

## **ABSTRACT**

MASIER, DARREN JOSEPH. An Exploratory Study of the Relationship between Self-Directed Learning and Senge's Five Disciplines Necessary to Become a Learning Organization: In a High-Tech Company. (Under the direction of Dr. James E. Bartlett, II.)

The manner by which organizations value their workforce has been shown to impact learning within organizations (Confessore, 1997; Marsick & Watkins, 2010; Weldy & Gillis, 2003). Leadership is faced with a multitude of options to facilitate learning (Cho, 2002; Confessore & Kops, 1998), and employee learning has been linked to optimizing performance (Bierema & Berdish, 1999). The purpose of this study is to explore the relationship between employees' perceived self-directed learning within their work environment, as well as employees' perceptions of Senge's (1990) five learning organization constructs: personal mastery, mental models, team learning, shared vision, and systems thinking. This survey study seeks to examine a target sample of employees in a specific division of an organization regarding their perceived level of self-directed learning and to determine which, if any, of the five disciplines best facilitates the process by which a company becomes a learning organization. The research questions will be tested in the context of an existing high-tech telecommunications company.

An Exploratory Study of the Relationship between Self-Directed Learning and Senge's Five  
Disciplines Necessary to Become a Learning Organization:  
In a High-Tech Company

by  
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## **DEDICATION**

This dissertation is dedicated to my wife, Terri Lynn Masier, our son, Noah Jackson Masier, and to my adoptive parents, Uncle Thomas Alan Brown and Aunt Virginia Ann Brown. The unceasing support, encouragement, and love shown by my beloved family served as my primary driver throughout this endeavor—I could not have accomplished this without each of them! Further, I look upward in gratitude, as this educational accomplishment is representation, as the following scripture references so beautifully: “With people this is impossible, but with God all things are possible” (Matthew 19:26).

## **BIOGRAPHY**

The author of this dissertation, Darren Joseph Masier, was born just outside of Chicago, Illinois, where he lived for twenty-eight years. He currently resides in Cary, North Carolina, with his wife Terri Lynn (Robinson) Masier and their son, Noah Jackson Masier (born 2004). Darren was an only child and graduated in 1990 from Purdue University with a Bachelor of Arts in Spanish, a language in which he is fluent. After spending twenty years in leadership capacities in the finance and banking industries including business ownership, he chose to add to his practical experience a theoretical knowledge base by entering graduate school. While working on a Master of Science in Human Resource Development at North Carolina State University, Darren was offered a position as Graduate Assistant in the same department. He simultaneously served as president of the Golden Key International Honour Society, he was the vice president of the Graduate Student Association, he is an active member of the Phi Kappa Phi Honor Society, and he is an active Trustee for Grace Christian School, where his son attends.

Upon completion of his Doctor of Education in the Leadership, Policy Studies and Adult and Higher Education department at North Carolina State University, Darren aspires to continue his active lifestyle exercising, working hard, and striving to be a loving Christian man. Darren's professional experience coupled with his graduate studies helped to prepare him for his current position as a recruiter within the employment and executive search team at Branch Bank and Trust in Raleigh, North Carolina.

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## **CHAPTER 1: INTRODUCTION**

Chapter one provides the background information on the two instrumental constructs to be utilized in this study: self-directed learning (SDL) and the learning organization. Each of these will be examined in the context of the workplace. The chapter starts with a definition of terms, then the nature of the problem, followed by the problem statement, the purpose of the study, the research questions, the theoretical framework, the conceptual framework, the significance of the study, and the limitations and delimitations associated with the research. Finally, chapter one concludes with an overview of the study's organization.

### **Definitions of Terms**

#### **Andragogy**

Andragogy is defined by Knowles as “the art and science of helping adults learn” (Knowles, 1980, p. 43).

#### **Change**

Change within the context of the organization underlies most definitions of organizational learning (Merriam et al., 2007). The two terms “learning” and “change” have a hierarchical, chronological relationship depending on the intended outcome: “Change is a learning process and learning is a change process” (Swanson & Holton, 2001, p. 286).

#### **Human Resource Development (HRD)**

Human Resource Development is defined as “organized learning experiences in a definite time period to increase the possibility of improving job performance growth” (Yorks, 2005, p. 6). This definition that was formulated in 1969 by Nadler and Nadler permits the

possibility that HRD might be involved in organizational team and learning interventions. Several modified definitions were added by scholars in the 1980s and 1990s, ultimately leading to a most notable definition originally published in a 1995 published article written by Swanson in *Human Resource Development Quarterly*, and again listed in Swanson and Holton (2001): “the process for developing and unleashing human expertise through organization development and personnel training and development for the purpose of improving performance” (p. 4).

### **Learning Organization**

A learning organization is best defined for this application by Senge (1990) as “one where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together” (p. 56). In his popular book, *The Fifth Discipline* (1990), Senge identified five disciplines in his model to become a learning organization. He argued that these five disciplines are interrelated and organizations need to foster them amongst individuals and groups in order to maximize learning and success. They are personal mastery, mental models, shared vision, team learning, and systems thinking. The respective definitions for each of the five disciplines are as follows:

**Personal Mastery** - Create an environment that encourages personal and organizational goals to be developed and realized in partnership.

**Mental Models** - Know that a person’s internal picture of his or her environment will shape his or her decisions and behaviors.

**Shared Vision** - Build essence of group commitment by developing shared images of the future.

**Team learning** - Transform conversational and collective thinking skill so that a group's capacity to reliably develop intelligence and ability is greater than the sum of its individual member's talents.

**Systems thinking** - Develop the ability to see the big picture within an organization and understand how change is one area affecting the whole system.

**Self-Directed Learning** - Self-directed learning has been defined by Knowles (1975) as "a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes" (p. 18).

### **Nature of the Problem**

Organizations in the 21<sup>st</sup> century are more noticeably recognizing the importance of considering human resources from a strategic perspective (Yorks, 2005). In order to stay competitive, human resource professionals are being utilized for the advantages they can bring to an organization (Al-Qutop, Futa, & Ma'ani, 2011), including transformation of the organization.

Accordingly, individuals within the organization must be continually developed to meet changing needs (Niessen, Swarowsky, & Leiz, 2009). This development of individuals can take place both informally and formally. Informal learning on the job is essentially "everyday learning" (Merriam, Caffarella, & Baumgartner, 2007, p. 35), and often adults are

not cognizant of the fact that they are actually learning when it occurs. SDL activities are an example of informal learning, and Merriam et al. (2007) suggest that upwards of 70% of all workplace learning is informal. In contrast, formal learning is more intentional, with outcome-based initiatives that organizations are known for utilizing. These might include classroom learning, industry seminars, online training, or additional organized presentations, both in-house and outsourced perhaps at other locations (Fisher, 1993; Merriam et al., 2007; Swanson & Holton, 2001; Yorks, 2005). With evolving technology, changing business models, and the constant reevaluation of workforce needs, learning on one's own is becoming more common and more of a necessity (Artis & Harris, 2007; Cho, 2002; Confessore, 1997; Ellinger, 2004; Robotham, 1995; Smith, Sadler-Smith, Robertson, & Wakefield, 2007). According to Stanley (2007), "The highly competitive nature of our global economy and the rapid change in the production process has made self-directed learning essential" (p. 3). SDL in the workplace begins with individuals, and if properly channeled, it can strategically convert organizations into learning organizations (Marquardt, 2002). The advantages associated with becoming a learning organization will be discussed below.

According to Senge (1990), a learning organization requires three levels of focus: 1) the development, production, and marketing of products, which is dependent on the second area, 2) the development of the systems and processes for production, and finally, 3) organizational thinking and interacting (Swanson & Horton, 2001). Senge (1990) argues that the first two levels are predicated upon the quality of the third level; "that is, the quality of the organizational thinking and interacting affects the organizational systems and processes,

and the production and delivery of products and services” (Swanson & Horton, 2001, p.173). Senge has developed much of his work on learning organizations upon this third layer, organizational thinking and interacting. For a company to exist as a learning organization, there must be careful planning, but the outcomes are worth the investment, and will be discussed in the literature review of this study (Bierema & Berdish, 1999; Bui & Baruch, 2010; Marsick & Watkins, 1999; Sung, 2002). In 2002, Tina Sung, the president and CEO of the American Society for Training and Development, stated:

In today’s highly competitive business environment, learning organizations hold a significant competitive advantage. Their ability to harness the power of learning at all levels - individual, team, and organizational enables them to rapidly leverage new knowledge into new products and services, new marketing strategies, and new ways of leading the learning revolution. (Marquardt, 2002, p. x)

For many organizations to sustain in the 21<sup>st</sup> century, it is critical for employees to be proactive in their view of learning in the workplace, and an organization’s commitment to fostering an environment in which a learning organization can emerge is becoming more of an imperative (Cameron & Quinn, 2006; Confessore & Kops, 1998).

Near the end of the 20<sup>th</sup> century, researchers began to study correlations between SDL in the workplace, and corporate transitions to operating as learning organizations closely followed (Cho, 2002; Confessore, 1997; Confessore & Kops, 1998). Few studies have been conducted linking these two phenomena; furthermore, according to Cho (2002), “The question of how SDL can connect with building a learning organization has not been directly explored” (p. 467). Confessore and Kops (1998) suggested that “The capacity of individuals

to contribute to this knowledge base is largely determined by their capacity to be self-directed learners;” moreover, Hatcher (1997) argued that SDL has the potential to facilitate many organizational demands, including the demand of becoming learning organizations. Grow (1991) advocated that with proper maturity and staging, learners could be taught to be self-directed. Artis and Harris (2007) took this thought further and claimed that multiple antecedents in individuals are necessary to forge adequate, effective SDL. Long (1990) believed that SDL is a personality characteristic of learners, and Hatcher (1997) explained that not all people possess “self-directedness”. It takes time to properly evaluate the culture of an organization before making a significant change to become a learning organization. According to Piskurich (1993), advantages for both the individual and the organization exist with the implementation of SDL as a step toward becoming a learning organization. While some challenges also must be considered in this process, Piskurich (1993) finishes his chapter on SDL with his very simple solution to his question: “Why use SDL? *Because it works*” (p. 22)!

### **Statement of the Problem**

The literature review conducted in this research study uncovered that, if organizations ignore implications associated with culture and their concentrated recruitment and development of employees, increases in job dissatisfaction and turnover occur, as well as several other negative outcomes including the possibility of organizational failure (Cameron & Quinn, 2006; Hatcher, 1997; Klein, 2011; Sirota, Mischkind, & Meltzer, 2005; Weldy & Gillis, 2010). Conversely, the intentional development of employees and embedded commitment in them can be a catalyst to a motivated and inspired workforce, but when left

unguided, and more *expected* rather than developed, it simply does not work. Employees become less connected and committed to their places of work. Marsick and Watkins (2003) refer to a recent study conducted amongst professionals that “chronicles that rapid change...and the impact it has had on a weary set of professionals who move frequently between positions and organizations” (p. 208). Optimistically, this literature has found that individuals can develop self-directedness both with formal and informal methods. However, if these workers do not possess the traits that permit self-directedness, which echoes Hatcher’s (1997) argument, perhaps organizational efforts at implementing SDL and later becoming a learning organization would be unattainable. Furthermore, Confessore and Kops (1998) advocate that SDL plays an integral part in the planning, developing, and maintenance of learning organizations, yet “The importance of self-directed learning is implied but not clearly articulated in the literature on learning organizations” (Confessore, 1997, p. 8). If connections are not made between SDL and transformation to a learning organization, companies could significantly waste time and resources in their actual effort to change.

The facilitation of this change would likely be overly difficult, complex, and too expensive, especially faced with the current economic challenges in business today. Further, if the outcome is lackluster, a great deal of frustration would undoubtedly decrease buy-in and possibly eliminate the initiative altogether. Bierema and Berdish (1999) found in a case study that “although some companies have adopted the learning organization process, the outcomes, impact, and challenges of such initiatives are not well documented” (p. 36). Perhaps HRD could be the catalyst to analyzing the relationships of the factors associated with becoming a learning organization, thereby facilitating the removal of barriers to making

the change. According to Confessore and Kops (1998), “Human Resource Development (HRD) professionals need to recognize differences in learners’ capacities for self-directed learning and make efforts to increase employees’ capacities and readiness to direct their own learning” (p. 372). If organizations do not encourage HRD to look at the relationships of SDL and the learning organization, it could be more difficult to transition to a learning organization in order to remain competitive.

Ellinger (2004) found that “although the concept of SDL has a rich history of research and practice in the adult education field, it has not received considerable attention in the context of HRD” (p. 158). Over the last decade, there has been a decrease in publications about SDL, but “SDL still appears to hold numerous advantages over traditional employee development strategies” (Cho, 2002, p. 467). Organizations have not yet embraced SDL leaving HRD professionals interested, but not involved with this potentially powerful learning tool to achieve worthwhile learning outcomes, and ultimately, an enormous return on investment. Unfortunately, to date, this field of study has shown “evidence that the development of SDL is not well supported in the workplace appears disappointingly compelling” (Smith et al, 2007, p. 325). Cho (2002) argues, “It is a vital issue to discover whether there is a connection between the two concepts [SDL and the learning organization]” (p.462), moreover, empirical research is needed to fully understand SDL in relation to Senge’s (1990) five disciplines. Confessore and Kops (1998) make this imperative clear: “Connections between learning organizations and SDL can be made, but there is a lack of empirical evidence to support explicit connections between the learning organization and

SDL” (p. 373). If this continues to be ignored, the full potential of the intersection of SDL and the learning organization may never be truly understood.

Change and learning are critical aspects to a competitive advantage in an age of constantly evolving technological workplaces (Bauer & Gruber, 2007; Cranton & King, 2003; Ellinger, 2004; Smith et al., 2007; Stanley, 2007; Walker et al., 2007). Stanley (2007) discusses the rapid changes associated with innovation, and the necessity for all workers, including managers, to constantly be in a learning mode. “A typical statement from a macro perspective about workplace changes is that under the conditions of rapidly changing markets and the development of a high technology knowledge society, employees face the challenge to adapt and thus to learn continually” (Bauer & Gruber, 2007, p. 676). Specifically, within the telecommunications industry, making adequate advances requires learning daily: “The technological advances in most production processes have stream-lined companies in all industries” (Stanley, 2007, p. 4). However, research and practice have not examined the relationship between SDL, a technique used for formal and informal workplace learning, and Senge’s (1990) five constructs of a learning organization (personal mastery, mental models, team learning, shared vision, and systems thinking). If the effective working relationships among SDL and these five disciplines are ignored, significant time and resources could be expended in ineffective manners. Additionally, organizations could lose money and ultimately fail. Further, an organization might not see the importance associated with investing in creating learning organizations supported by SDL. They are destined to lose a competitive advantage with their human resources and beyond. This exploratory study hopes to begin dialogue to develop best practices for organizations that wish to focus on

workplace learning as a means to the aforementioned organizational change in becoming a learning organization.

### **Purpose of the Study**

Many organizations choose to accept the status quo, resist change, and remain as-is without making the investment in the strategic organizational change of becoming a learning organization (Ford et al., 2002; Walker et al., 2007). Reasons for this resistance include the following non-exhaustive list: costs associated with the change, a lack of leadership skill sets, or an internal structure composed of an ill-prepared, unready culture (Fagenson-Eland, Ensher, & Burke, 2004; Ford et al., 2002; Walker et al., 2007; Walsh, 2004). An applicable example of this scenario includes the rapidly changing environment of the high-tech telecommunications arena where individuals must embrace change and be self-directed within the workplace in order to be effective and efficient (Al-Qutop et al., 2010; Confessore, 1997; Marquardt, 2002; Marsick & Watkins, 2003). Bierema and Berdish (1999) maintain that “the key to becoming a best-in-class, high-performing organization lies in its ability to learn faster and more effectively than the competition” (p. 36).

The exploratory nature of this study argues that this type organizational change, becoming a learning organization, is one that HRD can guide, and the multitude of resulting benefits can lead to better performance, both for the individual and for the business. The purpose of this study is to explore the relationship between of employees’ perceived SDL and employees’ perceptions of Senge’s (1990) five learning organization constructs. This survey study seeks to examine a target sample of employees in a specific division of an organization regarding their level of SDL and which, if any, of Senge’s (1990) five disciplines could best

impact efforts at becoming a learning organization. The research questions will be answered in the context of a successful, fortune 1,000 high-tech telecommunications company.

Specifically, one field operations division of this organization will serve as the sample.

### **Research Questions**

In an effort to support the purpose of this present study, the following research questions will be addressed:

1. What are the employees' perceived levels of SDL as measured by the Bartlett-Kotrlik Inventory of Self-Learning Scale (Bartlett, 2000) (BISL©)?
2. What are the levels of the employees' perceptions of Senge's (1990) five disciplines (personal mastery, mental models, team learning, shared vision, and systems thinking) necessary to become a learning organization, as measured by Al-Qutop et al.'s (2011) Learning Organization Questionnaire?
3. What is the relationship between SDL and each of the five disciplines necessary to become a learning organization (personal mastery, mental models, team learning, shared vision, and systems thinking)?
4. What amount of variance in the five disciplines, personal mastery, mental models, team learning, shared vision, and systems thinking can be explained by SDL?

### **Theoretical Framework**

The theoretical framework for this study primarily incorporates both self-directed learning and the learning organization. A background of the theoretical underpinnings of this exploratory study will follow four assumptions, each of which will be presented further in Chapter two. They are listed as follows:

- 1) HRD can facilitate the process of a company's becoming (or being assessed as being) a learning organization, as supported by Swanson and Holton (2001) in their book, *Foundations of Human Resource Development*.
- 2) The most appropriate model for demonstrating the process for a company to become a learning organization through the employees' individual assumptions and experiences is that proposed by Peter Senge (1990) in his book, *The Fifth Discipline*.
- 3) Workplace learning is best achieved through self-directed learning, and best defined by Malcolm Knowles in his book, *Self-directed Learning: A Guide for Learners and Teachers* (1975).
- 4) The process and product of workplace learning can be measured (Bonham, 1991; Merriam et al., 2007).

These assumptions converge into a framework upon which this study and its selection of variables and survey instruments are based.

### **Systems Theory and HRD**

Senge's (1990) systems thinking evolved from systems theory, which was first introduced in the mid-1900s (Swanson & Holton, 2006). Bui and Baruch (2010), who discuss Senge's (1990) systems perspective, recently published an article noting, "A significant number of scholars within the learning organization area consider Senge's (1990) model to be the most suitable framework," (p.209). The general premise of systems theory is that systems or processes are open, not closed off, and they are influenced by more impacting systems and environmental factors (Swanson and Holton, 2006). The theoretical framework

for this study will use an adaptation of the basic systems theory model originally presented by Rummel and Brache (1995) and clearly depicted in Swanson and Holton (2006). Figure 1.1 illustrates the basic systems model depicting input, process, and output with each component continuously receiving feedback loops.

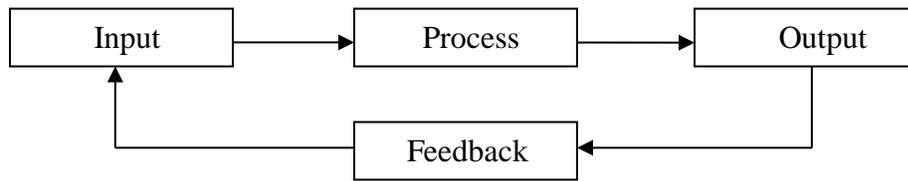


Figure 1.1. Basic Systems Model. Adapted from Swanson & Holton (2006, p. 17)

Swanson and Holton (2006) later referenced a modification of this model creating an organizational model that incorporates HRD as the process driver (seen in Figure 1.2). These authors refer to this adaptation as *HRD in Context of the Organization and Environment* (Swanson & Holton, 2006, p. 19).

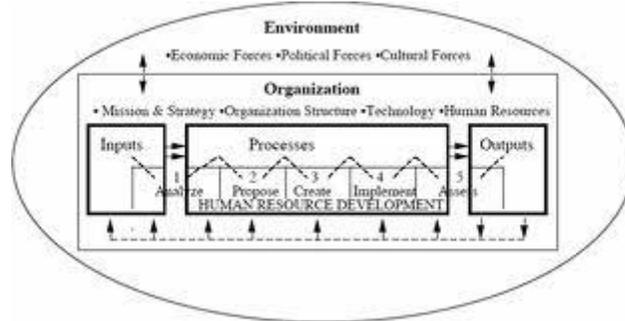


Figure 1.2. HRD in Context of the Organization and Environment.

Adapted from Swanson & Holton (2006, p. 19. Originally from Rummler & Brache, 1995).

For this study, SDL will serve as *input*. HRD will facilitate the *process* of cultivating individuals into a collective culture that integrates Senge’s (1990) five disciplines to become a learning organization, which is the *output*. Swanson and Holton (2006) explain that HRD is an example of a process, thus contradictions that HRD is more so an organizational function or job are considered in the literature as a minority view: “In that HRD needs to engage others in the organization to support and carry out portions of HRD work, it is best to have the process view” (p. 22). This process view is inclusive of other phases within HRD, such as training and development (T&D) and organization development (OD). According to Mabey (2003), “HRD is primarily about building the capability of employees to achieve the strategic objectives of the enterprise. This might be identified by competencies, skills, and/or knowledge gaps” (p. 432). Although HRD encompasses the term *human resources* within

the acronym that defines it, the administrative responsibilities associated with human resources differ greatly from the complexities associated with HRD. The worldview lens of HRD depicted in this section helps to professionalize HRD.

