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CHARACTERISTICS OF LEARNING ORGANIZATIONS AND
MULTI-DIMENSIONAL ORGANIZATIONAL PERFORMANCE INDICATORS:
A SURVEY OF LARGE, PUBLICLY-OWNED COMPANIES

A Thesis in

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By

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ABSTRACT

This study examined the relationship between characteristics of a learning organization and multi-dimensional organizational performance. The study population consisted of executives and human resource managers within large, publicly-owned companies with headquarters or divisions located in Pennsylvania.

Although the learning organization is a frequently studied topic, there have been few empirical studies which have examined its relationship with organizational performance, especially performance which includes hard financial data. The survey instrument used to assess this relationship was the Dimensions of the Learning Organization Questionnaire along with both perceptual and objective performance measurements.

The seven learning organization dimensions under investigation included: 1) create continuous learning opportunities, 2) promote inquiry and dialogue, 3) promote collaboration and team learning, 4) empower people toward a collective vision, 5) establish systems to capture and share learning, 6) connect the organization to its community and environment, and 7) provide strategic leadership for learning.

Simple and stepwise multiple regression equations were used to examine the relationship between the learning organization dimensions and each of the following performance categories: operational, knowledge, financial, and organizational.

Organizational performance is defined as the weighted combination of both perceived (operational and knowledge) and objective (hard financial) performance information. Hard financial performance metrics included gross profit margin, return-on-asset, and

return-on-equity results for each target company over a period of 9 months preceding survey distribution.

Six research questions yielded various levels of results. The most frequently observed learning dimensions included continuous learning, community connections, and strategic leadership. One-way ANOVA indicated significant differences based on both company size and industry sector. Higher levels of team learning were recorded in smaller companies compared to larger companies. Higher levels of continuous learning were recorded in utility companies; higher levels of team learning and embedded learning systems were found in chemical producers; and higher levels of strategic leadership were found in the entertainment industry.

Stepwise regression of the learning dimensions indicated variance explanations of 28 percent for operational performance; 32 percent for knowledge performance; 6 percent for hard financial performance; and 18 percent for multi-dimensional organization performance. Multi-dimensional organization performance was proposed as the best overall performance indicator because it included both perceptual and objective types of measurements, including hard financial data. Furthermore, the best fit regression model for multi-dimensional organization performance indicated that the learning dimensions of community connections and embedded learning systems were the most important contributors to the model.

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CHAPTER I

Introduction

The learning organization concept has been prominent in human resource development, organizational psychology, and management theory for over a decade, with hundreds of books and articles written in the United States, Europe, South America, and other parts of the world. The learning organization has been hailed as a revolutionary panacea in a wide variety of organization types including government, public utilities, universities, school districts, libraries, non-profit entities, and most Fortune 500 companies. Becoming a learning organization is seen by many executives, directors, and managers as critical in attaining competitive advantage in an increasingly complex and unpredictable work environment (DiBella & Nevis, 1998; Marquardt, 2002; Watkins & Marsick, 1993). Most leaders see the development of best practices and knowledge management as sources of superior productivity and growth. Most leaders also consider creative ideas and innovative thinking essential to success in rapidly changing markets and sectors. It is for these primary reasons, among others, that most organizational stakeholders embrace the value of building and sustaining a learning organization.

Definitions of the Learning Organization

A multitude of definitions for learning organizations have been proposed. Watkins and Marsick (1993) offered the most concise definition when they described a learning organization as one “that learns continuously and transforms itself” (p. 8). Pedler and associates (1991) described a learning “company” instead of an

“organization” because they believed the latter term had negative connotations of being mechanical, abstract, lifeless, and perhaps intimidating. They felt a learning company better illustrated a collegial group of people engaged in a joint enterprise. Therefore, they described the learning company as “an organization that facilitates the learning of all of its members and continuously transforms itself in order to meet its strategic goals” (p. 1). Senge’s (1990) hallmark definition is both comprehensive and complex. He defined the learning organization as one “where people continuously 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. 7). Marquardt (2002) combines elements of the earlier definitions with additional emphasis on knowledge management and action learning:

A learning organization is a company that learns effectively and collectively and continually transforms itself for better management and use of knowledge; empowers people within and outside the organization to learn as they work; and utilizes technology to maximize both learning and production (p. 247).

The Growth of Learning Organizations

Within the United States, the growing interest in learning organizations can be attributed to four main forces that are increasing their impact on most organizations: flatter and more flexible organizational structures, increased use of technology to improve the speed and capability of communication and production within organizations, the expansion of the knowledge economy, and increased attention and spending on employee training and education.

