Service	63	26.6
Information Technology	33	13.9
Finance, Insurance, & Real Estate	17	7.2
Retail	3	1.3
Construction	3	1.3
Public Administration	25	10.5
Education	42	17.7
Healthcare/medical	9	3.8
Others	11	4.6
Total	227	
Number of Employees (n=217)		
1 to 99	74	31.2
100 to 499	55	23.2
500 to 4,999	41	17.3
5,000 or more	47	19.8
Total	217	
Annual Revenue (n=121)		
Less than $100,000	3	1.3
$100,000 to 999,999	10	4.2
$1,000,000 to 99,999,999	63	26.6
$100,000,000	45	19.0
Total	121	

Table 3-5. *Demographic Information of the Respondents*

Category	Frequency	Percent (%)
Primary Responsibility (n=225)		
General Management	62	26.2
Operations/Production	27	11.4
Administration, Logistics, or Financial/Accounting	35	14.8
Human Resources	49	20.7
Marketing/Sales	18	7.6
Technical/ R&D	25	10.5
Others	9	3.8
Total	225	
Role (n=229)		
Senior Management	52	21.9
Middle Management	74	31.2
Supervisory	18	7.6
Non-Management Technical/Professional	85	35.9
Total	229	

Data Analysis

A variety of analysis was completed to answer four research questions. For research question one, the rank was tested to identify highest and lowest ranked organizational performances in respect to strategic learning capability activities. Frequency was used for the rating distribution on a five-point scale, poor to excellent. For research question two, empirical dimensions of strategic learning capability were identified by exploratory factor analysis, and their reliability was checked. I examined the strategic learning capability measure with the single goal of identifying a parsimonious measurement model and conceptually clear dimensions. In order to achieve this goal, I

ran multiple solutions and ultimately applied conceptual meaningfulness to answer the following questions: (1) Does the factor have a simple solution? (2) Can I name the dimensions that correctly capture the meaning? (3) Are they discriminant factors?

In order to find a simple factor structure, explorative factor analysis (EFA) was employed "to evaluate the dimensionality of a set of multiple indicators by uncovering the smallest number of interpretable factors needed to explain the correlations among them" (Brown, 2006, p. 20). Numerous EFAs were performed using IBM SPSS 19. Principal component solutions were used because they account for the maximum amount of variances and the total correlation matrix obtainable (Gorsuch, 1983). As a data reduction technique, principal components were appropriate to reduce a larger set of measures to a smaller, more manageable number of composite variables to be used in subsequent analyses.

After factors have been extracted using the selected estimation method, some important decisions were made to select the factors. Because EFA is an exploratory or descriptive technique by nature, the decision about the appropriate number of factors was guided by attentive considerations. The extracted factors were rotated to enhance interpretability. In order to produce a simple structure, two types of rotation were tested: orthogonal and oblique. In orthogonal rotation, the factors were assumed to be constrained in order to be uncorrelated; in oblique rotation, the factors allowed intercorrelation. After I ran both orthogonal and oblique rotations, I decided on orthogonal rotation because it provided a simple uncorrelated factorial solution.

Factors could be selected based on a scree plot of eigenvalues from the reduced correlation matrix or on a variance percentage explained by the factors or on the

researchers' designation of a certain number of factors guided by previous theories (Gorsuch, 1983; Brown, 2006). Ultimately, I decided on these factors based on the variance percentage explained by the factors and the shared meaning of each factor.

In order to find simple factor structure, my methodologist and I employed the following steps. To identify the first factor, the horizontal movement from left to right was repeated to find any significant loading for that variable on any factor, and we underlined it if it had not been circled in the previous step. Items were evaluated for their overall contribution to the factor.

After the simple factor solution was identified, factors in the solution were defined that were comprised of several indicators that strongly relate to the factor. My major advisor and I gave careful consideration to the items belonging to each factor. We brainstormed together and tried to come up with new names and definitions. Instead of estimating factor scores, additive indexes were calculated to be used for multivariate analysis. The assumptions, such as normal distribution, multicollinearity, and homoscedasticity, were tested before moving onto regression analysis.

For research question three, regression analysis was conducted to explain the observed variation of the new dimensions of strategic learning capability in financial and knowledge performance. The dependent variable, financial and knowledge performance were measured using ten items. For the last research question, an ANOVA and t-test were conducted to explain the observed variation in dimensions of strategic learning capability by organizational and personal characteristics. Table 3-6 illustrates the statistics used for each research question.

Table 3-6. *Summary of data analysis*

Research Questions	Statistics
1. How do strategic planners rate the organization's performance with respect to strategic learning capability activities?	Frequency, Rank
2. Can the empirical dimensions of strategic learning capability be developed?	EFA
3. To what extent does strategic learning capability explain the observed variation in financial and knowledge performance?	Linear Regression Analysis
4. To what extent do organizational and personal characteristics explain the observed variation in the dimensions of strategic learning capability?	ANOVA, t-test

Limitations of the Study

In this study, I aimed for a large and diverse sample; however, it ended as a nonprobability convenient sample. As I approached multiple sources to get the sample size, the variety size of the organizations was revealed in many industry types, but it was not large enough to represent independent industries. Thus, this study needed more diverse samples in various industries to be replicated for generalization in the ample business contexts.

The response rate in this study limits the ability to generalize the findings beyond the respondents. In order to run EFA, scholars suggested a subjects-to-variables ratio, which is a ratio of 5 to 1 (Bryant & Yarnold, 1995) or absolute number of cases (N), which is rule of 500 (Comrey & Lee, 1992), or above. Thus, larger sample size would be recommended for EFA.

Even though the population was targeted to include organizational leaders in organizations, an online survey could invite irrelevant samples, also. There was little control over the survey participants once the online survey was sent out. It was difficult to follow up with the participants because of the nature of snowball sampling, which

influenced a low response rate. More strategic approaches to recruit a targeted sample would be desirable.

CHAPTER FOUR

FINDINGS

This study attempts to generate an empirical data driven theory in the strategy process. Specifically, this study focuses on conceptualizing the strategic learning capability of an organization and identifying the dimensions. The findings will be presented separately in relation to four research questions:

1. How do strategic planners rate an organization's performance with respect to strategic learning capability activities?
2. Can the empirical dimensions of strategic learning capability be developed?
3. To what extent does strategic learning capability explain the observed variation in financial and knowledge performance?
4. To what extent do organizational and personal characteristics explain the observed variation in the dimensions of strategic learning capability?

Findings Related to Research Question #1

The first research question asked, "How do strategic planners rate an organization's performance with respect to strategic learning capability activities?" When participants answered the questions regarding strategic learning capability, their responses were on a performance scale of 1 to 5, where 1=poor and 5=excellent. The mean value reflected the self-assessed performance levels in which strategic planners and thinkers rate the strategic learning capabilities of their organizations. The mean of fifty-

nine responses ranged from a low of 2.74 to a high of 3.61. The complete range of means, standard deviation, and rank is summarized in Table 4-1.

Item means were ranked for investigating the most excellent performance and the poorest performance in respect to strategic learning capability activities. The highest mean value was Item #3, *encouraging the exploration of creative ideas* (*M*=3.61), which was generated from the brainstorming session and carried the meaning of strategy making by imagination (Mintzberg, 1987c; Szulanski & Amin, 2001). Most of the top response items were related to the activities of exploring strategies such as exploration of creative ideas (# 3), identifying innovative strategies (# 2), and exploration of new strategies (# 1). The lowest-scored response items were composed of the activities that included concepts of strategic change accompanied by unlearning—Item #39, *letting go of deeply held ideas that are no longer viable to our business* (*M* = 2.74), and unloaded Item #41, *proactively removing unnecessary actions that prevent our organization from achieving organizational goals (M*=2.92*)*. The second lowest item (#56) included the strategic activity of sharing information across departments. The frequency distribution of the five-point scale indicated that the response ratings were normally distributed.

Table 4-1. *Rank and Response Distribution of Strategic Learning Capability* (*N= 237*)

Response Item	Rank	Mean	SD	Poor 1 (%)	Fair 2 (%)	Good 3 (%)	Very Good 4 (%)	Excellent 5 (%)
3. Encouraging the exploration of creative ideas.	1	3.61	1.09	9 (3.8)	32 (13.6)	53(22.5)	89 (37.7)	53 (22.5)
2. Continuously reviewing emerging trends to identify innovative strategies.	2	3.59	1.06	9 (3.8)	29 (12.2)	60 (25.3)	90 (38.0)	49 (20.7)
1. Actively exploring new strategies as the business context changes.	2	3.59	.98	7 (3.0)	25 (10.7)	63 (26.9)	100 (42.7)	39 (16.7)
5. Seeking to generate new ways to reconfigure our existing products and services.	4	3.58	.99	6 (2.5)	30 (12.7)	61 (25.8)	100 (42.4)	39 (16.5)
17. Creating business strategies that deliver value for our customers.	4	3.49	1.10	12 (5.1)	32 (13.5)	64 (27.0)	85 (35.9)	44 (18.6)
24. Paying close attention to external conditions/trends.	6	3.49	1.11	13 (5.5)	33 (14.0)	58 (24.6)	89 (37.7)	43 (18.2)
21. Continuously seeking better ways to improve our products and services.	7	3.47	1.10	9 (3.8)	44 (18.6)	53 (22.5)	88 (37.3)	42 (17.8)
6. Imagining alternative futures for our organization.	8	3.46	1.04	12 (5.1)	29 (12.3)	66 (28.1)	95 (40.4)	33 (14.0)
4. Brainstorming new business ventures.	9	3.45	1.09	12 (5.1)	33 (13.9)	70 (29.5)	80 (33.8)	42 (17.7)
35. Learning from past experiences via observation and seeing trends or issues.	10	3.43	1.07	11(4.7)	35 (14.9)	70 (29.8)	81 (34.5)	38 (16.2)

Table 4-1. *Rank and Response Distribution of Strategic Learning Capability* (*N= 237*) (Cont'd)

25. Tracking emerging trends specifically related to our products and services.	10	3.40	1.03	12 (5.1)	35 (14.8)	61 (25.7)	99 (41.8)	27 (11.4)
37. Applying past experiences to help us address new challenges (e.g., new ventures, new markets, new products).	10	3.40	1.05	8 (3.4)	43 (18.2)	67 (28.4)	83 (35.2)	35 (14.8)
34. Accessing relevant information to inform our strategic conversations and decisions.	10	3.40	.97	6 (2.6)	41 (17.4)	66 (28.1)	98 (41.7)	24 (10.2)
27. Noticing "signals" in the external environment that we need to pay attention to.	14	3.38	.98	8 (3.4)	35 (15.0)	78 (33.3)	86 (36.8)	27 (11.5)
26. Recognizing information that needs to be further explored.	15	3.37	1.05	9 (3.8)	44 (18.7)	66 (28.1)	84 (35.7)	32 (13.6)
22. Improving how we produce our products and/or services.	16	3.36	1.00	7 (3.0)	41 (17.3)	77 (32.5)	83 (35.0)	29 (12.2)
23. Creating strategies based on external trends.	16	3.36	1.03	9 (3.8)	42 (17.8)	69 (29.2)	87 (36.9)	29 (12.3)
18. Monitoring customers' experiences with our products and services.	18	3.35	1.22	24 (10.1)	32 (13.5)	63 (26.6)	74 (31.2)	44 (18.6)
28. Helping our executive leadership team to learn about external changes that are affecting or may affect us.	19	3.34	1.08	17 (7.2)	30 (12.7)	73 (30.9)	87 (36.9)	29 (12.3)
42. Learning by trial and error during strategy implementation.	19	3.33	1.07	13 (5.5)	39 (16.5)	70 (29.7)	84 (35.6)	30 (12.7)
19. Using customer feedback to improve our strategy.	19	3.33	1.21	23 (9.7)	37 (15.6)	56 (23.6)	81 (34.2)	40 (16.9)

Table 4-1. *Rank and Response Distribution of Strategic Learning Capability* (*N= 237*) (Cont'd)

43. Modifying business strategies based on what is working and what is not working.	19	3.33	1.03	12 (5.1)	38 (16.1)	71 (30.1)	91 (38.6)	24 (10.2)
36. Reflecting on the past to identify patterns.	23	3.32	1.06	12 (5.1)	40 (16.9)	74 (31.4)	80 (33.9)	30 (12.7)
13. Assessing the challenges that need to be overcome in order to achieve our strategy.	23	3.32	1.01	10 (4.2)	41 (17.3)	74 (31.2)	88 (37.1)	24 (10.1)
8. Transforming our business model when market conditions shift.	25	3.31	1.07	12 (5.1)	42 (17.7)	74 (31.2)	78 (32.9)	31 (13.1)
9. Envisioning competencies needed for the future.	26	3.30	1.02	10 (4.2)	41 (17.3)	80 (33.8)	79 (33.3)	27 (11.4)
11. Generating alternative approaches to achieve our business goals.	27	3.29	.97	7 (3.0)	45 (19.0)	78 (32.9)	86 (36.3)	21 (8.9)
7. Revising our business model to effectively meet the needs of the market.	27	3.29	1.07	15 (6.4)	41 (17.5)	65 (27.8)	87 (37.2)	26 (11.)
59. Coming to an agreement when making decisions.	29	3.27	1.14	22 (9.3)	35 (14.8)	67 (28.3)	84 (35.4)	29 (12.2)
44. Monitoring when our strategy to see if/how it's working.	30	3.26	1.10	18 (7.7)	39 (16.6)	68 (28.9)	84 (35.4)	26 (11.0)
40. Reframing current strategies when needed.	30	3.26	1.02	14 (5.9)	39 (16.5)	75 (31.8)	88 (37.3)	20 (8.5)
50. Knowing how much we have to invest in the future.	32	3.21	1.03	13 (5.6)	43 (18.5)	82 (35.3)	70 (30.2)	24 (10.3)
20. Sensing shifts in what our customers value.	32	3.21	1.08	18 (7.6)	44 (18.6)	65 (27.5)	89 (37.7)	20 (8.5)
48. Using action plans to ensure we achieve our organizational goals.	34	3.19	1.20	29 (12.3)	34 (14.4)	64 (27.1)	80 (33.9)	29 (12.3)

Table 4-1. *Rank and Response Distribution of Strategic Learning Capability* (*N= 237*) (Cont'd)

55. Sharing information effectively within departments (or teams).	34	3.19	1.24	32 (13.6)	35 (14.9)	55 (23.4)	82 (34.9)	31 (13.2)
10. Knowing what it takes to successfully implement our strategies.	34	3.19	1.09	18 (7.6)	43 (18.1)	78 (32.9)	73 (30.8)	25 (10.5)
33. Providing time to think before we strategize in a particular area of our business.	37	3.18	1.11	17 (7.2)	50 (21.2)	69 (29.2)	74 (31.4)	26 (11.0)
30. Making sound interpretations of business trends in order to learn from them.	38	3.17	1.01	17 (7.2)	37 (15.7)	86 (36.4)	80 (33.9)	16 (6.8)
12. Letting the best strategies emerge for achieving our objectives.	38	3.17	1.07	16 (6.8)	48 (20.3)	75 (31.8)	74 (31.4)	23 (9.7)
46. Clarifying our strategies explicitly enough to formally operationalize them.	40	3.15	1.17	21 (8.9)	46 (19.5)	71(30.1)	72(30.4)	26 (11.0)
15. Making our decisions with the full consideration of our competitors.	40	3.15	1.13	24 (10.2)	43 (18.2)	72 (30.5)	67 (28.4)	30 (12.7)
49. Translating strategic goals into measureable performance goals.	42	3.13	1.17	27 (11.4)	41 (17.3)	70 (29.5)	72 (30.4)	27 (11.4)
31. Actively reflecting on emerging challenges before they become unmanageable.	43	3.12	1.12	18 (7.7)	56 (23.9)	64 (27.4)	71 (30.3)	25 (10.5)
38. Applying new strategies when we encounter problems rather than using outdated strategies.	43	3.12	1.06	16 (6.8)	49 (20.8)	86 (36.4)	61 (25.8)	24 (10.2)
58. Working together to create better business strategy.	45	3.10	1.22	30 (12.7)	48 (20.3)	55 (23.2)	76 (32.1)	28 (11.8)

Table 4-1. *Rank and Response Distribution of Strategic Learning Capability* (*N= 237*) (Cont'd)

57. Engaging in collective thinking processes.	46	3.05	1.21	30 (12.7)	49 (20.7)	67 (28.3)	62 (26.2)	29 (12.2)
54. Sharing challenging ideas among employees.	47	3.04	1.24	35 (14.8)	46 (19.4)	56 (23.6)	75 (31.6)	25 (10.5)
47. Articulating strategies clear enough to be implemented by the workforce.	48	3.03	1.12	27 (11.4)	44 (18.6)	81 (34.2)	65 (27.4)	20 (8.4)
16. Developing strategies that allow us to quickly respond to market needs.	49	3.02	1.03	27 (11.4)	41 (17.3)	70 (29.5)	72 (30.4)	27 (11.4)
29. Soliciting information on external trends from many levels across the organization.	49	3.02	1.13	29 (12.3)	42 (17.9)	80 (34.0)	64 (27.2)	20 (8.5)
51. Investing what it takes to successfully implement our strategies. (e.g., financials, HR, processes, systems)	51	3.00	1.12	21 (8.9)	62 (26.3)	73 (30.9)	57 (24.2)	23 (9.7)
14. Rapidly responding based on what our competitors are doing.	51	3.00	1.17	28 (12.2)	50 (21.7)	75 (32.6)	49 (21.3)	28 (12.2)
45. Examining failed strategies to inform our next strategic move.	51	2.99	1.10	22 (9.3)	58 (24.6)	75 (31.8)	62 (26.3)	19 (8.1)
52. Taking the time employees need to dialogue especially regarding risky issues.	54	2.98	1.20	33 (14.0)	47 (19.9)	74 (31.4)	56 (23.7)	26 (11.0)
32. Reflecting on unanticipated signals from the marketplace.	55	2.95	1.04	19 (8.0)	62 (26.2)	82 (34.6)	60 (25.3)	14 (5.9)
53. Challenging previously held ideas in our organization.	56	2.92	1.16	38 (16.1)	44 (18.6)	74 (31.4)	63 (26.7)	17 (7.2)

Table 4-1. *Rank and Response Distribution of Strategic Learning Capability* (*N= 237*) (Cont'd)

41. Proactively removing unnecessary actions that prevent our organization from achieving organizational goals.	56	2.92	1.16	32 (13.6)	55 (23.3)	67 (28.4)	64 (27.1)	18 (7.6)
56. Sharing information effectively across departments (or teams).	58	2.90	1.17	38 (16.1)	44 (18.6)	74 (31.4)	63 (26.7)	17 (7.2)
39. Letting go of deeply held ideas that are no longer viable in our business.	59	2.74	1.18	43 (18.3)	58 (24.7)	68 (28.9)	50 (21.3)	16 (6.8)

Findings Related to Research Question #2

The second research question asked, "Can empirical dimensions of strategic learning capability be developed?" In order to answer this question and progress in Benson and Clark's (1982) survey instrument development process, initial items were developed based on (1) the strategy, strategic planning, strategic implementation, strategic thinking, scenario planning, and organizational learning literature, (2) a brainstorming session, and (3) informal conversations with committee members, and items were reduced to fifty-nine items through the revision process. Ideas and concepts in the literature related to strategic learning capability are translated into the items. The initial items are listed in Table 4-2.

The fifty-nine items were measured on a 5-point performance scale (1=poor, 5=excellent). Three research objectives were formulated to answer the second research question. The first objective was to find a simple solution. The second objective was to name the dimensions that correctly capture the meaning. The third objective was to examine the reliability of the newly developed scales.

Before exploratory factor analysis (EFA), factorability was tested by the Kaiser-Meyer-Olkin measure and Bartlett's test of sphericity. The KMO (.962) closer to 1 was large enough to support factor analysis. The Bartlett's test of sphericity was statistically significant ($x^2 = 11723.10$, $df = 1711$, $p = .00$). Bartlett's test yielded a large Chi-square with a low p value, which allowed rejecting the null hypothesis regarding the assumption of sphericity. Since the sphericity was not violated, factor analysis was conducted.