Finally, this study also includes theoretical underpinnings of Knowles' (1975) definition of SDL and Senge's (1990) five disciplines associated with becoming a learning organization: personal mastery, mental models, team learning, shared vision, and systems thinking. Bui and Baruch (2010) conducted a recent study developing a model that found "wide areas of relevance to the learning organization [pointing] out significant interdependences and interactions among the various constructs associated with Senge's (1990) five disciplines of the learning organization" (p. 208). Table 1.1 defines those five disciplines.

Table 1.1

*Senge's (1990) Five Disciplines of Learning Organizations and their Definitions*

Disciplines	Definitions
Personal Mastery	Create an environment that encourages personal and organizational goals to be developed and realized in partnership.
Mental Models	Know that a person's internal picture of his or her environment will shape his or her decisions and behaviors.
Shared Vision	Build essence of group commitment by developing shared images of the future.
Team Learning	Transform conversational and collective thinking skill so that a group's capacity to reliably develop intelligence and ability is greater than the sum of its individual member's talents.
Systems Thinking	Develop the ability to see the big picture within an organization and understand how change is one area affecting the whole system.

*Note.* Adapted from Senge, 1990

**Senge's Five Disciplines**

**Systems thinking.**

Though it is listed last, the fifth discipline, systems thinking, is that which undergirds the other four. In Senge's (1990) model, organizations are systems in the process of continuous adaptation and improvement, and the means to that improvement is through the individual employees. While the focus is on the individual's ability to learn and adapt to the changing organization, the ultimate purpose of individual learning is to benefit the system as

a whole. Senge (1990) wishes for both leaders and employees to have collective aspirations in order for the system to readily adapt to change. The system consists of each aspect of organizational life including mission, strategy, structure, leadership, and culture.

**Personal mastery.**

In order to acquire the first of Senge's (1990) five disciplines, personal mastery, employees must have personal values, motivation, individual learning, personal vision, as well as training and development. This can be acquired through formal and informal learning and work experiences, which is reflective of Malcolm Knowles' (1975) theory of self-directed learning, discussed in more detail below. Senge (1990) explains that personal mastery is inherent within individuals:

[P]ersonal mastery is not something you possess. It is a process. It is a lifelong discipline. People with a high level of personal mastery are acutely aware of their ignorance, their incompetence, their growth areas. And they are deeply self-confident. Paradoxical? Only for those who do not see the "journey is the reward."

(Senge, 1990, p.142)

The discipline of personal mastery is not shown by a set of replicable skills—it is shown by the worker's attitude towards learning, which ultimately contributes to the shared vision of the organization, which will be further discussed below. This present study will measure the individual level of personal mastery evident in the employees of the high-tech company under analysis.

### **Mental models.**

Mental models are “deeply ingrained assumptions, generalizations, or even pictures and images that influence how we understand the world and how we take action” (Senge, 1990, p.8). These are influenced by the individual’s organizational commitment, leadership, and the organizational culture. Organizations that acknowledge the existence of mental models (often observed in workplace politics and responses to leadership) can create an environment that allows people to reorient their models to reflect the learning organization. Senge (1990) explains how this works:

The discipline of mental models starts with turning the mirror inward; learning to unearth our internal pictures of the world, to bring them to the surface and hold them rigorously to scrutiny. It also includes the ability to carry on “learningful” conversations that balance inquiry and advocacy, where people expose their own thinking effectively and make that thinking open to the influence of others. (Senge, 1990, p. 9)

This present study will measure how employees’ mental models operate within their organization.

### **Shared vision.**

Shared vision begins with individuals in that it is built from each employee’s vision for how the organization (or system) can improve and change. In order to have shared vision, employees must understand the mission, values, vision, and goals of the organization and have gained that perspective through an understanding of their personal mastery and an adjustment in their mental models. Senge (1990) explains further:

The practice of shared vision involves the skills of unearthing shared ‘pictures of the future’ that foster genuine commitment and enrolment rather than compliance. In mastering this discipline, leaders learn the counter-productiveness of trying to dictate a vision, no matter how heartfelt. (Senge, 1990, p. 9)

Thus, the learning organization involves both leaders and employees sharing their visions in order to meet the needs of the system. This present study will examine the presence of shared vision within the sample.

### **Team learning.**

For team learning, a team commitment is needed, along with leadership, goal setting, culture, as well as training and development. Senge (1990) is particularly interested in self-directed work teams, which he believes is a way for employees to come together and communicate and learn as a team in order to fulfill the shared vision:

The discipline of team learning starts with “dialogue,” the capacity of members of a team to suspend assumptions and enter into a genuine “thinking together.” To the Greeks *dia-logos* meant a free-flowing if meaning through a group, allowing the group to discover insights not attainable individually. (Senge, 1990, p. 10)

This present study will assess the ways the employees of this high-tech company view team learning in their organization.

### **Self-Directed Learning**

Senge’s (1990) learning organization is operationalized when organizational leadership promotes a work environment in which employees individually and collectively continue to learn how to learn (Merriam et al., 2007; Kiedrowski, 2006; Swanson & Holton,

2001; Yorks, 2005). This notion is best reflected in Malcolm Knowles' (1975) concept of self-directed learning:

[SDL is] a process in which learners take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes. (p. 18)

Senge (1990) focuses on the learners as a part of a system whereas Knowles provides the justification for assessing the learners at the individual level. This present study will assess individual perceptions of themselves as self-directed learners as well as their perception of their role in the learning organization.

### **SDL and the Learning Organization**

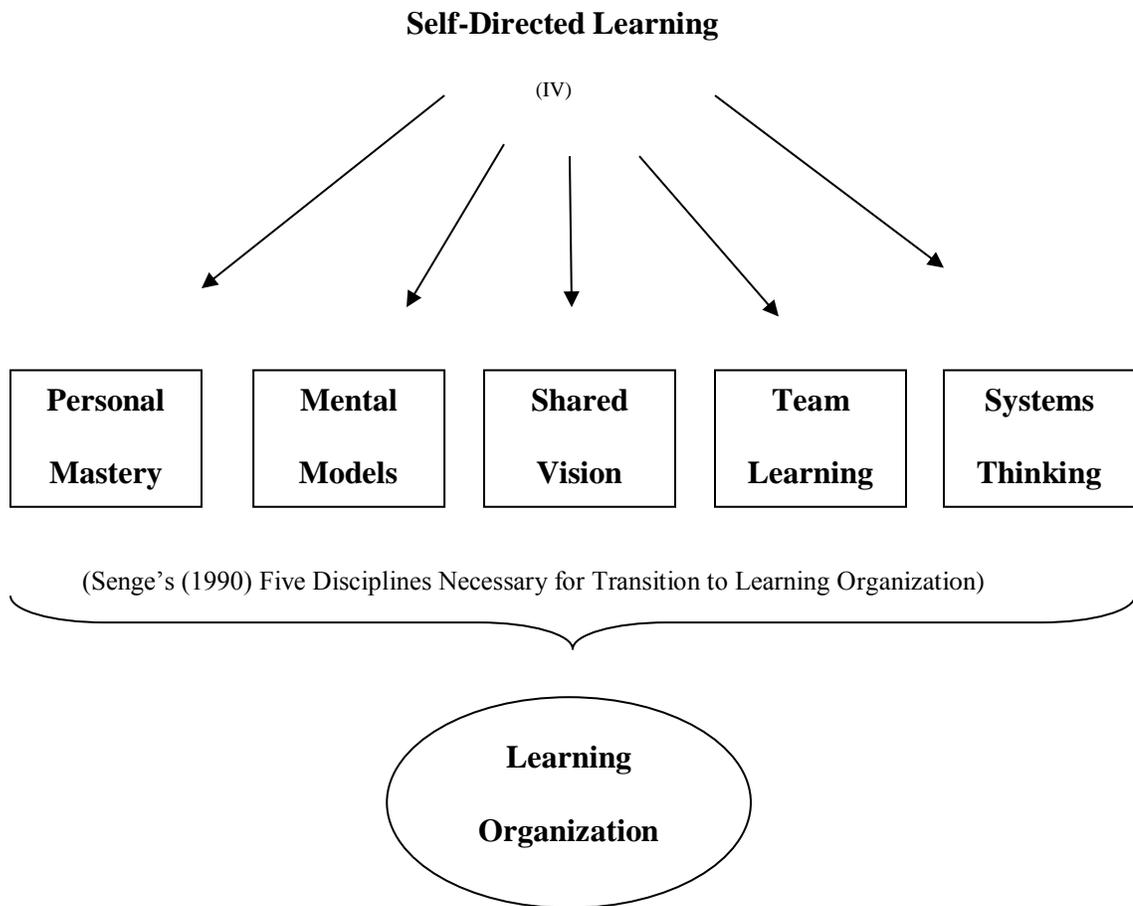
Cho (2002) recognized SDL, which had traditionally been a platform for personal growth, as the key to moving toward the learning organization model. He notes that development of a learning organization is predicated upon a foundation of interaction with others through a collective process, saying, "The bridges that connect SDL and the learning organization are their interdependent and collective aspects" (p. 469). Cho (2002) conducted an extensive review of the literature in an effort to connect both SDL and the learning organization, concluding that self-directed learners are more likely to interact with others and with their environment, thus creating a worthwhile outcome. These interdependencies are visible with Senge's (1990) strong reliance on systems thinking, which Senge firmly argues enables integration of all five disciplines to form a theoretical construct that ultimately transforms a workplace into a learning organization (Flood, 1998).

Self-directed learning and the learning organization represent the theoretical underpinnings of this study. Further, the exploratory investigation of their interaction within this context also incorporates HRD and systems theory. The variables associated with this study will be explained and depicted in Figure 1.3 to better signify the manner by which they were operationalized to conduct this research.

### **Conceptual Framework**

In order to conduct this research, a conceptual framework has been developed that illustrates the use of the variables for the study. Figure 1.3 provides a depiction of the conceptual framework and identifies the independent and the dependent variables.

Confessore (1997) reports the importance of SDL for purposes of becoming a learning organization is more implied rather than clearly articulated in the literature. Bierema and Berdish (1998) reported their findings from a case study that showed employees actually enjoyed SDL initiatives within their workplace. Shortly thereafter, Cho (2002) began to recognize bridges connecting the two. This present study will take these two constructs, SDL and the learning organization, and argue that through Senge's (1990) five disciplines, when individuals who embrace and practice SDL, a learning organization can and does emerge. Further, the bridge that connects these two might also become more defined. The literature has shown the advantages of 21<sup>st</sup> century organizations benefiting from this strategic approach to sustenance (Al-Qutop et al., 2010; Bui & Baruch, 2010; Fard, Rostamy, & Taghiloo, 2009).



*Figure 1.3.* Conceptual Framework

### **Overview of Methods**

This study was conducted as a quantitative, non-experimental design. Data were collected anonymously using a web-based survey instrument which was created using two previously used instruments from the literature. All communication was conducted via e-mail to each of the participants. A cross-sectional snapshot of an existing organization was generated with one collection of data. Multiple quantitative statistical analyses were conducted utilizing Statistical Package for the Social Sciences (SPSS) software.

## **Sampling**

This study examined the field operations division (n = 850) of an existing high-tech organization. The ensuing data can be generalized to a population including like employees of the several additional field operations of this global organization.

## **Instrumentation**

An internet-based survey was developed for this study consisting of questions relating to SDL and the learning organization. The instrument asked the participants to answer twenty Likert-type questions to determine the level of SDL present within the company. The level of employees' skills relating to Senge's (1990) five learning organization disciplines (personal mastery, mental models, team learning, shared vision, and systems thinking) was then determined by twenty additional Likert-type survey questions.

## **Data Collection**

Following approval through the North Carolina State University Institutional Review Board process, data were collected via an online instrument. The survey to obtain this data set was sent via e-mail to each member of an existing organization's field operations division. Participants simply followed a link to a secure website, [www.surveymonkey.com](http://www.surveymonkey.com), to complete the survey. Follow-up emails were also sent. All correspondence was anonymous.

## **Variables**

One independent variable, SDL, was utilized in this study; SDL tests the interaction with each of the five disciplines outlined by Senge (1990), including personal mastery,

mental models, shared vision, team learning, and systems thinking as necessary to becoming a learning organization. Becoming a learning organization serves as the dependent variable.

### **Data Analysis**

Data were analyzed using SPSS 18 software. The specific analysis for the first two research questions includes descriptive reporting of means and standard deviations. The third question tests correlations between SDL and the five disciplines for becoming a learning organization. Finally, the fourth question uses five simple linear regressions that illustrate how much of the variance in Senge's (1990) five learning organization disciplines can be explained by SDL.

### **Significance of the Study**

This present study primarily explores whether SDL and Senge's (1990) five disciplines (1990) actually work together in forming a learning organization. This study aspires to facilitate development of a model to support SDL and the learning organization within organizations and not only help practitioners, but also provide development of substantive theory. Glaser and Strauss (1967) refer to substantive theory as "a strategic link in the formulation and generation of grounded formal theory" (p. 79). These authors noted that formal theory can sometimes be directly generated through data analysis, but that substantive theory accentuates what they refer to as a "good idea" (p. 79) providing direction to perhaps generate grounded formal theory. This serves as this study's primary significance. A more strategic, informed approach of initial staffing might provide valuable information to practitioners. Furthermore, learning to recruit for a better-suited workforce could

dramatically impact HRD. This information could guide hiring strategies, inform practice, and cultivate additional scholarly research to actualize these initiatives.

SDL can be seen as a type of individualized learning process that provides personal growth but has recently been recognized as an organizational strategy for development. The learning organization has been examined within HRD literature (Bui & Baruch, 2010; Cho, 2002; Confessore, 1997; Confessore & Kops, 1998) to illustrate methods for 21<sup>st</sup> century organizations to survive the current economic downturn. This HRD literature has determined that a learning organization in the 21<sup>st</sup> century might have a propensity to working quickly, have a capability to change, and possess encouragement of collaboration, each of which lead to performance improvement (Marsick & Watkins, 2003). Yang, Watkins & Marsick (2004) determined that “empirical assessment of the learning organization is in its infancy” (p. 52). A lack of published empirical evidence to try and derive the correlations between SDL and the learning organization hampers the need for this knowledge. This gap in literature serves as a second significance for this study.

A better understanding of the interactions between SDL and Senge’s (1990) five disciplines of the learning organization might provide valuable data regarding the learning processes of individuals within organizations, perhaps resulting in tremendously beneficial outcomes. Following this study, a plethora of tangential research might further add to this body of knowledge, including program planning, interventions, and organizational education formats, both informal and formal. The results from this exploratory study could change existing strategic systems thinking and eliminate less effective, outdated business policies

and methods of workforce training to meet the needs generated by the downturn in the economy. These possible implications for practice are the third significance for this study.

### **Limitations of the Study**

The survey instrument was entirely anonymous; thus, verification of response data is impossible. Because of a lack of empirical data on measuring Senge's (1990) five disciplines present within a learning organization, employees' perceptions were measured. Another limitation is that the poor economic conditions may have impacted the response ratio. Perhaps employees lacked time, resources, and/or legitimate or perceived supervisory support, thus elected to not spend the time to participate. Finally, the process of self-reporting the data is a limitation in this survey study, and could perhaps provide a bias of answering with a desired level rather than a perceived level.

### **Delimitations of the Study**

The findings of this study are bound by the sample, which is comprised of the employees in a field technician division of an existing high-tech organization. Additionally, the study is confined to a specific time. It consists of a sample of this group of employees from one division of one organization in one sector. These members were employed during the 2012 calendar year. The study is further delimited by the survey instrument used.

### **Organization of the Study**

The study is structured with five chapters. Chapter one identifies the nature of the problem, the statement of the problem, and the purpose of the study. Next, specified research questions are listed, followed by definitions of related terms. The conceptual and theoretical frameworks are described, and then the research design and methods are introduced with an

explanation of the study's variables. Chapter one concludes by identifying the significance of the study, limitations, and the overall organization of the study.

Chapter two contains an introduction describing the purpose and organization of the chapter, providing a thorough examination of literature related to SDL and the learning organization. A justification of the study's theoretical framework as it applies to the variables used in the study is then made. The chapter provides a detailed synthesis of the intersection of SDL and the learning organization as shown by scholarly literature.

Chapter three describes the planned research design, research objectives and associated research questions, the variables used in the study, the study's methods, as well as the study's sample and participants. Discussions of the creation of the instrument, item selection, and critical review are included. Missing data and outlier responses are analyzed and discussed relative to the study. The chapter also discusses the exploratory factor analysis that was conducted for item refinement during instrument creation. Finally, an overview of the planned data collection procedures, subsequent analysis, and assumptions of the findings are each presented. Chapter four discusses the data analysis, and chapter five concludes with a summary and explanation of the research question findings.

## **CHAPTER 2: LITERATURE REVIEW**

Chapter two includes an overview of literature on SDL in adult education and in the workplace; additionally, it explains how HRD can embrace the principles of SDL and apply them to their work as organizational change agents. The chapter also discusses how SDL relates to an organization's effort to become a learning organization. Finally, an overview of tested measures for assessing SDL is discussed as background for this empirical study of employees' perceived SDL and their perceptions of their workplace as a learning organization.

### **Self-Directed Learning**

SDL has existed as a subject of study since the mid to late 1950s, as the innovation of programmed instruction and the technology of teaching machines emerged in business and industry (Merriam, 2001; Piskurich, 1993). For defining purposes, SDL encompasses adults assuming control over their own learning, but it delves much deeper into various components of the learning process (Merriam & Brockett, 2007).

### **Background of Self-Directed Learning**

A multitude of definitions of SDL exist in the literature of adult learning and HRD, depending on the actual context (Mackeracher, 2004; Merriam et al., 2007; Merriam & Brockett, 2007; Straka, 2000). Mackeracher (2004) describes the difficulties associated with the variations of SDL by saying, "The term 'self-direction' is problematic because few writers, researchers, and educators take the time to provide a clear functional definition" (p. 44). A significant nuance of SDL is that the locus of control is completely left to the learner without a teacher or authority to ensure accountability of the learning (Knowles, Holton, & Swanson,

2005). Similarly, Merriam and Brockett (2007) quote Caffarella's (1993) reference that in SDL, "the learner chooses to assume the primary responsibility for planning, carrying out, and evaluating those learning experiences" (p. 28). This goal or outcome-oriented approach to SDL was studied by Candy in the early 1990s (Candy, 1991; Merriam & Brockett, 2007). Long (1990) defines SDL as complete independence from a teacher. Ellinger (2004) explains that within adult education literature, over the years, SDL has not realized a universal definition.

Merriam et al. (2007) provide a fundamental chronological background of the evolution of SDL within the field of adult learning, beginning with Tough's work, which was built upon the work of Houle's basic belief that learning is learning, despite differences in age (Mackeracher, 2004). Merriam (2001) discusses the first documented study on SDL that was conducted by Tough in 1971, and was a catalyst to promote further development of SDL in adult learning. In this Canadian study, Tough found that learners are essentially responsible for nearly 70% of their actual learning (Ellinger, 2004; Merriam et al., 2007; Merriam & Brockett, 2007). Tough provided a differentiation between formal education and informal learning, which helped to develop theorists' conceptual thoughts about the nature of learning. Following Tough's work, Malcolm Knowles' expanded the ideas of how SDL is the result of the maturation process. The author of this current dissertation study would like to recognize that Malcolm S. Knowles is fondly regarded as a retired professor emeritus, North Carolina State University; he served as a professor of education there from 1974-1979.

Grounded in his concept of andragogy, Knowles recognized that as people mature, their learning becomes self-directed, and requires less pedagogical, teacher-led traditional instruction (Knowles, 1990). Furthermore, Knowles postulated that if learning environments

are designed using pedagogical methods meant to teach young children and are not designed to promote SDL, the result “produces tension, resistance, resentment, and often rebellion” (Knowles, 1990, p. 55) in the learner. In his early publications regarding SDL echoing Tough’s work (Ellinger, 2004), Knowles (1975) defined six steps integral to effective SDL in his book *Self-Directed Learning: A Guide for Learners and Teachers*. They include 1) climate setting; 2) diagnosing learning needs; 3) formulating learning goals; 4) identifying human and material resources for learning; 5) choosing and implementing appropriate learning strategies; and 6) evaluating learning outcomes.

SDL has often been misconstrued as self-managed learning, or self-learning (Ellinger, 2004) without the direction of a facilitator, and often with the learner in isolation, rather than collaborative formal learning scenarios, as it is argued should be the case within HRD (Sadler-Smith & Smith, 2004, p. 325; Swanson & Holton, 2001). Knowles (1975) provided the following definition of SDL:

A process in which learners take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes. (Knowles, 1975, p. 18)

Still today, most of the literature includes this well-respected definition early in the respective manuscripts. These three authors, Houle, Tough, and Knowles, are considered the pillars of SDL. While Merriam and Brockett (2007) “tour the landscape of adult education in North America” (p. 15), they refer to andragogy and SDL as being primary concepts within the field of practice.

## **Self-Directed Learning in Business and Industry**

According to Piskurich (1993), from the lens of technical and performance skills training, which applies to this study, the definition of SDL is “a training design in which trainees master packages of predetermined material at their own pace, without the aid of an instructor” (p. 4). But it is to be noted that Hatcher (1997) claims the learning process of SDL “does not happen by accident: it requires expert facilitation” (p. 35), including an organizational environment conducive to learning and strategic planning to continuously challenge employees and hold them accountable. Additionally, Ellinger (2004) says, “The overall challenge in organizations is to harness adult learners’ propensity to be self-directed learners and not create barriers that prevent or discourage it” (p. 167). To harness this ability requires organizations to change their way of thinking about workplace education.