First, the traditional corporate hierarchy which consists of the “thinkers” at the top and the “doers” at the bottom, is poorly suited to meet the demands of a swift and competitive business environment. Instead, organizations are opting for flatter and more flexible organizational structures characterized by decentralized decision making. The new organization often structures itself as a loosely knit confederation of entrepreneurial units and relies on project teams to create value and efficiency (Meister, 1998). Organizations are increasingly adopting teamwork over individualism, creativity over adherence to policy, and customized approaches over standard procedures (Marsick & Watkins, 2003).

Second, technology impacts production at more points along the work process and allows organizations to manufacture goods and deliver services at an increasingly faster rate and with higher quality standards. Technology has also dramatically affected the speed and scope of communication within organizations. Members of an organization can remain in almost constant contact using instant messaging, email, personal digital assistant devices, cellular phones, faxes, and pagers. Technology enables organizations to monitor the activity of competitor organizations and customer bases (DiBella & Nevis, 1998). Large databases make it possible to track spending habits, credit records, officer salaries, employment levels, and sales volume (Marquardt, 2002).

Third, a knowledge economy has been created by the loss of manual and repetitive jobs traditionally found in the manufacturing sector and the increased skill requirements for entry-level jobs. For the past fifty years, there has been a gradual but persistent transition from manufacturing jobs to information technology and service sector positions. In the 1950s, 33 percent of all workers in the United States were

employed in the manufacturing sector. By the 1960s, the number of manufacturing jobs had dropped to 30 percent, and by the 1980s to 20 percent. Currently, 17 percent of the workforce is engaged in typically blue-collar work (Rifkin, 1995). Furthermore, many manufacturing jobs today now require workers to know such concepts as statistical process control, pareto quality charts, error ratios, return-on-investment formulas, and other analytical tools to recommend how to reduce time and waste out of the manufacturing process (Meister, 1998).

Fourth, there is increased attention and spending in relation to employer-sponsored training and education activities. Within the United States, spending on corporate education has grown at five percent per year for the past decade; it now totals \$60 billion annually (Garvin, 2000). Although most organizations surveyed by the American Society for Training and Development reported that they deliver 23.5 total training hours annually per employee, the top ten percent of these organizations invested 64 training hours per employee (Van Buren & Erksine, 2002). A number of leading companies, including Motorola, General Electric, Ford Motor, Dell Computer, and Anheiser-Busch have established their own “corporate universities” offering a variety of technical, business, product-specific, and even academic courses. In addition, these companies are reported to spend between 4 and 6 percent of their payroll on training and education (Garvin, 2000).

The Benefits of Learning Organizations

The following benefits are frequently cited as reasons for building a learning organization: increased adaptability and innovation, shared and collaborative leadership,

the ability to manage increasing amounts of knowledge, greater customer retention and growth, and greater employee attraction and professional growth, and ultimately increased profitability and/or mission fulfillment. First, learning organizations promise increased adaptability when dealing with environmental changes and increased levels of innovation related to work processes, products, and technological applications (Alas & Sharifi, 2002; Redding & Catalanello, 1995; Rowden, 2001). Second, they encourage opportunities for leadership from non-managers and they foster a transformational and collaborative style of leadership within the managerial ranks of the organization (Ellstrom, 2001; Matthews, 1999; Short & Jarvis, 2000). Third, learning organizations help to create, analyze, store, and disseminate increasing amounts of knowledge with the organization and provide timely access to employees who are dealing with more urgent and complex problems (Garvin, 1993; Marquardt, 2002; Thompson, 1995). Fourth, they provide skills, competencies, and climates which satisfy existing customer requirements and help plan entrances into new customer segments and markets (DiBella & Nevis, 1998; Slater & Narver, 1995). Fifth, learning organizations provide opportunities and resources to balance the personal and professional growth needs of employees and encourage them to use new skills in innovative ways (Barrie & Pace, 1997; Dilworth, 1995; Senge, 1990; Van Duesan & Mueller, 1999). Last, a small but growing emphasis is on the learning organization's ability to increase the bottom-line performance of profit-driven organizations (Ellinger et al, 2002; Hernandez, 2001; Shipton et al, 2002). During the 1990's, most of the benefits of learning organizations listed above were valued for their own sake or highlighted to meet the situational needs of the organization. After the

year 2000, an increasing emphasis is on the connection between the learning organization and a company's operational and financial performance levels.