Table 4-2. *Initial Item Pools*

Please rate how well your organization engages in the following activities (with 1 being poor and 5 being excellent) to foster employees' engagement		Sources	Note
Imagination: refers to imagining multiple possibilities	1. Actively exploring new potential strategies as the business context changes.	Anderson, Covin, & Slevin, 2009	Venture and a biz model are two different things. You can change or create a new biz model but not venturing.
	2. Imagining new business ventures.	Mintzberg, 1994b	
	3. Seeking to generate new ways to reconfigure our existing products and services.		
	4. Imagining (potential alternative) futures of our organization.		
	5. Revising our business model to effectively meet the needs of the market.	BQ2.	Venturing means starting a new business.
	6. Transforming our business model when market conditions drastically shift.		Market turbulence
	7. Envisioning competences needed for the future.	BQ1.	
	8. Using scenarios to help individuals think strategically.	BQ1.	
	9. Envisioning new ideas, even when they are " out of the box."		
	10-1. Allowing new strategies to emerge.	Mintzberg, 1987a	
	10-2. Exploring new strategies.		
	10-3. Being open to new, untested strategies to be explored.		
Discipline: applying rules to evaluate a range of alternatives	11. Looking at an issue in a few different ways to better understand.		
	12. Generating multiple alternative approaches to achieve our business goals.		
	13. Playing with the emerging patterns to identify potential innovative strategies.	Mintzberg, 1987a	
	14. Developing selection criteria for actions and interests.		
	15. Letting best strategies emerge for achieving our objectives.	Anderson, et al., 2006	

	16. Planning for a broader sense of strategic control by assessing viability and the intended objectives (e.g., outcome, goals).	Mintzberg, 1994b	
	17. Knowing how much we have to invest in the future (e.g., financials).	BQ1.	
	18. Encouraging the exploration of creative ideas.	BQ1.	
	19. Selecting strategy that fits with our mission, values and business model(s).		
	20. Knowing what it takes to successfully implement our strategies.		
	21. Investing what it takes to successfully implement our strategies.		
	22. Assessing the challenges that have to be overcome to achieve our strategy.		
	23. Carefully planning our strategy before actions are taken.		
Risky dialogue: incorporates questioning the underlying assumptions and beliefs of what we know and how we think	24. Sharing provocative ideas with one another.		
	25. Challenging previously held ideas.		
	26. Taking the time we need to dialogue especially regarding contradictory issues.		
Collective learning: implies creating insights in groups, teams, and networks through a cognitive approach	27. Sharing information effectively within departments.		We don't need to be specific about formal informal and various types - Openness + collectiveness - Use DLOQ items here?
	28. Sharing information effectively across the departments.	Neil et al. 2006	
	29. Engaging in collective thinking.		
	30. Learning together to create better strategy.		
	31. Exploring each other's hunches (unformed ideas).		
	32. Creating shared meaning before we act.		

	33. Understanding our strategy before any actions are taken.	(Anderson, Covin, & Slevin, 2009)
	34. Coming to an agreement when making decisions.	
Scanning: is a cognitive process of looking at all parts of something in order to detect some features	35. Identifying patterns that reduce the complexity of the world 'out there.'	
	36. Keeping track of emerging issues.	
	37. Detecting emerging patterns.	
	38. Recognizing information that needs to be further explored.	BQ3.
	40. Noticing "signals" in the external environment to which we need to pay attention.	
	41. Actively seeking patterns that allude to strategy amid messy learning.	Mintzberg, 1994b
	42. Seeking patterns amid seemingly random or disconnected pieces of information	Mintzberg, 1994b
	43. Reporting back directly to the executive leadership team about external changes.	BQ2.
	44. Soliciting information on external trends from many levels across the organization	BQ2.
Interpretation: this is underlying notion of the overall dimension	45. Making sound interpretations of business trends in order to learn from them.	(van der Heijden, 1996)
	46. Actively reflecting on emerging challenges before they become unmanageable.	(Hamel & Prahalad, 1994)
	47. Reflecting on unanticipated signals from the marketplace.	BQ.3/ Schon, 1983
	48. Providing time to think before we strategize in a particular area of business.	BQ1.

Retrospective: refers to meaningful lived experience and is used to interpret new situations	49. Accessing and sharing relevant information that we have to inform our strategic conversations and decisions.		
	50. Looking back over earlier observations and seeing patterns.	(Weick, stcliffe, & Obstfeld, 2005)	
	51. Reflecting on the past to identify patterns.		
	52. Applying past experiences to help us address new challenges.	(Gavetti & Warglien, 2007)	
Unlearn: is selectively forgetting patterns from the past	53. Regrouping when things don't go as planned.	BQ1.	
	54. Applying new strategies to solve problems.	BQ1.	
	55. Changing old habits when needed.		
	56. Letting go of deeply held ideas that don't work for us any more.		
	57. Reframing things when we need to (ideas/ values/ conversations).		
	58. Changing unnecessary or unhelpful behaviors		
	59. Changing misleading behaviors (delete)		
	60. Intentionally eliminating strategies that aren't working.	(Argyris & Schon, 1996)	
	61. Removing barriers that keep our organization from moving forward.	(Hamel & Prahalad, 1994)	
	62. Knowing what we can do and what we can't do (values, priorities, and clarity about preferences-Weick, 1995).	Anderson, Covin, & Slevin, 2009; Weick, 1995	Why this decision
	63. Understanding the limit of our capability.		
Learning by doing: implies exploring other possibilities	64. Learning by trial and error during strategy implementation.	(Pietersen, 2010)	

through strategy implementation.	65. Learning from our mistakes in strategy execution.	Anderson, Covin, & Slevin, 2009	
	66. Modifying business strategies based on what works and what doesn't.	Anderson, Covin, & Slevin, 2009	
	67. Acting while thinking when strategy is executed.	BQ3.	This might be redundant
	68. Sensing when our strategy may not be working.	BQ3.	
	69. Testing our strategy to make it better before it's fully implemented.	BQ3.	Applying the lessons learned from the pilot test.
	70. Changing our strategies to ensure they are successful.		
	71. Examining failed strategies to inform our next strategic move.	Mintzberg, 1994b	
Explicit choices: operationalize strategic decisions clearly	72. Clarifying the strategies explicitly to render them formally operational.		
	73. Clarifying our strategies enough so that they can be operationalized.		
	74. Strategies are clear enough to be implemented by the workforce.		
	75. Articulating strategies clear enough to be implemented by the workforce.		
	76. Translating strategies into action plan.		
	77. Developing detailed implementation plans for our strategies.		
	78. Using action plans to ensure we achieve our organizational goals.		
	79. Translating the strategic goals into measureable performance goals for each employee.	BQ1.	
Competitor orientation	80. Rapidly responding based on what our competitors are doing.	Narver & Slater, 1990	

	81. Sharing information about our competitors.	Narver & Slater, 1990	
	82. Developing deep knowledge of our competitor's strengths and vulnerabilities.	Narver & Slater, 1990	
Customer orientation	83. Developing strategy that allows us to quickly respond to market needs).	BQ2. (adaptability)	Items are revised
	84. Constantly monitoring what our customers' need.	Narver & Slater, 1990	
	85. Basing our strategies on a good understanding of our customers' needs.	Narver & Slater, 1990	
	86. Creating business strategies (based on our best understanding) to deliver value for our customers.	Narver & Slater, 1990	
	87. Monitoring customers' experiences with our products and services.	Narver & Slater, 1990	
	88. Developing business strategies that are driven by customer requirement.	Narver & Slater, 1990	
	89. Using customer requirement as a basis for our strategies.		
	90. Valuing constant feedback from Customers.	BQ2.	
	91. Using customer feedback to improve what we do (our strategy).		
	92. Sensing shifts in what our customers value.	BQ2.	
	93. Observing how our customers react to a new strategy.	BQ3/ Schon, 1983	
Product orientation	94. Seeking ways to improve our product services.	Neil et al., 2007	
	95. Improving how we produce our products and services.	Neil et al., 2007	
	96. Committing to strategies that help us to produce the highest quality products/services.	Neil et al., 2007	
Macroenvironment	97. Using external trends to innovatively influence our strategic direction.	Andrews & Smith, 1996	Macro-environment

	98. Detecting changes in the external environment before our competitors.	Andrews & Smith, 1996
	99. Creating strategies that reflect emerging external trends.	Andrews & Smith, 1996
	100. Paying close attention to external conditions.	Andrews & Smith, 1996

Note: BQ1 indicates items from brainstorming session for question 1.
BQ2 indicates items from brainstorming session for question 2.
BQ3 indicates items from brainstorming session for question 3.

Based on the EFA result, seven numbers of factors and 49 items were identified by principal component analysis and varimax rotation (e.g., orthogonal rotation). The goal of principal component (PC) extraction was to reproduce the variance of the variables as efficiently as possible. The purpose of factor analysis was to find a simple structure (Thurstone, 1935). In order to find a simple structure, EFA was performed numerous times using IBM SPSS 19. An orthogonal rotation provided easier interpretation than an oblique rotation because of the zero factor correlation. I examined solutions using a PC extraction and varimax rotation, which was initially suggested by minimum eigenvalues. It was not possible to optimize all of the psychometric properties of a newly developed instrument. Therefore, I decided on the seven-factor solution after excluding cross-loading and non-loading items. Reliability was checked for each factor. Table 4-3 summarizes variances captured by the seven-factor solution and the average factor score for each factor.

The cumulative percentage of eigenvalues was 66.09% for the 7^{th} factor, which was acceptable in social science. Accordingly, 66.09% of the variance accounted for the latent variable of strategic learning capability by the 7^{th} factor. I examined each factor thoroughly to decide on the seven-factor solution. The rotated sum of squared loadings represented the distribution of the variance after the varimax rotation. The varimax rotation tried to maximize the variance of the factors, so the total amount of variance accounted for was redistributed.

Table 4-3. *Total Variance Explained*

Factors	Initial Eigenvalues			Rotated Sum of Squared Loadings
	Total	% of Variance	Cumulative %	% of Variance
1. External Focus	28.90	48.98	48.98	11.73
2. Strategic Knowledge	2.40	4.07	53.04	10.78
3. Strategic Engagement	2.04	3.45	56.50	9.62
4. Customer-centric strategy	1.58	2.68	59.18	9.38
5. Disciplined Imagination	1.43	2.43	61.60	9.06
6. Experiential Learning	1.39	2.36	63.96	6.97
7. Retrospective Reflectiveness	1.25	2.13	66.09	5.70
8. Unknown	1.06	1.80	67.89	4.65

The initial communality estimate was 1.0 for the principal component model. Based on the cohesiveness of the item groups, the seven factors in this solution were named (1) *External Focus*, (2) *Strategic Dialogue*, (3) *Strategic Engagement*, (4) *Customer-Centric Strategy*, (5) *Disciplined Imagination*, (6) *Experiential Learning*, and (7) *Reflective Responsiveness*. The following section illustrated factor loadings for each factor, and the cutoff value for the factors was at or above .450 for the factor loadings.

Factor I. External Focus

Factor I explained 11.73% of the total variance extracted (e.g., Table 4-2). The first factor accounted for the most variance and seemed to be related to an *External Focus*, which was characterized by the ability to analyze and learn from trends in the macro-environment, industry, and/or competitors. The first factor included eleven items, and the corresponding factor loadings were presented in Table 4-4.

Table 4-4. *Factor I; Items and Loadings for External Focus*

	Items	Loading
24	Paying close attention to external conditions/trends	.74
25	Tracking emerging trends specifically related to our products and services	.70
14	Rapidly responding based on what our competitors are doing	.70
23	Creating strategies based on external trends	.69
27	Noticing "signals" in the external environment that we need to pay attention to	.63
15	Making our decisions with full consideration of our competitors	.62
29	Soliciting information on external trends from many levels across the organization	.62
26	Recognizing information that needs to be further explored	.54
30	Making sound interpretations of business trends in order to learn from them	.51
28	Helping our executive leadership team to learn about external changes that are or may affect us	.47
16	Developing strategies that allow us to quickly respond to market needs	.47

Factor I included organizational planning activities in general that were relevant to the external environment. This dimension illustrated the type of strategic knowledge and different activities involved in the strategy process. The eleven items could be distributed in three phases of the strategy process—strategy generation (#24, #25, #23, #27, #29, & #28), formulation (#30, #26, & #16), and implementation (#14 & #15), since the items illustrated a variety of activities related to the *External Focus*. These dimensions described what OD leaders actually did and how they responded with information about the external environment in order to generate, formulate, and execute a winning strategy.

Item #24, *paying close attention to external conditions/trends,* and Item #23, *creating strategies based on external trends,* were drawn from the work of Andrews and Smith (1996) and was called a macroenvironment. Item #14, *rapidly responding based on*

what our competitors are doing, was drawn from the work of Narver and Slater (1990) and was called competitor orientation. The items seemed slightly different, but they converged on the notion of *External Focus*.

Factor II. Strategic Dialogue

Factor II explained 10.78% of the total variance extracted, and the factor loading was presented in Table 4-5. Factor II included eight items, and it was named *Strategic Dialogue*, which capture an ability to collectively share and challenge (when necessary) the underlying assumptions and beliefs of what we know and how we think to craft better decisions and strategies.

Factor II was related to different types of strategic planners' conversations. Three items illustrated sharing challenging ideas (#54 & #53) and dialoguing about risky issues (#52) coined with the dimension posed by Sloan (2006) that described the importance of having risky dialogue in the strategy process. Two items concerning engaging in collective thinking processes (#57) and working together to create better strategies (#58) accorded with Sadler-Smith's (2008) collective learning and shared meaning. The rest of the items (#55 & #56) also captured aspects of effective information sharing.

Table 4-5. *Factor II; Items and Loadings for Strategic Dialogue*

	Items	Loading
54	Sharing challenging ideas among employees	.76
55	Sharing information effectively *within* departments (or teams)	.74
56	Sharing information effectively *across* departments (or teams)	.73
57	Engaging in collective thinking processes	.70
58	Working together to create better business strategy	.63
53	Challenging previously held ideas in our organization	.62
52	Taking the time employees need to dialogue especially regarding risky issues	.57
59	Coming to an agreement when making decisions	.54

Factor III. Strategic Engagement

Factor III included explained 9.96% of the total variance extracted, and the factor loading is presented in Table 4-6. Factor III included eight items, which seemed to be related to *Strategic Engagement*. It demonstrated an ability to translate and operationalize strategy to engage the organizational system and workforce towards successful implementation.

Factor III illustrated the notion that is emphasized in strategic HRD literature—supporting every possible resource for the performance of key strategies (Swanson & Holton, 1999) and integrating systems, processes, and HRM (Garavan, 2007). Items reflected embracing the systems as well as operationalizing strategies for the ultimate goal of successful strategy execution.

Table 4-6. *Factor III; Items and Loadings for Strategic Engagement*

	Items	Loading
48	Using action plans to ensure we achieve our organizational goals	.69
51	Investing what it takes to successfully implement our strategies (e.g., financials, HR, processes, systems)	.68
49	Translating strategic goals into measureable performance goals	.65
46	Clarifying our strategies explicitly enough to formally operationalize them	.60
47	Articulating strategies clear enough to be implemented by the workforce	.58
50	Knowing how much we have to invest in the future	.55
10	Knowing what it takes to successfully implement our strategies	.47
45	Examining failed strategies to inform our next strategic move	.47

Some items included activities in strategy implementation, which involved investing finances integrating HR and processes, and recouping systems (Items # 51, #50, #10, & #48). Other items described making strategies explicit for the purpose of strategy

diffusion (Items # 46, #47, & #49). Item #45 seemed to go with retrospective learning, which was related to making decisions after reflecting on failed experiences.

Factor IV. Customer-Centric Strategy

Factor IV explained 9.38% of the total variance extracted. Factor IV included six items, and the factor loading is presented in Table 4-7. The fourth factor seemed to be related to the concept of the *Customer-Centric Strategy*, which illustrated an ability to understand and continuously monitor customers to create value–added strategies.

Table 4-7. *Factor IV; Items and Loadings for Customer-Centric Strategy*

	Items	Loading
18	Monitoring customers' experiences with our products and services	.76
21	Continuously seeking better ways to improve our products and services	.67
20	Sensing shifts in what our customers' value	.67
19	Using customer feedback to improve our strategy	.66
17	Creating business strategies that deliver value for our customers	.64
22	Improving how we produce our products and/or services	.50

Factor IV included the notion of strategy making oriented to customers. This dimension illustrated what needed to be focused on in terms of customers. The highest factor loading was Item #18 (.76), *monitoring customers' experiences with our products and services*, and the lowest factor loading was Item #22 (.502), *improving how we produce our products and/or services*. The items emphasized seeking (#21), creating and delivering (#17), sensing (#20), monitoring (#18), and improving (#22 & #19) customer-oriented strategy.

Factor V. Disciplined Imagination

The fifth factor explained 9.06% of the total variance extracted. Factor V included eight items, and the factor loading is presented in Table 4-8. This factor was named

Disciplined Imagination—exploring new, emerging, and/or creative ideas and possibilities and applying structures and rules to imagine and evaluate alternatives for the organization's future strategy.

Table 4-8. *Factor V; Items and Loadings for Disciplined Imagination*

	Items	Loading
4	Brainstorming new business ventures	.68
1	Actively exploring new strategies as the business context changes	.65
6	Imagining alternative futures for our organization	.65
5	Seeking to generate new ways to reconfigure our existing products and services	.63
8	Transforming our business model when market conditions shift	.58
2	Continuously reviewing emerging trends to identify innovative strategies	.56
3	Encouraging the exploration of creative ideas	.56
7	Revising our business model to effectively meet the needs of the market	.52

Factor V included items related to searching for new creative ideas. Weick (1989) had emphasized strategic planning from a disciplined approach that provided selection criteria with varieties of possibilities. Eight items reflected Weick's concept of *Disciplined Imagination* in that the ways of controlling and monitoring were applied to the exploration of possible strategies.

Items #1- #6 captured an imaginative way to generate strategy, and then, items #7- #8 described applying rules to evaluate possible strategies to transform or revise current business models. The highest factor loading was Item #4 (.68), *brainstorming new business ventures,* and the lowest factor loading was Item #7, *revising our business model to effectively meet the needs of the market* (.52).

Factor VI. Experiential Learning

Factor VI explained 6.97% of the total variance extracted and included four items, which seemed to be related to multiple learning theories. Based on common aspects among the four items, Factor VI could be named *Experiential Learning*, which explicated an ability to use past and lived experiences to interpret new situations and address new challenges.

Table 4-9. *Factor VI; Items and Loadings for Experiential Learning*

	Items	Loading
42	Learning by trial and error during strategy implementation	.68
43	Modifying business strategy based on what is working and what is not working	.57
37	Applying past experiences to help us address new challenges (e.g., new ventures, new markets, new products)	.47
40	Reframing current strategies when needed	.47

Factor VI included that items were related to strategies based on experiences. Each item carried the meaning of unlearning (Items #40 & #43), retrospective sensemaking (Item #37), and learning by trial and error (Item #42), but experiential learning incorporates retrieving knowledge from organizational memory (Item #37) and revising strategies (Item #40). Considerably, factor loadings of Factor VI were relatively lower than other factors; and thus, more items were needed for this particular factor to explain the variance of the construct.

Learning from experience involved learning from both successes and failures. Accordingly, Item #43, *modifying business strategies based on what is working and what is not working becomes significant,* illustrated what strategic planners took into account in both cases and how they reacted, which could change the quality of the strategy-making process. Item #37, *applying past experiences to help us address new challenges,*

addressed the notion of retrospective sensemaking (Weick, 2005). Experience-based knowledge had been emphasized in organizational learning and strategy literature (Levinthal & March, 1993; Pietersen, 2010) in that organizations were depicted as knowledge repositories of past and lived experiences.

Factor VII. Reflective Responsiveness

Factor VII explained 5.70% of the total variance extracted. Factor VII included four items; the factor loading is presented in Table 4-10. Factor VII seemed to be related to the ability to actively reflect in response to unexpected signals before strategy making and named *Reflective Responsiveness*.

Table 4-10. *Factor VII; Items and Loadings for Reflective Responsiveness*

	Items	Loading
33	Providing time to think before we strategize in a particular area of our business	.76
32	Reflecting on unanticipated signals from the marketplace	.55
34	Accessing relevant information to inform our strategic conversations and decisions	.51
31	Actively reflecting on emerging challenges before they become unmanageable	.49

Factor VII included items that were related to reflective practices (Schon, 1983) and being flexible to changes and sensitive to unstable markets (Green, Covin, & Slevin, 2006; Pal & Lim, 2005). The items emphasized being reflective and responsive in terms of strategizing. Reflection initiated deep strategic thinking for planners before taking actions, and thus, Item #34 illustrated how the retrieval of information from either long-term or short-term memory took place in the strategy process. The rest of the items (#33, #32, & #31) represented strategic thinking before taking actions.