The primary research on SDL has been focused on clarifying the goals of SDL, developing models for utilizing SDL in both learning and teaching, and having the capability to recognize it as a personal attribute (or not) of certain learners. For SDL to effectively work in a business setting, learners must be both mentally able to and ready and willing to put forth an effort. Ellinger (2004) tells us, “Autonomous learners are generally thought to be independent, able to make choices and critical judgments, and have the capacity to articulate norms and limits of a learning society” (p. 166). She then discusses multiple benefits of promoting SDL within the workplace; this non-exhaustive list includes cost effectiveness of saving in training expenses, the intermingling and sharing wealth of knowledge with others, and better eventual job performance. She also argues that HRD has not embraced SDL as a technique that, in her words, *should* be used in HRD practice: “Learners are being increasingly challenged to become

continuous lifelong learners and assume more responsibility for their own learning and development so that they can remain enjoyable and marketable” (Ellinger, 2004, p. 158). She cites several published articles that illustrate the growing trend of SDL in various formats and applications, stating the purpose of her article: to show how and why SDL can and should be embraced in HRD.

Merriam et al. (2007) mention a more recent growing interest of SDL within HRD. HRD can facilitate such organizational changes, but unfortunately, very minimal empirical evidence has merged HRD with SDL. Kerka (2001) believes that HRD has to change its focus: “Adult education claims a humanistic, learner-centered, self-directed focus on transforming individuals; but HRD is oriented toward bottom-line, behaviorist performance improvement aimed at organizational goals” (p. 1). Yet even while monitoring profitability, many HRD professionals are committed also to “ethical engagement and socially responsible workplaces; [they] are more than ever expected to deliver shareholder value through employee performance” (Fenwick, 2004, p. 194). Kuchinke (1998) argues that HRD is the representation of organizational investment in its internal human resources to increase utility: “If people at work tend to be active, if they tend to pursue goals, direct themselves, and look for meaning in their work, HRD theories need to reflect these characteristics adequately” (p. 382).

Cho (2002) discussed a decrease in publications about SDL within the arena of adult education, but suggested that “SDL still appears to hold numerous advantages over traditional employee development strategies” (p. 467). The literature on HRD leadership has not yet fully tested or embraced SDL as a powerful learning tool to achieve worthwhile

learning outcomes, and ultimately, a potentially enormous return on investment (ROI). But unfortunately, in 2007, “the [existing] evidence that the development of SDL is not well supported in the workplace appears disappointingly compelling” (Smith et al., 2007, p. 325). According to Knowles (2005), the objective is that “SDL becomes the norm because newcomers have to take the initiative to learn much beyond the task knowledge to do their jobs” (p. 319). An applicable example of this scenario includes the rapidly changing environment of the high-tech telecommunications arena, where individuals must embrace change and be self-directed within the learning organization. Hatcher (1997) notes this type of situation in his case study of the pseudonymous, Milburn Technologies, which he refers to as being, “a high-tech, fast paced firm that has been implementing SDL to meet ever-changing training needs” (p. 38). But self-directedness must not focus exclusively on the individual and compromise the interconnectedness that Senge professes. Marsick and Watkins (1999) reference a recent study conducted amongst professionals that “chronicles that rapid change...and the impact it has had on a weary set of professionals who move frequently between positions and organizations” (p. 208). Mabey (2003) acknowledges that HRD practice can be examined from a multitude of interpretive lenses, thus the priorities and intentions of HRD “frequently become blurred and the outcomes difficult to assess” (p. 431).

A problem is apparent within multiple years of literature since SDL and HRD have not yet found harmony within organizational learning. Debates have been launched in various studies, and ongoing dialogue still vacillates between making an organizational move to SDL facilitated by HRD, or clinging to the more traditional methods of teacher-led instruction in training initiatives. Hatcher’s (1997) “The Ins and Outs of Self-Directed Learning” begins with

a practical story of Felix, and just how useful and life-changing SDL can be. This story illustrates that with SDL, learners do not rely solely on trainers to teach and produce the specific learning needs. Though Felix had heard of SDL, he had never experienced it. In the past, the trainer explained what Felix should learn, and he would simply learn it. But this time, Felix experienced something new and different - a big change. He was able to learn the course content much quicker, and moreover, he was able to immediately apply new skills. This was attributed to the premise that, “he decided what he was going to learn, how he would learn it, and how well he wanted to learn it” (Hatcher, 1997, p. 35). Once Felix applied these newly acquired skills to the workplace, he realized that he liked being responsible for his own learning, and the outcome was positive, both for him as the individual, as well as the organization.

Hatcher (1997) describes facilitation as being critical since learning may or may not occur within SDL scenarios, even with learning contracts or learning plans. The facilitator may or may not possess the skills to adequately ensure that learning occurs, which is a crucial determining factor, and should be evaluated before, during, and after interventions both formative and summative (Kettner, Moroney, & Martin, 2008). Following an interview with Malcolm Knowles, Hatcher (1997) compiled a rather extensive list of critical facilitator competencies deemed necessary for effective and successful organizational SDL to be an end result. Some of these competencies include monitoring social dynamics; consideration for different learning styles; showing concern and empathy regarding diversity; and other needs for recognition of barriers to progress (Hatcher, 1997). When organizations are designing learning initiatives to utilize SDL, proper, yet effective facilitation is important to the success of learning

and intended change. Once again Hatcher (1997), reminds us that “It doesn’t happen by accident: it requires expert facilitation” (p. 35). Grow’s (1991) stages are a guide for any teacher to help ensure readiness and comfort of learners, and his match and mismatch notes for learning styles could be incorporated to help determine the dynamics of a SDL learning environment, which Straka (2000) argues is critical, along with competence and autonomy. Aligned with Knowles’ (1975) andragogical framework, SDL within organizations shifts the learning focus from the trainer to the learner. Hatcher (1997) explains that by facilitating this process and relinquishing locus of control, learners actually take responsibility for their own learning, which helps people to learn better.

While it is true that facilitation is a key component of fostering and maximizing SDL, the learning context is just as significant. The Ellinger (2004) study supported claims that context influences learning. The importance of leadership and its ability to be a catalyst toward learning was the first theme discussed from the data. Conversely, a negative influence from leaders can severely “impede or suppress learning” (p. 405). Learning-committed leadership and management are deemed extremely important contextual factors for the informal learning process in organizations. According to Hatcher (1997), trainers should approach SDL not as another instructional method, but as a process that takes time and can be worth the investment for organizations.

Since Knowles (1990) believed that adults possess a “deep need to be self-directing” (p. 31), it can be understood that satisfying that need leads to higher morale in adults. Knowles also addresses the kind of leadership or change agent that is required to assist in change: “Creative leaders are committed to a process of continuous change and are skillful

in managing change” (Knowles et al., 2005, p. 260). Swanson and Holton (2001) postulate that a positive morale of an organization’s workforce is one of the key characteristics that is consistent with almost every company that has a successful long-term history. When SDL experiences are properly conducted, leaders can provide a mutually beneficial harmony of effective organizational performance and a satisfied workforce (Swanson and Holton, 2001). Sirota et al. (2005) have conducted extensive research linking employee morale to motivation and subsequent performance. Positivity fosters job satisfaction, work happiness, and organizational commitment, which are inclusive in a non-exhaustive list of the multiple outcome variables associated with investing in human capital through self-direction (Cho, 2002; Ellinger, 2004; Luthans & Youssef, 2007).

Smith et al. (2007) concur, stating that “Self-directedness among workers is an objective worthy of pursuit by organisations wishing to achieve knowledge and skill development for a competitive edge in a rapidly changing industrial context” (p. 325). They determined that organizations that are committed to instilling enthusiasm in the workforce have actually performed in the stock market approximately 20% better than their similar counterparts not concerned with their people. In addition to providing personal satisfaction in employees, at the organizational level, Luthans and Youssef (2007) completed a study that found that a self-directed training intervention designed to increase positivity in the workforce actually provided a 270% ROI. Methods for identifying self-directedness within employees or candidates for employment is not yet a scientifically proven and collectively accepted process; moreover, measures for documenting and quantifying the ROI associated with the incorporation of SDL in the workplace through HRD is a challenging task.

While Ellinger (2004) tries to connect SDL with HRD, she states that changes within organizations are ultimately a direct result of employee learning scenarios, and these initiatives are increasingly being facilitated through learning approaches that incorporate a self-directed process. SDL is not an easy endeavor, and Hatcher (1997) reminds us that SDL requires time and organized planning to actually work. It is up to HRD practitioners to realize and to explain to organizations that “self-directed learning can help promote change by creating a learning environment that allows time to learn, tolerates mistakes, provides trainers with feedback on their progress, challenges trainees to move beyond the status quo, and respects different learning styles and abilities” (Hatcher, 1997, p. 36). SDL is a conduit for an organization becoming a “continuous-learning organization” (Confessore, 1992, p. 10). When an organization transforms its learning environment to one that encourages SDL, it benefits not only the organization, but also the individual worker and the field of adult education in general - HRD in particular. Such transformation fulfills the vision that Knowles (1990) had of HRD’s evolution:

I am beginning to visualize HRD as something deeper...[my vision] includes the conception of modern economic theorists that the input of human capital is an even more critical determinant of organizational output than material capital. It envisions the role of the human resources developer as being perhaps more crucial than any other role in determining which organizations will be alive twenty years from now and which will be extinct. (p. 140)

The hope, of course, is that HRD continues to evolve based on theories that, when tested, prove to be effective at assisting with change in organizations.

## **SDL and Organizational Change**

Organizational change has been a widely studied phenomenon for many years. Any form of change initially involves individuals, and then can move to organizations, and ultimately society – this concept is the chronological order by which *The Change Process*, EAC 712, was taught at North Carolina State University by Dr. Tim Hatcher in 2009. Swanson & Holton (2001) also discuss this premise. In this dissertation study, the focus includes both individual and organizational change, and it examined the necessary individual steps to achieve a broader change. Moreover, organizations rely on leadership’s buy-in and response to change to guide acceptance of other members (Stanley, 2007). It is crucial for leaders to move quickly and embrace change: “As industries become more competitive, organizational change efforts are more important for the long-term survival of many firms” (Walker et al., 2007, p. 769). Change does not swiftly happen with an order from a top manager, and Knowles (1990) reminds us that organizations are social systems. The literature repeatedly illustrates, as will be evident further in this section, that to facilitate effective change, much strategic planning and follow-up are required. HRD can assist, or even lead in that process.

Within the field of adult education, change theorists have almost exclusively built their work upon that of Kurt Lewin, who is known for his work in the 1950s on change (Fagenson-Eland et al., 2004; Knowles et al., 2005; Knowles, 1990; Merriam et al., 2007; Swanson & Holton, 2001; Walker et al., 2007). Lewin’s foundational studies postulated that three stages are necessary for change to occur, and they include unfreezing, moving, and then refreezing (Armenakis & Bedeian, 1999; Swanson & Holton, 2001); this core concept is

referred to as Lewin's Field Theory. Lewin believed that, in order to *unfreeze* the status quo, some external force is necessary to break inner resistance (Swanson & Holton, 2001). He suggested that change is often temporary as people tend to revert back to prior norms and the *refreezing* process requires as significant reinforcement as the initial freezing effort. Tichy (1983) echoes Lewin's freezing methodology with, "all change requires exchanging something old for something new" (p. 332).

Merriam et al. (2007) define change within adult development as a *concept*, as with learning, that is often equated with change. Swanson and Holton (2001) discuss change as being a "departure from the status quo" (p. 270). Many definitions of the broad concept of change have been written, and "change has been a central concept in HRD since its origins. Thinking about change in HRD has emerged from two basic directions: individual development and organizational development" (Swanson & Holton, 2001, p. 285). The literature repeatedly recognizes that for change to occur in organizations, it must first involve the individuals within the organization: "Induction of new patterns of action, belief, and attitudes among substantial segments of a population" (Schein, 1970, as cited in Swanson & Holton, 2001, p. 286). Watkins and Marsick (1993) state, "Change is a cyclical process of creating knowledge (the change or innovation), disseminating it, implementing the change, and then institutionalizing what is learned by making it part of the organization's routines" (p. 21). Recognizing the need to make an organizational change to possessing more self-direction in the workforce is a huge undertaking, and Smith et al. (2007) say, "Self-directedness among workers is an objective worthy of pursuit by organisations wishing to achieve knowledge and skill development for a competitive edge in a rapidly changing

industrial context” (pp. 324-5). Although change adds challenges with regard to sustaining organizational continuity, Stanley (2007) suggests that leaders stay on the forefront of change research in order to ensure that it actually occurs: “A self-directed learning mind-set is the foundation for management progress. It is essential that managers and supervisors commit themselves to a learning process that is based on a commitment to learn in our ever-changing workplace” (p. 3). Although not easily achieved, change is necessary, and should be researched and planned for accordingly within organizations.

Swanson and Holton (2001) refer to Bridges’ organizational model of change in 1991 called the *transition model* during which all persons experience a psychological *ending*, a *wilderness* phase (occurs during the actual change), and finally a *new beginning*. Finally, nearly one half of a century following Lewin’s work, Armenakis, Harris, and Field (1999) developed a model, which, like Bridges’ model, has been deemed conceptually very comparable to Lewin’s. These latter two efforts mirror Lewin’s three step freeze process, as depicted in Table 2.1.

Table 2.1

*Change Processes*

Lewin: Field Theory	Bridges: Internal Psychological View	Armenakis et al.: Behavioral View
Unfreezing	Ending	Readiness
Movement	Wilderness	Adoption
Refreezing	New Beginning	Institutionalization

Change has also been described as an orderly mechanism, occurring as first, second, or third-order levels, which are brought about by single, double, and triple-loop processes (Walsh, 2004): “Single-loop behaviors lead to a first-order type of change, in which individuals make small, behavioral adjustments based on a set of beliefs about the way organizations should be structured” (p. 306). In double-loop scenarios, individuals actually evaluate and alter their way of thinking, thus, a second-order level of change occurs which actually drives one’s actions (Walsh, 2004). Finally, the triple-loop change process leads to third-order change which involves entire organizational cultures (Walsh, 2004). This more complex scenario would be indicative of an organization transforming into a learning organization.

## **Instruments to Measure Self-Directed Learning**

Indeed, SDL has been shown to be an effective means for educating adults in the 21<sup>st</sup> century workplace. In their analysis of adult education research since the 1970s on SDL, Guglielmino, Long, and Hiemstra (2004) found that “With regard to technological changes, globalisation, changing social values and norms, as well as the changes in the education systems of many countries, the attention to self-directed learning is unlikely to diminish” ( p. 289). It is with belief in mind that this study is undertaken — SDL, when practiced in organizational settings and facilitated by HRD professionals, has proven benefits, both for individuals and employers.

A scholarly debate regarding just what the goals should be regarding SDL prompted several publications on the topic (Brockett and Hiemstra, 1991; Brookfield, 1986; Collins, 1988; Mezirow 1985). The three main goals of SDL emerged in the literature as being, “(1) to enhance the ability of adult learners to be self-directed in their learning, (2) to foster transformational learning as central to SDL, and (3) to promote emancipatory learning and social action as an integral part of self-directed learning” (Merriam et al., 2007, p. 107). The question that remains is *how* such goals can be measured. In 1993, Piskurich wrote that one of the primary reasons that SDL is not popular within HRD is that SDL suffers from “not yet being a recognized form of instruction” (p. 19). The early models that were utilized in the research conducted by Tough and Knowles were linear, including the model used by Tough in his Canadian study from 1971, and then more interactive models were developed (Merriam et al., 2007).

### **Straka's two-shell model.**

Straka (2000) conducted a study in Germany that investigated the dynamics of learners' interest, such as autonomy, competence, and self-directedness. A two-shell model of motivated SDL is discussed within this article where concepts, constructs, and dimensional scales of motivated self-directed learners help to explain existing phenomena that if properly understood, can lead to better learning in the diverse workplace. Straka concluded that SDL is directly connected to interest, strategy, and control. Several models followed to try and understand SDL as a process. These more sophisticated instructional models began to enhance learning and shortly thereafter, instruments or scales used to assess SDL in business settings and academe emerged in the 1980s and 1990s. Integration models and strategies to promote SDL for purposes of an overall buy-in are critical.

### **Grow's Staged Self-Directed Learning (SSDL) model.**

Grow's Staged Self-Directed Learning (SSDL) model outlined how teachers could assist students at becoming more self-directed in their learning (Merriam et al., 2007). Grow (1991) acknowledges that being a dependent, non-self-directed learner is not a deficit; it can, however be a limitation. The SSDL model is one that "suggests how teachers can actively equip students to become more self-directed in their learning" (Grow, 1991, p. 126) – a need that he recognized as an important change since the platform of teaching in which he was accustomed was shifting. He explains the reasons for such a model clearly:

What is "good teaching" for one student in one stage of development may not be 'good teaching' for another student or even for the same student in a different stage of development. Good teaching does two things: it matches the student's stage of self-

direction, and it empowers the student to progress toward greater self-direction. Good teaching is situational, yet it promotes the long-term development of the student. (Grow, 1991, p. 140)

His list of assumptions begins the description of the model, and an important concept which he calls “situational leadership,” is described as being a critical component of making the progression between dependency and self-direction. Grow breaks down each of the stages from dependency to self-direction, and illustrates several mismatches in teaching and/or learning styles that might perhaps pose significant problems. He states, “The most severe problems occur when dependent learners are mismatched with non-directive learners and when self-directed learners are mismatched with directive learners” (p. 137). He then provides a table (see Table 2.2) to illustrate mismatches in teaching and/or learning styles that might pose barriers towards meeting this objective.

Table 2.2

*Hethen's Mismatches in Teaching/Learning (Grow 1991)*

Stage	Student	Teacher	Examples
Stage 1	Dependent	Authority Coach	Coaching with immediate feedback. Drill. Informational lecture. Overcoming deficiencies and resistance.
Stage 2	Interested	Motivator, guide	Inspiring lecture plus guided discussion. Goal setting and learning strategies.
Stage 3	Involved	Facilitator	Discussion facilitated by teacher who participates as equal. Seminar. Group projects.
Stage 4	Self-directed	Consultant, delegator	Internship, dissertation, individual work or self-directed study group.

### **Self-Directed Learning Readiness Scale (SDLRS).**

During her dissertation studies at the University of Georgia under the combined direction of Huey B. Long and R. Curtis Ulmer, Guglielmino (1978) created a quantitative measure of self-directedness called the Self-Directed Learning Readiness Scale recognized in the field by the acronym, SDLRS (Guglielmino 1978; Mackeracher, 2004; Merriam et al., 2007). Her term "readiness," according to Merriam et al. (2007), refers to the necessary internal state of one's psychological preparedness in order to succeed at SDL. Guglielmino (1978) is recognized as having provided the most-used operational definition of SDL; Merriam et al. (2007) states, "it consists of a complex of attitudes, values, and abilities that create the likelihood that an individual is capable of self-directed learning" (p. 121). According to her dissertation, Guglielmino (1978) initially discusses a few notes regarding SDL. First, the

*context* takes place in a wide variety of situations, from teacher-directed classrooms to self-planned projects. Next, *activation*: It is activated by the personal characteristics of the learner, combined with the given learning situation. The self-directed learner accepts the responsibility for learning. And finally, *universality*: It is present in each person to some degree; it exists along a continuum.

Guglielmino's (1978) SDLRS is a questionnaire with Likert-type items (N=58) designed to measure the complex combination of attitudes, skills, and characteristics that she determined could predict an individual's current level of readiness to facilitate his or her own learning (Merriam et al., 2007). The SDLRS has also become known as the Learning Preference Assessment (LPA) and has been used by more than 500 major organizations all over the world (Guglielmino, 1999). After McCune (1989) reviewed 67 studies of SDL from 1977-1987, he found that the SDLRS was the most frequently used quantitative instrument with more than 70,000 adults and 5,000 children having taken Guglielmino's (1978) SDLRS/LPA. The SDLRS has also been used in nearly 100 doctoral dissertations.

#### **Bartlett-Kotrlik Inventory of Self-Learning Scale.**

Most recently, in 1999, Bartlett & Kotrlik (1999) published an article that utilized the authors' Bartlett-Kotrlik Inventory of Self-Learning Scale (BISL©) designed to examine the existence of organizational self-learning. The original instrument included eleven constructs that were identified through the emergence of eleven factors by conducting confirmatory factor analysis. In all, 56 questions make up the Bartlett-Kotrlik Inventory of Self-Learning Scale (BISL©). The Bartlett-Kotrlik Inventory of Self-Learning Scale (BISL©) was originally designed to measure the existence of SDL within the context of the workplace.

## **The Learning Organization**

In the 21<sup>st</sup> century, organizations are repeatedly moving to become learning organizations (Confessore, 1997; Kiedrowski, 2006; Marsick & Watkins, 2003). Unlike the broader concept of organizational learning, “the learning organization may be described as an environment in which organizational learning is structured so that teamwork, collaboration, creativity, and knowledge processes have a collective meaning and value” (Confessore & Kops, 1998, p. 366). Flood (1998) describes that the term “learning organization” was disseminated from the work of Chris Argyris and Donald Schön in the 1970s, but is more popularly described in Peter Senge’s (1990) book, *The Fifth Discipline*, in which he defines a learning organization as one “where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together” (p. 3). The term, learning organization is a construct that was introduced to adult education over 40 years ago, and has blossomed through the work of Peter Senge (Weldy & Gillis, 2010).