Organizational Learning

The earliest studies that addressed the concept of the learning organization (Senge 1990; Pedler et al. 1991; and Watkins & Marsick 1993) situated the learning organization as a complex and systemic structure which embodied the principles of organizational learning in combination with untraditional management principles like transformational leadership, employee empowerment, and work process improvement techniques. A clear definition of organizational learning has proven elusive for many years. Most scholars agree that learning involves knowledge acquisition, deeper understanding, and actionable outcomes. Besides these commonalities, there are several differences. Some believe that new ways of thinking and knowing about organizational routines are the hallmark of organizational learning (Fiol & Lyles, 1985). Some believe that behavioral change and observable results are necessary to translate thoughts and ideas into practical action (Daft & Weick, 1984; Kim, 1993). Some cite information processing as the mechanism through which learning takes place (Huber, 1991). Still others insist that shared insights, the creation of organizational memories, or the detection and correction of errors are the unique perspectives associated with organizational learning (Argyris, 1977; Levitt & March, 1991; Stata, 1989).

As stated previously, organizational learning is just one of many aspects of a learning organization. Learning organizations focus on the key components of an

organization and the interplay of these components which create and sustain individual and team learning. These components include the systems, structures, technology, and principles of organizations that learn and produce as a collective entity. Organizational learning, on the other hand, is concerned with how learning occurs within organizations. It includes the skills and processes of assembling information and utilizing knowledge in an efficient manner. Organizational learning often involves analyzing adaptive and generative forms of learning that occur at the individual, group, and organizational levels within an organization (DiBella & Nevis, 1998).

Characteristics of the Learning Organization

Along with the vast array of definitions, each major model of the learning organization proposes its own critical “elements” (Garvin, 2000; Pedler et al., 1991; Redding & Catalanello, 1994), or “factors” (DiBella & Nevis, 1998), or “disciplines” (Senge, 1990), or “imperatives” (Watkins & Marsick, 1993; 2003), or “subsystems” (Marquardt, 2002) which provide form and substance to the somewhat abstract concept of the learning organization. This section describes the critical elements of three models that have been addressed with the most frequency in both research and discussions pertaining to the learning organization.

Peter Senge (1990) in his book, *The Fifth Discipline*, proposed five disciplines associated with a learning organization: systems thinking, mental models, personal mastery, team learning, and shared vision. Systems thinking is actually the “fifth discipline” and is the cornerstone that acts as the incentive and means to integrate the other learning disciplines once they come into practice. He used the term “discipline” to

refer to a technique that must be studied and mastered before it can be put into practice. Senge was primarily concerned with changing mindsets and achieving excellence in organizations, without specifically providing measurable success criteria. For him, organizations that will truly excel in the future will be those that discover how to tap people's commitment and capacity to learn at all levels in an organization.

Each of Senge's five disciplines contain vivid and dynamic descriptions. First, systems thinking is defined as the "invisible fabrics of interrelated actions" within a complex organization. Second, mental models are "deeply ingrained assumptions" that influence how we understand our environment and why we take certain actions. Third, personal mastery means "continually clarifying and deepening our personal vision" to achieve individual results which possess high personal value. Fourth, team learning consists of the capacity of team members to "suspend assumptions and think together as a whole." Last, shared vision refers to team members creating "pictures of the future" which bind them around a common identity and sense of destiny. According to Senge (1990), a shared vision allows people to excel and learn, not because they are told to do so, but because they truly want to do so.

More recently, Michael Marquardt (2002) developed a model of learning organization subsystems which address and position several of the critical elements proposed by Senge (1990). He states that the reason for developing his comprehensive systems model has resulted from his direct experience with over 100 companies struggling with becoming learning organizations. He believes other learning organization models rely too much on corporate initiatives and not enough on the implementation of learning practices through the use of action learning techniques. The core of his model,

the learning subsystem, ensures healthy learning processes at multiple levels throughout the organization. In this way, learning is infused throughout the organization and not merely within the functions which have needed to continuously upgrade their knowledge like information technology and marketing research.

Each of Marquardt's five learning subsystems addresses a critical component of all organizations. First, the learning subsystem is the core of the learning organization and takes place at the individual, group, and organizational levels. Within each level are the following skills needed to ensure efficient learning process: personal mastery, self-directed learning, and deep levels of dialogue. Second, the organization subsystem includes the organization itself and is best understood by the espoused mission, vision, culture and strategy. Third, the people subsystem includes the key stakeholders related to an organization like managers, leaders, employees, customers, business partners, suppliers, vendors, and the surrounding community. Each group is valuable to the learning organization and all of them must be empowered and enabled to engage in the learn process. Fourth, the knowledge subsystem of a learning organization manages the acquired and generated knowledge of the organization. It includes the acquisition, creation, storage, analysis, dissemination, and application of knowledge. Fifth, the technology subsystem supports integrated technological networks and information tools that allow access to and exchange of information and learning. It encompasses electronic tools and advanced methods for learning such as simulations, computer conferencing, and collaboration.