Cross-loading and Non-loading Items

The purpose of EFA was "to maximize the magnitude of primary loadings and minimize the magnitude of cross-loadings" (Brown, 2006, p. 43). The criterion for including an item in a factor was .45 and above and loaded on just one factor. Some factors have loaded on more than just one factor, because the observed variances shared the concepts of other subscales. The factor loading for cross-loading items is summarized in Table 4-11.

Table 4-11. *Cross-loading Items*

	Cross-loading Items	Factors (Loadings)
35	Learning from past experiences via observation and seeing trends or issues	F II (.50) F V (.45)
36	Reflecting on the past to identify patterns	F II (.42) F V (.44)
44	Monitoring our strategy to see if/how it's working	F III (.46) F VI (.46)
39	Letting go of deeply held ideas that are no longer viable in our business	F VIII (.52) F VI (.41)

Item #35 loaded on Factor II and Factor V, which contained the element of learning through dialogue (Factor II) and seeing trends and issues (Factor V). Item #36 did not exceed .45 loading on any factor, but the loading value was close to .45. The cross-loading of Item #36 could be explained for the following two reasons. First, Factor II, *Strategic Dialogue*, included the concept of taking the time employees needed to dialogue, which overlapped with reflection. Second, Factor V, *Disciplined Imagination*, incorporated seeking and exploring new strategies, which incorporated with identifying patterns. Overall, Item #36 need to be rewritten, because the word "pattern" seemed ambiguous. Item #44 loaded on Factor III, *Strategic Engagement*, and Factor VI, *Experiential Learning*, which contained monitoring the strategy process and learning

through experiences. Item #39 contained the notion of unlearning in Factor VI, the experiential learning dimension, and it loaded onto Factor VIII.

Some items consistently stood alone, though factor extraction was repeated several times. Six items did not load on any principal component. Non-loading items are summarized in Table 4-12.

Table 4-12. *Non-loading Items*

	Non-loading Items	Factors (Loadings)
41	Proactively removing unnecessary actions that prevent our organization from achieving organizational goals	F VIII (.45)
12	Letting the best strategies emerge for achieving our objectives	F V (.42)
38	Applying new strategies when we encounter problems rather than using outdated strategies	F VIII (.41)
11	Generating alternative approaches to achieve our business strategy	F VIII (.41)
9	Envisioning competencies needed for the future.	F VIII (.41)
13	Assessing the challenges that need to be overcome in order to achieve our objectives	F VIII (.38)

Item #41 loaded on Factor VIII (.45), but the rest of the items (#39, #38, #11, #9, & #13) did not exceed a factor loading of .45. Factor VIII was extracted but did not combine as a principal component, because not enough items loaded onto it. Item 12 loaded to Factor V, *Disciplined Imagination*, to some extent but did not reach the cutoff value.

Factor Definition

Seven dimensions were identified, and 49 items out of the initial 59 items met the criterion of strategic learning capability. Four items cross-loaded, and six items did not loaded. The latent variable of strategic learning capability was defined as the capacity of an organization to retool rapidly to create and execute new strategies through learning at

the individual and system levels in response to changes and uncertainties in complex environments. In order to confirm the concept, my major professor and I reviewed the empirically discovered dimensions and labeled and defined the dimensions. Some dimensions were retrieved to enlighten scholarly works but redefined in accordance to items. The following table described the newly identified dimensions and their definitions.

Table 4-13. *Factor Definition*

	Dimension	Definition
Factor I	External focus	Ability to analyze and learn from trends in the macro-environment, industry, and/or competitors
Factor II	Strategic dialogue	Ability to collectively share and challenge (when necessary) the underlying assumptions and beliefs of what we know and how we think to craft better decisions and strategies
Factor III	Strategic engagement	Ability to translate and operationalize strategy to engage the organizational system and workforce towards successful implementation
Factor IV	Customer-centric strategy	Ability to understand and continuously monitor customers to create value–add strategies
Factor V	Disciplined imagination	Exploring new, emerging, and/or creative ideas and possibilities and applying structures and rules to imagine and evaluate alternatives for the organization's future strategy
Factor VI	Experiential learning	Ability to use past and lived experiences to interpret new situations and address new challenges
Factor VII	Reflective responsiveness	Ability to actively reflect in response to unexpected signals before strategy making

Reliability and Mean Item Means of the Seven Factors

Reliability was computed for the seven strategic learning capability variables. Internal-consistency reliability was an indicator of the extent to which individual items of a scale reflect a common, underlying construct (Spector, 1992). Among several internal consistency procedures (split-half, Kuder-Richardson, coefficient alpha), the coefficient alpha was utilized for reliability in this study. The reliability of seven factors ranged from .86 to .93. *External Focus* and *Strategic Dialogue* had the highest reliability (α =.93), which indicated that the items' responses were consistent across items. *Reflective Responsiveness* had the lowest reliability (α =.86), but was still acceptable.

Table 4-14. *Item Reliability and Item Mean*

	Items	M	SD	Mean Item Mean	α
Factor I. External Focus	11	32.31	8.43	2.94	.93
Factor II. Strategic Dialogue	8	24.37	7.93	3.05	.93
Factor III. Strategic Engagement	8	24.77	7.14	3.10	.92
Factor IV. Customer-centric Strategy	6	20.18	5.68	3.36	.92
Factor V. Disciplined Imagination	8	27.75	6.35	3.47	.89
Factor VI. Experiential Learning	4	13.26	3.48	3.32	.86
Factor VII. Reflective Responsiveness	4	12.57	3.65	3.14	.88

A mean item mean was calculated for the purpose of understanding the relative difference of each of the seven dimensions (i.e., Table 4-14). This was accomplished by calculating the mean of each mean. The subscale of *Disciplined Imagination* had the highest mean item mean (M = 3.47), and the *External Focus* had the lowest mean item mean (M = 2.94). *External Focus* had the most items (n =11), and *Experiential Learning* (n =4) and *Reflective Responsiveness* (n =4) had the least items.

Before responding to research question 3, the assumptions, such as normal distribution and reliability, multicollinearity, and homoscedasticity, were tested before analyzing the observed variation explained by strategic learning capability.

Normal distribution

Table 4-15 showed the means and standard deviation of seven factors and financial and knowledge performance, along with statistics for skewness, kurtosis, and internal reliability. All the factors were negatively skewed, but not less than -1, which indicated that it would not result in low reliability. The reliability for financial performance ($\alpha = .83$) and knowledge performance ($\alpha = .70$) was acceptable.

Table 4-15. *Descriptive Statistics and Total Scale Scores*

Scale (# Items)	M	SD	Skewness	Kurtosis	α
Factor I. External Focus	32.31	8.43	-.38	-.18	.93
Factor II. Strategic Dialogue	24.37	7.93	-.28	-.79	.93
Factor III. Strategic Engagement	24.77	7.14	-.25	-.54	.92
Factor IV. Customer-centric Strategy	20.18	5.68	-.44	-.51	.92
Factor V. Disciplined Imagination	27.75	6.35	-.65	.23	.89
Factor VI. Experiential Learning	13.26	3.48	-.34	-.35	.86
Factor VII. Reflective Responsiveness	12.57	3.65	-.13	-.71	.88
Financial Performance	19.49	4.90	-.36	-.46	.83
Knowledge Performance	13.53	3.08	-.61	-.07	.70

Multicollinearity

Multicollinearity could be checked by tolerance and variance inflation factors (VIF). The estimated coefficients could be inflated if multicollinearity existed. A VIF of 1 means that there is no correlation among the predictors. The general rule of thumb is that a VIF exceeding 4 necessitates further investigation. A tolerance range (.29-.41) and VIF less than 4 suggestes that these predictors do not have collinearity problems. As can be seen in Table 4-16, one of the assumptions of linear regression was satisfied.

Table 4-16. *Multicollinearity of Independent Variables*

Variable	Tolerance	VIF
Disciplined imagination	.41	2.45
Customer-centric strategy	.36	2.75
External focus	.34	2.92
Reflective responsiveness	.35	2.87
Experiential learning	.34	2.97
Strategic engagement	.29	3.48
Strategic dialogue	.36	2.76

Homoscedasticity

The homoscedasticity assumption is met when the residual variance is constant (i.e., equal variance). The scatterplot of regression standardized the predicted value VS regression standardized residual depicted variances around the linear line, which is illustrated in Appendix G. The data satisfied the assumptions of linear regression.

Factor model of financial and knowledge performance

One factor model of the financial and knowledge performance was not identified because of a minimum of three indicators, and thus, goodness-of-fit does not apply. The

two-factor model of financial and knowledge performance indicated a good model fit by interpreting goodness-of-fit indices. As a rule of thumb, a RMSEA value less than 0.08 suggested an adequate model fit (Brown & Cudeck, 1993). The RMSEA value (.07) of the model showed an adequate fit by a 90% confidence interval of the RMSEA, whose upper limit was below these cutoff values. The CFI and TLI values in the range of .90-.95 were indicative of an acceptable fit. The CFI (.91) and TLI (.86) value of this model was a good fit.

Table 4-17. *Goodness of Fit for a Two-Factor Performance Model*

Measurement Model	χ^2	RMSEA	CFI	TLI	Model Fit
Two-factor Model of Financial and Knowledge Performance	91.18 (df=45, p<.001)	.07	.91	.86	Good Fit

Findings Related to Research Question #3

The third research question asked, "to what extent do the dimensions of strategic learning capability explain the observed variation in financial and knowledge performance?" A bivariate correlation was performed to examine the relationship among the dimensions of strategic learning capability and financial and knowledge performance. Regression analysis was performed to estimate the effect of the seven variables of strategic learning capability on financial and knowledge performance.

Bivariate Correlation Analysis

A correlation analysis was conducted to identify the relationship between the explanatory variables and dependent variables. Testing the correlation analysis would provide empirical evidence of the theoretical relationships. The results of the correlation analysis showed that correlations with seven dimensions with financial performance were

all positively related ($.47 \leq r \leq .59$, $p < .01$). The highest correlation was between *Customer-Centric Strategy* and financial performance ($r = .59$, $p < .01$), and the lowest correlation was between *Disciplined Imagination* and financial performance ($.47$, $p < .01$). As a rule of thumb, the correlation among seven dimensions and dependent variables were moderate.

Table 4-18. *Correlation with Outcome Variables*

	Financial Performance		Knowledge Performance	
	r	r^2	*r*	r^2
Factor I. External Focus	.52**	.27	.58**	.34
Factor II. Strategic Dialogue	.49**	.22	.59**	.35
Factor III. Strategic Engagement	.58**	.34	.57**	.32
Factor IV. Customer-centric Strategy	.59**	.35	.58**	.34
Factor V. Disciplined Imagination	.47**	.22	.57**	.32
Factor VI. Experiential Learning	.56**	.31	.62**	.38
Factor VII. Reflective Responsiveness	.54**	.29	.62**	.38

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

All seven factors with knowledge performance were positively correlated ($.57 \leq r \leq .62$, $p < .01$). The highest correlations were between *Experiential Learning* and knowledge performance ($r = .62$, $p < .01$) and between *Reflective Responsiveness* and knowledge performance ($r = .62$, $p < .01$). The lowest correlation was between *Disciplined Imagination* and knowledge performance ($r = .57$, $p < .01$).

Regression on Financial Performance

To explore the observed variation of dimensions in strategic learning capability on financial performance, a stepwise regression analysis was conducted. Three models were identified. The amount of variance accounted for by each additional variable was illustrated in Table 4-19. *Customer-Centric Strategy* was the predominant predictor, since

the R^2 only increased from .35 to .42 with the addition of *Strategic Engagement* and *Experiential Learning*.

Table 4-19. *Model Summary*

Model	Predictor Variables	*R*	R^2	ΔR^2	*df*	*F*	ΔF
1	Customer-centric strategy	.59	.35	.35	1, 234	123.30***	123.30***
2	Customer-centric strategy Strategic engagement	.64	.41	.06	2, 233	79.29***	23.45***
3	Customer-centric strategy Strategic engagement Experiential learning	.65	.42	.01	3, 232	55.10***	4.41*

*P <.05, **<.01, ***<.001

Table 4-20. *Regression on Financial Performance*

	Model	Unstandardized B	SE	Standardized Beta (β)	*t*	*p*
1	Customer-centric strategy	.51	.05	.59	11.10	.000
2	Customer-centric strategy	.31	.06	.35	5.07	.000
	Strategic engagement	.23	.05	.34	4.84	.000
3	Customer-centric strategy	.26	.06	.30	4.12	.000
	Strategic engagement	.17	.06	.25	3.10	.002
	Experiential learning	.23	.11	.17	2.10	.037

*P <.05, **<.01, ***<.001

Financial performance had a significant relationship with seven predictors: *External Focus, Strategic Dialogue, Strategic Engagement, Customer-Centric Strategy, Disciplined Imagination, Reflective Responsiveness*, and *Experiential Learning*, but *Customer-Centric Strategy* accounted for the largest part of the variance that could be explained by the predictors in this study (Table 4-20).

Regression on Knowledge Performance

To explore the observed variation of strategic learning capability on knowledge performance, a stepwise regression analysis was conducted. As was indicated in 4-18, all the subscales of strategic learning capability had a statistically significant bivariate relationship with knowledge performance. Regression of all seven dimensions on knowledge performance revealed that the best model depended on *Experiential Learning* only. *Experiential Learning* accounted for 39% of the variance, but R^2 only increased from .39 to .48 with the addition of *Reflective Responsiveness*, *Disciplined Imagination*, and *Strategic Dialogue*.

Table 4-21. *Model Summary*

Model	Predictor Variables	*R*	R^2	ΔR^2	*df*	*F*	ΔF
1	Experiential learning	.62	.39	.39	1, 234	149.26***	149.26***
2	Experiential learning Reflective responsiveness	.67	.45	.06	2, 233	95.86***	26.31***
3	Experiential learning Reflective responsiveness Disciplined imagination	.69	.47	.02	3, 232	69.47***	9.61**
4	Experiential learning Reflective responsiveness Disciplined imagination Strategic dialogue	.70	.48	.01	4, 231	54.45***	5.42*

*P <.05, **<.01, ***<.001

Because of a very low gain in R^2 with the addition of *Reflective Responsiveness*, *Disciplined Imagination*, and *Strategic Dialogue*, for the sake of parsimony, I chose the one-predictor model as the best model on knowledge performance. *Experiential Learning*

was the strongest predictor on knowledge performance. The results of the regression analysis are summarized in Table 4-22.

Table 4-22. *Regression on Knowledge Performance*

	Model	Unstandardized B	SE	Standardized Beta (β)	*t*	*p*
1	Experiential learning	.55	.05	.62	12.22	.000
2	Experiential learning	.32	.06	.37	5.23	.000
	Reflective responsiveness	.30	.06	.36	5.13	.000
3	Experiential learning	.25	.07	.28	3.75	.000
	Reflective responsiveness	.25	.06	.29	4.10	.000
	Disciplined imagination	.10	.03	.20	3.10	.002
4	Experiential learning	.21	.07	.24	3.10	.002
	Reflective responsiveness	.20	.06	.23	3.09	.002
	Disciplined imagination	.08	.03	.16	2.42	.016
	Strategic dialogue	.07	.03	.17	2.33	.021

*P <.05, **<.01, ***<.001

Findings Related to Research Question #4

The fourth research question asked, "to what extent organizational and personal characteristics explained the observed variation in strategic learning capability?"

There were a few possible ways to compare factors by mean differences. An analysis of the means would be appropriate to identify whether individuals had different mean values under different organizational and individual characteristics. A total of five ANOVA tests and a t-test were conducted to compare mean differences.

Industry Characteristics

As mentioned in Chapter Three, industry types were categorized by International Standard Industrial Classification. Due to the small effect size of some groups, retail, construction, healthcare/medical and uncategorized groups were combined as another group. Statistical mean difference was analyzed by a total of seven industries. F statistics indicated statistical mean difference in *External Focus* ($F = 3.25$, $p < .05$), *Strategic Dialogue* ($F = 2.34$, $p < .05$), *Strategic Engagement* ($F = 3.88$, $p < .05$), *Disciplined Imagination* ($F = 4.14$, $p < .05$), and *Experiential Learning* ($F = 3.19$, $p < .05$).

Table 4-23. *ANOVA by the Industry*

	df	*F*	*p*
External Focus	6, 220	3.25***	.00
Strategic Dialogue	6, 220	2.34*	.03
Strategic Engagement	6, 220	3.88***	.00
Customer-centric Strategy	6, 220	1.76	.12
Disciplined Imagination	6, 220	4.14***	.00
Experiential Learning	6, 220	3.19*	.01
Reflective Responsiveness	6, 220	1.98	.07

*P <.05, **<.01, ***<.001

The statistical mean difference was analyzed by a total of seven industries. Post hoc comparisons (See Table 4-24) were conducted using Turkey's honest significant difference (HSD) test. First, organizations in the service industry reported a statistically higher *External Focus* ($M = 34.78$ $SD = 7.35$) than organizations in IT ($M = 29.10$, $SD = 10.15$) and public administration ($M = 28.48$, $SD = 9.30$). Second, organizations in the service industry reported statistically higher *Strategic Dialogue* ($M = 26.78$, $SD = 7.43$) than organizations in public administration ($M = 20.92$, $SD = 8.14$). Third, organizations in manufacturing ($M = 28.48$, $SD = 5.93$) and the service industry ($M = 26.73$, $SD = 5.62$) reported statistically higher *Strategic Engagement* than organizations in IT ($M = 21.90$,

SD = 7.50). Fourth, organizations in manufacturing (*M* = 28.43, *SD* = 4.12), the service industry (*M* = 28.79, *SD* = 5.86), IT (*M* = 28.21, *SD* = 6.05), finance, insurance, and real estate (*M* = 30.18, *SD* = 4.90), and retail, construction, healthcare and others industries (*M* = 29. 50, *SD* = 5.60) reported statistically higher *Disciplined Imagination* than organizations in public administration (*M* = 22.84, *SD* = 8.48). Fifth, organizations in the service industry (*M* = 14.21, *SD* = 3.50) and retail, construction, healthcare and others industries (*M* = 14.81, *SD* = 3.24) reported statistically higher *Experiential Learning* than organizations in public administration (*M* = 11.72, *SD* = 3.46).

Table 4-24. *Post Hoc Test of Industries*

	Manufacture (n=21) M (*SD*)	Service (n=63) M (*SD*)	IT (n=33) M (*SD*)	Finance, Insurance, & Real Estate (n=17) M (*SD*)	Public Admin. (n=25) M (*SD*)	Education (n=42) M (*SD*)	Retail, Construction, Healthcare, Others (n=26) M (*SD*)
External Focus	33.10 (7.15)[ab]	34.78 (7.35)[b]	29.10 (10.15)[a]	35.24 (6.81)[ab]	28.48 (9.30)[a]	31.12 (8.51)[ab]	32.96 (7.63)[ab]
Strategic Dialogue	25.81 (5.83)[ab]	26.78 (7.43)[b]	22.88 (8,79)[ab]	24.65 (7.58)[ab]	20.92 (8.14)[a]	23.26 (8.04)[ab]	25.46 (8.35)[ab]
Strategic Engagement	28.48 (5.93)[b]	26.73 (5.62)[b]	21.90 (7.50)[a]	25.76 (6.57)[ab]	22.52 (6.61)[ab]	23.12 (6.44)[ab]	26.15 (8.43)[ab]
Customer-centric Strategy	21.71 (4.52)	21.44 (5.20)	19.79 (5.89)	21.29 (4.61)	18.28 (6.83)	18.90 (5.92)	20.42 (5.92)
Disciplined Imagination	28.43 (4.12)[b]	28.79 (5.86)[b]	28.21 (6.05)[b]	30.18 (4.90)[b]	22.84 (8.48)[a]	26.52 (6.22)[ab]	29.50 (5.60)[b]
Experiential Learning	13.62 (2.80)	14.21 (3.50)[b]	12.61 (3.34)[ab]	13.12 (3.02)[ab]	11.72 (3.46)[a]	12.55 (3.51)[ab]	14.81 (3.24)[b]
Reflective Responsiveness	12.48 (3.12)	13.35 (3.62)	11.79 (3.40)	13.65 (3.82)	11.28 (3.75)	12.12 (3.47)	13.62 (4.21)

Note. Post hoc comparisons were conducted using Tukey's significant difference test. Means in the same row that do not share a superscript letter differ at least $p < .05$. Superscript ab means no statistical mean difference. Superscript a or b indicates a statistical mean difference between a and b.