### **Senge’s Learning Organization**

The learning organization is a holistic endeavor that Senge believed all team members should innovatively create (Confessore, 1997). Senge is known for his argument advocating for what he claims are the competitive advantages associated with organizations developing the capacity to learn, thereby becoming learning organizations where changes can actually improve them (Flood, 1998; Kiedrowski, 2006). Pedler, Burgoyne, and Boydell (1991) describe a learning organization as one that “facilitates the learning of all its members and

continuously transforms itself” (p. 1). These authors examined Senge’s discussion of systems as well as Watkins and Marsick’s (2003) focus on the relationship between both individuals and the organization, later determining that a significant connection exists between SDL and the learning organization. Confessore (1997) recognizes that, “Self-directed learning is an integral part of the learning organization” (p. 9).

In order to build learning organizations, Senge suggests five main characteristics (also referred to variously in the literature as five disciplines, component technologies, foundations, building blocks, elements, technologies, or capabilities), and they are: personal mastery, mental models, shared vision, team learning, and systems thinking (Confessore & Kops, 1998; Flood, 1998; Kiedrowski, 2006; Merriam et al., 2007; Swanson & Holton, 2001; Yang et al., 2004). Chapter one of this dissertation includes a deeper discussion and theoretical framework including each of the five disciplines. The first of Senge’s five disciplines is *personal mastery*, which is focused on the development of one’s own proficiency (Flood, 1998). Next, “*mental models* are the conceptual structures held in each person’s mind that shape the way each person perceives the world and as a result acts in it” (Flood, 1998, p. 264). This second discipline disseminates from earlier work conducted by Chris Argyris and Donald Schön in the 1970s. The third, *shared vision* is simply the vision to which individuals within organizations are committed (Bui & Baruch, 2010). It incorporates the organizational interconnectedness that informs Senge’s (1990) work. The fourth, *team learning*, “is the process of aligning and developing the capacity of a team to create the results its members truly desire” (Senge, 1990, p. 236). And finally, *systems*, or *systemic thinking* is the conceptual framework for examining organizations as bounded

objects (Flood, 1998). It allows for one to see how the different, yet connected parts of an organization interact (Bui & Baruch, 2010). Though it is listed last, systems thinking is key to Senge's model: "Systems thinking, the fifth discipline, acts to integrate the other four disciplines" (Swanson & Horton, 2001, p. 174). Merriam et al. (2007) state, "Senge views *systems thinking* as the cornerstone of the learning organization" (p. 44). In other words, any organizational change is achieved at the system level via the first four disciplines.

### **Development of Learning Organizations**

Organizations do not naturally transition into learning organizations as various factors are necessary to prompt this change. The literature notes several variables within organizations that can serve as strategic catalysts to move toward a learning organization via Senge's (1990) model, and they are culture; climate; leadership; management; human resource practices (both management and development); the mission, vision, and values; employees' attitudes; corporate social responsibility; dynamics of information processing; systems; and the organizational structure (Bui & Baruch, 2010; Cho, 2002; Confessore & Kops, 1998; Flood, 1998; Kiedrowski, 2006; Marsick & Watkins, 1999; Marsick & Watkins, 2003; Merriam et al., 2007; Swanson & Holton, 2001; Weldy & Gillis, 2010; Yang et al., 2004).

Weldy and Gillis (2010) explain the challenges associated with the resistance often felt by organizations:

Making the transition to a learning organization requires continuous work and improvements over-time. Efforts to make the successful transition to a learning

organization involve a process or series of stages rather than an instant adoption of a new approach. (p. 459).

One of the pioneers of this topic was Argyris (Flood, 1998), who identified that, while organizations are focused on developing and understanding new products and processes, they need to also focus on the outside environment and produce creative solutions using the knowledge and skills of everyone within the organization (Swanson & Holton, 2001). This multi-faceted strategic approach requires cohesion amongst individuals and groups, proper communication, as well as a culture of trust (Kiedrowski, 2006; Swanson & Holton, 2001). Confessore and Kops (1998) explain, “The learning organization is a complex association, involving individual learning and organizational learning mechanisms. Learning organizations assume the competence of all members and are designed so that individuals may perform to their fullest potentials” (p. 373). This exploratory study argues that the most appropriate change agents for assisting organizations become learning organizations are HRD professionals.

Confessore and Kops (1998) further suggest that HRD professionals should expand their traditional roles of designing and delivering teacher-led training programs, and become facilitators and catalysts for learning and change. Marsick and Watkins (2003) explain that implementation of this change process towards a SDL environment should effectively be facilitated through HRD. These authors exemplify the importance of monitoring “shifts in an organization’s climate, culture, systems, and structures that influence whether individuals learn” (p. 133). Using this rationale, HRD could develop and focus on methods to increase employees’ skills and readiness to direct their own learning.

Yorks (2005) recognizes that strategic intentionality by leadership must accompany learning within organizations, which he states requires individual learning – alignment with HRD can facilitate organizational learning, leading to performance improvement. Swanson and Holton (2001) also believe that today, HRD is the beneficiary of the popular focus of organizational learning. HRD will continue to be challenged to develop competitive and effective strategic expertise in organizational learning. Finally, Confessore and Kops (1998) state that “HRD professionals need to be aware of the importance of supportive learning environments and must work toward creating them in their organizations” (p. 372). Again, this argument shows that HRD must further evolve to embrace the kind of learning environment fostered in learning organizations that embrace SDL.

Marsick and Watkins (1999), and later Watkins and Marsick (2003), depending on which published article is being referenced, “suggest that learning is a constant process and results in changes in knowledge, beliefs, and behaviors” (Swanson & Holton, 2001, p. 174). These authors highlight the importance of the social dynamics within organizations, and propose six imperatives – a word not used in the literature to denote Senge’s (1990) five disciplines. Watkins and Marsick’s six *action* imperatives are said to form the basis for strategies that organizations can use to promote learning, and they are:

1. Create continuous learning opportunities;
2. Promote inquiry and dialogue;
3. Encourage collaboration and team learning;
4. Establish systems to capture and share learning;
5. Empower people to a collective vision; and

6. Connect the organization to the environment. (quoted in Merriam et al., 2007).

Confessore (1997) tell us that these six imperatives provide the framework for building the learning organization. They are similar to Senge’s (1990) disciplines and see learning taking place with individuals, but Watkins and Marsick further incorporate learning with teams of employees, as well as amongst the communities of the organization (Merriam et al., 2007).

Figure 2.1 depicts the interrelationship of these six imperatives across the different applications.

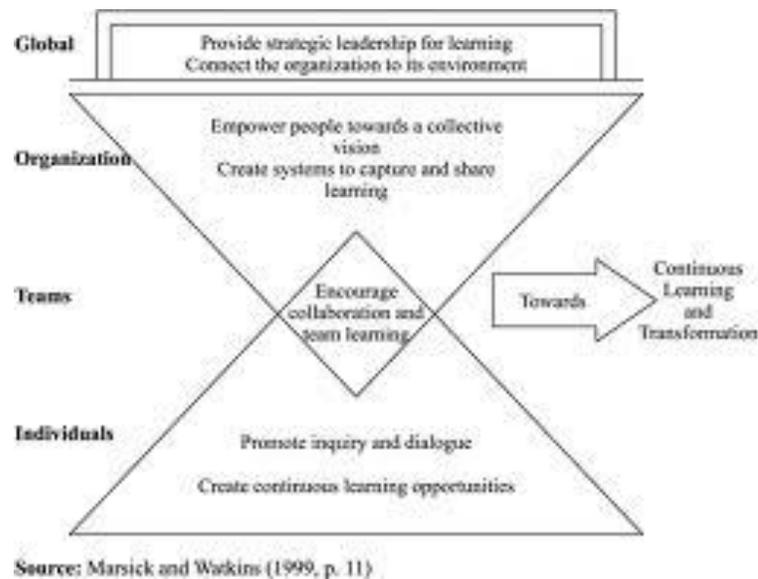


Figure 2.1. Marsick and Watkins (1999) Learning Organization Action Imperatives

## **Barriers to Creating a Learning Organization**

Various benefits of moving to a learning organization include holding a competitive advantage; having a better position to respond to external pressures; maintaining the internal knowledge to link resources to customer demands; maintaining systematic quality; establishing a strong corporate image with a focus on people; and having the capability to change quickly (Flood, 1998; Klein, 2011; Swanson & Holton, 2001; Yang et al., 2004; Yorks, 2005).

Though they endorse learning organizations, Merriam et al. (2007) do acknowledge the difficulties of implementing them: “There are, of course, numerous barriers or inhibitors to creating learning organizations” (p. 46). The most critical is the inability of organizations to see their system (Oshry, 2007) and make changes to their mental models. Merriam et al. refers to this as “the lingering power of individualism in organizations versus the spirit of collaboration and team learning” (p. 46). Sometimes, internally, people lack the skills or readiness for members to engage in more effective learning. Also, learning initiatives get interrupted, not prioritized, and partially implemented. Finally, Merriam et al. (2007) discuss *power* and the devastating component of partial buy-in, especially when it involves leadership.

## **Empirical Studies on the Learning Organization**

Much research on the learning organization has followed earlier breakthrough work by both Senge and later Watkins and Marsick. However, Weldy and Gillis (2010) recognize that “most of the literature on it is prescriptive and lacks systematic and solid empirical research” (p. 458). It is admittedly difficult to quantify the effects of type of organizational

change; and very few studies have been conducted that have attempted to empirically measure the capability of organizations to move towards becoming learning organizations (Cully, 1998; Griego, Geroy, & Wright, 2000; Lopez, Peon, & Ordas, 2005; Moilanen, 2005; Mollica, 2004; Ryan, 1991). The findings from these studies suggest best practices for companies on the move toward becoming a learning organization; they explain connections between organizational learning and performance, including innovation and competitiveness; and they reported perceptions of middle and upper management on successful transition to a learning organization. But none examine employees' perceptions. Weldy & Gillis (2010) note that no prior studies have examined different perceptions of an organization across multi-levels. This dissertation study, indeed examines employees' perceptions regarding which of the disciplines in the learning organization are most prominent in their workplace.

Finally, in all of the extensive research that has been conducted on learning organizations, none have been identified that focus on the collection of data from different organizations and different levels relating to organizational performance. A recent study conducted in 2011 added a relevant survey instrument to this field of study. Al-Qutop et al. (2011) conducted an empirical study of organizations within the insurance sector in Jordan, which examined the degree to which companies are considered learning organizations depending on Senge's (1990) five disciplines. The study also examined the relationship between additional learning facilitators. The results indicated that the individual organizations within the insurance sector in Jordan are, indeed, transitioning to learning organizations. Pearson correlation coefficient was used for hypothesis testing and the "results indicated that there is a strong positive relationship between learning facilitators and

the 5 learning organization disciplines” (p. 211). Notably, and with reference to the association between Senge’s (1990) five disciplines and learning facilitators, culture was the most correlated, followed by leadership. Considering the results of their study, the authors suggest that the insurance sector companies in Jordan should enhance learning disciplines, and at the same time extend the benefits of learning facilitators. Additional studies are hoped to validate or refute the results obtained from the Al-Qutop et al. (2011) study since it was limited to a small sample size within only one sector of business.

### **Conclusion**

Different environments can either promote or challenge an organization’s efforts at becoming a learning organization (Cameron & Quinn, 2006). This study aims to determine if and how leadership, perhaps HRD professionals, might influence and facilitate an organization’s change to becoming a learning organization with a given independent variable of SDL abundant within the employees. Many barriers too must be considered, and a collective organizational buy-in must accompany any intensive change efforts, especially when moving to a learning organization. Senge’s (1990) five disciplines were individually examined as precursors to this type of change, and their correlations are hoped to pave a more strategic pathway for organizational leaders, specifically HRD to implement this change effort. A lack of recent research also impedes a more defined and empirically backed comingling of SDL and the learning organization. This study hopes to initiate more interest and publication regarding the two main variables, SDL and Senge’s five disciplines for the learning organization.

## **CHAPTER 3: METHODS**

This chapter presents an overview of the methods that were used to conduct the research study. An introduction of the study will be provided, followed by the research design. Detailed sections will explain the sampling process, participants, instrumentation, and data collection.

This study implemented a quantitative, non-experimental explanatory research design. According to Creswell (2009), non-experimental design does not have an experimental, manipulated variable, nor is there random assignment of participants to particular groups. This research does, however, contain variables that can be measured. After a thorough examination of the literature, few somewhat dated studies have examined an intersection involving certain components of SDL and the learning organization (Bierema & Berdish, 1999; Confessore & Kops, 1998; Murrell & Walsh, 1993; Jude-York, 1993). Still more exploratory research is needed to forge proper pathways to more effective strategic work environments.

### **Research Design**

The plan for conducting research is labeled the research design (Sproull, 1995); the design of this study was carefully created to fully outline the steps needed to conduct this research. In order to identify and explain the correlations associated with SDL and the learning organization within an existing company, explanatory survey research was conducted. A web-based survey was formulated to collect information from a sample to make inferences and generalize to a larger population (Agresti & Finlay, 2009). The research design for this study meets the purpose of a non-experimental design to observe and measure

relationships among and between variables (Sproull, 1995). From this data, coupled with the review of the literature, valid explanations and predictability will contribute to the existing body of knowledge.

### **Population and Sample**

The sample for this study includes all the members of a high-tech organization including those in field operations in technical capacities, where quick, self-directed decision-making is commonplace, necessary, and expected. Sproull (1995) defines a population for a study as one that consists of all members of a defined category of elements such as people, events, or objects. The accessible sample for this current study includes a field operations division of an existing high-tech organization (N = 850) that globally employs over 3,000 people in all.

The objective is to draw from adequate sample data that will allow for generalization about the population. Bartlett, Kotrlik, and Higgins (2001) state, “The determination of sample size is a common task for many organizational researchers. Inappropriate, inadequate, or excessive sample sizes continue to influence the quality and accuracy of research” (p. 43). Agresti and Finlay (2009) discuss the importance of choosing a sampling frame that does not suffer from under-coverage, which, even with random sampling, could still cause sampling bias. Finally, comparisons of both early and late survey responses were conducted to mitigate response bias and non-response bias (Agresti & Finlay, 2009).

### **Instrumentation**

Sproull (1995) explains that in quantitative studies, an instrument is a device designed to measure correlations or differences in variables. Examples of instruments used within

studies include questionnaires, rating scales, skills tests, pre- and post- tests, checklists, and other unique materials created by researchers (Sproull, 1995). Some studies may make modifications to published instruments, while still referencing the original instrument, or even combine multiple instruments, thus creating a unique measuring tool that can assist researchers in generalizing their findings. Such is the case with this study, and will be explained below. Creswell (2009) defines generalizability as “the hallmark of quantitative research” (p.193), and he strongly accentuates the preliminary importance of ensuring reliability and validity in any instrument chosen to measure the data. Other concerns are ease of use, appropriate measurement and time considerations, as well as budgetary planning (Sproull, 1995).

Two published and credible instruments were utilized and combined as one survey instrument for this study. They include a modification of the Bartlett-Kotrlik Inventory of Self-Learning Scale (BISL©) (Bartlett & Kotrlik, 1999) inclusive of 20 questions and a slightly modified learning organization questionnaire created and used recently by Al-Qutop et al., (2011) inclusive of 20 questions.. The survey instrument for this current study was expected to take approximately ten to fifteen minutes to complete. This was confirmed by conducting a pilot with four professionals familiar with designing survey research.

#### **Bartlett-Kotrlik Inventory of Self-Learning Scale (BISL ©)**

According to the standards proposed by Robinson, Shaver and Wrightman (1991) in their Standards for Reliability and Factor Loadings, the original Bartlett-Kotrlik Inventory of Self-Learning Scale (BISL©) instrument had a high reliability coefficient of  $\alpha=0.91$ , which indicates strong reliability. These original authors of the Bartlett-Kotrlik Inventory of Self-

Learning Scale (BISL©) confirmed high levels of reliability and validity to their instrument, but they did not provide specific technical data to document this other than to assert that the results were in accordance with acceptable standards. Per approval from Dr. James Bartlett (see Appendix A), coauthor of the original Bartlett-Kotrlik Inventory of Self-Learning Scale (BISL©), the researcher reduced the 56 questions to 20 since the breadth of the constructs examined by the original Bartlett-Kotrlik Inventory of Self-Learning Scale (BISL©) are not applicable in this study. The questions that are more related to the learning process within the context of the workplace environment were given higher consideration so as to reduce possibilities of response bias.

Dr. Bartlett, the responding author, indicated that the 1999 document included confirmatory factor analysis. This process revealed 11 distinct factors, and these are referred to as constructs. The original 56 questions were sorted and only the applicable questions containing the highest loadings ( $> 0.70$ ) were inclusive of the 20 questions to be used in this study.

### **Learning Organization Questionnaire**

The recent publication of a study conducted by Al-Qutop et al. (2011) did not give sufficient time for tests of reliability and validity for their survey instrument. Because these authors conducted an empirical study which examines each of Senge's (1990) five disciplines when transforming to a learning organization, the direct correlation to this study's objective warranted its use. A conversation via email gained permission from the international authors (see Appendix A). Only twenty questions that relate to the construct of learning organization of the original 45 were used in this study. The only accessible information regarding validity

and reliability of their survey was an internal check of reliability of the collected data calculated by Cronbach's alpha coefficient. Pallant (2007) defines the Cronbach alpha as a coefficient to estimate internal consistency; further, if the alpha value is greater than .70, it is considered reliable. Simply put, if a test produces a Cronbach's alpha of .77, then its reliability in practice is 77%. Those results, depicted in Table 3.1, show that all the variables were above 70% and deemed acceptable; most notably, the construct for the learning organization disciplines received the highest Cronbach's alpha of 0.91. The study for this present dissertation does not include all of the constructs measured in Table 3.1; only those for the learning organization disciplines (N=20) are used.

Table 3.1

*Cronbach Alpha Coefficient for the Learning Organization Questionnaire*

Variables	Cronbach Alpha
Learning Organization Disciplines	0.91
Culture	0.85
Organization Structure	0.76
Human Resources Management	0.78
Strategies	
Management Information Systems	0.84
Leadership	0.88

**Resulting Instrument**

The resulting instrument to be used for this study, which was compiled from adaptations of the Bartlett-Kotrlík Inventory of Self-Learning Scale (BISL©) and the Learning Organization Questionnaire, is one that is reliable and valid. The test-retest method of reliability (Rocco & Hatcher, 2011) has shown stability over time for the two instruments, and Cronbach’s alpha coefficients were measured to be over .70, which solidifies internal consistencies (Table 3.1). Member check has confirmed the face validity of the instrument, including expert judge validity offered by faculty members at North Carolina State University. Concurrent (predictive), discriminant, and content validity are logical since the

two instruments used are well regarded within the literature. This conglomeration of logical and positive considerations provides for a construct validity of the resulting instrument used in this study.

### **Data Collection**

Sproull (1995) defines data collection as the process of collecting responses about the variables. Approval from the Institutional Review Board (IRB) at North Carolina State University was obtained prior to any efforts at communication to the sample (see Appendix C). While many methods of instrument administration are available to the researcher, including the use of mail, telephone, Skype, and live interviewing, this study utilized the internet. Dillman, Smyth, and Christian (2009) advocate that multiple contacts are essential for maximizing response rate and these include pre-notice, the actual survey, follow-up, and a final offer of gratitude. Dillman et al. (2009) also recommend that researchers consider the entire internet survey response process: “As a result, making this task easy and comfortable for respondents becomes incredibly important” (p. 271). Dillman et al. (2009) further remark that when these efforts are prioritized, response rates likewise increase.

Data collection procedures must be carefully considered and conducted in manners that most effectively suit their study. For this particular study, a web-based survey was administered utilizing Survey Monkey, a secure, anonymous web-based survey tool (surveymonkey.com). This process of using the internet provided open accessibility to the sample. For this study, the initial contact was an email including an explanation of the study, its practical application, clearly communicated instructions for completing the survey, as well as the researcher’s contact information. Three days later, the consent form and a link to the

survey was emailed. One week later, the first follow-up email was delivered, once again explaining the importance of a high response ratio; it also included the link to the survey. Another week later, a second reminder email was delivered. Following the data collection, a thank you email was delivered (see Appendices E and F). The survey instrument was open to collect data for fourteen days.

All data were downloaded onto a secure, password-protected personal computer accessible only to the researcher. The participants were asked to refrain from the use of any names of any people internal or external. In the notes, the documents did not contain any true names; pseudonyms would have been inserted for participants, other organizations, or any other persons named in the survey. Once the data were analyzed, all master lists were deleted both from the hard drive and recycle bin of the computer used for communication purposes; finally, no records were kept that link a participant name to any specific note taking.

Research within large, private, for-profit organizations brings with it multiple additional challenges. Owen (2006) states, from the perspective of the university, that they have “the responsibility for the ethical conduct of its researchers, no matter where the research is conducted, and is obliged to review all research involving human subjects conducted by faculty and students” (p.62). McMillan and Schumacher (1993) further suggest that researchers carefully consider and balance the costs of using questionable methods against the benefits of conducting a study. They note that in educational, social, and behavioral science research, “costs include injury or psychological difficulties, such as anxiety, shame, loss of self-esteem, and affronts to human dignity, or they may involve legal

infringement on human rights” (p. 182). All such costs were eliminated through the design process of this study.