Number of Employees

The number of employees was categorized based on the U.S. Census Bureau. Statistically meaningful differences exist in terms of the number of employees among the seven dimensions of the level of strategic learning capability. The results of the ANOVA test (Table 4-25) showed that the mean difference between the number of employees were significant within *Disciplined Imagination* (F =3.44, p <.05) and *Reflective Responsiveness* (F =2.71, p<.05).

Table 4-25. *ANOVA by Number of Employees*

	df	*F*	*p*
External Focus	3, 213	2.46	.06
Strategic Dialogue	3, 213	1.34	.26
Strategic Engagement	3, 213	1.81	.15
Customer-centric Strategy	3, 213	2.31	.08
Disciplined Imagination	3, 213	3.44*	.02
Experiential Learning	3, 213	1.63	.18
Reflective Responsiveness	3, 213	2.71*	.04

*P <.05

Post hoc comparisons were conducted using Turkey's honest significant difference (HSD) test. First, the analysis displayed that organizations with more than 5000 employees reported a statistically higher *Disciplined Imagination* (M = 29.38, SD= 5.67) than organizations between 500 to 4999 employees (M = 25.81, SD= 6.27). Second, F-statistics indicated statistical mean difference in *Reflective Responsiveness*, but post hoc comparison did not show mean differences among the four categories. The result of ANOVA post hoc test is summarized in Table 4-26.

Table 4-26. *Post Hoc Test of Number of Employees*

	1-99 (n = 74)	100-499 (n = 55)	500-4999 (n = 41)	More than 5000 (n = 47)
	M (*SD*)	M (*SD*)	M (*SD*)	M (*SD*)
External Focus	30.68 (9.25)	31.47 (7.30)	32.63 (8.79)	34.72 (7.21)
Strategic Dialogue	24.84 (8.47)	23.06 (7.06)	23.24 (8.30)	25.29 (7.70)
Strategic Engagement	24.05 (7.54)	23.62 (5.62)	25.46 (7.18)	26.47 (7.43)
Customer-centric Strategy	20.31 (6.40)	19.07 (5.10)	19.44 (5.54)	21.79 (4.47)
Disciplined Imagination	28.51 (6.52) [ab]	26.66 (5.89) [ab]	25.81[a] (6.27)	29.38[b] (5.67)
Experiential Learning	13.47 (3.68)	12.78 (2.76)	13.98 (3.68)	13.24 (3.49)
Reflective Responsiveness	12.74 (3.78)	11.89 (3.21)	11.83 (3.79)	13.66 (3.62)

Note. Post hoc comparisons were conducted using Tukey's significant difference test. Means in the same row that do not share a superscript letter differ at least $p < .05$.
Superscript ab means no statistical mean difference.
Superscript a or b indicates a statistical mean difference between a and b.

Revenue and Responsibility

Statistical mean differences were tested by the revenue of companies and the responsibility of individuals in the seven dimensions of strategic learning capability. Yet, no statistical mean differences were found among the seven dimensions of strategic learning capability by either the revenue of the company or the responsibility of individuals.

Role

Statistical mean differences were tested by the role of individual workers (i.e., senior management, middle management, supervisory, & non-management, technical/professional) in the dimensions of strategic learning capability. The results of

the ANOVA test (Table 4-27) showed that the mean difference among the employees was significant within *Reflective Responsiveness* ($F = 3.23$, $p < .05$).

Table 4-27. *ANOVA by the Individual Role*

	df	*F*	*p*
External Focus	3, 225	.96	.41
Strategic Dialogue	3, 225	2.36	.07
Strategic Engagement	3, 225	1.82	.14
Customer-centric Strategy	3, 225	1.95	.12
Disciplined Imagination	3, 225	1.23	.30
Experiential Learning	3, 225	1.74	.16
Reflective Responsiveness	3, 225	3.23*	.02

P <.05*

Post hoc comparisons were conducted using Turkey's honest significant difference (HSD) test. The analysis showed that the senior management group reported statistically higher *Reflective Responsiveness* ($M = 13.67$, $SD = 3.78$) than non-management technical/professional ($M = 11.79$, $SD = 3.68$). The result of the post hoc test is summarized in Table 4-28.

The results of the ANOVA test showed that the mean difference among the employees was significant within *Reflective Responsiveness* ($F = 3.23$, $p = .02$). The analysis showed that the senior management group reported statistically higher *Reflective Responsiveness* ($M = 13.67$, $SD = 3.78$) than the non-management technical/professional group ($M = 11.79$, $SD = 3.68$).

Table 4-28. *Post Hoc Test of the Individual Roles*

	Senior Management (n = 52)	Middle Management (n = 74)	Supervisory (n = 18)	Non-Management Technical/ Professional (n = 85)
	M (*SD*)	M (*SD*)	M (*SD*)	M (*SD*)
External Focus	33.31 (7.51)	31.58 (8.36)	34.06 (10.09)	31.38 (8.89)
Strategic Dialogue	26.67 (7.12))	24.01 (7.11)	25.11 (6.74)	23.05 (9.17)
Strategic Engagement	26.71 (6.50)	24.20 (6.50)	24.78 (6.50)	23.92 (8.18)
Customer-centric Strategy	21.71 (5.87)	19.72 (5.09)	21.17 (6.15)	19.55 (5.91)
Disciplined Imagination	28.92 (6.02)	28.05 (6.01)	27.83 (6.77)	26.82 (6.85)
Experiential Learning	13.90 (3.31)	13.122 (3.44)	14.28 (2.85)	12.77 (3.66)
Reflective Responsiveness	13.67 (3.78)[b]	12.46 (3.47)[ab]	13.39 (3.71)[ab]	11.79 (3.68)[a]

Note. Post hoc comparisons were conducted using Tukey's significant difference test. Means in the same row that do not share a superscript letter differ at least $p < .05$. Superscript ab means no statistical mean difference. Superscript a or b indicates a statistical mean difference between a and b.

In order to see the mean differences in the perceptions between the senior management and the rest of the group in the dimensions of strategic learning capability, a t-test was conducted. The result of the t-test is summarized in Table 4-29.

A significant mean difference was found in the dimensions of *Strategic Dialogue* ($t = 2.24$, $p = .02$), *Strategic Engagement* ($t = 2.30$, $p = .02$), *Customer-Centric Strategy* ($t = 2.16$, $p = .03$), and *Reflective Responsiveness* ($t = 2.50$, $p = .01$). First, strategic planners in the senior management group reported higher *Strategic Dialogue* ($M = 26.67$, $SD = 7.10$) than the rest of the groups did ($M = 23.66$, $SD = 8.12$) — middle management,

supervisory, and non-management. Second, strategic planners in the senior management group (M = 26.71, SD = 6.50) reported higher *Strategic Engagement* than the rest of the groups did (M = 24.12, SD = 7.32). Third, strategic planners in the senior management group (M = 21.71, SD = 5.87) reported higher *Customer-Centric Strategy* than the rest of the groups did (M = 19.79, SD = 5.60). Lastly, strategic planners in the senior management group (M = 13.67, SD = 3.78) reported higher *Reflective Responsiveness* than the rest of the groups did (M = 12.23, SD = 3.61).

Table 4-29. *t-test*

	Mean (SD) 1+ (n=52)	Mean (SD) 0 (n=117)	*df*	t	*P*
External Focus	33.31 (7.51)	31.73 (8.79)	227	1.17	.23
Strategic Dialogue	26.67 (7.10)	23.66 (8.12)		2.41*	.02
Strategic Engagement	26.71 (6.50)	24.12 (7.32)		2.30*	.02
Customer-centric Strategy	21.71 (5.87)	19.79 (5.60)		2.16*	.03
Disciplined Imagination	28.92 (6.02)	27.44 (6.49)		1.47	.14
Experiential Learning	13.90 (3.31)	13.07 (3.51)		1.53	.13
Reflective Responsiveness	13.67 (3.78)	12.23 (3.61)		2.50*	.01

P <.05*

Note. 1+ indicates senior management, and 0 indicates middle management, supervisory, and non-management.

Summary of Chapter Four

The purpose of this study was to explore the dimensions of strategic learning capability. This study focused on specifically identifying empirical data driven dimensions to deepen the understanding of organizational capacity in the strategy process. The data collection strategy was non-probability sampling, and organizational leaders in organizations responded to a survey. The development of the survey instrument was derived from multiple theories.

A series of statistical analyses were performed in order to answer four research questions posed in this study: (1) descriptive statistics, (2) exploratory factor analysis, (3) stepwise regression, and (4) an ANOVA & t-test. The results of rank on strategic learning capability discovered the strongest (Item #3) and the weakest (Item #39) performance related to strategic learning capability activities. The mean of the 59 items ranged from 2.74 to 3.61 on a performance scale of 1 (poor) to 5 (excellent). The *Figure 4-1* presents the R^2 of seven dimensions for each of the paths to financial (.22 to .35) and knowledge performance (.32 to .38).

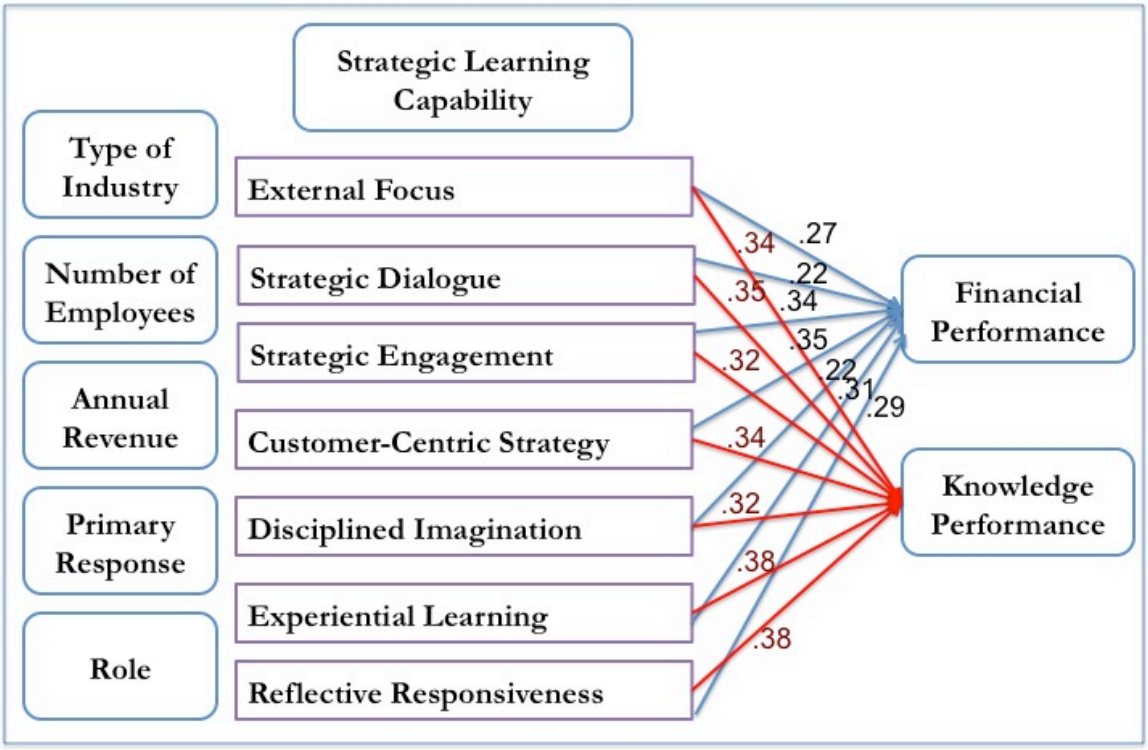

Figure 4-1. Summary of the Hypothesized Model

Following the rank, exploratory factor analysis identified a seven-factor solution that accounted for 66.09% of the variance observed in the 49 items. Seven dimensions of strategic learning capability were identified: (1) *External Focus*, (2) *Strategic Dialogue*,

(3) *Strategic Engagement*, (4) *Customer-Centric Strategy*, (5) *Disciplined Imagination*, (6) *Experiential Learning*, and (7) *Reflective Responsiveness*.

The correlation analysis of strategic learning capability with financial and knowledge performance provided predictability of some dimensions in the dimension of financial and knowledge performance. The dimension of *Customer-Centric Strategy* provided the highest positive correlation with financial performance ($r = .59$). The dimension of *Experiential Learning* and *Reflective Responsiveness* provided the highest positive correlation with financial and knowledge performance ($r = .62$).

The stepwise regression analysis provided the best predicting model based on the most R^2 changes. A one-predictor model of *Customer-Centric Strategy* on financial performance was selected. A one-predictor model of *Experiential Learning* on knowledge performance was selected.

A series of six ANOVA tests resulted in three statistically significant mean differences by organizational and individual characteristics. First, statistically significant mean differences in the dimensions of *External Focus* ($F = 3.25$, $p < .00$), *Strategic Dialogue* ($F = 2.34$, $p < .03$), *Strategic Engagement* ($F = 3.88$, $p < .00$), *Disciplined Imagination* ($F = 4.14$, $p < .01$), and *Experiential Learning* ($F = 3.19$, $p <. 01$) were identified by industry types. Second, statistically significant mean differences in the dimensions of *Disciplined Imagination* ($F =3.44$, $p <.05$) and *Reflective Responsiveness* ($F =2.71$, $p<.05$) were identified by the number of individuals in organizations. Third, statistically significant mean differences in the dimensions of *Reflective Responsiveness* were identified by the roles of individuals ($F =3.23$, $p = .02$).

Lastly, a t-test analysis provided the statistical mean difference between the senior management group and the rest of the groups. A statistical difference was found in the dimensions of *Strategic Dialogue* ($t = 2.24$, $p = .02$), *Strategic Engagement* ($t = 2.30$, $p = .02$), *Customer-Centric Strategy* ($t = 2.16$, $p = .03$), and *Reflective Responsiveness* ($t = 2.50$, $p = .01$).

CHAPTER FIVE

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

The purpose of this chapter is to discuss the research findings and suggest implications for research and practice related to Human Resource Development (HRD). This chapter is divided into six major sections: (1) an overview of the study, (2) a discussion of the findings, (3) implications for research, (4) implications for practice, (5) recommendations, and (6) conclusions.

Overview of the Study

The broad purpose of this study was to deepen the understanding of the strategy process and explore empirical dimensions of strategic learning capability. In order to discover new dimensions of strategic learning capability, the following questions are posed:

1. How do strategic planners rate an organization's performance with respect to strategic learning capability?
2. Can the empirical dimensions of strategic learning capability be developed?
3. To what extent does strategic learning capability explain the observed variation in financial and knowledge performance?
4. To what extent do organizational and personal characteristics explain the observed variation in strategic learning capability?

As an exploration of new dimensions in strategic learning capability, the questionnaire was developed from the literature in the multiple disciplines, in

brainstorming sessions, and in dialogues with committee members. The content validity was checked several times before the instrument was sent out for the pilot study. This study attempted to collect data from a population of managers. Based on the responses from the performance rating scale, strategic learning capability items were identified and prioritized, and seven dimensions were discovered. In addition, correlation analysis and predictability of the strategic learning capability on financial and knowledge performance was examined. Finally, mean differences in the seven dimensions of strategic learning capability by organizational and individual characteristics were tested.

Discussion of the Findings

This section discusses four major findings based on the data analysis.

Findings Related to Research Question #1

Ranks, frequencies, the mean, and standard deviation were utilized to answer the question "How do strategic planners rate an organization's performance with respect to strategic learning capability?" The frequency distribution of the five-point rating scale informed the normal distribution of all fifty-nine items. The mean value reflected the self-assessed frequency in which leaders rated the strategic learning capability of an organization. The rank based on item means showed which items were the strongest and the weakest among the fifty-nine items. Items in *Disciplined Imagination* (e.g., Items #3, #2, #1, #5), *Customer-Centric Strategy* (e.g., Item #17), and *External Focus* (e.g., Item # 24) were the top six important items in the strategy process (See Table 5-1). In response to Item #3, about 60.2% of respondents gave ratings of very good (37.7%) and excellent (22.5%) for the organizational strategic activity of *encouraging the exploration of creative ideas*. In response to *continuously reviewing emerging trends to identify*

innovative strategies, 58.7% of the respondents gave very good and excellent ratings. These responses implied that strategic planners considered exploring creative ideas and identifying innovative strategies seriously. For the item, *creating business strategies that deliver value for our customers,* 54.5% of the respondents gave ratings of very good (35.9%) and excellent (18.6%). Strategic planners focused not only on creativity and innovativeness but also on customer-centricity in terms of strategy making. In response to *paying close attention to external conditions/trends,* 55.9% of the respondents gave ratings of very good (37.7%) and excellent (18.2%). In addition, the data from strategic planners indicated that environmental scanning played an important role in strategy generation.

Table 5-1. *Highest Ranked Strategic Learning Capability Items*

Response Items	Rank	Mean	Poor/ Fair (%)	Good (%)	Very Good/ Excellent (%)
3. Encouraging the exploration of creative ideas.	1	3.61	41 (17.4)	53 (22.5)	142 (60.2)
2. Continuously reviewing emerging trends to identify innovative strategies.	2	3.59	38 (16)	60 (25.3)	139 (58.7)
1. Actively exploring new strategies as the business context changes.	2	3.59	32 (13.7)	63 (26.9)	139 (59.4)
5. Seeking to generate new ways to reconfigure our existing products and services.	4	3.58	36 (15.2)	61 (25.8)	139 (58.9)
17. Creating business strategies that deliver value for our customers.	4	3.49	44 (18.6)	64 (27.0)	129 (54.5)
24. Paying close attention to external conditions/trends.	6	3.49	46 (19.5)	58 (24.6)	133 (55.9)

The following items (Items #41, #56, #39) represented the lowest mean value (See Table 5-2). In response to Item #41, *proactively removing unnecessary actions that prevent our organization from achieving organizational goals* (*M*= 2.92), 36.9% of the respondents gave ratings of fair (23.3%) and poor (13.6%). Item #41 was not loaded onto any subscales, and accordingly, there are several possibilities for the low mean value and for the non-loading factor. This could be evidence that the concept was not sufficiently succinct, or it could be that the underlying notion of unlearning is rare in an organizational context. Item #56, *sharing information effectively across departments (or teams),* had a low mean value (*M*=2.90), but loaded onto the subscale of strategic dialogue. This could mean that information sharing across departments or teams was important, but was performed poorly. For Item #39, *letting go of deeply held ideas that are no longer viable in our business,* 43% of the respondents gave ratings of fair (24.7%) and poor (18.3%). This item indicated the lowest mean (M= 2.74) and did not load onto any subscales. This signifies that the item was written poorly or was not comprehensive, or perhaps *letting go of deeply held ideas* was not an observable phenomenon in organizations.

Interestingly, Items #39 and # 41 are related to the enactment of strategic change, which seemed to be the most challenging part of strategic learning capability. This low performance rating regarding the concept of enacting strategic change aligns with scholars' concerns about unsuccessful change implementation in the strategy process (Barker & Duhaime, 1997).