Researchers’ perspectives must also be considered, as Owen (2006) notes: “Some researchers in the social sciences view the ethics review process as a burden or barrier to surmount” (p. 67). Each and every component of research must be carefully planned and appropriately documented. Ethical implications in conducting research simply warrant that it should be overseen, and researchers should plan each and every stage of the research process. Creswell (2007) eloquently reminds all researchers that “writers need to anticipate and address any ethical dilemmas that may arise in their research” (p. 88). Much of these issues are entirely unanticipated, but it is the responsibility of the researcher to address them accordingly. Even worse, some researchers elect to suppress, falsify, or even invent findings to pacify the researchers’ or audiences’ expectations (Creswell, 2007). The researcher of this present study fully intended to utilize ultimate detailed care to conduct this dissertation study.

### **Data Analysis**

Pre-analysis screening and assumptions were considered prior to answering all research questions. Research questions one and two are descriptive in nature and were analyzed with means and standard deviations. Research question three examined correlations through Pearson correlations, and research question four employed five simple linear regressions. The regression process included the following steps, per Hair et al. (2006):

- 1) Model Definition
  - a. Convert Research Question into regression equation
  - b. Determine appropriate predictor

- 2) Assess threats to valid inference
  - a. Adequate Sample Size
  - b. Minimal Multi-collinearity Linearity
  - c. Lack of Outliers (Distance, Leverage, influence,)
  - d. Homogeneity of Variance
  - e. Normality of Residuals
- 3) Assess overall model
  - a. Effect: R-squared; adjusted r-squared, multiple r–Confidence Intervals
  - b. Test of statistical significance
- 4) Assess individual predictors
  - a. Effect: Unstandardised, Standardised coefficients, zero-order, semi-partial and partial correlations
  - b. Confidence intervals and tests of statistical significance
- 5) Integrate above to answer research question

### **Research Questions**

SPSS 18 was used for all statistical operations. Table 3.2 summarizes the respective statistical analyses employed for each of the four research questions.

Table 3.2

*Statistical Analyses for Research Questions*

Question	Statistical Analysis
1	Descriptive (Mean, Standard Deviation)
2	Descriptive (Mean, Standard Deviation)
3	Pearson Correlations
4	Five Simple Linear Regressions

## **CHAPTER 4: ANALYSIS OF DATA**

Chapter four presents the analysis of the collected data to answer the research questions. This chapter is organized into three sections: demographics, findings, and the discussion of the findings. Specifically, the sections include a discussion and explanation for the lack of demographic data, the analysis of data by research question, and a summary that includes a discussion of the overall findings for this study. In this fourth chapter, data were analyzed using statistical procedures found in *Statistical Package of the Social Sciences (SPSS)*, version 18.0.

### **Demographics**

This study intentionally did not collect descriptive demographic data from participants in response to requests from the organization's legal and human resources departments to not jeopardize the anonymity of the sample. Initially, this study looked to include this information. Age, gender, education level, and ethnicity of participants might be considerations for further studies and could have perhaps provided thicker data. Each member of a field operations division (N = 850) of an existing high-tech organization was sent a link to the survey instrument via electronic mail. The recipients within the field division served at varying levels, including individual contributor, manager or senior manager, director or senior director, and finally vice president or senior vice president. Distinction of respondents' titles was not asked at the request of the legal and human resources departments of the organization. Per Dillman, Smyth, and Christian (2009), the minimum sample size needed with a 95% confidence level is 188. Of the 850 surveys links that were distributed, a total of 37.65% (N=320) surveys were submitted to

SurveyMonkey.com. Of those 320 responses, ten were omitted because of incomplete data, thus 310 surveys were considered useable and entirely completed. Of the 850 surveys distributed, 36.47% (310) were analyzed.

### **Research Questions**

This section discusses the data analysis related to the research questions and the relevance to the study. The analysis of the data was concentrated on the following four research questions:

*Research Question 1: What are the employees' perceived levels of SDL as measured by the Bartlett-Kotrlik (Bartlett & Kotrlik, 1999) Inventory of Self-Learning Scale (BISL ©)?*

*Research Question 2: What are the levels of the employees' perceptions of Senge's (1990) five disciplines (personal mastery, mental models, team learning, shared vision and systems thinking) necessary to become a learning organization, as measured by Al-Qutop et al.'s (2011) Learning Organization Questionnaire?*

*Research Question 3: What is the relationship between SDL and each of the five disciplines necessary to become a learning organization (personal mastery, mental models, team learning, shared vision, and systems thinking)?*

*Research Question 4: What amount of variance in the five disciplines, personal mastery, mental models, team learning, shared vision, and systems thinking can be explained by SDL?*

Data were collected utilizing a survey instrument that incorporated modifications of two published instruments, the BISL and the Learning Organization Questionnaire. This study did not include in the survey any demographic data at the request of the organization from where the sample is currently employed. The instrument contained 40 items that were distributed in two sections: SDL and the learning organization. Response bias comparing early and late respondents was examined. No differences were determined. Finally, missing data and outliers were addressed, and ten of the 320 returned surveys were not analyzed because of incomplete survey responses.

### **Findings by Research Questions**

This section presents the data analysis by research question.

#### **Research Question 1: Findings and Analysis**

Research Question 1: What are the employees' perceived levels of SDL as measured by the Bartlett-Kotrlík (Bartlett & Kotrlík, 1999) Inventory of Self-Learning Scale (BISL ©)?

The data collected relating to SDL consisted of twenty survey items which represented the first section of the survey instrument. Responses for the first twenty questions were based on a Likert scale from 1 to 7, where 1 = not true of me most of the time, 2 = often not true of me, 3 = seldom not true of me, 4 = undecided, 5 = seldom true of me, 6 = often true of me, and 7 = true of me most of the time. For each individual, SDL was measured as the average of the responses over all items. Table 4.1 displays the summaries of the raw, total scores, the average scores, and internal consistencies.

The objective of this question is to describe the level of SDL present within the respondents in one division within one high-tech organization. The Cronbach's Alpha score

for the SDL construct was .81, and therefore deemed to have a reliable internal consistency (Agresti & Finlay, 2009). When examining the raw scores in Table 4.1, to compare the responses for presence of SDL, and to gain a better understanding of the data, the researcher sought a common scale. For each subject, the scores over each question were averaged.

In Table 4.1, it can be seen that the collective respondents' SDL mean score was 5.78 (SD = .56). The score of 5.78 can be interpreted as being *often true of the respondents*. The variance shows that the instrument did differentiate between those that are high and low in SDL. The variance is due to the SDL scores being averaged over twenty survey items and questions that are very homogenous. The minimum of the average SDL scores is 3.70 and the maximum is 6.90. It is also noted that not a single respondent *True of Me most of the Time* with every SDL question. This range of possible answers was truncated at 7.0. Two standard deviations (4.66, 6.90) equate to a statistical translation suggesting that 95% of the respondents are self-directed in their learning.

Table 4.1  
*Raw and Average Minimum, Maximum, Mean and Standard Deviation of Respondents’  
 Learning Organization and SDL Scores*

	Max	Min	SD	Mean	Cronbach’s Alpha
<b>Raw Scores</b>	138.00	74.00	11.20	115.60	.81
SDL <sup>a</sup>	6.90	3.70	.56	5.78	.81
<b>Average</b>					
SDL <sup>a</sup>					

*Note.*

<sup>a</sup> 7-point scale: 1=Not True of Me Most of the Time, 2=Often Not True of Me, 3=Seldom True of Me, 4=Undecided, 5=Seldom Not True of Me, 6=Often True of Me, 7=True of Me most of the Time

Research Question 2: What are the levels of the employees’ perceptions of Senge’s (1990) five disciplines (personal mastery, mental models, team learning, shared vision, and systems thinking) necessary to become a learning organization, as measured by Al-Qutop et al.’s (2011) Learning Organization Questionnaire.

Similar to the first research question, twenty questions were included in the second part of the survey instrument. The data collected for Senge’s five disciplines were also measured on the Likert scale, but in contrast to the questions pertaining to SDL being rated on a 7-point Likert scale, these scores ranged from 1 to 5, with 1 = strongly disagree, 2 = tend to disagree, 3 = neither agree nor disagree, 4 = tend to agree, and 5 = strongly agree. Of the five disciplines, *personal mastery* contained four questions, *mental models*, *shared vision* and *systems thinking* each had three items, and *team learning* had the most with seven items.

## Research Question 2: Findings and Analysis

This section will offer data analysis and report the findings from research question two. The objective of the second research question was to measure the perceptions of which of the five disciplines are perceived as being most present within the workplace environment of the sample. The answer options were from 1 to 5 (strongly disagree to strongly agree). For the five disciplines, the average responses ranged from 3 (Neither Agree Nor Disagree) to 3.50 (Tend to Agree). When examining the raw scores in Table 4.2, to compare the perceptions of respondents for the five disciplines, and to gain a better understanding of the data, the scores over each discipline were averaged. The Cronbach's Alpha scores for the five disciplines ranged from .68 (Personal Mastery) to .86 (Team Learning), and are shown in Table 4.2.

The highest rated learning organization construct was personal mastery. The respondents' personal mastery average score was 3.50 (SD = .68). A score of 3.50 can be interpreted as between *neither agree nor disagree* and *tending to agree*. In contrast, the survey items for mental models produced the lowest average score (mean = 3.02, SD = .92). This can be interpreted as the respondents *neither agreeing nor disagreeing* with the items.

Responses were similar for shared vision, team learning, and systems thinking. These three remaining disciplines had mean scores ranging from 3.11 to 3.22, which rates near the middle of the Likert options 1-5, and is also interpreted as *neither agreeing nor disagreeing*. The standard deviations ranged from .71 to .79. Further, with reference to these three remaining disciplines, shared vision had the lowest score (mean = 3.11, SD = .79), systems thinking had the next lowest score (mean = 3.19, SD = .77), and finally team learning had the

highest score (mean = 3.22, SD = .71). Team learning had the lowest variability, but this is at least partly because the team learning score was calculated as an average of seven survey responses as opposed to three or four questions, like in the other four disciplines.

By looking at the minimum and maximum responses for the learning organization scores for each discipline, at least one individual strongly disagreed or strongly agreed with all of the questions. The aforementioned analyses for the second research question regarding the respondents' perceptions of Senge's disciplines are depicted in Table 4.2. Next, identification of relationships between the variables will be summarized in the section regarding research question three.

Table 4.2

*Raw and Average Minimum, Maximum, Mean and Standard Deviation of Respondents*

*Learning Organization and SDL scores*

Discipline	Max	Min	SD	Mean	Cronbach's Alpha
Raw Scores					
Personal Mastery <sup>a</sup>	20.00	4.00	2.74	13.98	.68
Mental Models <sup>a</sup>	15.00	3.00	2.74	9.06	.80
Shared Vision <sup>a</sup>	15.00	3.00	2.36	9.35	.79
Team Learning <sup>a</sup>	35.00	7.00	5.01	21.71	.86
Systems Thinking <sup>a</sup>	15.00	3.00	2.31	9.58	.76
Average					
Personal Mastery <sup>a</sup>	5.00	1.00	.68	3.50	.68
Mental Models <sup>a</sup>	5.00	1.00	.92	3.02	.80
Shared Vision <sup>a</sup>	5.00	1.00	.79	3.11	.79
Team Learning <sup>a</sup>	5.00	1.00	.71	3.22	.86
Systems Thinking <sup>a</sup>	5.00	1.00	.77	3.19	.76

*Note.*

<sup>a</sup> 5-point scale: 1=Strongly disagree, 2=Tend to disagree, 3=Neither Agree nor disagree, 4=Tend to agree, 5=Strongly agree

The overall survey instrument for research questions one and two was inclusive of 40 survey questions summarized with six variables: average SDL, personal mastery, mental models, team learning, shared vision, and systems thinking scores.

### **Research Question 3: Findings and Analysis**

Research Question 3: What is the relationship between SDL and each of the five disciplines necessary to become a learning organization (personal mastery, mental models, team learning, shared vision, and systems thinking)?

The following section presents analysis of data and findings for the third research question. In the previous section, individual summaries of SDL and learning organization average scores were examined. Next, this study sought to determine how the respondents' perceptions in each of the five disciplines relate to each other, as well as to SDL. Correlations within disciplines were the first focus, and they are summarized in Table 4.3. Finally, the relationship between each of the five disciplines and SDL were examined.

Table 4.3

*Pearson Correlations within Learning Organization Disciplines*

	<i>Personal Mastery</i>	<i>Mental Models</i>	<i>Shared Vision</i>	<i>Team Learning</i>	<i>Systems Thinking</i>
Personal Mastery	1				
Mental Models	.561**	1			
Shared Vision	.639**	.716**	1		
Team Learning	.618**	.706**	.744**	1	
Systems Thinking	.634**	.537**	.675**	.685**	1

*Note.* N=310

Descriptors are as follows: .70 or higher = very strong association, .50 to .69 = substantial association, .30 to .49 = moderate association, .10 to .29 = low association, .01 to .09 = negligible association (Davis, 1971).

\*\*p < .01 level.

All correlations amongst the five learning organization disciplines were statistically significant. This is consistent with various other published literature (Weldy & Gilles, 2010; Yang, Watkins, & Marsick, 2004). In this present study, shared vision and team learning were the most highly correlated at .744. A correlation of .744 is interpreted as a very strong association according to the guidelines set by Davis (1971). Both shared vision and team learning showed very strong positive associations to mental models, with correlations of .716 and .706 respectively. These correlations can also be interpreted as very strong. The remaining correlations within the learning organization disciplines were not as strong, but still substantial. Systems thinking and mental models had the lowest positive linear relation

within the learning organization disciplines with Pearson correlation of .537, once again, interpreted as substantial.

In Table 4.4 the focus was shifted to the Pearson correlations between the five disciplines and SDL averages.

Table 4.4

*Correlations Between Self-Directed Learning Level and Participants Perceived Learning Organization Disciplines Level*

	Self-Directed Learning		
	R	Interpretation	p value
Shared Vision	.498**	Substantial	<.001
Team Learning	.469**	Moderate	<.001
Mental Models	.453**	Moderate	<.001
Systems Thinking	.417**	Moderate	<.001
Personal Mastery	.395**	Moderate	<.001

*Note.* N=310

Descriptors are as follows: .70 or higher = very strong association, .50 to .69 = substantial association, .30 to .49 = moderate association, .10 to .29 = low association, .01 to .09 = negligible association (Davis, 1971).

\*\*p < .01 level.

Upon first glance, every learning organization discipline had a statistically significant *positive* correlation to SDL for a threshold corresponding to a two-sided test at the .01 level. Correlations ranged moderate to substantial and were relatively smaller than those measured

among the learning organization disciplines. Shared vision had a correlation to SDL of .498; this is considered substantial by using Davis' (1971) standards. It is also noted that shared vision is the only discipline with an interpretation, substantial. The correlations of SDL to the remaining disciplines were moderate. The correlation of .395 between personal mastery and SDL was the lowest in the data. The analysis of all these correlations provided insight into relationships within Senge's disciplines, and between the disciplines and SDL.

#### **Research Question 4: Findings and Analysis**

Research Question 4: What amount of variance in the five disciplines, personal mastery, mental models, team learning, shared vision, and systems thinking can be explained by SDL?

The following section presents findings and data analysis for our fourth and final research question. Each of Senge's disciplines showed high correlation to SDL, as depicted in the previous research question, and they were likewise highly correlated with each other. The study hoped to determine from these partial correlations just how much variability in the disciplines could be explained by SDL. In this final procedure, five regressions were performed in choosing predictors that explained the maximum variability. After these correlations determined in research question three confirmed that these constructs possess significant relationships with one another, still further investigation in how SDL relates to the disciplines was necessary. To examine this intent, regressions were performed for each discipline treating average SDL as an independent variable. These analyses are shown in Tables 4.5 – 4.9, and they are listed in order of highest overall  $R^2$ .

Table 4.5

*Linear Regression Analysis to Explore Relationship between Shared Vision and Self-Directed*

*Learning*

<b>Source of Variation</b>	<b>SS</b>	<b>df</b>	<b>MS</b>	<b>F</b>	<b>p</b>	
Regression	424.985	1	424.985	101.337	<.001*	
Residual	1291.689	308	4.194			
Total	1716.674	309				

	<b>Overall <i>R</i><sup>2</sup></b>	<b>β</b>	<b>St. Err</b>	<b>Stand. Beta</b>	<b>t</b>	<b>p</b>
	24.8%					
Constant SV		-2.672	1.200		-2.227	.027
Self-Directed Learning		.104	.010	.498	10.067	<.001*

Note. \*p < .05

The impact on shared vision by SDL can be depicted in the following linear equation:

$$\text{Shared Vision} = -2.672 + .498 (\text{SDL})$$

Table 4.6

*Linear Regression Analysis to Explore Relationship between Team Learning and Self-*

*Directed Learning*

<b>Source of Variation</b>	<b>SS</b>	<b>df</b>	<b>MS</b>	<b>F</b>	<b>p</b>
Regression	1705.552	1	1705.552	86.904	<.001*
Residual	6044.735	308	19.626		
Total	7750.287	309			

	<b>Overall <i>R</i><sup>2</sup></b>	<b>β</b>	<b>St. Err</b>	<b>Stand. Beta</b>	<b>t</b>	<b>p</b>
	22.0%					
Constant TL		-2.381	2.596		-.917	.360
Self-Directed Learning		.208	.022	.469	9.322	<.001*

Note. \*p < .05

The impact on team learning by SDL can be depicted in the following linear equation:

$$\text{Team Learning} = -2.381 + .469 (\text{SDL})$$

Table 4.7

*Linear Regression Analysis to Explore Relationship between Mental Models and Self-*

*Directed Learning*

<b>Source of Variation</b>	<b>SS</b>	<b>Df</b>	<b>MS</b>	<b>F</b>	<b>p</b>
Regression	478.877	1	478.877	79.599	<.001*
Residual	1852.958	308	6.016		
Total	2331.835	309			

	<b>Overall <i>R</i><sup>2</sup></b>	<b>β</b>	<b>St. Err</b>	<b>Stand. Beta</b>	<b>t</b>	<b>p</b>
	20.50%					
Constant MM		-3.702	14372		-2.576	.010
Self-Directed Learning		.110	.012	.453	8.922	<.001*

Note. \*p < .05

The impact on mental models by SDL can be depicted in the following linear equation: Mental Models = -3.702 + .453 (SDL)

Table 4.8

*Linear Regression Analysis to Explore Relationship between Systems Thinking and Self-*

*Directed Learning*

<b>Source of Variation</b>	<b>SS</b>	<b>Df</b>	<b>MS</b>	<b>F</b>	<b>p</b>
Regression	287.054	1	287.054	64.981	<.001*
Residual	1360.588	308	4.417		
Total	1647.642	309			

	<b>Overall <i>R</i><sup>2</sup></b>	<b>β</b>	<b>St. Err</b>	<b>Stand. Beta</b>	<b>t</b>	<b>p</b>
	17.4%					
Constant ST		-.304	1.232		-.247	.805
Self-Directed Learning		.086	.011	.417	8.061	<.001*

Note. \*p < .05

The impact on systems thinking by SDL can be depicted in the following linear equation: Systems Thinking = -.304 + .417 (SDL)

Table 4.9

*Linear Regression Analysis to Explore Relationship between Personal Mastery and Self-**Directed Learning*

<b>Source of Variation</b>	<b>SS</b>	<b>Df</b>	<b>MS</b>	<b>F</b>	<b>p</b>
Regression	361.382	1	361.382	57.035	<.001*
Residual	1951.537	308	6.336		
Total	2312.919	309			

	<b>Overall <i>R</i><sup>2</sup></b>	<b><math>\beta</math></b>	<b>St. Err</b>	<b>Stand. Beta</b>	<b>t</b>	<b>p</b>
	15.6%					
Constant PM		2.896	1.475		1.963	.050
Self-Directed Learning		.096	.013	.395	7.552	<.001*

Note. \*p < .05

The impact on personal mastery by SDL can be depicted in the following linear equation: Personal Mastery = 2.896 + .395 (SDL).

Tables 4.5 – 4.9 show a common theme. All five of Senge's Disciplines have statistically significant correlations with SDL, and a significant percentage of the variance in each discipline can be explained by SDL. Also, higher levels of each discipline are consistently associated with positive attributes relative to SDL. The respective linear equations that follow each regression,  $y = a + b(x)$ , can be interpreted as  $y =$  the individual discipline,  $a =$  the intercept, or  $\beta$ ,  $b =$  slope, and  $x =$  SDL. Further, this equation is stating that, for every increase in SDL by 1, the respective discipline increases by its slope. Table

4.10 lists in order the strength of the relationship with each of the disciplines and SDL from highest to lowest.

Table 4.10

*Amount of Variance Self-Directed Learning Accounts for in each of the Five Disciplines ( $R^2$ )*

<b>Discipline</b>	<b><math>R^2</math></b>
Shared Vision	24.80
Team Learning	22.00
Mental Models	20.50
Systems Thinking	17.40
Personal Mastery	15.60

*Note.* N=310

The  $R^2$  showed moderate amount of variance explained in the learning disciplines by SDL ranging from 15.60% for personal mastery to 24.80% for shared vision. Table 4.10 shows each of these impacts, with the highest indicating that 24.80% of shared vision can be explained by SDL ( $R^2 = 24.80\%$ ). 22.00% of the variance in team learning can be explained by SDL, and 20.50 of the variance in mental models is because of SDL.

### **Summary of Analyses**

Chapter four presented both the findings and the data analysis results for the study. Each of the four questions and the corresponding analyses are summarized as follows.