Table 5-2. *Lowest Rank-Ordered Strategic Learning Capability Items*

Response Items	Rank	Mean	Poor/ Fair (%)	Good (%)	Very Good/ Excellent (%)
52. Taking the time employees need to dialogue especially regarding risky issues.	54	2.98	80 (33.9)	74 (31.4)	82 (34.7)
32. Reflecting on unanticipated signals from the marketplace.	55	2.95	81 (34.2)	82 (34.6)	82 (31.2)
53. Challenging previously held ideas in our organization.	56	2.92	82 (34.7)	74 (31.4)	80 (33.9)
41. Proactively removing unnecessary actions that prevent our organization from achieving organizational goals.	56	2.92	87 (36.9)	67 (28.4)	82 (34.7)
56. Sharing information effectively across departments (or teams).	58	2.90	82 (34.7)	74 (31.4)	80 (33.9)
39. Letting go of deeply held ideas that are no longer viable in our business.	59	2.74	101 (43.0)	68 (28.9)	66 (28.1)

Findings Related To Research Question #2

Construct development and exploratory factor analysis were conducted to answer the question, "Can the empirical dimensions of strategic learning capability be developed?" The fifty-nine items of the questionnaire were developed via the instrument development process and tested empirically to explore the dimensions of strategic learning capability. Initially, an eight-factor solution was provided, but the items did not load onto the last factor. Ultimately, seven factors with 46 items were extracted by principal component and orthogonal rotation. The seven-factor solution (See Table 4-2) provided a simple structure that was grouped by factor loadings and labeled by the shared meaning of items in the following order: (1) *External Focus*, (2) *Strategic Dialogue*, (3)

Strategic Engagement, (4) *Customer-Centric Strategy*, (5) *Disciplined Imagination*, (6) *Experiential Learning*, and (7) *Reflective Responsiveness*. The discussion of these seven dimensions follows.

External Focus. Factor I had 11 items of explorative activities that involve searching for information from the external environment (e.g., external conditions/trends, competitors, and market needs). The dimension was named external focus, which highlights the ability to analyze and learn from trends in the macro-environment, industry, and/or from competitors. The importance of this notion was consistently discussed in similar terms such as explorative search, scanning (Panza & Thorp, 2009), competitor analysis, macro-environment (Andrews & Smith, 1996), and market orientation (Dobni & Luffman, 2003).

Strategic Dialogue. Factor II had 8 items. These items related to engaging in dialogue about challenging ideas (Items #54 & #53) or risky issues (Item #52). Another two items focused on sharing information within (Item #55) and across (Item #56) departments through dialogue, the intranet, knowledge management systems, and so on. The remaining three items concerned engaging in collective thinking (Items #57 & #58) and collaborative action (#59). Having a conversation related to strategy was assumed, indirectly indicated, or depicted in all eight items, though this was combined with the three components of risky dialogue, information sharing, and collective thinking. Therefore, Factor II was named *Strategic Dialogue* and an integrative definition was provided—an ability to collectively share and challenge (when necessary) the underlying assumptions and beliefs of what we know and how we think, in order to craft better decisions and strategies. This factor had high reliability (α =.93). Scholars have pointed

out the significant role of dialogue in the strategy process such as quality conversation (Chermack, van der Merwe, & Lynham, 2006; Zula & Chermack, 2007), risky dialogue (Sloan, 2006), information conversation (Voronov & Yorks, 2005), and the way in which to facilitate strategic dialogue. The extracted items illuminated the important concept of dialogue that needs to be carried out in the strategy process.

Strategic Engagement. Factor III had eight items regarding strategy implementation. Four items (Items #51, #50, #10, & #48) contained investing financials, engaging HR, work processes, and systems. Strategy clarification (Item #46), translation (Item #49), and articulation (Item #47) were inclined to operationalize strategies. In addition, the importance of engaging systems, workforces, and resources in strategy implementation was emphasized in Pietersen's (2010) strategic alignment process. *Making a strategic move based on our past failure* (Item #45) was also included in this factor. The aforementioned items highlight how strategy implementation requires multiple ways to engage in systems, processes, and people for the good of strategy operation. Factor III was named *strategic engagement* and is defined as an ability to translate and operationalize strategy to engage the organizational system and workforce towards successful implementation.

Customer-Centric Strategy. Factor IV had six items that are orientated towards customers. This dimension contained the most comprehensive and tight concepts such as seeking (Item #21), creating (Item #17), sensing (Item #20), monitoring (Item #18), delivering (Item #17), and improving (Item #19 & #22) strategies that were focused on customers. The highest factor-loaded item, Item #18 (.762), *monitoring customers' experiences with our products and services,* stresses that customers' experiences about

products and services are critical information for developing the next strategy. The other five items underscore how leaders should pay attention to customer-oriented knowledge. This factor is defined as *Customer-Centric Strategy*, an ability to understand and continuously monitor customers to create value-added strategies.

Disciplined Imagination. Factor V included eight items that explored all possible strategies involved in strategy generation. Some items contained innovative and creative ways to generate strategies such as brainstorming (Item #4), actively exploring (Item #1), imagining (Item #6), seeking new ways (Item #5), and encouraging (Item #3). Others included applying rules to possible strategies such as transforming business models (Item #8), reviewing (Item #2), and revising (Item #7). Items #9, #11, and #12 probed similar notions as in Factor V, but this factor did not loaded due to a shared meaning with other factors, and thus, revising items will be needed.

This factor was named *Disciplined Imagination*, which is an existing notion in the strategy literature (Weick, 1989; Szulanski & Amin, 2001) and is defined as exploring new, emerging, and/or creative ideas and possibilities and applying structures and rules to imagine and evaluate alternatives for the organization's future strategy. This factor highlights the important concept of strategy-making activities in the early stages of the strategy process.

Experiential Learning. *Experiential Learning* is defined as an ability to use past and lived experiences to interpret new situations and address new challenges. Four items factored into one dimension, even though each item points to different theories such as unlearning (Items #40 & #43), retrospective sensemaking (Item #37), and learning by trial and error (Item #42). Though the relationship among the items seemed to be

somewhat vague, all items share the meaning of learning based on experience. Additional items (#35 & #36) could have loaded on this factor, since they also had the meaning related to retrospective sensemaking, but did not. Another replication of factors might help solve this issue or this issue will need to be explained more in the future.

Each item represents an important concept emphasized by scholars (e.g., Kolb et al., 1999; Tsang & Zahra, 2008; Weick, 1995) in the strategy process. Strategy implementation can be explained by the composite theories of unlearning, retrospective sensemaking, and learning by doing. For example, intentionally removing successful organizational practices for effective change and renewal (i.e., unlearning) enables implementing new strategies. Weick (2005) introduced recalling the memories of strategic planners' experiences or observations in order to make sense of a current situation (i.e., retrospective sensemaking). Overall, experience is the key to this dimension.

Reflective Responsiveness. Factor VII includes four items related to being reflective and responsive during the strategy process. The complexity of this dimension is that the concept incorporates responsiveness and reflection at the same time. As it was indicated in the factor loadings, all four items were successfully identified, and this implies both reflection and responsiveness (Items #31, #32, & #33). Item #34, *accessing relevant information to inform our strategic conversations and decisions*, seems to illustrate what actually happened for strategic decisions, but the underlying notion highlights responsiveness to take specific actions. This factor is relatively new compared to other factors in terms of concepts and operationalized measures. Through an intensive keyword search in Google and with personal brainstorming, this factor was named

Reflective Responsiveness—an ability to actively reflect in response to unexpected signals before strategy making. Factor VII is a new dimension, but significant in that it highlights the importance of reflection before strategy formulation and implementation.

Discussion of the Seven Dimensions. Factor I (*External Focus*) and Factor IV (*Customer-Centric Strategy*) highlight a type of knowledge involved in the strategy process in that it is important for leaders to scan market needs/turbulence, emerging business trends, competitor information, signals from external environments, customers' experiences with products and services, and customers' values. Based on abundant information, strategic planners must understand and thoroughly examine what happens outside of the organization. All this information can be called strategic knowledge, which has been consistently emphasized in the strategy literature (Kuwada, 1998; Thomas, Sussman, & Henderson, 2001). Strategic knowledge should be transformed into a strategy or helpful in revising strategy. Ultimately, the synthesis of knowledge can enable leaders to make informed decisions.

Factor II (*Strategic Dialogue*), Factor III (*Strategic Engagement*), and Factor V (*Disciplined Imagination*) explicate the way in which strategies are generated (*Disciplined Imagination*), formulated (*Strategic Dialogue*), and executed (*Strategic Engagement*). *Disciplined Imagination* unfolds the possibilities for emerging strategies and applies rules to evaluate alternatives for future strategy in the strategy generation phase. Through strategic dialogue, leaders collectively share and think together for the good of the strategies in the strategy formulation phase. *Strategic Engagement* incorporates engaging systems, workforces, and resources to successfully implement strategies in strategy execution. The important aspects of the three phases in the strategy

process (i.e., strategy generation, formulation, and execution) were empirically articulated, and disciplined imagination, strategic dialogue, and strategic engagement especially warrant further research.

Factor VI (*Experiential Learning*) incorporates modes of learning theories. Learning is continuous throughout the different phases of the strategy process, but requires different types of knowledge as discussed earlier. Scholars (Pandza & Thorpe, 2009; Weick et al., 2005; Neill et al., 2007) have discussed how leaders interpret new situations using organizational experiences and knowledge, which affects the quality of the strategy-making process. The strategy process depends on organizational capabilities (Ansoff, 1987) to make sense of the situation and create new insights (Weick, 1995). The dimension of experiential learning in this study highlights the use of experiences as an important source for learning and intertwines the capacity to learn and unlearn with retrospective sensemaking.

Factor VII (*Reflective Responsiveness*) fosters openness, creativity, flexibility, and innovativeness within the traditionally more rigid rational strategy-making process. *Reflective Responsiveness* seems to be an immediate action, but it needs to be embedded in the organizational systems to facilitate leaders' acting and thinking. Similarly, strategic agility, which explains being flexible to changes and sensitive to complex and unstable environments, has been illuminated in the emerging strategy literature (Pam & Lim, 2005; Tseng & Lin, 2011). *Reflective Responsiveness* and strategic agility are somewhat similar in terms of efficiently being flexible, but the aspect of reflection is not explained in strategic agility. The importance of reflection in responsiveness is seldom addressed by other scholars. This study brings forward *Reflection Responsiveness* as part of an

important dimension in the strategy process that encourages organizations to be more flexible and adaptive to future external changes.

Findings Related To Research Question #3

Correlation and regression analysis were performed to answer, "to what extent, does strategic learning capability explain the observed variation in financial and knowledge performance?" In order to check regression assumptions, normal distribution, multicollinearity, and homoscedasticity were tested. The regression analysis showed that dimensions of strategic learning capability could explain financial and knowledge performance.

This study provides predictability of strategic learning capability subscales. Correlation analysis was performed to examine if the subscales have any correlation with the outcome variables of financial and knowledge performance. All the subscales were positively related to knowledge and financial performance ($.466 \leq r \leq .624$, $p < .01$). The correlation between *Disciplined Imagination* and financial performance was the weakest ($r = .47$), and the correlation between reflective responsiveness and knowledge performance was the strongest ($r = .63$). The weak correlation of *Disciplined Imagination* and financial performance indicated that it still had influence, but a distant relationship or indirect effect. The strongest correlation between *Experiential Learning* and knowledge performance implied that reflective responsiveness would be a strong predictor of knowledge performance.

New findings were discovered in stepwise regression analysis. Among the seven independent variables, *Customer-Centric Strategy* accounted for 35% of the variance and the addition of *Strategic Engagement* and *Experiential learning* variables increased R^2 by

7% (See Table 4-19). Therefore, *Customer-Centric Strategy* (β = .59) was a strong predictor on financial performance, which indicated that, of the subscales of strategic learning capability, *Customer-Centric Strategy* could predict the positive relationship with financial performance. Strategies focused on customers would result in better financial performance in many areas (e.g., return on investment, average productivity per employee, time to market for products and services, response time for customer complaints, market share, and cost per business transaction). This result was somewhat similar to Chenhall's (2005) study in that the scale of customer orientation affected strategic outcome delivery acting through organizational learning, but the fact that focusing on customers would bring better outcomes when learning took place in the process. This seems to indicate that building strategic learning capability requires a more systematic approach to collecting information from customers and to reacting to unexpected signals. Though adding the variable of *Strategic Engagement* increased R^2 by only 6%, the ability of an organization to translate and operationalize strategy to engage the organizational system and workforce has positive influence on financial performance.

Among the seven subscales of strategic learning capability, *Experiential Learning* accounted for 39% of the variance and the addition of *Reflective Responsiveness, Disciplined Imagination*, and *Strategic Dialogue* variables increased R^2 by 9% (See Table 4-21). *Experiential Learning* (β = .62) was a strong predictor on knowledge performance. These findings have shown that facilitating activities related to experiential learning influenced knowledge performance. Additionally, this finding indicated that organizations' practices reflecting on *Experiential Learning* would lead to better knowledge performance. Finally, collectively thinking and sharing for crafting

better strategies will increase the capacity of learning new skills. Therefore, obviously different approaches are needed to enhance knowledge and financial performance.

Findings Related To Research Question #4

An ANOVA analysis and t-test were performed to answer, "To what extent organizational and personal characteristics explained the observed variation in strategic learning capability?" Five ANOVA tests and a t-test were run by organizational and personal characteristics to answer the research question.

The results of the analysis indicated that statistical mean differences were found by type of industry, number of employees, and the role of employees. Retail, construction, and healthcare/medical had a small number of frequencies, and thus, they were integrated into one group.

For the difference by the annual revenue, annual revenue was categorized into four groups, based on the U.S. Census Bureau, but too many missing values were found. Small total numbers for running ANOVA might result in statistical insignificance. For the difference by the primary responsibilities, an ANOVA test was performed by primary responsibilities of individuals, but the result was not significant. It could have been due to too many categories (i.e., six).

For the mean difference by the type of industry, the ANOVA test showed the statistical mean difference in external focus, strategic dialogue, strategic engagement, disciplined imagination, and experiential learning (See Table 4-23). Organizations in the service industry (M = 34.78, SD = 7.35) tended to pay more attention to the external environment than organizations in IT (M = 29.10, SD = 10.15) and public administration (M = 28.48, SD= 9.30). Organizations in the service industry (M = 26.78, SD = 7.43)

tended to have more frequent strategic dialogue than those in public administration (M = 20.92, SD = 8.14). Organizations in manufacturing (M = 28.43, SD = 5.93) and the service industry (M = 26.73, SD =5.62) tended to be engaged more in the strategy process than organizations in IT (M = 21.90, SD = 7.50). Organizations in manufacturing (M = 28.43, SD = 4.12), the service industry (M = 28.79, SD = 5.86), IT (M = 28.21, SD = 6.05), finance, insurance, and real estate (M = 30.18, SD = 4.90), and retail, construction, healthcare and others (M = 29.50, SD = 5.60) performed better in *Disciplined Imagination* than organizations in public administration (M =22.84, SD = 8.48). Organizations in the service industry (M = 14.21, SD = 3.50) and retail, construction, healthcare and others (M =14.81, SD = 3.24) seemed to understand *Experiential Learning* better in strategic implementation than organizations in public administration (M =11.72, SD = 3.46). Although these mean differences are statically significant, the results might not be substantive because the number of responses for each industry is low.

For the mean difference by the number of employees, the ANOVA test showed the statistical mean difference in *Disciplined Imagination* among seven dimensions of strategic learning capability by number of employees (See Table 4-25). Organizations with more than 5,000 employees (M = 29.38, SD = 5.67) reported statistically higher Disciplined Imagination than organizations between 500 to 4999 employees (M = 25.81, SD = 6.27). These findings implied that larger organizations had a better capacity to apply rules to the creative strategy generation process than did relatively smaller organizations.

For the mean difference by the role of individuals, the ANOVA test showed a statistical mean difference in the *Reflective Responsiveness* dimension by the roles of

individual workers (See Table 4-27). This implies that individuals in senior management (M = 13.67, SD = 3.78) perceived that their organizations had better ways to respond reflectively in terms of their strategies and decisions than did individuals in non-management, technical/professional (M = 11.79, SD = 3.68). A t-test was performed for further examination of the mean differences between senior management and the rest of the groups (e.g., middle management, supervisory, non-management, technical /professional). The results of the analysis showed a statistical difference in *Strategic Dialogue* (t =2.24, p = .02), *Customer-Centric Strategy* (t =2.16, p =.03), *Strategic Engagement* (t =2.30, p =.02), and *Reflective Responsiveness* (t =2.50, p =.01) (See Table 4-29). Senior management and the rest of the group held different perceptions toward the strategic activities in response to strategic learning capability. These findings indicate that senior management might have a deeper understanding of the strategy process, and they could put more emphasis on strategic activities.

Implications for Research

The findings of this study extend the knowledge base of multi-disciplines, including strategy management, organizational learning, organization development, and strategic HRD. This section highlights three research implications: (1) Conceptualization of strategic learning capability, (2) Predicting financial and knowledge performance, and (3) Importance of the strategic learning capability framework to the field of HRD.

Conceptualization of Strategic Learning Capability

This study conceptualized and operationalized the important notion of strategic learning capability, which is relatively new in the field of strategy management and organizational learning literature. Scholars in several disciplines have given attention to

this important concept of strategic learning capability and have worked on building a theoretical foundation. As a long-term adaptive capability, strategic learning capability fosters ongoing learning in the strategic planning and implementation process in that learning and development is reinvented and realigned with organizational strategy (Deiser, 2009).

The strategic learning model presented in *Figure 2-1* highlights the ongoing processes of learning as well as unlearning in strategic planning and implementation. Unlearning, which has been an important concept in organizational learning, is letting go of past organizational patterns or behaviors. Some of the items developed in this study reflect the notion of unlearning, though the performance rating on items related to unlearning was low. This implies some challenges to organizational unlearning. Organizations can unlearn what is observable, but are much more challenged to unlearn what is deeply embedded as organizational cognitive structures (Hedberg & Wolff, 2001). This study is an initial approach to discover the learning and unlearning aspects of strategic learning capability and provide empirical evidence to discuss the undergirding theories to deepen the knowledge base of strategy and organizational learning literatures.

Specifically, this study deepened the understanding of strategic learning capability by exploring its empirical dimensions. Based on the discussion of the findings, seven dimensions are displayed in three phases of the strategy process, and *Figure 5-1* shows how these new dimensions might be conceptually situated in the strategy generation, formulation, and execution phases. These dimensions involve allowing leaders to generate a plan of action that is followed by strategic moves.

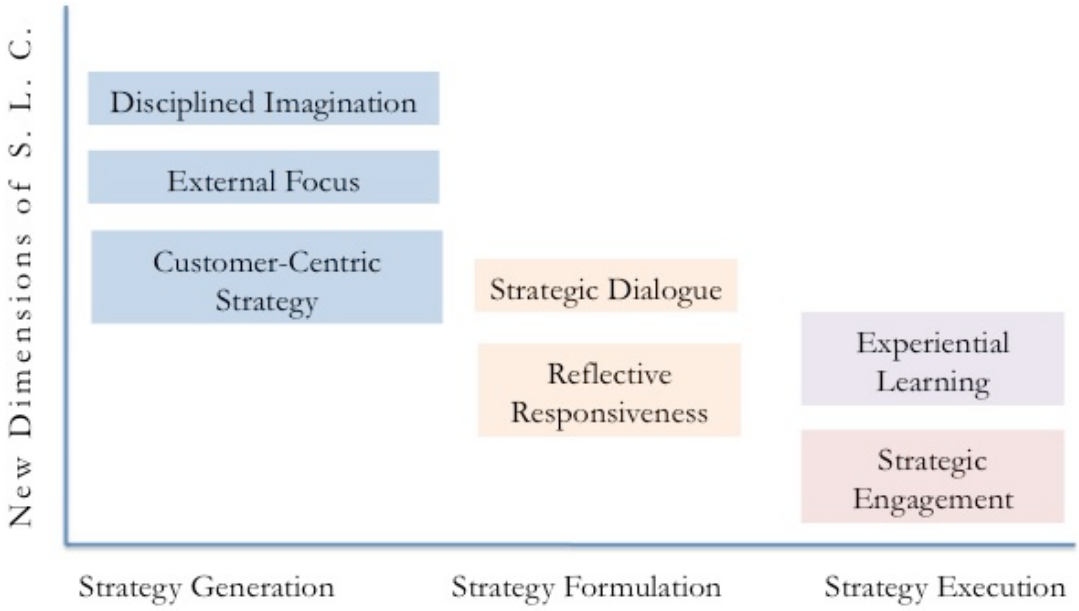

Figure 5-1. Navigating New Dimensions of Strategic Learning Capability

During the strategy generation phase, every plausible idea is opened up through *Disciplined Imagination*, and external environments are thoroughly scanned and interpreted. Strategy is brainstormed based on the customers' experiences and their values of the organization's products and services. Accordingly, strategy generation includes creating the space for companies to develop strategic alternatives based on the emerging knowledge. *Customer-Centric Strategy* entails searching for information related to customers and interpreting the data to generate an effective strategy.