Research question one examined the extent of SDL present within the organization. These descriptive results were displayed using mean scores and standard deviation. Research

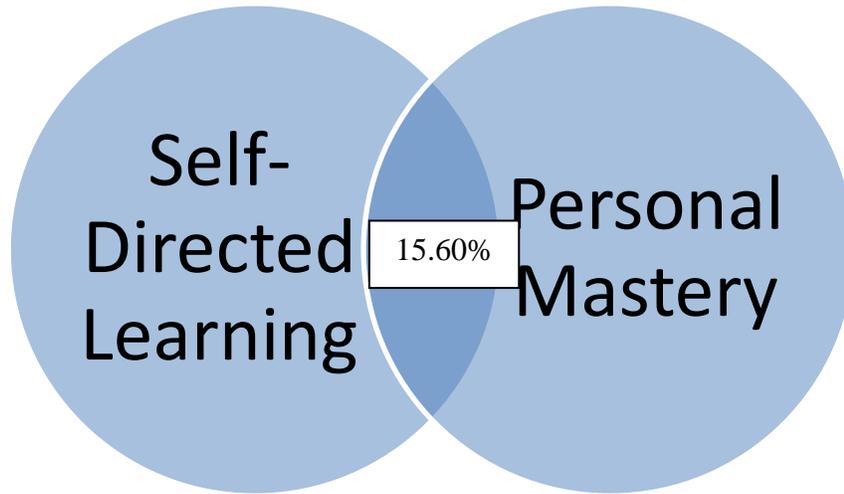
question two measured the perceptions of which of Senge's five disciplines has the most significant impact on efforts at becoming a learning organization. Like research question one, means and standard deviation indicated these results. Next, identification of relationships between the variables was summarized in the third research question. Here, correlations determined how the perceptions of respondents in each of the five disciplines, personal mastery, mental models, team learning, shared vision, and systems thinking, relate to each other, as well as with SDL. And finally, research question four employed five regression analyses to calculate the amount of variance in the five disciplines, personal mastery, mental models, team learning, shared vision, and systems thinking, explained by SDL.

The findings from research question one established that SDL is "often true" within the sample. High average SDL scores (Mean = 5.78 out of 7.00) with minimal variation (SD = .56) depicted this. Research question two illustrated additional descriptive findings, and, on average, the respondents selected questions relating to personal mastery as the most prevalent; further, the questions about personal mastery also produced the lowest variability. The survey items for mental models produced the lowest average scores with the highest variability. The results for shared vision, team learning, and systems thinking, responses were each similar to one another, both their respective mean scores and their standard deviations.

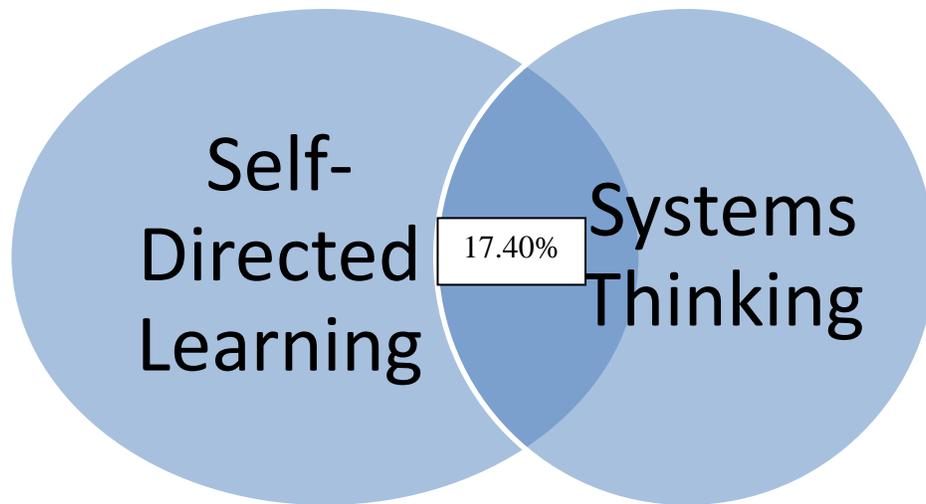
For research question three, identification of relationships between the variables were summarized. First, correlations within disciplines were examined, indicating that each of the five disciplines showed statistical significance to one another. Shared vision and team

learning were the most highly correlated, and these two were highly correlated to mental models as well. The remaining correlations within the learning organization constructs, personal mastery and systems thinking were lower, but still determined to be high. Personal mastery and mental models had the lowest positive linear relation within the learning organization disciplines. Each of the five learning organization disciplines had a statistically significant positive correlation to SDL. Although correlations for SDL with each discipline were high, they were still less than that of the correlations amongst the disciplines. Shared vision's correlation to SDL was the highest, and the correlations of SDL to the remaining disciplines were moderate with personal mastery the lowest.

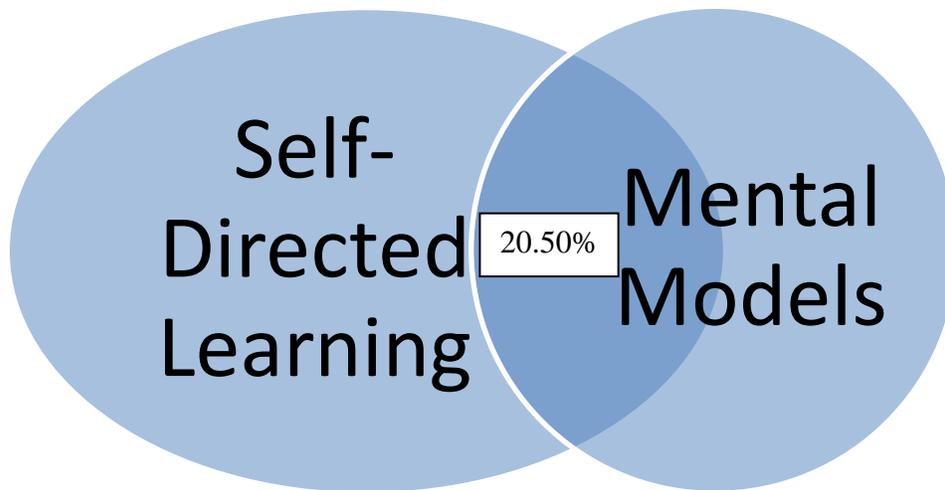
Finally, research question four used five regression analyses to determine the amount of variance in each of the five disciplines that can be explained by SDL. The average score for SDL was treated as an independent variable, and each of the disciplines were the dependent variables in the respective regression analysis. The findings depicted that the variance in each discipline explained by SDL ranged from 15.60%-24.80%. Figures 4.1-4.5 illustrate these impacts.



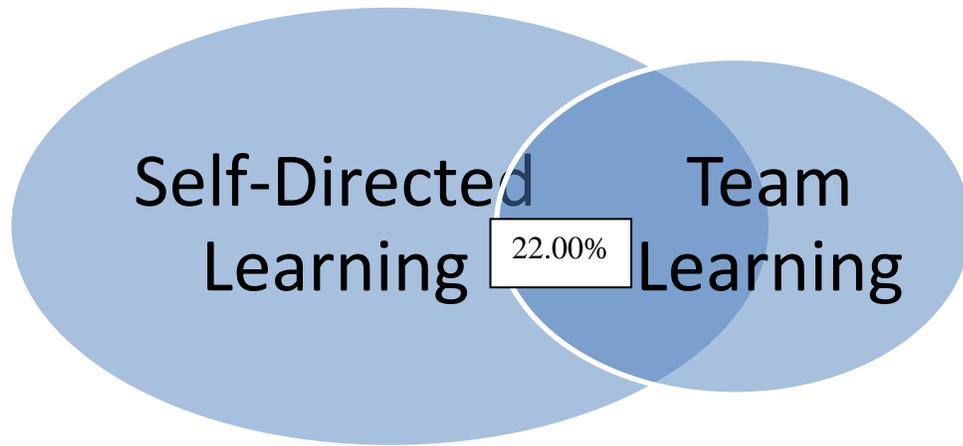
*Figure 4.1. Variance in Personal Mastery Explained by Self-Directed Learning*



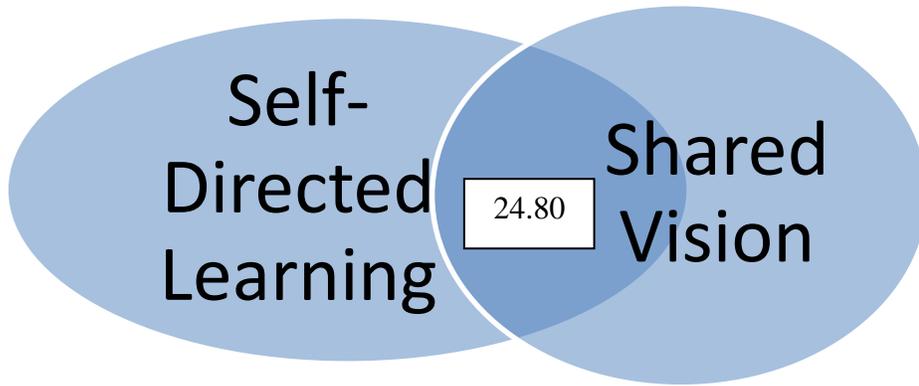
*Figure 4.2. Variance in Systems Thinking Explained by Self-Directed Learning*



*Figure 4.3.* Variance in Mental Models Explained by Self-Directed Learning



*Figure 4.4.* Variance in Team Learning Explained by Self-Directed Learning



*Figure 4.5.* Variance in Shared Vision Explained by Self-Directed Learning

## **CHAPTER 5: DISCUSSION OF FINDINGS**

“I am beginning to visualize HRD as something deeper...[my vision] includes the conception of modern economic theorists that the input of human capital is an even more critical determinant of organizational output than material capital. It envisions the role of the human resources developer as being perhaps more crucial than any other role in determining which organizations will be alive twenty years from now and which will be extinct.”

~Malcolm Knowles

This final chapter provides an overall summary of the study. It begins with a reaffirmation of the purpose and the four research questions of the study, an explanation of the participants used for the data collection, and a description of the procedures used in the methods section. A synopsis of each of the five chapters is provided, including a redefinition of the theoretical and conceptual frameworks for the study. The research goals and findings for each research question follow, and chapter five ends with the study’s culminating conclusions, associated limitations, and recommendations for practice and for future research.

### **Purpose of the Study**

The primary purpose of this study was to examine a target sample of employees in a specific division of a high-tech organization regarding their perceived level of SDL and which, if any, of Senge’s (1990) five disciplines best impact efforts at becoming a learning organization: “The key to becoming a best-in-class, high-performing organization lies in its ability to learn faster and more effectively than the competition” (Bierema & Berdish (1999,

p. 36). Further, through the literature review and research that was conducted, this study argued that organizational change in becoming a learning organization is one that HRD can guide, and the multitude of potential benefits can lead to better performance, both for the individual and for the business (Confessore, 1997; Flood, 1998; Kiedrowski, 2006). This literature even suggested that a self-directed learning organization is strongly encouraged in today's incredibly competitive marketplace.

### **Summary of Participant Demographics**

The legal and human resources departments of the organization used for this present exploratory study asked that descriptive demographic data from participants not be requested in an effort to protect the anonymity of the sample. Although this study had initially planned to collect and analyze supporting descriptors of the sample, namely culture and various demographics, these data were omitted from the study. The recipients within this division serve at varying levels, including individual contributor, manager or senior manager, director or senior director, and finally vice president or senior vice president. Distinctions of respondents' titles were not asked, once again at the request of the legal and human resources departments of the organization.

### **Data Collection**

A field operations division (N = 850) of an existing telecommunications organization was sent via email a link to the survey instrument. Clear instructions, as well as the researcher's contact information were provided. Two follow-up emails were delivered, and finally, the last email extended the researcher's gratitude for the responses. The survey was open for participation for fourteen days.

All data were downloaded onto a secure, password-protected personal computer accessible only to the researcher at his residence. The participants were asked to refrain from the use of any names of any people internally or externally. In any notes associated with this study's recordkeeping, the documents did not contain any true names; had names been collected, pseudonyms would have been inserted for participants, other organizations, or any other persons named in the survey. Once the data were analyzed, all master lists were deleted both from the hard drive and recycle bin of the computer used for communication purposes; finally, no records were kept that link a participant's name to any specific note taking.

A total of 320 (37.65%) surveys were submitted to SurveyMonkey.com, of which 310 (36.47%) were useable and entirely completed. The remaining ten were not analyzed because of incomplete survey submissions.

### **Research Objectives**

This study had four essential research objectives, and they were as follows:

The first objective for this research study was to discover the level of perceived SDL present within a high-tech field operations division of an established company. A confirmation of this objective was hypothesized as a necessary component of the sample for this study, and utilized as the independent variable. An extensive literature review provided the rationale for the necessity of SDL in this population for purposes of working toward the dependent variable, which will be discussed below in this chapter. The mean scores of the perceived SDL were averaged to create one resulting score for the respondents.

The second research objective collected data to determine the perceived level of the employees' perceptions of Senge's (1990) five disciplines necessary to become a learning organization. Scores over each discipline were averaged to create a common scoring mechanism in order to compare the relative perceptions of respondents for these disciplines, and to gain a better understanding of the data.

The third objective was to examine the correlations amongst the six variables used in the study, which are SDL and the five disciplines. First, correlations amongst the five disciplines were identified, and then relationships with the five disciplines and SDL were determined. The fourth and final research objective was to explore the amount of variance in each of the five disciplines that can be predicted by self-directed learning. These data were obtained by conducting five simple linear regression analyses.

## **Summary of Chapters**

### **Chapter One**

Chapter one provided the background information on SDL and then the learning organization, from the perspective of Peter Senge. These two primary constructs of the study were examined in the context of the workplace. Stanley (2007) was quoted as saying, "The highly competitive nature of our global economy and the rapid change in the production process has made self-directed learning essential" (p. 3). For many organizations to sustain in the 21<sup>st</sup> century, it is critical for employees to be proactive in their view of learning in the workplace (Cameron & Quinn, 2006; Confessore & Kops, 1998). Both SDL and the learning organization were named as useful attributes of successful organizations. The high-tech,

rapidly changing environment of the telecommunications organization from where the sample was identified served as an ideal platform to examine these relationships.

Toward the end of the 20<sup>th</sup> century, researchers have begun to study correlations between SDL in the workplace, and the benefits associated with becoming a learning organization (Cho, 2002; Confessore, 1997; Confessore & Kops, 1998). But few studies have been conducted that link SDL and the learning organization. “The question of how SDL can connect with building a learning organization has not been directly explored” (Cho, 2002, p. 467). According to Piskurich (1993), advantages for both the individual and the organization exist with the implementation of SDL as a step toward becoming a learning organization, but these correlations, or a model to implement SDL or the learning organization have yet to emerge: “The importance of self-directed learning is implied but not clearly articulated in the literature on learning organizations” (Confessore, 1997, p. 8). If these connections are not better defined between SDL and the learning organization, organizations could miss opportunities and significantly waste time and resources. This study hoped to thrust HRD into the dialogue as a facilitator to perhaps prompt an argument to maximize a self-directed workforce into becoming a learning organization. If organizations do not encourage HRD to look at the relationships of SDL and the learning organization, organizational performance and ultimate survival could be compromised.

Additional sections presented in chapter one included the definition of terms, the nature of the problem, followed by the problem statement, the purpose, and the four research questions. Next were the theoretical and conceptual frameworks, the significance of the

study, and the limitations and delimitations associated with the research. Finally, the general organization of the study was presented.

## **Chapter Two**

The second chapter included a review of the literature on the two primary constructs examined in this study, SDL and the learning organization, both within adult education as well as within the workplace,. Malcolm Knowles' early monumental work on SDL introduced this independent variable of the study, and then it quickly transitioned to a more contextual application by moving to SDL's presence in business and industry. Hatcher's (1997) claim that SDL "does not happen by accident: it requires expert facilitation" (p. 35) is referenced, announcing that some sort of *facilitation* is necessary for an organization to possess, or develop a self-directed workforce. Various barriers are illustrated that can impede the development of organizational SDL (Ellinger, 2004), and a definite need for a dedicated facilitator, such as HRD providing leadership and accountability was noted.

A gap in the literature is mentioned regarding publications that include SDL within the workplace, specifically those centered on HRD (Merriam et al., 2007. Although publications that examine and discuss SDL within the arena of HRD are limited, "SDL still appears to hold numerous advantages over traditional employee development strategies" (Cho, 2002, p. 467), thus it was chosen as the independent variable. Hatcher's (1997) comments matched up nicely with the sample of this study in his example: "a high-tech, fast paced firm that has been implementing SDL to meet ever-changing training needs" (p. 38). A multitude of literature is identified that promotes SDL as having the capacity to provide both individual skill development, as well as a collective competitive edge in the marketplace (Confessore,

1992; Ellinger, 2004; Hatcher, 1997; Knowles, 1990; Luthans and Youssef, 2007; Smith et al., 2007). The ROI for the employees and the organizations as a whole are innumerable, yet quite difficult to quantify, thus the ensuing argument is a daunting task. An essential win-win scenario is the resulting benefit, although the costs to promote, develop, or enhance any form of workplace learning can be quite expensive, and generally they are at the expense of the organization.

SDL is referenced as being a preferred attribute of an organization before becoming a “continuous-learning organization” (Confessore, 1992, p. 10). This study hoped to continue and further promote the consideration for HRD to be the guide for organizations’ commitment to becoming a learning organization. The literature review also examined HRD when accompanied with an integration of both SDL and the learning organization. Specifically, this chapter looked at discussions and tests within the literature of how SDL relates to an organization’s effort to become a learning organization. It was hoped from the onset of this study, and further argued within this chapter’s review of the literature, that perhaps some form of organizational leadership like HRD might be determined as the best choice in leading a self-directed group of employees toward maximizing a multitude of benefits by becoming a learning organization.

### **Chapter Three**

Chapter three presented the research methods used to conduct this study. The quantitative, non-experimental explanatory research design selected for this study was discussed with additional sections including the IRB approval process, sample selection, survey instrument selection, design, and modification, as well as data collection. Preliminary

data analyses procedures and findings were provided. Response bias was examined by comparing early and late respondents, from which no differences were determined. Reliability measures using Cronbach's alpha were provided on the two parts of the survey instrument. Finally, missing data, outliers, and assumptions were examined and addressed.

After a thorough examination of the literature, only a few dated studies have examined an intersection involving certain components of SDL and the learning organization (Bierema & Berdish, 1999; Confessore & Kops, 1998; Jude-York, 1993; Murrell & Walsh, 1993). Still more exploration is needed to forge proper pathways to determine more strategically effective work environments built on SDL and the learning organization, as well as just how substantial the benefit(s) could be.

#### **Chapter Four**

The fourth chapter presented the findings of analyzed data, and each of the four research questions was addressed and answered from the data analysis. Descriptive statistics using means and standard deviations were provided from the sample's responses regarding the first two questions including SDL and the five disciplines of the learning organization. Next, correlations amongst these six variables were presented with respect to the third research question. In the final question, predictability was explored through regression analyses to determine how much of the total variance in the five learning organization disciplines can be explained by SDL.

#### **Chapter Five**

This final chapter contains the summary, conclusions, recommendations, and limitations determined from the study. Summaries of findings are offered for the four

research questions, and conclusions are then presented for each research question. A synthesis of the findings and pertinent applicable ideas for research and practical application are provided. Recommendations for practitioners, training developers, including multi-level HRD professionals, and higher education researchers are stated. Finally, limitations of the study are presented.

### **Discussion of Findings and Conclusions**

As earlier defined, the purpose of the study was to investigate the relationship between employees' perceived SDL and employees' perceptions of Senge's (1990) five learning organization disciplines. The survey instrument examined a target sample of employees in a specific field division of a high-tech organization regarding their level of SDL and which, if any, of Senge's (1990) five disciplines has a significant impact on becoming a learning organization. The study was guided by four research questions, the first of which reported the level of SDL present within the division. The second research question sought to determine which of Senge's five disciplines were most abundant within the workplace at becoming a learning organization. The third research question examined if relationships existed amongst the five disciplines, as well as with SDL. The fourth research question explored if any of the variance in the five disciplines could be explained by SDL.

Demographic data were excluded from this research. 850 employees of a high-tech field division were sent an electronic survey. 320 (37.65%) participated, but ten were discarded because of incomplete data. In all, 310 (36.47%) were used in this study and analyzed. Data regarding employment hierarchy were not collected at the request of the organization, the sample served at varying levels, including individual contributor, manager

or senior manager, director or senior director, and finally vice president or senior vice president.

### **Findings and Conclusions by Research Question**

The study examined SDL and the learning organization in the context of the workplace. Data were collected from a high-tech field division (N=850) of an existing organization. Each member of this division was invited to participate in a web-based survey combining a modified version of two published instruments that investigated SDL and the learning organization. In the first and second research questions, descriptive statistics were used to analyze the respondents' level of SDL, as well as their perceptions of which of Senge's five disciplines was preferred. Relationships between these two constructs, SDL and the five learning organization disciplines were explored through correlation testing in research question three. And finally, five regression analyses were conducted to explore the independent and dependent variables.