During the strategy formulation phase, existing frameworks are challenged or broadened through *Strategic Dialogue*, which allows for shared meaning creation through dialogue that is even further activated among individuals, groups, and organizations. Sharing challenging ideas and taking the time for risky dialogue can help strategy formulation. In addition, *Reflective Responsiveness*—for example, "acting thinkingly" (Weick et al., 2005, p. 412)—is essential in terms of strategy synthesis. *Reflective Responsiveness* embraces thinking before strategizing, which allows space for the

processing of strategic knowledge. Through *Strategic Dialogue* and *Reflective Responsiveness*, all ideas are assimilated to provide some sense of reliability that leads to decisions. The strategy formulation phase facilitates an organization engaging in the process of making strategic choices and decisions that reflect emergent strategy (Mintzberg, 1994b; 1989a).

During the strategy execution phase, systems, processes, and human resources are engaged to implement the strategic choices that are made. Strategy execution requires the action plans and actions that help to make the necessary changes in organizations to execute the strategy effectively. All the operational systems and processes should be in place for successful strategy execution. Learning from experiences, trial and error, failed strategies, and organizational knowledge take place as an ongoing process but are more prominent at strategy execution.

Predicting Financial and Knowledge Performance

This study provides a significant contribution by exploring specific predicting variables on the financial and knowledge performance of organizations. In particular, one of the findings indicates predictability of financial performance that supports Chenhall's (2005) finding that *Customer-Focused Strategy* influences financial performance. This implies that investing in customers will bring financial value to organizations through aligning internal resources with profitability of the customer base (Berry, 2005). Identifying the variable that predicts financial performance provides quantifiable results that can influence organizational leaders' decision making.

On the other hand, the predictability of *Experiential Learning* on knowledge performance is revealed. The significant concepts that are emphasized in experiential

learning theory (Casey & Goldman, 2010; Kolb, 1984) are highlighted. Given that experiential learning is based on the various sources of experience, it represents the specific kind of strategic learning capability that facilitates the transformation of experiences into strategic knowledge. The conversion of strategic knowledge requires learning activities such as learning by trial and error, retrospective sensemaking (Weick, 2005), and learning from mistakes (Pietersen, 2010). In order to facilitate these types of learning, a culture that allows risk-taking and experimenting with new strategies is required (Pietersen, 2010). As revealed in the literature review, learning and knowledge are inseparable in that learning adds value to organizational outcomes.

The dimensions of strategic learning capability can possibly predict some of the important organizational outcome variables. These two predicting models are new contributions to the literature on strategic learning capability. Interestingly, there were no overlapping predictors for financial and knowledge performance. Different approaches should be considered to facilitate financial and knowledge performance.

Importance of the Strategic Learning Capability Framework to the Field of HRD

It is important to the HRD field to expand the paradigm of learning in terms of learning dimensions, learning embedded in practice, and the contributions of learning. Swanson and Holton (2001) emphasized the role of HRD to provide strategic planning education and learning and actively participate in the strategic planning process. Further, scholars in HRD urged that the field of HRD should respond in a proactive way to the current organizational external environment and prepare for the future (Ruona, Lynham, & Chermack, 2003). In short, HRD scholars agree that some key functions of HRD are creating strategic value for and delivering strategic value to an organization (Garavan et

al., 1998; Swanson & Holton, 2001; Torraco & Swanson, 1995), and how we accomplish this is imperative.

Although the strategic management approach still exists and works, another approach is needed to better understand the nature of the strategy-making process. One possible approach on which to build an organizational capacity in the strategy process that will help organizations becomes successful (Ulrich et al., 2013). Building a capacity to create competitive strategy is imperative, and studies (e.g., Anderson et al., 2009; Siren, 2012) have attempted to connect learning with the strategy-making process. This study is an effort to identify dimensions of strategic learning capability by developing a conceptual model and a strategic learning capability instrument. The dimensions of strategic learning capability can be utilized for an underlying foundation to create value-add practices in terms of developing and implementing strategies.

Implications for Practice

Research findings from the study provide some practical suggestions for the field of HR(D), HRD practitioners, and organizational leaders. Three implications are suggested: (1) strategic learning capability as a diagnostic tool, (2) embedding disciplined imagination as a strategy generation practice, and (3) the significant factors of strategy implementation

Strategic Learning Capability as a Diagnostic Tool

This study provides a practical tool for HRD practitioners to diagnose their organization's strategic learning capability. If organizations are in need of improving their strategic processes, this tool can be useful in identifying specific areas in which to intervene. The empirical dimensions will help HRD practitioners navigate the problem

areas among the seven dimensions of *External Focus*, *Strategic Dialogue, Strategic Engagement, Customer-Centric Strategy, Disciplined Imagination, Experiential Learning, and Reflective Responsiveness*. Further, the performance scale of poor to excellent helps to interpret each dimension at the current and desired performance levels. Some practical tools are available to foster strategic learning capability through experience-based learning tools such as action inquiry (Torbert, 2004), action science (Watkins & Shindell, 1994), and the imagining method—scenario planning (Chermack, 2011; van der Heijden, 1996). In order to foster strategic learning capability, this instrument may be used as an diagnostic tool to identify low performance areas. Customized interventions can be developed for the dimensions of strategic learning capability that need to be improved. Organizations with strategic learning capability will become more adaptive and agile in response to external environments via organizational strategic learning.

Embedding Disciplined Imagination as a Strategy Generation Practice

This study sheds light on Weick's (1989) notion of *Disciplined Imagination* as an empirical dimension. A *Disciplined Imagination* practice can encourage leaders in organizations to brainstorm creative ideas with rules applied (e.g., creative imagination & rational thought). Emphasizing a strategic mindset and an intuitive mind at the beginning of the strategy process has been heavily discussed among scholars (Duggan, 2007; Sadler-Smith, 2008). It is important to shed light on the strategic choices that individuals make and the intuition that plays a key role in the process of integrating pieces of information. The results of this study seem to reveal that larger organizations might have a better capacity to create intuition and insight in this process of integrating information

in order to generate innovative strategies. A learning culture enables organizations to cultivate openness and flexibility in terms of sharing innovative ideas that might improve performance and enable reaching organizational goals (Watkins & Marsick, 2003). Systematic organizational support to encourage individuals to generate creative ideas and search for new trends can foster disciplined imagination.

The Significant Factors of Strategy Implementation

This study especially highlights potentially important dimensions of strategic learning capacity during strategy implementation. Scholars (Nutt, 1986; Shimizu & Hitt, 2004) have identified that operationalizing strategies is still a challenge. HRD practitioners want to know what is required for successful strategy implementation. Becker et al. (2001) insist that an HR system should be embedded in the organization's strategy implementation in order to exert influence on the firm's performance. Besides HR, other organizational functions, such as IT, finance, and marketing, are already playing a more influential role at the strategy table than what they used to play (Caglar, Kapoor, & Rimsam, 2013). As one of the research findings of this study indicated, strategy implementation requires a more systematic approach to engage systems, processes, and workforces. One of the dimensions identified in this study could be used as a checklist to examine strategic alignment against the realities of the organizations' external environments via strategic reactiveness (Green et al., 2008), ensuring all the functions are in place for the purpose of achieving strategic goals. As literature has shown (Green et al., 2008; Shimizu & Hitt, 2004), being flexible and responsive to strategy operation is important. The series of planned action incorporates trial and error. This study reveals some contributing factors that play into the strategy implementation

process such as *Strategic Engagement, Experiential Learning*, and *Reflective Responsiveness*. Finally, it is imperative to acknowledge that learning occurs not only during planning but also during implementation processes (Pietersen, 2010). Putting as much, and maybe even more, emphasis on the ability to execute strategy in addition to generating strategy would be necessary.

Recommendations

This study conceptualized strategic learning capability and explored new dimensions of strategic learning capability. As an initial explorative study, it paves the way for several future research agendas.

Further Conceptualization

This study conceptualized the complex notion of strategic learning capability to further extend the knowledge base in several disciplines, but future research can address the drawbacks of this study in terms of conceptualizing strategic learning capability, since murkiness still exists in the literature. The conceptual model developed in this study can be modified and further extended as future research elaborates and articulates the construct of strategic learning capability. Further conceptualization and development is recommended in future research.

Replication of Factors

It is important to discover whether the factors articulated in this study are replicable. Making a decision on replication is difficult. Gorsuch (1983) suggested building a replication into the initial factor-analytic study by splitting the samples in half. Researchers can then scrutinize the match across the two samples and report the matching factors only. This requires a large sample size, and thus, replication of factors was not

accomplished in this study. As has been noted, replications of this study with a large sample is recommended to gain confidence in the stability of this factor solution.

Further Validation

Based on Benson and Clark's (1982) instrument development process, examining the validation of the instrument is recommended. Revising the items and testing the instrument empirically with different populations will continue the validation process. Seven dimensions and 49 items are identified by the empirical data, but the factors and the 49 items can be reduced to smaller factors and items by using larger homogenous samples. This will allow for a shorter version of a strategic learning capability measure for both researchers and practitioners.

After determining the appropriate number of common factors and unfolding measurable variables, confirmatory factor analysis is recommended. As implied in the findings, the sub-dimensions of strategic learning capability can be inter-correlated. After empirical and theoretical grounds are established, it will be important to develop tentative CFA models, which will allow further relationships among the subscales and with other outcome variables via structural equation modeling (SEM).

In terms of predictability testing, *Disciplined Imagination, Strategic Dialogue, Strategic Engagement, Reflective Responsiveness* and *External Focus* were not strong predictors of either knowledge performance or financial performance in this study. Even though they did not reveal strong effects on the two aforementioned outcome variables, an indirect effect or a mediating/moderating effect could exist. Based on the theoretical relationship, further analysis with a larger sample size is recommended (e.g., hierarchical regression analysis, path analysis).

In this study, strategic learning capability was limited to the organizational level, but strategic learning capability could be extended to multilevel studies at individual, group, and organization levels, based on the theoretical framework. For a multilevel study, hierarchical linear modeling (HLM) would be recommended for different groups.

Tools and Practices for Fostering Strategic Learning

Practical tools to optimize strategic learning capability in organizations are still needed. Furthermore, managers face the challenge that they should learn faster than their competitors in order to ensure the success of their organizations during strategy development (Schwartz, 1991). It is important to locate ways in which we can facilitate strategic learning capability in the strategy process. Scenario planning is a tool for stimulating and facilitating individual and organizational learning when it is institutionalized (van der Heijden, 1996). Scenario planning can be used as a rigorous tool to facilitate learning through strategic conversation in order to enhance strategic learning capability. Furthermore, Pietersen's (2010) strategic learning model provides practical guidelines with four action steps—learn, focus, align, and execute—that help create a winning strategy. Sloan's (2006) three-stage model—preparation, evaluation, and re-evaluation—is useful to facilitate strategic thinking at the individual level. Strategic conversation (Zula & Chermack, 2007), dialogue, and a *Disciplined Imagination* (Szulanski & Amin, 2001) can also foster strategic thinking. Another practice that is applicable in the business context is the *Blue Ocean Strategy*, which shifts the strategic focus through four actions—reduce, eliminate, raise, and create (Kim & Mauborgne, 2005). This practice allows companies to reduce underperforming factors and eliminate overdesigned products and services to beat their competitors. At the same time, it allows

raising the bar above the industry's standard and creating new demand and shifting the strategic pricing of the industry. Some innovative tools and practices to foster strategic learning capability are recommended for HRD practitioners.

Conclusion

In order to add value to an organization, understanding strategy and the strategy process is important, and thus, this study tackles the strategy-making process from a strategic learning capability approach. Strategic learning capability is defined to capture the aspects of learning during strategy making, and a strategic learning model grounded in multiple disciplines (e.g., strategy management, adult education, and HRD) is reinvented to further understand the dynamics of strategic learning at multiple organizational levels. In addition to the conceptualization effort, this study operationalizes strategic learning capability by developing an instrument. This study integrates important perspectives in scholars' and practitioners' insights, and generates items deductively in order to develop the measurement scale.

Two important contributions of this study are (1) discovering empirical dimensions of strategic learning capability—*External Focus*, *Strategic Dialogue*, *Strategic Engagement*, *Customer-Centric Strategy*, *Disciplined Imagination*, *Experiential Learning*, and *Reflective Responsiveness* and (2) identifying the predicting models on financial and knowledge performance through the aforementioned dimensions. Predictability of these specific dimensions of strategic learning capability on financial and knowledge performance signals where to intervene in strategic learning practices. This study unfolds what strategic learning capability really is in the strategy-making process and what it ultimately does to and for organizations.

In terms of embedding strategic learning capability within an organization, HRD practitioners and scholars should approach strategy making as a "complex phenomena" (Mintzberg, 1994b, p. 29) in that "the manager has to be able to sense when to exploit an established crop of strategies and when to encourage new strains to displace the old" (Mintzberg, 1987a, p. 75). This study forwards a challenging task to HRD practitioners and scholars to nurture and enhance the strategy-making process.

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APPENDIX A

INFORMED CONSENT AND QUESTIONNAIRE

Informed Consent

"Exploring a Pathway for Strategic Learning Capability"

RESEARCHERS: This research study is conducted by Ms. Hanna Moon, a doctoral student in the Human Resource and Organizational Development program at the University of Georgia, under the supervision of Dr. Wendy Ruona.

PURPOSES and REASONS: This study aims to examine organizational conditions that foster strategic learning capability and their impact on knowledge and financial performance. This study will also serve as a test for the survey that may increase the body of knowledge about the process of instrument development and may lead to significant survey improvement.

PROCEDURES: If you agree to take part in this survey, you will be asked to complete a questionnaire with 74 items. The survey questions will include questions about the organization you work for and its leadership and you will be asked for suggestions about how to improve the questionnaire. It will take about 15-20 minutes to complete the questionnaire.

VOLUNTARINESS: Your participation in this research study is voluntary. You can refuse to take part in this study or stop taking part at any time without penalty or loss of benefits to which you are otherwise entitled. Your decision to take part or not to take part is not expected to influence in any way your relationship with your organization.

RISKS AND DISCOMFORTS: If, while responding to the survey, you have concerns about whether your responses are monitored, be aware that you can access the survey from any private computer. Also, since internet communication is insecure, there is a limit to the confidentiality that can be guaranteed. If you are not comfortable with the level of confidentiality provided by the Internet, you can print out a copy of the survey, fill it out by hand, and mail it to Hanna Moon at 109 River's Crossing, 850 College Station Road, Athens, GA 30602, with no identifiers or return address on the envelope.

BENEFITS: You will not receive any direct benefits from participating in this study. But, you will have an opportunity to reflect on learning as related to the strategy process in organizations. In addition, your participation in this study may help elucidate important issues and improve our capacity as Human Resource Development (HRD) and Organizational Development (OD) professionals to develop the OD and Strategic Human Resource Development (SHRD) interventions.

LEVEL OF CONFIDENTIALITY: Due to the technology itself, there is a limit to the confidentiality that can be guaranteed when it comes to internet communications. However, we will take multiple measures to keep your participation in this survey confidential. First, the IP addresses associated with the responses will not be collected. Second, while the email addresses of those who have and have not responded will be collected, the information will be used only for the purpose of sending new messages or reminders during the data collection period. The email addresses will be removed from the data and destroyed by the researchers. In the final analysis, the data will not be share in an individually-identifiable manner.

FUTURE QUESTIONS: Contact Hanna Moon at mssnu06@uga.edu or (706) 340-3291 and Dr. Wendy Ruona at wruona@uga.edu or (706) 542-4474 with questions, complaints, or concerns about the research. You can also call this number if you feel this study has harmed you.

Additional questions or problems regarding your rights as a research participant should be addressed to The Chairperson, Institutional Review Board, University of Georgia, 629 Boyd

Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail Address IRB@uga.edu

AGREEMENT: Completion and return of the survey implies that you have read the information in this form and consent to take part in the study. If you agree to participate in this study, click on "I Agree" button and you will proceed to the survey on the next page. Your voluntary participation in the study would imply your informed consent to participate. Please print a copy of this form for your records or future reference.

Thank you for your consideration.

Sincerely,

Hanna Moon

Dr. Wendy Ruona

The University of Georgia
Department of Lifelong Education, Learning, & Organization

Exploring the Strategic Learning Capability of Your Organization

The purpose of this study is to explore strategic learning capability: Measuring capacity of an organization to retool rapidly to create and execute new strategies through learning at the individual and system level in response to changes and uncertainties in complex environment.

Please rate how well your organization (or work group) is doing in the following activities.

Degree of Quality:

1 = Poor
2 = Fair
3 = Good
4 = Very Good
5 = Excellent

	Poor **1**	Fair **2**	Good **3**	Very Good **4**	Excellent **5**
1. Actively exploring new strategies as the business context changes.	☐	☐	☐	☐	☐
2. Continuously reviewing emerging trends to identify innovative strategies.	☐	☐	☐	☐	☐
3. Encouraging the exploration of creative ideas.	☐	☐	☐	☐	☐
4. Brainstorming new business ventures.	☐	☐	☐	☐	☐
5. Seeking to generate new ways to reconfigure our existing products and services.	☐	☐	☐	☐	☐
6. Imagining alternative futures for our organization.	☐	☐	☐	☐	☐
7. Revising our business model to effectively meet the needs of the market.	☐	☐	☐	☐	☐
8. Transforming our business model when market conditions shift.	☐	☐	☐	☐	☐
9. Envisioning competencies needed for the future.	☐	☐	☐	☐	☐
10. Knowing what it takes to successfully implement our strategies.	☐	☐	☐	☐	☐
11. Generating alternative approaches to achieve our business goals.	☐	☐	☐	☐	☐
12. Letting the best strategies emerge for achieving our objectives.	☐	☐	☐	☐	☐
13. Assessing the challenges that need to be overcome in order to achieve our strategy.	☐	☐	☐	☐	☐

14. Rapidly responding based on what our competitors are doing.	☐	☐	☐	☐	☐
15. Making our decisions with full consideration of our competitors.	☐	☐	☐	☐	☐
16 Developing strategies that allow us to quickly respond to market needs.	☐	☐	☐	☐	☐
17. Creating business strategies that deliver value for our customers.	☐	☐	☐	☐	☐
18. Monitoring customers' experiences with our products and services.	☐	☐	☐	☐	☐
19. Using customer feedback to improve our strategy.	☐	☐	☐	☐	☐
20. Sensing shifts in what our customers value.	☐	☐	☐	☐	☐
21. Continuously seeking better ways to improve our product and services.	☐	☐	☐	☐	☐
22. Improving how we produce our products and/or services.	☐	☐	☐	☐	☐
23. Creating strategies based on external trends.	☐	☐	☐	☐	☐
24. Paying close attention to external conditions/trends.	☐	☐	☐	☐	☐
25. Tracking emerging trends specifically related to our products and services.	☐	☐	☐	☐	☐
26. Recognizing information that needs to be further explored.	☐	☐	☐	☐	☐
27. Noticing "signals" in the external environment that we need to pay attention to.	☐	☐	☐	☐	☐
28. Helping our executive leadership team to learn about external changes that are or may affect us.	☐	☐	☐	☐	☐
29. Soliciting information on external trends from many levels across the organization.	☐	☐	☐	☐	☐
30. Making sound interpretations of business trends in order to learn from them.	☐	☐	☐	☐	☐
31. Actively reflecting on emerging challenges before they become unmanageable.	☐	☐	☐	☐	☐
32. Reflecting on unanticipated signals from the marketplace.	☐	☐	☐	☐	☐
33. Providing time to think before we strategize in a particular area of our business.	☐	☐	☐	☐	☐
34. Accessing relevant information to inform our strategic conversations and decisions.	☐	☐	☐	☐	☐
35. Learning from past experiences via observation and seeing trends or issues.	☐	☐	☐	☐	☐

36. Reflecting on the past to identify patterns.	☐	☐	☐	☐	☐
37. Applying past experiences to help us address new challenges (e.g., new venture, new market, new product).	☐	☐	☐	☐	☐
38. Applying new strategies when we encounter problems rather than using outdated strategies.	☐	☐	☐	☐	☐
39. Letting go of deeply held ideas that are no longer viable in our business.	☐	☐	☐	☐	☐
40. Reframing current strategies when needed.	☐	☐	☐	☐	☐
41. Proactively removing unnecessary actions that prevent our organization from achieving organizational goals.	☐	☐	☐	☐	☐
42. Learning by trial and error during strategy implementation.	☐	☐	☐	☐	☐
43. Modifying business strategies based on what is working and what is not working.	☐	☐	☐	☐	☐
44. Monitoring our strategy to see if/how it's working.	☐	☐	☐	☐	☐
45. Examining failed strategies to inform our next strategic move.	☐	☐	☐	☐	☐
46. Clarifying our strategies explicitly enough to formally operationalize them.	☐	☐	☐	☐	☐
47. Articulating strategies clear enough to be implemented by the workforce.	☐	☐	☐	☐	☐
48. Using action plans to ensure we achieve our organizational goals.	☐	☐	☐	☐	☐
49. Translating strategic goals into measureable performance goals.	☐	☐	☐	☐	☐
50. Knowing how much we have to invest in the future.	☐	☐	☐	☐	☐
51. Investing what it takes to successfully implement our strategies. (e.g. financials, HR, processes, systems)	☐	☐	☐	☐	☐
52. Taking the time employees need to dialogue especially regarding risky issues.	☐	☐	☐	☐	☐
53. Challenging previously held ideas in our organization.	☐	☐	☐	☐	☐
54. Sharing challenging ideas among employees.	☐	☐	☐	☐	☐
55. Sharing information effectively *within* departments (or teams).	☐	☐	☐	☐	☐
56. Sharing information effectively *across* departments (or teams).	☐	☐	☐	☐	☐
57. Engaging in collective thinking processes.	☐	☐	☐	☐	☐

58. Working together to create better business strategy.	☐	☐	☐	☐	☐
59. Coming to an agreement when making decisions.	☐	☐	☐	☐	☐

Knowledge and Financial Performance

In this section, please rate your organization's current performance.