#### **Research question one.**

Research question one was designed to describe the perceived level of SDL present within the workforce sample. A Likert measurement scale from 1-7 were the choices, ranging from 1=Not True of Me Most of the Time and 7=True of Me most of the Time. The resulting average SDL score was 5.78 (SD = .56). This is interpreted as, on average, the respondents were reporting self-directed learning as being *often true of them*. This is true for 95% of the respondents, since two standard deviations do not impact the results significantly. These data were measured using the Bartlett-Kotrlik Inventory of Self-Learning Scale (BISL©) (Bartlett & Kotrlik, 1999).

***Conclusion One.*** The results from the instrument that measured SDL determined that SDL is abundantly present within this field division.

The score of 5.78 was interpreted as “often true” of the respondents. The variance was caused by the SDL scores being averaged over twenty survey items. Further, an additional explanation of this variance is that the twenty questions used in this first portion of the instrument are very homogenous.

An extensive examination of the literature determined that it is beneficial for organizations to foster environments that promote the development of SDL (Ellinger, 2004; Hatcher, 1997). SDL is further identified as being a preferred method for workplace learning. Ellinger (2004) encourages that organizations increase SDL through intentional workplace education, as well as reduce the barriers that prevent SDL’s development. A powerful, non-exhaustive list of benefits found in the literature through promoting SDL within the workplace includes the following: saving on training costs, sharing a wealth of knowledge with others, and better eventual job performance. From the literature review also emerged that, although it is ever so slow to become the norm in practice, HRD can guide these efforts at developing SDL (Ellinger, 2004; Merriam et al., 2007). Perhaps a gap in this literature of evidence is an explanation for why leaders are reluctant to empower HRD with the task of developing SDL in the workplace. These organizational commitments can be enormously expensive, and without some guarantee, or empirically proven argument, many leaders choose to not take the chance. Hatcher (1997) encourages the promotion of SDL and claims that when learners actually take responsibility for their own learning, they learn better. The organization used in this study is rich in SDL (5.78/7.00 score). It would be a worthwhile pursuit to probe for more

knowledge regarding, not only the demographics and culture of this company, but also the many tangents connected to the organizational development and leadership that guides their decision-making.

**Research question two.**

The second research question used another published survey instrument inclusive of twenty questions referred to as the *Learning Organization Questionnaire* (Al-Qutop et al., 2011). This research question sought to determine which of the five disciplines the respondents perceived as being most prevalent at their place of work. The sample chose from five Likert response options including a range of 1 = strongly disagree to 5= strongly agree. Personal mastery received the highest average score (mean = 3.50, SD = .68). A score of 3.50 can be interpreted as between neither agreeing or disagreeing and *tending to agree*.

**Conclusion Two.** On average, the respondents perceived questions relating to personal mastery as being most present, and this discipline also produced the lowest variability (mean = 3.50, SD = .68). Conversely, the survey items for mental models produced the lowest average scores with the highest variability (mean = 3.02, SD = .92). An interpretation of this lowest ranked discipline is that the respondents *neither agreed nor disagreed* with the items. The results for shared vision, team learning, and systems thinking were similar in their mean scores and standard deviations. The data for shared vision, team learning, and systems thinking rated near the middle of the range, which is interpreted as *neither agreeing nor disagreeing*. Shared vision had the lowest score (mean = 3.11, SD = .79), systems thinking had the next lowest score (mean = 3.19, SD = .77), and finally team

learning had the highest score (mean = 3.22, SD = .71). Team learning had the lowest variability, but this is at least partly because the team learning score was calculated as an average of seven survey responses in opposed to three or four, as in the remaining four disciplines.

The literature provided several references that organizations gain competitive advantages if they are committed to becoming learning organizations (Confessore, 1997; Flood, 1998; Kiedrowski, 2006). Further, the literature discussed connections between SDL and the learning organization (Watkins and Marsick, 2003; Pedler, Burgoyne, and Boydell, 1991). Confessore (1997) stated, “Self-directed learning is an integral part of the learning organization” (p. 9). For SDL and Senge’s disciplines to interact in a manner by which a learning organization is to form, the respondents in this study perceived the first of Senge’s five disciplines as having the highest presence, personal mastery, which is the development of one’s own proficiency (Flood, 1998). While a learning organization, as stated above, requires a systems-wide interconnectedness, it is interesting that the respondents ranked an individual-based concept as being most prominent. Confessore and Kops (1998) explain, “The learning organization is a complex association, involving individual learning and organizational learning mechanisms. Learning organizations assume the competence of all members and are designed so that individuals may perform to their fullest potentials” (p. 373). This conclusion strongly supports the argument that phenomena such as learning and change first begin with the individual, and then move to organizational commitment, before perhaps becoming societal norms. It could be hypothesized that, if organizational leaders, HRD, or ownership were to be evaluated, perhaps they would not value personal mastery as

high as these workers did. Leaders would likely look toward more encompassing, holistic concepts, such as systems thinking – Senge’s most critically important fifth discipline.

**Research question three.**

The third research question examined correlations between SDL and Senge’s (1990) five learning organization disciplines. After the first and second research questions summarized SDL and learning organization average scores for disciplines, this study looked to determine how the respondents’ perceptions in each of the five disciplines relate to each other, as well as with their perceived levels of SDL.

*Conclusion Three.* All correlations amongst the five learning organization disciplines were statistically significant. This conclusion mirrors various research literature that reported a correlation table regarding the different constructs associated with the learning organization (Weldy & Gilles, 2010; Yang, Watkins, & Marsick, 2004). For this present study, shared vision and team learning produced a very strong association with Pearson correlation at .744. Shared vision and team learning had very strong positive associations to mental models, with correlations of .716 and .706 respectively. The remaining correlations within the learning organization disciplines were not as strong, but still substantial. Systems thinking and mental models had the lowest relationship with a correlation of .537. This correlation was, however, interpreted as substantial.

The next phase of research question three determined that each learning organization discipline had a statistically significant positive correlation to SDL. Although these correlations were smaller than those measured amongst the disciplines, correlations still can be interpreted as moderate to substantial. Shared vision had the most significant correlation

to SDL with a Pearson correlation of .498, which is interpreted as substantial. The correlations of SDL to the remaining four disciplines were still moderate. A correlation of .395 between personal mastery and SDL ranked the lowest. Ironically, the individual responses to perceptions of the most prevalent learning discipline in research question two ranked personal mastery the highest. Perhaps a partial explanation of this seemingly opposing perspective is explained by Flood (1998) in that a shared vision, “extends insights and principles from personal mastery into a world of collective aspiration and shared commitment” (p. 265). The sample from this dissertation study perceives personal mastery as the most abundant of the five disciplines, and Flood (1998) explains that shared vision disseminates from personal mastery into the deeper organizational interconnectedness that Senge professes. Senge explains that systems thinking is the antithesis of this phenomenon, and the most critical discipline needed to experience the multiple returns on investment associated with becoming a learning organization.

#### **Research question four.**

This final research question sought to determine what amount of variance in each of the five disciplines can be explained by SDL. Each of the disciplines showed high correlation to SDL, and they were likewise highly correlated with each other. The range was from 15.60% for personal mastery to 24.80% for shared vision. 24.80% of the variance for shared vision can be explained by SDL; 22.00% of the variance in team learning can be explained by SDL; 20.50% of the variance in mental models is because of SDL; finally, 17.40% of the variance in systems thinking and 15.60% of the variance in personal mastery are explained by SDL.

## **Summary of Conclusions**

The presence of perceived SDL within this sample was shown to be solid through the data collected from the BSL. The respondents' highest perceived presence of the five learning organization disciplines was personal mastery, which according to individual subordinate employee responses, places the impetus of priority seemingly on the individual. Correlations were determined to be statistically significant with all of the disciplines, and shared vision and team learning had very strong positive associations to mental models. Each discipline also had statistically significant positive correlations to SDL, and, although these correlations were smaller than those measured amongst the disciplines, correlations were still moderate to substantial, and considered significant. Shared vision had the most significant correlation to SDL, which is interpreted as substantial, and the correlations of SDL to the remaining four disciplines were moderate. Finally, nearly 25% of the variance in shared vision can be explained by SDL.

## **Limitations**

*Access.* During the collection of data, it is possible that some of the 850 positions experienced changes, perhaps impacting access to them. This division of this sector is very busy, and may not have viewed participation in this study important to set aside time to complete the survey.

*Economic Conditions.* The poor economic conditions may have impacted the response ratio.

*Available Literature.* Since of a lack of empirical evidence on measuring Senge's (1990) five disciplines is present within a learning organization, employees' perceptions were measured.

*Participant Interpretation.* The participants answered each of the forty survey questions through their own respective lenses of interpretation. The data were collected utilizing a self-reporting survey, which is limited to the accuracy of recall, comfort of sharing, lack of knowledge, understanding, and/or interest, and the honesty of those who completed the survey. Also, the act of self-reporting could raise the data to levels that are not necessarily perceived, as intended, but desired.

*Technology.* Participants were invited to partake in this survey study based upon three electronic mailings. If any of the participants lacked the technological skills necessary for completing the online survey instrument, or checking email accounts, data collection could have been impacted. Further, the fear of computer viruses and spam folders might have lowered the overall response rate.

*Time Frame.* The findings of this study are bound by this one sample in one division in one company, and in one sector. This study is confined to a specific time during part of the 2012 calendar year.

### **Recommendations for Future Research**

Demographic information, such as age, gender, education level, ethnicity, and position level might be considerations for further studies. Perhaps they could explain more about SDL and the disciplines for purposes of moving to a learning organization. It would be interesting to examine whether or not the level of authority impacts the level of SDL, or

possibly ranks differently the perceptions of which of the disciplines is most present. Culture could be another descriptive independent variable in future studies.

Additional research ideas resulting from this research could also identify organizational activities that could be implemented to facilitate SDL among workers. Specifically, this could uncover ways to practice and enhance certain disciplines, or what Cho (2002) refers to as *learning strategies* in the workplace environment. Now that this study has identified which of the disciplines is most impacted by SDL from the perspective of this workplace sample, additional research might investigate how any of these disciplines could be incorporated internally, and how they might impact the ultimate objective (dependent variable) in becoming a learning organization. Even further, it occurred to the researcher of this study that perhaps switching the independent and dependent variables for an inverse examination could produce useful results.

This study's sample is comprised of individual, *subordinate* worker's perceptions of which of the five disciplines are most present. They collectively selected personal mastery, which relates directly to individuals. Although the homogeneous grouping of the sample likely improved the validity of the results, if this same survey were given to higher-level leaders, perhaps HRD professionals, the results might be entirely different with a more systems-oriented focus. Similarly, the level of perceived SDL was present in this sample. The researcher is very curious about how different leaders would rank their self-directedness in the same survey.

## Applications for Practice and Discussion

In the first part of the survey, the 310 respondents indicated an interpreted level of perceived self-directedness that was, “often true of them” on a 7-point Likert scale. Additionally personal mastery was rated as the discipline they perceived as being the highest rated learning discipline in this organization. Shared vision showed the highest correlation with SDL, and was the only discipline that was interpreted as having a substantial correlation. While personal mastery was described as the highest learning discipline in the second research question, it correlated with SDL the least. So even though personal mastery is perceived as having a higher presence than the other disciplines by this sample, it is not explained by SDL as much as the other disciplines. This provides evidence that personal mastery as a learning discipline is not the same concept as SDL, but shared vision can, however be linked to SDL. In the context of the formulation of a learning organization, personal mastery was earlier defined as by Senge as, *the result from creating an environment that encourages personal and organizational goals to be developed and realized in partnership*. Knowles explained that self-directed learning is *a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes*.

Both *personal* mastery and *self*-directed learning are linked to the *individual*, but they are not the same – in fact, they are very different from one another. In this exploratory study, the variance in shared vision was shown to have the highest impact caused by SDL. Senge stated in his book, *The Fifth discipline*, that “Personal mastery is the bedrock for developing

shared vision” (Senge, 1990, p. 211), so if a learning organization were to be an objective of the team that was sampled in this study, it appears they have the foundation to do so, but from the results obtained in the data, it appears that it is not a priority. Moreover, there exists a disconnect between personal mastery and the collective shared vision that appears to be far from reality in this group of 310 field technicians.

This organization is one that possesses a workforce with personal mastery, but the other four disciplines are significantly lacking. It was earlier anticipated that this segment of business could benefit from being a learning organization; however, this particular sample does not appear to be one. Following the collection of data, additional knowledge on the organization used for this study indicates that they are quite successful, and that they have recently acquired some of their smaller competitors, which means that they have people coming into their organization from other places, thus a shared vision is not likely to be present. The researcher further suspects that perhaps turnover is rather high in this company, and that related job satisfaction is another challenge facing them. Their focus is solely on personal mastery, and not on each other, or the mission, vision, or values. This often leads to employees focusing on themselves so as to master their trade, and look for better opportunities elsewhere. The conclusions for this research are limited by the inability to speak candidly about the organization used for the collection of data; the anonymity of the sample is imperative. This organization is doing quite well, for now, comprised of self-directed individuals, but far from what is defined as a learning organization. It is possible that this particular sample, organization, and segment of business may not need to look

toward becoming a learning origination... or maybe their performance could be even better if they looked to invest in this organizational change.

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## APPENDICES

## **APPENDIX A: Permission to use the Learning Organization Questionnaire**

Dear Mr. Darren Masier -

My coauthors and I grant you permission to use our Part Two of our questionnaire consisting of 20 statements concerning Senge learning disciplines. Please share your findings with us following your research.

Sahar Moh'd Futa

From: Darren Masier [dymasier@ncsu.edu]

Sent: Friday, March 16, 2012 8:11 AM

To: alqutop@hotmail.com; saharbisan@yahoo.com; almaani100@yahoo.com

Subject: Dissertation on Learning Organization

Drs. Mohi-Adden Yahya Al-Qutop, Sahar Moh'd Futa, and Ahmad Ismail Ma'ani:

I am in the process of conducting research for my dissertation at North Carolina State University. I intend to examine an existing high-tech organization with approximately N=850 within the field division that will serve as my sample. My study will take a look at self-directed learning with descriptive variables of culture and demographics (all IV) and perform multivariate statistical analysis to determine how the IV correlate with organizations becoming learning organizations (DV) via Senge's disciplines. I am wondering if I could use some of your survey that was used in *The Relationship between Learning Facilitators and Transforming into a Learning Organization: An Empirical Study of the Insurance Sector in*

Jordan (2011) in creating my own web-based survey instrument that will be sent to the subjects.

Thank you,

Darren Masier

North Carolina State University

**APPENDIX B: Permission to use the Bartlett-Kotrlik Inventory of Self-Learning Scale**

**(BISL©)**

**North Carolina State University**

**NC STATE UNIVERSITY**

**College of Education**

Department of Leadership,  
Policy, and Adult and Higher  
Education  
Campus Box 7801  
Raleigh, NC 27695-7638  
919.208.1697  
[james\\_bartlett@ncsu.edu](mailto:james_bartlett@ncsu.edu)

January 17, 2012

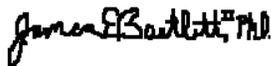
RE: Darren Masier's Use of Instrument

To Whom It May Concern:

I have known Darren Masier as a student and graduate assistant at North Carolina State University for the past four years. Darren has selected me to chair his dissertation committee. Further, as part of his dissertation instrument, I grant permission to use the Bartlett-Kotrlik Inventory of Self-Learning Scale, which I co-authored.

If you would like to contact me, please do not hesitate.

Sincerely,



James E. Bartlett, II, Ph.D.  
Associate Professor and Director of Adult and Community College Education Doctoral Cohort  
President, Association of Career and Technical Education Research ([www.acteronline.org](http://www.acteronline.org))

**APPENDIX C: International Review Board Application**

**North Carolina State University  
Institutional Review Board for the Use of Human Subjects in Research  
SUBMISSION FOR NEW STUDIES**

GENERAL INFORMATION

1. <b>Date Submitted:</b> <u>03/24/2012</u>
1a. <b>Revised Date:</b> _____
<b>Title of Project:</b> Exploring the Relationship between Self-Directed Learning and the Five Discipline's Necessary to Become a Learning Organization: From a High-Tech Company
2. <b>Principal Investigator:</b> <u>Darren J. Masier</u>
3. <b>Department:</b> <u>Leadership, Policy and Adult and Higher Education</u>
4. <b>Campus Box Number:</b> <u>7801</u>
5. <b>Email:</b> <u>djmasier@ncsu.edu</u>
6. <b>Phone Number:</b> <u>919.623.3377</u>
7. <b>Fax Number:</b> _____
8. <b>Faculty Sponsor Name and Email Address if Student Submission:</b> <u>James Bartlett</u> <u>jebartl3@ncsu.edu</u>
9. <b>Source of Funding? (required information):</b> <u>n/a</u>
10. <b>Is this research receiving federal funding?:</b> <u>no</u>
11. <b>If Externally funded, include sponsor name and university account number:</b> <u>n/a</u>
12. <b>RANK:</b> <input type="checkbox"/> Faculty <input checked="" type="checkbox"/> Student: <input type="checkbox"/> Undergraduate; <input type="checkbox"/> Masters; or <input type="checkbox"/> PhD <input type="checkbox"/> Other (specify): _____

*As the principal investigator, my signature testifies that I have read and understood the University Policy and Procedures for the Use of Human Subjects in Research. I assure the Committee that all procedures performed under this project will be conducted exactly as outlined in the Proposal Narrative and that any modification to this protocol will be submitted to the Committee in the form of an amendment for its approval prior to implementation.*

**Principal Investigator:**

Darren J. Masier \_\_\_\_\_\* 03/24/2012  
 (typed/printed name) (signature) (date)

*As the faculty sponsor, my signature testifies that I have reviewed this application thoroughly and will oversee the research in its entirety. I hereby acknowledge my role as the **principal investigator of record**.*

**Faculty Sponsor:**

James E. Bartlett, II

\_\_\_\_\_\*

03/24/2012

(typed/printed name)

(signature)

(date)

**\*Electronic submissions to the IRB are considered signed via an electronic signature. For student submissions this means that the faculty sponsor has reviewed the proposal prior to it being submitted and is copied on the submission.**

Please complete this application and email as an attachment to: [debra\\_paxton@ncsu.edu](mailto:debra_paxton@ncsu.edu) or send by mail to: Institutional Review Board, Box 7514, NCSU Campus (Administrative Services III). **Please include consent forms and other study documents with your application and submit as one document.**

\*\*\*\*\*

**\*\*For SPARCS office use only**

**Reviewer Decision (Expedited or Exempt Review)**

Exempt       Approved     Approved pending modifications     Table

Expedited Review Category:  1     2     3     4     5     6     7     8a     8b   

8c     9

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Reviewer Name

Signature

Date

**North Carolina State University**

**Institutional Review Board for the Use of Human Subjects in Research**

**GUIDELINES FOR A PROPOSAL NARRATIVE**

**In your narrative, address each of the topics outlined below. Every application for IRB review must contain a proposal narrative, and failure to follow these directions will result in delays in reviewing/processing the protocol.**

**A. INTRODUCTION**

1. Briefly describe in lay language the purpose of the proposed research and why it is important.

The purpose of this study is to explore the relationship between of self-directed learning and employees' perceptions of Senge's (1990) five learning organization constructs: personal mastery, mental models, team learning, shared vision, and systems thinking. This survey study seeks to describe the individuals, the target sample being employees in a specific division of the organization, on demographics. The study will describe the organizational culture (adhocracy, clan, hierarchy, market) to provide contextualization for the study.

2. If student research, indicate whether for a course, thesis, dissertation, or independent research.

This research is for a dissertation.

**B. SUBJECT POPULATION**

1. How many subjects will be involved in the research?

Estimates or ranges are acceptable. Please be aware that if you recruit over 10% more participants than originally requested, you will need to submit a request to modify your recruitment numbers.

The accessible sample for this study includes the field operations division of an existing high-tech organization (N = 850) that employs over 3,000 people in all. The objective is to draw from an adequate sample data that will allow for generalization about the population.

2. Describe how subjects will be recruited. Please provide the IRB with any recruitment materials that will be used.

A web-based survey will be administered utilizing Survey Monkey to all employees of division.

3. List specific eligibility requirements for subjects (or describe screening procedures), including those criteria that would exclude otherwise acceptable subjects.

None of the 850 employees will be excluded from eligibility.

4. Explain any sampling procedure that might exclude specific populations.

n/a

5. Disclose any relationship between researcher and subjects - such as, teacher/student; employer/employee.

The researcher does not know any of the subjects, nor do they know him.

6. Check any vulnerable populations included in study:

- minors (under age 18) - if so, have you included a line on the consent form for the parent/guardian signature
- fetuses
- pregnant women
- persons with mental, psychiatric or emotional disabilities
- persons with physical disabilities
- economically or educationally disadvantaged
- prisoners
- elderly
- students from a class taught by principal investigator
- other vulnerable population.

7. If any of the above are used, state the necessity for doing so. Please indicate the approximate age range of the minors to be involved.

n/a

### C. PROCEDURES TO BE FOLLOWED

1. In lay language, describe completely all procedures to be followed during the course of the experimentation. Provide sufficient detail so that the Committee is able to assess potential risks to human subjects. In order for the IRB to completely understand the experience of the subjects in your project, please provide a detailed outline of everything subjects will experience as a

result of participating in your project. Please be specific and include information on all aspects of the research, through subject recruitment and ending when the subject's role in the project is complete. All descriptions should include the informed consent process, interactions between the subjects and the researcher, and any tasks, tests, etc. that involve subjects. If the project involves more than one group of subjects (e.g. teachers and students, employees and supervisors), please make sure to provide descriptions for each subject group.