Likert Scale: 1 = Poor, 2 = Fair, 3 = Good, 4 = Very Good, 5 = Excellent

	Poor 1	Fair 2	Good 3	Very Good 4	Excellent 5
60. Return on investment	☐	☐	☐	☐	☐
61. Average productivity per employee	☐	☐	☐	☐	☐
62. Time to market for products and services	☐	☐	☐	☐	☐
63. Response time for customer complaints	☐	☐	☐	☐	☐
64. Market share	☐	☐	☐	☐	☐
65. Cost per business transaction	☐	☐	☐	☐	☐
66. Customer satisfaction	☐	☐	☐	☐	☐
67. The number of suggestions implemented	☐	☐	☐	☐	☐
68. The percentage of skilled workers compared to the total workforce	☐	☐	☐	☐	☐
69. The number of individuals learning new skills	☐	☐	☐	☐	☐

Demographic Information

Please answer the following questions that best describe you or your organization.

70. Type of Industry? ( )

1. Manufacture
2. Service
3. Information Technology
4. Finance, Insurance, & Real Estate
5. Retail
6. Construction
7. Public Administration
8. Others ( )

71. How many employees are in your organization? Approximately ( )

72. Your organization's annual revenue? Approximately ( )

73. What is your primary responsibility? ( )

1. General Management
2. Operations/Production
3. Administration, Logistics, or Financial/Accounting
4. Human Resources
5. Marketing/Sales
6. Technical/ R&D
7. Others ( )

74. What is your role? ( )

1. Senior Management
2. Middle Management
3. Supervisory
4. Non-Management Technical/Professional
5. Non-Management [Hourly Employee]
6. Others ( )

THANK YOU FOR TAKING THE TIME TO COMPLETE THIS QUESTIONNAIRE

APPENDIX B

BRAINSTORMING SESSION

Recruitment letter to HROD students

Dear students
In reference to my doctoral dissertation, I am inviting you to a brainstorming session, which will be thirty minutes of the class and fifteen minutes after the class. We will brainstorm the way in which organizations gain strategic learning capability in 21st century. I will introduce a high-performing and a low-performing organization to help you understand the importance of strategic learning capability. We will have a dialogue as a group to generate ideas. This is all voluntary. Please attend the session to help me build a rigorous survey tool in order to contribute knowledge in the field of HROD.

Best regards,

Hanna Moon
Wendy Ruona

Items generated From Brainstorming Session

Items	Guiding Questions
In my organization, we use scenarios to help individuals think strategically.	Q1.
In my organization, we cascade performance management goals throughout the organization.	Q1.
We envision the competences needed for the future	Q1.
We know how much we have to invest in the future (financials)	Q1.
When something breaking in organizations, we can regroup.	Q1.
When something breaking in organizations, we can apply new strategies to solve it.	Q1.
We provide time to think and strategize in a particular area of business.	Q1.
We do not punish for creativity.	Q1.
We allow new business model.	Q2.
We can create fast go-to market strategy.	Q2.
We are aware of our competitors' strategy.	Q2.
We report back directly to executive leadership team about external changes.	Q2.
We bypass the hierarchy in order to enact strategy immediately	Q2.
In my organization, we value constant feedback from Customers.	Q2.
In my organization, we rapidly senses changes among customers.	Q2.
In my organization, we can act while thinking when strategy is executed.	Q3.
In my organization, we have a way to recognize when information is anomaly	Q3.
In my organization, we reflect on unanticipated signals from the marketplace.	Q.3/ Schon, 1983
In my organization, we can test what has been observed from the market.	Q3/ Schon, 1983
In my organization, we allow sensing that our strategy is no more viable.	Q3.
We apply the lessons learned from the pilot test.	Q3.

APPENDIX C

CRITIQUE SESSION QUESTIONNAIRE AND FEEDBACK

The University of Georgia
Department of Lifelong Education, Learning, & Organization

Exploring the Strategic Learning Capability of Your Organization

The purpose of this study is to explore strategic learning capability: Measuring capacity of an organization to retool rapidly to create and execute new strategies through learning at the individual and system level in response to changes and uncertainties in complex environment.

Please rate how well your organization (or work group) is doing in the following activities.

Degree of Quality:
1 = Poor
2 = Fair
3 = Good
4 = Very Good
5 = Excellent

	Poor 1	Fair 2	Good 3	Very Good 4	Excellent 5
1. Actively exploring new strategies as the business context changes.	❒	❒	❒	❒	❒
2. Continuously reviewing emerging trends to identify innovative strategies.	❒	❒	❒	❒	❒
3. Encouraging the exploration of creative ideas.	❒	❒	❒	❒	❒
4. Brainstorming new business ventures.	❒	❒	❒	❒	❒
5. Seeking to generate new ways to reconfigure our existing products and services.	❒	❒	❒	❒	❒
6. Imagining alternative futures for our organization.	❒	❒	❒	❒	❒
7. Revising our business model to effectively meet the needs of the market.	❒	❒	❒	❒	❒
8. Transforming our business model when market conditions shift.	❒	❒	❒	❒	❒
9. Envisioning competencies needed for the future.	❒	❒	❒	❒	❒
10. Knowing what it takes to successfully implement our strategies.	❒	❒	❒	❒	❒
11. Generating alternative approaches to achieve our business goals.	❒	❒	❒	❒	❒
12. Letting the best strategies emerge for achieving our objectives.	❒	❒	❒	❒	❒
13. Assessing the challenges that need to be overcome in order to achieve our strategy.	❒	❒	❒	❒	❒
14. Rapidly responding based on what our competitors are	❒	❒	❒	❒	❒

doing.					
15. Making our decisions with full consideration of our competitors.	❒	❒	❒	❒	❒
16 Developing strategies that allow us to quickly respond to market needs.	❒	❒	❒	❒	❒
17. Creating business strategies that deliver value for our customers.	❒	❒	❒	❒	❒
18. Monitoring customers' experiences with our products and services.	❒	❒	❒	❒	❒
19. Using customer feedback to improve our strategy.	❒	❒	❒	❒	❒
20. Sensing shifts in what our customers value.	❒	❒	❒	❒	❒
21. Continuously seeking better ways to improve our product and services.	❒	❒	❒	❒	❒
22. Improving how we produce our products and/or services.	❒	❒	❒	❒	❒
23. Creating strategies based on external trends.	❒	❒	❒	❒	❒
24. Paying close attention to external conditions/trends.	❒	❒	❒	❒	❒
25. Tracking emerging trends specifically related to our products and services.	❒	❒	❒	❒	❒
26. Recognizing information that needs to be further explored.	❒	❒	❒	❒	❒
27. Noticing "signals" in the external environment that we need to pay attention to.	❒	❒	❒	❒	❒
28. Helping our executive leadership team to learn about external changes that are or may affect us.	❒	❒	❒	❒	❒
29. Soliciting information on external trends from many levels across the organization.	❒	❒	❒	❒	❒
30. Making sound interpretations of business trends in order to learn from them.	❒	❒	❒	❒	❒
31. Actively reflecting on emerging challenges before they become unmanageable.	❒	❒	❒	❒	❒
32. Reflecting on unanticipated signals from the marketplace.	❒	❒	❒	❒	❒
33. Providing time to think before we strategize in a particular area of our business.	❒	❒	❒	❒	❒
34. Accessing relevant information to inform our strategic conversations and decisions.	❒	❒	❒	❒	❒
35. Learning from past experiences via observation and seeing trends or issues.	❒	❒	❒	❒	❒

36. Reflecting on the past to identify patterns.	❒	❒	❒	❒	❒
37. Applying past experiences to help us address new challenges (e.g., new venture, new market, new product).	❒	❒	❒	❒	❒
38. Applying new strategies when we encounter problems rather than using outdated strategies.	❒	❒	❒	❒	❒
39. Letting go of deeply held ideas that are no longer viable in our business.	❒	❒	❒	❒	❒
40. Reframing current strategies when needed.	❒	❒	❒	❒	❒
41. Proactively removing unnecessary actions that prevent our organization from achieving organizational goals.	❒	❒	❒	❒	❒
42. Learning by trial and error during strategy implementation.	❒	❒	❒	❒	❒
43. Modifying business strategies based on what is working and what is not working.	❒	❒	❒	❒	❒
44. Monitoring when our strategy to see if/how it's working.	❒	❒	❒	❒	❒
45. Examining failed strategies to inform our next strategic move.	❒	❒	❒	❒	❒
46. Clarifying our strategies explicitly enough to formally operationalize them.	❒	❒	❒	❒	❒
47. Articulating strategies clear enough to be implemented by the workforce.	❒	❒	❒	❒	❒
48. Using action plans to ensure we achieve our organizational goals.	❒	❒	❒	❒	❒
49. Translating strategic goals into measureable performance goals.	❒	❒	❒	❒	❒
50. Knowing how much we have to invest in the future.	❒	❒	❒	❒	❒
51. Investing what it takes to successfully implement our strategies. (e.g. financials, HR, processes, systems)	❒	❒	❒	❒	❒
52. Taking the time employees need to dialogue especially regarding risky issues.	❒	❒	❒	❒	❒
53. Challenging previously held ideas in our organization.	❒	❒	❒	❒	❒
54. Sharing challenging ideas among employees.	❒	❒	❒	❒	❒
55. Sharing information effectively *within* departments (or teams).	❒	❒	❒	❒	❒
56. Sharing information effectively *across* departments (or teams).	❒	❒	❒	❒	❒
57. Engaging in collective thinking processes.	❒	❒	❒	❒	❒

58. Working together to create better business strategy.	❒	❒	❒	❒	❒
59. Coming to an agreement when making decisions.	❒	❒	❒	❒	❒

Knowledge and Financial Performance

In this section, please rate your organization's current performance.

Likert Scale: 1 = Poor, 2 = Fair, 3 = Good, 4 = Very Good, 5 = Excellent

	Poor 1	Fair 2	Good 3	Very Good 4	Excellent 5
60. Return on investment	❒	❒	❒	❒	❒
61. Average productivity per employee	❒	❒	❒	❒	❒
62. Time to market for products and services	❒	❒	❒	❒	❒
63. Response time for customer complaints	❒	❒	❒	❒	❒
64. Market share	❒	❒	❒	❒	❒
65. Cost per business transaction	❒	❒	❒	❒	❒
66. Customer satisfaction	❒	❒	❒	❒	❒
67. The number of suggestions implemented	❒	❒	❒	❒	❒
68. The percentage of skilled workers compared to the total workforce	❒	❒	❒	❒	❒
69. The number of individuals learning new skills	❒	❒	❒	❒	❒

Demographic Information

Please answer the following questions that best describe you or your organization.

70. Type of Industry?

9. Manufacture
10. Service
11. Information Technology
12. Finance, Insurance, & Real Estate
13. Retail
14. Construction

15. Public Administration
16. etc

71. How many employees are in your organization? Approximately ( )

72. Your organization's annual revenue? Approximately ( )

73. What is your primary responsibility?

8. General Management
9. Operations/Production
10. Administration, Logistics, or Financial/Accounting
11. Human Resources
12. Marketing/Sales
13. Technical/ R&D

74. What is your role?

7. Senior Management
8. Middle Management
9. Supervisory
10. Non-Management Technical/Professional
11. Non-Management [Hourly Employee]

THANK YOU FOR TAKING THE TIME TO COMPLETE THIS QUESTIONNAIRE

Survey Critique Session

Time: October 15, 2012, 14:00-16:00
Participants: Six doctoral students, two methodologists, and the Researcher

Suggestions	What has been revised
Overall	
Items are too long Try to fight position effect	Items are reduced from 70 to 65 items (#62 #31, #41)
If items that are more than correlation .70, then we should think whether they mean the same thing or not.	This will be tested in the pilot test.
Do not play with the respondents. Allow them to skip the items, if they wanted.	Format has changed for respondents to skip the questions, if they want. (Respondents friendly mode)
Items	
It feels like answering the same question repeated since the items are spread; weary, tired	
The order of items needs to be grouped together	Items are semi-randomized to help participants take the survey.
Group them by the verb (Assessing, sharing)	Similar verbs are grouped together according to each dimension guided by theories.
Q.4 & Q.17: within vs across	Items are put next to each other.
Item 62, 14, 31, 47, 56, 62	Changing the word "patterns" into "issues or trends" (Except for item 47)
Please rate how well your organization is doing in the following activities. (Please rate your organization with respect to each of following activities.)	Instruction is changed to "Please rate how well your organization is doing in the following activities."
Item 1 & Item 2 too similar?	"potential" strategy is somewhat ambiguous to participants so deleted "potential"
Item 20, 31	**Item 31 deleted**
Same items? 32 & 41	**Item 41 deleted**
58 & 60 sensing & noticing: Passive verbs rather than active verbs	These verbs are important for the items so I kept them as they are.
Item 55	When market conditions "Drastically shift" has changed to "shift"

Item 6. Making sound interpretation is an English term, but we will test it for the pilot.	We will wait till pilot test is done.
Item 29	"taking the time we need" has changed to "taking the time employees need"
Item 53	"new challenges" are vague so providing some examples would help participants "new ventures, new markets, new products"
Item 26	"Imagining" has changed to "brainstorming"

Methodologists

Use the matrix algebra to discuss the cluster pattern.
Causal variable hiding behind this thing.
Part of this score will be unique to one item.
EFA treat Instrument selection a little differently.

Items

In an asymmetric scale,
People who answer the survey have to be…
Recommended Dissertation #: Online survey, internet recruitment, useful to write letter for my own.

"Title of the Survey" : Exploring the strategic learning capability of the organization

APPENDIX D

PILOT TEST INSTRUMENT

The University of Georgia
Department of Lifelong Education, Learning, & Organization

Exploring the Strategic Learning Capability of Your Organization

The purpose of this study is to explore strategic learning capability: Measuring capacity of an organization to retool rapidly to create and execute new strategies through learning at the individual and system level in response to changes and uncertainties in complex environment.

Please rate how well your organization (or work group) is doing in the following activities.

Degree of Quality:
1 = Poor
2 = Fair
3 = Good
4 = Very Good
5 = Excellent

	Poor 1	Fair 2	Good 3	Very Good 4	Excellent 5
1. Actively exploring new strategies as the business context changes.	❒	❒	❒	❒	❒
2. Continuously reviewing emerging trends to identify innovative strategies.	❒	❒	❒	❒	❒
3. Encouraging the exploration of creative ideas.	❒	❒	❒	❒	❒
4. Brainstorming new business ventures.	❒	❒	❒	❒	❒
5. Seeking to generate new ways to reconfigure our existing products and services.	❒	❒	❒	❒	❒
6. Imagining alternative futures for our organization.	❒	❒	❒	❒	❒
7. Revising our business model to effectively meet the needs of the market.	❒	❒	❒	❒	❒
8. Transforming our business model when market conditions shift.	❒	❒	❒	❒	❒
9. Envisioning competencies needed for the future.	❒	❒	❒	❒	❒
10. Knowing what it takes to successfully implement our strategies.	❒	❒	❒	❒	❒
11. Generating alternative approaches to achieve our business goals.	❒	❒	❒	❒	❒
12. Letting the best strategies emerge for achieving our objectives.	❒	❒	❒	❒	❒
13. Assessing the challenges that need to be overcome in order to achieve our strategy.	❒	❒	❒	❒	❒
14. Rapidly responding based on what our competitors are	❒	❒	❒	❒	❒

doing.					
15. Making our decisions with full consideration of our competitors.	❒	❒	❒	❒	❒
16 Developing strategies that allow us to quickly respond to market needs.	❒	❒	❒	❒	❒
17. Creating business strategies that deliver value for our customers.	❒	❒	❒	❒	❒
18. Monitoring customers' experiences with our products and services.	❒	❒	❒	❒	❒
19. Using customer feedback to improve our strategy.	❒	❒	❒	❒	❒
20. Sensing shifts in what our customers value.	❒	❒	❒	❒	❒
21. Continuously seeking better ways to improve our product and services.	❒	❒	❒	❒	❒
22. Improving how we produce our products and/or services.	❒	❒	❒	❒	❒
23. Creating strategies based on external trends.	❒	❒	❒	❒	❒
24. Paying close attention to external conditions/trends.	❒	❒	❒	❒	❒
25. Tracking emerging trends specifically related to our products and services.	❒	❒	❒	❒	❒
26. Recognizing information that needs to be further explored.	❒	❒	❒	❒	❒
27. Noticing "signals" in the external environment that we need to pay attention to.	❒	❒	❒	❒	❒
28. Helping our executive leadership team to learn about external changes that are or may affect us.	❒	❒	❒	❒	❒
29. Soliciting information on external trends from many levels across the organization.	❒	❒	❒	❒	❒
30. Making sound interpretations of business trends in order to learn from them.	❒	❒	❒	❒	❒
31. Actively reflecting on emerging challenges before they become unmanageable.	❒	❒	❒	❒	❒
32. Reflecting on unanticipated signals from the marketplace.	❒	❒	❒	❒	❒
33. Providing time to think before we strategize in a particular area of our business.	❒	❒	❒	❒	❒
34. Accessing relevant information to inform our strategic conversations and decisions.	❒	❒	❒	❒	❒
35. Learning from past experiences via observation and seeing trends or issues.	❒	❒	❒	❒	❒

36. Reflecting on the past to identify patterns.	❒	❒	❒	❒	❒
37. Applying past experiences to help us address new challenges (e.g., new venture, new market, new product).	❒	❒	❒	❒	❒
38. Applying new strategies when we encounter problems rather than using outdated strategies.	❒	❒	❒	❒	❒
39. Letting go of deeply held ideas that are no longer viable in our business.	❒	❒	❒	❒	❒
40. Reframing current strategies when needed.	❒	❒	❒	❒	❒
41. Proactively removing unnecessary actions that prevent our organization from achieving organizational goals.	❒	❒	❒	❒	❒
42. Learning by trial and error during strategy implementation.	❒	❒	❒	❒	❒
43. Modifying business strategies based on what is working and what is not working.	❒	❒	❒	❒	❒
44. Monitoring when our strategy to see if/how it's working.	❒	❒	❒	❒	❒
45. Examining failed strategies to inform our next strategic move.	❒	❒	❒	❒	❒
46. Clarifying our strategies explicitly enough to formally operationalize them.	❒	❒	❒	❒	❒
47. Articulating strategies clear enough to be implemented by the workforce.	❒	❒	❒	❒	❒
48. Using action plans to ensure we achieve our organizational goals.	❒	❒	❒	❒	❒
49. Translating strategic goals into measureable performance goals.	❒	❒	❒	❒	❒
50. Knowing how much we have to invest in the future.	❒	❒	❒	❒	❒
51. Investing what it takes to successfully implement our strategies. (e.g. financials, HR, processes, systems)	❒	❒	❒	❒	❒
52. Taking the time employees need to dialogue especially regarding risky issues.	❒	❒	❒	❒	❒
53. Challenging previously held ideas in our organization.	❒	❒	❒	❒	❒
54. Sharing challenging ideas among employees.	❒	❒	❒	❒	❒
55. Sharing information effectively *within* departments (or teams).	❒	❒	❒	❒	❒
56. Sharing information effectively *across* departments (or teams).	❒	❒	❒	❒	❒
57. Engaging in collective thinking processes.	❒	❒	❒	❒	❒

58. Working together to create better business strategy.	❒	❒	❒	❒	❒
59. Coming to an agreement when making decisions.	❒	❒	❒	❒	❒

Knowledge and Financial Performance

In this section, please rate your organization's current performance.