The initial contact will be an email including an explanation of the study (pre-notice), its practical application, and contact information of the researcher. Three days later, the consent form and a link to the survey will be emailed. One week later, the first follow-up email will be delivered, once again explaining the importance of a high response ratio; it also will include the link to the survey. Following the data collection, approximately one week later, a thank you email will be delivered. Each of these emails will be sent to the entire group of employees.

2. How much time will be required of each subject?

Completion of the web-based survey is projected to take approximately 10-15 minutes.

#### **D. POTENTIAL RISKS**

1. State the potential risks (psychological, social, physical, financial, legal or other) connected with the proposed procedures and explain the steps taken to minimize these risks.

No potential risks are anticipated.

2. Will there be a request for information that subjects might consider to be personal or sensitive (e.g. private behavior, economic status, sexual issues, religious beliefs, or other matters that if made public might impair their self-esteem or reputation or could reasonably place the subjects at risk of criminal or civil liability)?

No delicate personal or sensitive matters will be associated with any correspondence with anyone at any time.

a. If yes, please describe and explain the steps taken to minimize these risks.

n/a

3. Could any of the study procedures produce stress or anxiety, or be considered offensive, threatening, or degrading? If yes, please describe why they are important and what arrangements have been made for handling an emotional reaction from the subject.

None of this study's procedures are anticipated to produce stress or anxiety, or be considered offensive,

threatening, or degrading to any of the subjects.

4. How will data be recorded and stored?

All data will be downloaded onto a secure, password-protected personal computer accessible only to the researcher. The participants will be asked to refrain from the use of any names of any people internal or external. The researcher will collect all data anonymously, meaning that there will be no way to link responses to individual participants at any time during recruitment, data collection, analyses and reporting.

a. How will identifiers be used in study notes and other materials?

In the notes, the documents will not contain any true names; pseudonyms will be inserted for any references of any kind, other organizations, or any other persons named in the survey. No records will be kept that link a participant name to any specific notetaking.

b. How will reports will be written, in aggregate terms, or will individual responses be described?

Survey questions will utilize quantitative Likert scale responses (survey instrument attached).

5. If audio or video recordings are collected, will you retain or destroy the recordings? How will recordings be stored during the project and after, as per your destruction/retention plans?

n/a

6. Is there any deception of the human subjects involved in this study? If yes, please describe why it is necessary and describe the debriefing procedures that have been arranged.

n/a

## E. POTENTIAL BENEFITS

*This does not include any form of compensation for participation.*

1. What, if any, direct benefit is to be gained by the subject? If no direct benefit is expected, but indirect benefit may be expected (knowledge may be gained that could help others), please explain.

No direct benefits are expected by this study; however the ensuing results might inform practice and serve as an indirect benefit (knowledge gained).

**F. COMPENSATION**

*Please keep in mind that the logistics of providing compensation to your subjects (e.g., if your business office requires names of subjects who received compensation) may compromise anonymity or complicate confidentiality protections. If, while arranging for subject compensation, you must make changes to the anonymity or confidentiality provisions for your research, you must contact the IRB office prior to implementing those changes.*

1. Describe compensation

No compensation will accompany this research.

2. Explain compensation provisions if the subject withdraws prior to completion of the study.

n/a

3. If class credit will be given, list the amount and alternative ways to earn the same amount of credit.

n/a

**G COLLABORATORS**

1. If you anticipate that additional investigators (other than those named on **Cover Page**) may be involved in this research, list them here indicating their institution, department and phone number.

n/a

2. Will anyone besides the PI or the research team have access to the data (including completed surveys) from the moment they are collected until they are destroyed.

n/a

**H. CONFLICT OF INTEREST**

1. Do you have a significant financial interest or other conflict of interest in the sponsor of this project? No

2. Does your current conflicts of interest management plan include this relationship and is it being properly followed? n/a

**I. ADDITIONAL INFORMATION**

1. If a questionnaire, survey or interview instrument is to be used, attach a copy to this proposal.

2. Attach a copy of the informed consent form to this proposal.

3. Please provide any additional materials that may aid the IRB in making its decision.

**J. HUMAN SUBJECT ETHICS TRAINING**

\*Please consider taking the [Collaborative Institutional Training Initiative](#) (CITI), a free, comprehensive ethics training program for researchers conducting research with human subjects. Just click on the underlined link.

## **APPENDIX D: North Carolina State University Informed Consent for Research**

(valid \_\_\_\_ through \_\_\_\_)

**Title of Study:** Exploring the Relationship between Self-Directed Learning and the Five Discipline's  
Necessary to Become a Learning Organization: From a High-Tech Company

**Principal Investigator:** Darren J. Masier

**Faculty Sponsor (if applicable):** Dr. James E. Bartlett, II

### **What are some general things you should know about research studies?**

You are being asked to take part in a research study. Your participation in this study is voluntary. You have the right to be a part of this study, to choose not to participate, or to stop participating at any time without penalty. The purpose of research studies is to gain a better understanding of a certain topic or issue. You are not guaranteed any personal benefits from being in a study. Research studies also may pose risks to those that participate. In this consent form you will find specific details about the research in which you are being asked to participate. If you do not understand something in this form it is your right to ask for clarification or more information. A copy of this consent form will be provided to you. If at any time you have questions about your participation, do not hesitate to contact the researcher and/or faculty sponsor named above.

### **What is the purpose of this study?**

The purpose of this study is to explore the relationship between of self-directed learning and employees' perceptions of Senge's (1990) five learning organization constructs: personal mastery, mental models, team learning, shared vision, and systems thinking. This survey study seeks to describe the individuals, the target sample being employees in a specific division of the organization, on demographics. The study will describe the organizational culture (adhocracy, clan, hierarchy, market) to provide contextualization for the study.

### **What will happen if you take part in the study?**

If you agree to participate in this study, you will be asked to complete a web-based survey will be administered utilizing Survey Monkey, which is expected to take 15 minutes to complete. This research is

being conducted for a dissertation study at North Carolina State University in partial fulfillment of the requirements for the degree of Doctor of Education.

### **Risks**

No potential risks are anticipated.

### **Benefits**

No direct benefits are expected by this study; however the ensuing results might inform practice and serve as an indirect benefit (knowledge gained).

### **Confidentiality**

The information in the study records will be kept confidential to the full extent allowed by law. Data will be stored securely in on a password protected personal computer to protect the security of data. No reference will be made in oral or written reports which could link you to the study, and the individual survey data will be stored simply as a number reflecting the order received. You will NOT be asked to write your name on any study materials so that no one can match your identity to the answers that you provide. This entire process is both confidential and anonymous.

### **Compensation**

You will not receive anything for participating.

### **Participation NOT A REQUIREMENT OF YOUR JOB**

Participation in this study is not a requirement of your employment, and your participation or lack thereof, will not affect your job.

### **Questions about this study?**

If you have questions at any time about the study or the procedures, you may contact the researcher, Darren J.

Masier at any of the following:      Phone: 919.623.3377      Email: [djmasier@ncsu.edu](mailto:djmasier@ncsu.edu)

Address: 104 Christenbury Lane Cary, NC 27511

If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Deb Paxton, Regulatory Compliance Administrator, Box 7514, NCSU Campus (919.515.4514).

### **Consent To Participate**

*I have read and understand the above information. I understand that I will receive a copy of this form. I agree to participate in this study with the understanding that I may choose not to participate or to stop participating at any time without penalty or loss of benefits to which I am otherwise entitled. I understand that no benefits or compensation will accompany this study. If you agree to participate, please click "I agree" and proceed to the survey. A completed and submitted survey will indicate your willingness to participate.*

## **APPENDIX E: Survey**

### **Title of Survey: Organizational Self-directed Learning and the Learning Organization**

Thank you for agreeing to participate in this survey. The information obtained from this instrument will be analyzed and used for the researcher's dissertation study, as well as to get an accurate picture of how members of the GFS Department feel about their style of learning and whether they feel the training/learning environment we provide is meeting both content and style needs. This effort is anticipated to be a worthwhile effort to ultimately improve the entire GFS department. You are encouraged to be honest with your answers to these questions. The responses from the survey are entirely anonymous, thus you will not be linked, in any way, to your responses. The survey is quite easy to complete, and should not take more than 10 - 15 minutes. You will be asked to complete the two-part survey beginning with questions relating to self-directed learning, and then the learning organization. Following completion of this page, you agree to informed consent.

### *Self-Directed Learning*

<b>Question Number</b>	<b>Question</b>	<b>Possible answers</b>
	This portion of the questionnaire consists of 20 statements. The scale is 7-point Likert-type with values ranging from 1= Not True of Me Most of the Time to 5= True of Me Most of the Time. Choose the best answer from the selections.	
1	In my job, I prefer tasks that challenge me so I can learn new things.	True of Me Most of the Time (7) Often True of Me (6) Seldom True of Me (5) Undecided (4) Seldom Not True of Me (3) Often Not True of Me (2) Not True of Me Most of the Time (1)
2	In my job, I prefer tasks that arouse my curiosity, even if they are difficult to learn.	True of Me Most of the Time (7) Often True of Me (6) Seldom True of Me (5) Undecided (4) Seldom Not True of Me (3) Often Not True of Me (2) Not True of Me Most of the Time (1)
3	It is satisfying for me to understand the content of my job-related materials as thoroughly as possible.	True of Me Most of the Time (7) Often True of Me (6) Seldom True of Me (5) Undecided (4) Seldom Not True of Me (3) Often Not True of Me (2) Not True of Me Most of the Time (1)
4	In my job, I choose tasks that I can learn from, even if they don't guarantee a reward.	True of Me most of the Time (7) Often True of Me (6)

- Seldom True of Me (5)  
 Undecided (4)  
 Seldom Not True of Me (3)  
 Often Not True of Me (2)  
 Not True of Me Most of the  
 Time (1)
- 5 I am able to learn the material for my job. True of Me Most of the Time (7)  
 Often True of Me (6)  
 Seldom True of Me (5)  
 Undecided (4)  
 Seldom Not True of Me (3)  
 Often Not True of Me (2)  
 Not True of Me Most of the  
 Time (1)
- 6 It is my responsibility to learn new material  
 for my job. True of Me Most of the Time (7)  
 Often True of Me (6)  
 Seldom True of Me (5)  
 Undecided (4)  
 Seldom Not True of Me (3)  
 Often Not True of Me (2)  
 Not True of Me Most of the  
 Time (1)
- 7 If I try hard enough to learn, I will  
 understand job-related material. True of Me Most of the Time (7)  
 Often True of Me (6)  
 Seldom True of Me (5)  
 Undecided (4)  
 Seldom Not True of Me (3)  
 Often Not True of Me (2)  
 Not True of Me Most of the  
 Time (1)
- 8 I'm certain I can learn any new skills my job  
 requires. True of Me Most of the Time (7)  
 Often True of Me (6)  
 Seldom True of Me (5)  
 Undecided (4)  
 Seldom Not True of Me (3)  
 Often Not True of Me (2)  
 Not True of Me Most of the  
 Time (1)

- |    |   |   |
|----|---|---|
| 9  | I am usually able to learn new material for my job when I can concentrate.              | True of Me Most of the Time (7)<br>Often True of Me (6)<br>Seldom True of Me (5)<br>Undecided (4)<br>Seldom Not True of Me (3)<br>Often Not True of Me (2)<br>Not True of Me Most of the Time (1) |
| 10 | I find I do not spend very much time learning new material because of other activities. | True of Me Most of the Time (7)<br>Often True of Me (6)<br>Seldom True of Me (5)<br>Undecided (4)<br>Seldom Not True of Me (3)<br>Often Not True of Me (2)<br>Not True of Me Most of the Time (1) |
| 11 | I rarely find time to read about new materials in my field.                             | True of Me Most of the Time (7)<br>Often True of Me (6)<br>Seldom True of Me (5)<br>Undecided (4)<br>Seldom Not True of Me (3)<br>Often Not True of Me (2)<br>Not True of Me Most of the Time (1) |
| 12 | I'm involved with peer learning when I learn at work.                                   | True of Me Most of the Time (7)<br>Often True of Me (6)<br>Seldom True of Me (5)<br>Undecided (4)<br>Seldom Not True of Me (3)<br>Often Not True of Me (2)<br>Not True of Me Most of the Time (1) |
| 13 | When learning material for my job, I often try to explain the material to colleagues.   | True of Me Most of the Time (7)<br>Often True of Me (6)<br>Seldom True of Me (5)<br>Undecided (4)<br>Seldom Not True of Me (3)<br>Often Not True of Me (2)  |

		Not True of Me Most of the Time (1)
14	When learning new materials, I set aside time to discuss the material with colleagues.	True of Me Most of the Time (7) Often True of Me (6) Seldom True of Me (5) Undecided (4) Seldom Not True of Me (3) Often Not True of Me (2) Not True of Me Most of the Time (1)
15	When learning new material for my job, I ask others to clarify concepts that I don't understand.	True of Me Most of the Time (7) Often True of Me (6) Seldom True of Me (5) Undecided (4) Seldom Not True of Me (3) Often Not True of Me (2) Not True of Me Most of the Time (1)
16	When I cannot understand material for this job, I will ask another colleague for help.	True of Me Most of the Time (7) Often True of Me (6) Seldom True of Me (5) Undecided (4) Seldom Not True of Me (3) Often Not True of Me (2) Not True of Me Most of the Time (1)
17	My supervisors/administrators provide time for me to learn new topics related to my job.	True of Me Most of the Time (7) Often True of Me (6) Seldom True of Me (5) Undecided (4) Seldom Not True of Me (3) Often Not True of Me (2) Not True of Me Most of the Time (1)
18	My supervisors/administrators encourage me to learn new topics related to my job.	True of Me Most of the Time (7) Often True of Me (6) Seldom True of Me (5) Undecided (4)

		Seldom Not True of Me (3) Often Not True of Me (2) Not True of Me Most of the Time (1)
19	My supervisors/administrators provide funding for me to for me to learn new topics related to my job.	True of Me Most of the Time (7) Often True of Me (6) Seldom True of Me (5) Undecided (4) Seldom Not True of Me (3) Often Not True of Me (2) Not True of Me Most of the Time (1)
20	I have support from my organization to be innovative.	True of Me Most of the Time (7) Often True of Me (6) Seldom True of Me (5) Undecided (4) Seldom Not True of Me (3) Often Not True of Me (2) Not True of Me Most of the Time (1)

***Learning Organization***

Question Number	Question	Possible answers
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This portion of the questionnaire consists of 20 statements. The scale is 5-point Likert-type with values ranging from 1= strongly disagree to 5= strongly agree. Choose the best answer from the selections.

Question	1	2	3	4	5
1) My company is working always	Strongly disagree	Tend to disagree	Neither agree	Tend to agree	Strongly agree

for creating and acquiring new knowledge. ____			nor disagree		
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Question	1	2	3	4	5
2) Employees' learning is considered one of the important priorities to my company. ____	Strongly disagree	Tend to disagree	Neither agree nor disagree	Tend to agree	Strongly agree

Question	1	2	3	4	5
3) Self-directing learning is expected, encouraged and rewarded. ____	Strongly disagree	Tend to disagree	Neither agree nor disagree	Tend to agree	Strongly agree

Question	1	2	3	4	5
4) Employees at all levels identify their needed skills for future work tasks. ____	Strongly disagree	Tend to disagree	Neither agree nor disagree	Tend to agree	Strongly agree

Question	1	2	3	4	5
5) There is a willingness to break old patterns and to experiment different ways in managing daily work. ____	Strongly disagree	Tend to disagree	Neither agree nor disagree	Tend to agree	Strongly agree

Question	1	2	3	4	5
6) Applicable creative, innovative and risk taking ideas are encouraged and rewarded. ____	Strongly disagree	Tend to disagree	Neither agree nor disagree	Tend to agree	Strongly agree

Question	1	2	3	4	5
7) Employees are allowed to question current practices, rules and strategies. ____	Strongly disagree	Tend to disagree	Neither agree nor disagree	Tend to agree	Strongly agree

Question	1	2	3	4	5
8) The company's vision, and purposes are clear, flexible, communicable and attainable. ____	Strongly disagree	Tend to disagree	Neither agree nor disagree	Tend to agree	Strongly agree

Question	1	2	3	4	5
9) Employees have common future trends and vision. ____	Strongly disagree	Tend to disagree	Neither agree nor disagree	Tend to agree	Strongly agree

Question	1	2	3	4	5
10) Employees are enabled to	Strongly disagree	Tend to disagree	Neither agree	Tend to agree	Strongly agree

participate in strategic management process. ____			nor disagree		
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Question	1	2	3	4	5
11) Cross functional learning teams are always organized on a regular basis. ____	Strongly disagree	Tend to disagree	Neither agree nor disagree	Tend to agree	Strongly agree

Question	1	2	3	4	5
12) Teams/groups have the freedom to adapt their goals and break old patterns of work as needed. ____	Strongly disagree	Tend to disagree	Neither agree nor disagree	Tend to agree	Strongly agree

Question	1	2	3	4	5
13) All team members shared responsibility and are treated equally. ____	Strongly disagree	Tend to disagree	Neither agree nor disagree	Tend to agree	Strongly agree

Question	1	2	3	4	5
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14) Teams revise their thinking as a result of group discussions. ____	Strongly disagree	Tend to disagree	Neither agree nor disagree	Tend to agree	Strongly agree
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Question	1	2	3	4	5
15) Teams are recognized and rewarded for their achievements as a team/group. ____	Strongly disagree	Tend to disagree	Neither agree nor disagree	Tend to agree	Strongly agree

Question	1	2	3	4	5
16) Teams are confident that the company will act on their recommendations. ____	Strongly disagree	Tend to disagree	Neither agree nor disagree	Tend to agree	Strongly agree

Question	1	2	3	4	5
17) In my company people cooperate and help each other to learn. ____	Strongly disagree	Tend to disagree	Neither agree nor disagree	Tend to agree	Strongly agree

Question	1	2	3	4	5
18) My company considered to be one whole system, consists of several	Strongly disagree	Tend to disagree	Neither agree nor disagree	Tend to agree	Strongly agree

integrated subsystems. ____					
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Question	1	2	3	4	5
19) Employees recognize the importance of the complementary performance of their departments. ____	Strongly disagree	Tend to disagree	Neither agree nor disagree	Tend to agree	Strongly agree

Question	1	2	3	4	5
20) The company is perceived as one part of a larger economical and social system. ____	Strongly disagree	Tend to disagree	Neither agree nor disagree	Tend to agree	Strongly agree

## APPENDIX E: Initial E-Mail Sent

To: Field Division Employees, Company X  
From: Darren J. Masier, Graduate Student, North Carolina State University  
Subject: Organizational Survey for Dissertation Study

I am pleased to have the opportunity to speak with you regarding my dissertation study. This week, you will receive an email including a link to a web-based survey which should not take more than fifteen minutes to complete. No names of respondents or of the organization will accompany any of the correspondence, and your participation is entirely anonymous.

Your opinions will help for me to examine correlations regarding self-directed learning and the learning organization and perhaps assist with creating a model to improve outdated, less effective business methods. Your views are especially important to me since you since you work in a faced-paced, high-tech organization where learning is an ongoing component of your daily responsibilities.

The expected plan for data collection is as follows:

1. Next week, you will receive an email directing you to the online survey. The survey is easy to complete. If you have any questions, please contact the researcher, Darren Masier at [terndar@nc.rr.com](mailto:terndar@nc.rr.com) or 919-623-3377 or the chair, James Bartlett at [jbartlett@hrdleader.com](mailto:jbartlett@hrdleader.com) or 919-208-1697.
2. Two reminder emails will be sent also containing the survey link;
3. A thank you email will be sent.

Thank you in advance for helping through participation in this study.

## **APPENDIX F: Follow-Up E-Mail Sent**

To: Field Division Employees, Company X  
From: Darren J. Masier, Graduate Student, North Carolina State University  
Subject: Follow-Up Organizational Survey for Dissertation Study

Approximately one week ago, you should have received an email requesting your participation in a research study. I am writing to ask you again to consider becoming a part of this study by responding to the survey, which will take you approximately 10 – 15 minutes to complete.

I am pleased to have the opportunity to work with you regarding my dissertation study. Included at the end of this email is the link to a web-based survey which should not take more than fifteen minutes to complete. No names of respondents or of the organization will accompany any of the correspondence, and your participation is entirely anonymous. Your opinions will help for me to examine correlations regarding self-directed learning and the learning organization and perhaps assist with creating a model to improve outdated, less effective business methods. Your views are especially important to me since you since you work in a faced-paced, high-tech organization where learning is an ongoing component of your daily responsibilities.

## APPENDIX G: Research Proposal Approval Exemption Letter

From: Deb Paxton, IRB Administrator  
North Carolina State University  
Institutional Review Board

Date: April 6, 2012

Title: Exploring the relationship between self-directed learning and the five discipline's necessary to become a learning organization: From a high-tech company

IRB#: 2597

Dear Darren Masier

The research proposal named above has received administrative review and has been approved as exempt from the policy as outlined in the Code of Federal Regulations (Exemption: 46.101. b.2). Provided that the only participation of the subjects is as described in the proposal narrative, this project is exempt from further review.

### NOTE:

1. This committee complies with requirements found in Title 45 part 46 of The Code of Federal Regulations. For NCSU projects, the Assurance Number is: FWA00003429.
2. Any changes to the research must be submitted and approved by the IRB prior to implementation.
3. If any unanticipated problems occur, they must be reported to the IRB office within 5 business days.

Please forward a copy of this letter to your faculty sponsor, if applicable.

Thank you.

Sincerely,



Deb Paxton

NC State IRB