Likert Scale: 1 = Poor, 2 = Fair, 3 = Good, 4 = Very Good, 5 = Excellent

	Poor 1	Fair 2	Good 3	Very Good 4	Excellent 5
60. Return on investment	❒	❒	❒	❒	❒
61. Average productivity per employee	❒	❒	❒	❒	❒
62. Time to market for products and services	❒	❒	❒	❒	❒
63. Response time for customer complaints	❒	❒	❒	❒	❒
64. Market share	❒	❒	❒	❒	❒
65. Cost per business transaction	❒	❒	❒	❒	❒
66. Customer satisfaction	❒	❒	❒	❒	❒
67. The number of suggestions implemented	❒	❒	❒	❒	❒
68. The percentage of skilled workers compared to the total workforce	❒	❒	❒	❒	❒
69. The number of individuals learning new skills	❒	❒	❒	❒	❒

Demographic Information

Please answer the following questions that best describe you or your organization.

70. Type of Industry?

17. Manufacture
18. Service
19. Information Technology
20. Finance, Insurance, & Real Estate
21. Retail
22. Construction

23. Public Administration
24. etc

71. How many employees are in your organization? Approximately ( )

72. Your organization's annual revenue? Approximately ( )

73. What is your primary responsibility?

14. General Management
15. Operations/Production
16. Administration, Logistics, or Financial/Accounting
17. Human Resources
18. Marketing/Sales
19. Technical/ R&D

74. What is your role?

12. Senior Management
13. Middle Management
14. Supervisory
15. Non-Management Technical/Professional
16. Non-Management [Hourly Employee]

THANK YOU FOR TAKING THE TIME TO COMPLETE THIS QUESTIONNAIRE

APPENDIX E

PILOT TEST RECRUITMENT LETTER AND REMINDER

Dear Participants,

How agile and adaptable is your organization in the face of shifting strategic demands? In the 21st Century, organizations are facing incredible pressures to anticipate shifts in the business context, develop strategy to navigate constantly changing contexts, and "learn through" strategic challenges. More than ever before, an organization must be poised to handle strategic challenges in innovative and creative ways.

Dr. Wendy Ruona and Hanna Moon at the University of Georgia are currently working on developing a survey that measures an organization's *Strategic Learning Capability*—the capacity of an organization to retool rapidly to create and execute new strategies through learning at the individual and system level in response to changes and uncertainties in complex environment.

We invite you to take this survey to help us test the instrument. It will only take about 15 minutes. Completing this survey will help us to validate whether the survey being developed is designed to measure what we think it does. We would also *greatly* appreciate if you would forward this e-mail to 5-10 people in your network and solicit their potential participation. We are especially interested in testing this survey with business leaders who are NOT in the Human Resource Development/Human Resources functions.

If you are willing to complete this brief survey, please CLICK HERE.

Many thanks for your participation in this survey and/or for forwarding our solicitation on to those who you think might complete this survey. Your response to the survey are strictly confidential.

If you have any questions about this research project, feel free to contact Wendy Ruona (wruona@uga.edu or 706-542-4474) or Hanna Moon [mssnu06@uga.edu or 706-340-3291), an advanced doctoral student working under the supervision of Dr. Ruona.

Best Regards,

Wendy Ruona & Hanna Moon
University of Georgia

Dear Alumni of the HROD & Adult Education Program(s),

We REALLY need your support on this survey. As of today, we do not have enough responses to conduct the pilot test analysis we need to ensure this instrument is working for further study. If you have not yet completed the survey, we would greatly appreciate it if you could spare approximately 15 minutes to give us your input. We did learn last week that the survey link did not work well in Internet Explorer, but it seems to work fine in Firefox or Safari.

We are going to leave it open until we get the requisite number of response we need, and we are crossing our fingers that will happen by early next week (Monday, January 21).

Also, reminder that we are also hoping for non-HRD/HR types to complete this survey; so please forward this e-mail and survey link to business leaders that you feel comfortable soliciting on our behalf.

We so appreciate anything you can do to support this important research!

APPENDIX F
REPORT OF PILOT TEST

Pilot Test Report

- The pilot study was conducted in order to answer two broad questions:

1. Do the data collection procedures work?
2. Did the survey instrument perform well?

Based on the results of the pilot study, it appears that the data collection procedures worked well, and we will not edit or revise the newly developed strategic learning capability at this stage. It was learned that old version of internet explore does not work to take the survey. Thus, the recruitment letter will include a recommendation to use Safari, Google Chrome, or Firefox to take the survey.

Overall, the instrument performed well with all items having variation and no missing data, since researcher did not allow for no response. Yet, in order to increase response rate, research will give room for missing data. Missing data will be replaced with the mean value.

- Sampling for Pilot Study

The sample population for the pilot study was HROD alumni at the University of Georgia. Under the permission from the department, survey was distributed through HROD Alumni listserv.

- Pilot study administration

I followed the administration procedures outlined by the memo to the committee accompanying the revised survey instrument. These procedures were approved by the Human Subjects Office. The study began on January 7, 2013 and ran through January 21, 2013. Attention was paid to the timing of the reminder emails, which were set to go to non-respondents after ten days. During this time, I observed a spike in survey participation activity for the first day. After the first day there was no participation.

- Results of the Pilot Study

After the pilot study, descriptive statistics were analyzed using SPSS 20. The result showed no major issues in terms of mean and variances of all 59 items. In addition, we checked inter-item correlation to delete redundant items and found several high correlation items. Items were similar, but it was discriminant enough to remain as separate items.

Table1. *Descriptive Statistics of Strategic Learning Capability*

Items	Rank	Sum	Mean	S.D.
6. Imagining alternative futures for our organization.	1	142	3.94	.715
4. Brainstorming new business ventures.	2	141	3.92	.906

3. Encouraging the exploration of creative ideas.	3	139	3.86	.990
31. Actively reflecting on emerging challenges before they become unmanageable.	4	138	3.83	.910
27. Noticing "signals" in the external environment that we need to pay attention to.	5	138	3.83	.737
8. Transforming our business model when market conditions shift.	6	137	3.81	.951
23. Creating strategies based on external trends.	7	136	3.78	.866
30. Making sound interpretations of business trends in order to learn from them.	8	135	3.75	.874
11. Generating alternative approaches to achieve our business goals.	8	135	3.75	.906
2. Continuously reviewing emerging trends to identify innovative strategies.	8	135	3.75	.906
24. Paying close attention to external conditions/trends.	11	134	3.72	1.162
1. Actively exploring new strategies as the business context changes.	11	134	3.72	.974
33. Providing time to think before we strategize in a particular area of our business.	13	132	3.67	.828
43. Modifying business strategies based on what is working and what is not working.	13	132	3.67	1.014
15. Making our decisions with full consideration of our competitors.	13	132	3.67	1.042
32. Reflecting on unanticipated signals from the marketplace.	16	131	3.64	.961
28. Helping our executive leadership team to learn about external changes that are or may affect us.	17	130	3.61	.964
13. Assessing the challenges that need to be overcome in order to achieve our strategy.	17	130	3.61	.871
9. Envisioning competencies needed for the future.	17	130	3.61	.994

19. Using customer feedback to improve our strategy.	20	128	3.56	.773
12. Letting the best strategies emerge for achieving our objectives.	21	127	3.53	.941
42. Learning by trial and error during strategy implementation.	21	127	3.53	1.028
40. Reframing current strategies when needed.	21	127	3.53	.845
41. Proactively removing unnecessary actions that prevent our organization from achieving organizational goals.	21	127	3.53	.941
44. Monitoring when our strategy to see if how it's working.	25	126	3.50	.845
34. Accessing relevant information to inform our strategic conversations and decisions.	25	126	3.50	.971
48. Using action plans to ensure we achieve our organizational goals.	25	125	3.47	.878
25. Tracking emerging trends specifically related to our products and services.	25	125	3.47	1.108
29. Soliciting information on external trends from many levels across the organization.	29	124	3.44	.843
54. Sharing challenging ideas among employees.	30	123	3.42	1.156
52. Taking the time employees need to dialogue especially regarding risky issues.	31	122	3.39	.838
59. Coming to an agreement when making decisions.	31	122	3.39	.871
46. Clarifying our strategies explicitly enough to formally operationalize them.	31	122	3.39	.934
55. Sharing information effectively within departments (or teams).	34	121	3.36	1.222
36. Reflecting on the past to identify patterns.	34	121	3.36	.833
17. Creating business strategies that deliver value for our customers.	34	121	3.36	.961

10. Knowing what it takes to successfully implement our strategies.	34	121	3.36	1.073
49. Translating strategic goals into measureable performance goals.	34	121	3.36	.899
37. Applying past experiences to help us address new challenges (e.g., new venture, new market, new product).	34	121	3.36	.867
14. Rapidly responding based on what our competitors are doing.	40	120	3.33	.862
50. Knowing how much we have to invest in the future.	40	120	3.33	.926
26. Recognizing information that needs to be further explored.	40	120	3.33	1.042
57. Engaging in collective thinking processes.	43	118	3.28	.849
16. Developing strategies that allow us to quickly respond to market needs.	43	118	3.28	.914
56. Sharing information effectively across departments (or teams).	43	118	3.28	.849
53. Challenging previously held ideas in our organization.	43	118	3.28	1.003
5. Seeking to generate new ways to reconfigure our existing products and services.	47	117	3.25	.806
18. Monitoring customers' experiences with our products and services.	48	116	3.22	.832
21. Continuously seeking better ways to improve our products and/or services.	49	115	3.19	.889
22. Improving how we produce our products and/or services.	50	114	3.17	.878
20. Sensing shifts in what our customers value.	50	114	3.17	1.000
51. Investing what it takes to successfully implement our strategies. (e.g. financials, HR, processes, systems)	52	113	3.14	1.018
39. Letting go of deeply held ideas that are no longer viable in our business.	52	113	3.14	1.099

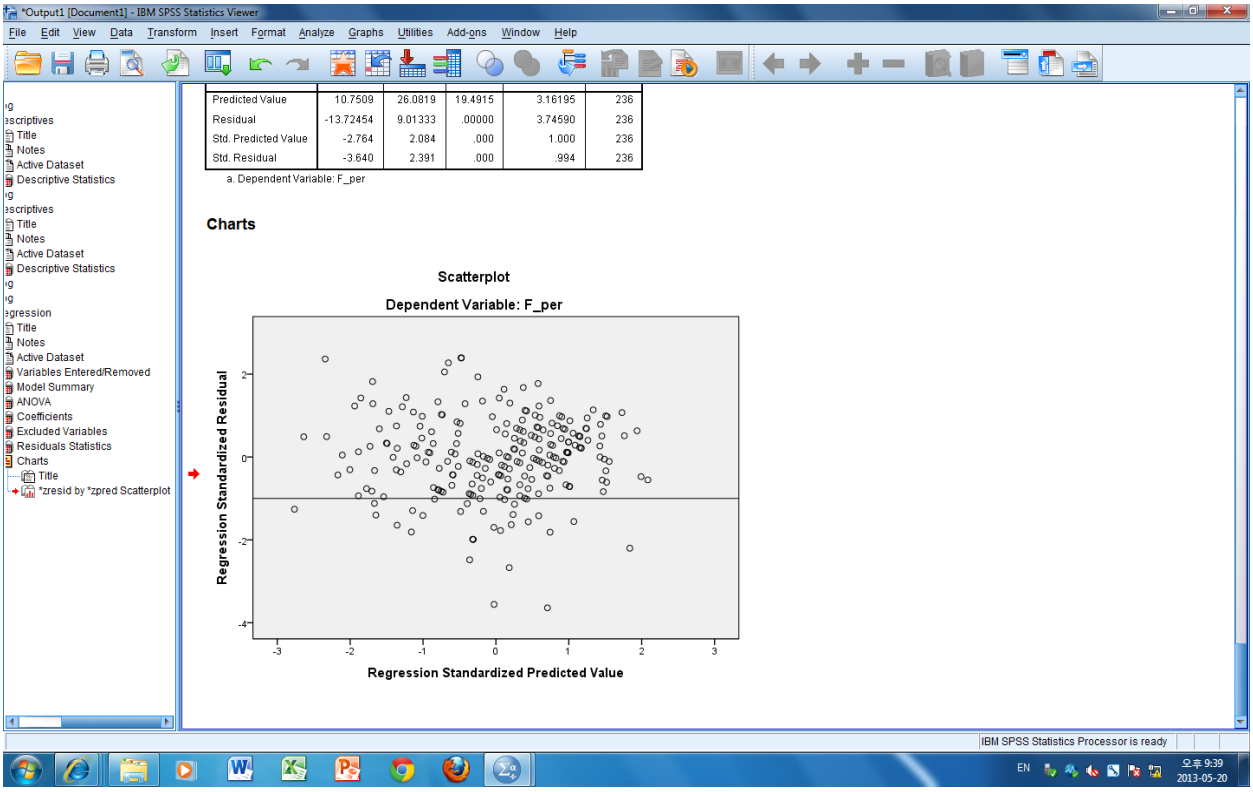
7. Revising our business model to effectively meet the needs of the market.	52	113	3.14	.833
58. Working together to create better business strategy.	55	112	3.11	1.214
35. Learning from past experiences via observation and seeing trends or issues.	56	111	3.08	1.131
38. Applying new strategies when we encounter problems rather than using outdated strategies.	57	108	3.00	.956
45. Examining failed strategies to inform our next strategic move.	58	105	2.92	1.025
47. Articulating strategies clear enough to be implemented by the workforce.	59	98	2.72	.815

Table 2. *Descriptive Statistics of Financial and Knowledge Performance*

Items	Rank	Sum	Mean	SD
69. The number of individuals learning new skills	1	149	4.14	.931
67. The number of suggestions implemented	2	138	3.83	.941
60. Return on investment	3	134	3.72	.974
68. The percentage of skilled workers compared to the total workforce	4	129	3.58	.996
66. Customer satisfaction	5	116	3.22	1.017
61. Average productivity per employee	6	115	3.19	1.117
65. Cost per business transaction	7	109	3.03	1.082
62. Time to market for products and services	8	107	2.97	1.207
64. Market share	9	102	2.83	1.056
63. Response time for customer complaints	10	100	2.78	1.174

APPENDIX G
HOMOSCEDASTICITY GRAPH

Homoscedasticity Graph



APPENDIX H
FACTOR SOLUTION

Rotated Component Matrix

	Component							
	1	2	3	4	5	6	7	8
SMEAN(SLC24)	.741	.069	.132	.247	.234	.201	-.024	.093
SMEAN(SLC25)	.700	.121	.032	.314	.185	.214	.081	.072
SMEAN(SLC14)	.699	.096	.269	.121	.129	-.060	.177	.156
SMEAN(SLC23)	.689	.201	.262	.236	.187	.187	.070	.138
SMEAN(SLC27)	.628	.220	.250	.133	.099	.221	.183	.103
SMEAN(SLC15)	.623	.057	.317	.148	.172	.019	.176	.148
SMEAN(SLC29)	.617	.381	.144	.196	.177	.172	.202	.094
SMEAN(SLC26)	.538	.265	.147	.285	.146	.304	.162	.055
SMEAN(SLC30)	.510	.277	.141	.222	.233	.190	.477	.144
SMEAN(SLC28)	.468	.304	.305	.095	.257	.283	.106	.004
SMEAN(SLC16)	.467	.200	.203	.241	.274	.235	.243	.240
SMEAN(SLC54)	.162	.762	.174	.087	.201	.112	.174	.191
SMEAN(SLC55)	.124	.740	.218	.218	.150	.153	.140	.020
SMEAN(SLC56)	.167	.730	.179	.186	.138	.143	.134	.192
SMEAN(SLC57)	.212	.703	.181	.226	.259	.153	.100	.012
SMEAN(SLC58)	.215	.633	.331	.208	.250	.225	.097	.042
SMEAN(SLC53)	.195	.619	.205	.124	.134	.208	.171	.404
SMEAN(SLC52)	.190	.566	.395	.176	.119	-.057	.335	.175
SMEAN(SLC59)	.143	.536	.428	.162	.224	.363	.075	.077
SMEAN(SLC48)	.226	.246	.692	.181	.192	.104	.114	.179
SMEAN(SLC51)	.246	.296	.675	.206	.082	.077	.006	.123
SMEAN(SLC49)	.259	.172	.651	.191	.195	.184	.147	.164
SMEAN(SLC46)	.254	.264	.603	.231	.184	.329	.150	.100
SMEAN(SLC47)	.135	.234	.584	.284	.249	.315	.209	-.009
SMEAN(SLC50)	.186	.233	.546	.099	.209	.181	.236	.053
SMEAN(SLC10)	.223	.160	.469	.356	.182	.013	.314	.337
SMEAN(SLC45)	.366	.312	.467	.142	.080	.387	.104	.018
SMEAN(SLC44)	.288	.235	.457	.195	.188	.457	.152	.150
SMEAN(SLC18)	.240	.127	.259	.762	.150	.076	.084	.073
SMEAN(SLC21)	.311	.290	.174	.667	.263	.118	.106	.106
SMEAN(SLC20)	.266	.230	.140	.665	.261	.071	.100	.162
SMEAN(SLC19)	.224	.248	.246	.662	.179	.125	.173	.071
SMEAN(SLC17)	.208	.177	.163	.642	.294	.247	.160	.213
SMEAN(SLC22)	.246	.227	.276	.502	.321	.234	.190	.161
SMEAN(SLC35)	.266	.088	.185	.502	.157	.449	.286	-.011

SMEAN(SLC4)	.187	.234	.106	.053	.682	.075	.237	.018
SMEAN(SLC1)	.084	.273	.211	.226	.654	.266	.064	.030
SMEAN(SLC6)	.115	.098	.103	.054	.650	.182	.151	.368
SMEAN(SLC5)	.213	.041	.169	.240	.630	.025	.166	-.040
SMEAN(SLC8)	.256	.093	.217	.201	.583	.120	.054	.310
SMEAN(SLC2)	.363	.287	.103	.297	.562	.154	.024	-.083
SMEAN(SLC3)	.138	.342	.122	.291	.562	.149	.093	.085
SMEAN(SLC7)	.176	.117	.187	.396	.519	.219	-.004	.318
SMEAN(SLC12)	.275	.274	.370	.190	.416	.099	.237	.316
SMEAN(SLC42)	.186	.226	.165	.106	.244	.680	.068	.121
SMEAN(SLC43)	.303	.209	.334	.148	.187	.573	.139	.241
SMEAN(SLC37)	.254	.106	.180	.370	.214	.470	.428	.009
SMEAN(SLC40)	.176	.274	.320	.270	.255	.465	.168	.384
SMEAN(SLC36)	.286	.237	.196	.419	.118	.442	.377	.115
SMEAN(SLC33)	.113	.238	.212	.159	.204	.084	.756	.086
SMEAN(SLC32)	.421	.265	.157	.137	.178	.205	.545	.199
SMEAN(SLC34)	.276	.198	.252	.266	.173	.347	.506	.118
SMEAN(SLC31)	.285	.349	.211	.193	.247	.238	.488	.287
SMEAN(SLC39)	.242	.338	.252	.131	.114	.408	.100	.516
SMEAN(SLC41)	.243	.288	.346	.196	.102	.375	.279	.450
SMEAN(SLC38)	.262	.186	.098	.393	.180	.365	.253	.411
SMEAN(SLC11)	.270	.333	.277	.243	.359	.039	.232	.408
SMEAN(SLC9)	.279	.247	.124	.319	.402	.038	.076	.407
SMEAN(SLC13)	.308	.243	.297	.218	.248	.109	.187	.383

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 8 iterations.