Karen Watkins and Victoria Marsick (1993) in their book, *Sculpting the Learning Organization*, and subsequent works (Watkins & Marsick, 1997; 2003) introduced seven

action imperatives that make up the design of their learning organization model. Their model combines the systems thinking approach of Senge (1990) with the core learning subsystem and multi-level learning found in Marquardt (2002). Furthermore, their model has developed into a comprehensive assessment tool that has the most extensive research base and validity testing compared to other learning organization assessments (Yang, 2003). Their well-developed collection of action imperatives helps individual and teams within the organization view the organization through a learning lens in order to identify practices that enhance the learning process and make plans to change the obstacles that prevent or impede organizational learning. Their perspective as educators rather than managers led them to focus on individualistic and employee-based strategies more than on issues dealing with organizational strategies, power, or structure.

Each of their seven learning organization imperatives is mentioned here along with a brief description. First, continuous learning opportunities include providing resources to enhance informal learning, learning how to learn, and just-in-time learning. Second, inquiry and dialogue includes challenging assumptions, asking probing questions, and keeping open to new viewpoints. Third, collaboration and team learning enhances the organization's ability to learn because they offer avenues for exchanging critical information. Fourth, learning systems attempt to preserve historical knowledge in the midst of an increasingly mobile, widely dispersed, or temporary workforce. Fifth, empowering people includes establishing a more participatory workplace which allows members to take risks that lead to deep levels of learning. Sixth, environmental connections include being responsive to internal members as well as considering the actions of external customers, community members, competitors, and legislative bodies.

Seventh, strategic leadership reinforces the need for managers to model and support learning initiatives. A primary role of leadership is to harness organizational learning in a strategic manner to achieve business results.

Organizational Performance Improvement

Better organizational performance is the primary goal of most business leaders. What constitutes higher levels of performance within this scenario is the primary challenge. Based on a review of four organizational performance improvement models there are some common findings (Bates, 1999; Holton, 1999; Kaplan & Norton, 1996; Swanson, 1999). First, performance improvement needs to be measured. Improvement can only be realized through performance outputs and changes in outputs can only be assessed through some form of measurement. Second, performance improvement needs to be measured at various levels within an organization. An individual's or team's enhanced performance is of little value to the organization if there is no connection between lower level objectives and corporate objectives. Third, performance improvement needs to be measured with multiple dimensions of performance. Just as multiple factors contribute to a manager's effectiveness (planning, organizing, developing, controlling), so multiple factors also contribute to an organization's effectiveness. When single dimensions of performance are studied in depth, it can often mask other conditions needing attention that would otherwise be revealed by multiple measures. Fourth, performance improvement must address practical, bottom-line concerns. Typical performance outcome measures include financial indicators such as return-on-investment or profitability. This is an important measurement because it helps

the human resource development field fulfill its role as a business partner and promote its services to a managerial audience that expects and understands this level of reporting.

Problem Statement

Although many authors have written conceptual pieces of literature extolling the general benefits of a learning organization, only a few authors have emphasized implementing a comprehensive learning organization model based on solid research to capture complex learning processes and provide practical business solutions (Marquardt, 2002; Senge, 1990; Watkins & Marsick, 1993). Even when focusing on well published models of the learning organization, companies struggle with applying the key dimensions of a learning organization to achieve operational efficiencies and continued profitability. Very few research studies have attempted to highlight the connection between learning organizations and organizational performance improvement. Only within the last several years, has this phenomena been investigated (Ellinger et al., 2002; Holton & Kaiser, 2000; Hernandez, 2001; McHargue, 2000; Selden, 1998). The results of these initial studies have provided generally positive, yet somewhat mixed outcomes. Most of these studies provide growing evidence of a relationship between organizational performance and the elements of a learning organization. It is also important to note that four of the five studies used a version of the Dimensions of the Learning Organization Questionnaire (DLOQ) constructed by Watkins and Marsick (1993; 2003).

These initial studies have laid groundwork for further investigation but are missing two critical elements that this study will address. First, these studies lack a multi-dimensional approach to measuring organizational performance which includes an aggregate of objective (bottom-line) and subjective (stakeholder perception) measures.

Second, these studies have either involved in-depth investigation within a small cluster of similar organizations, or they have attempted to achieve a cross-section sample of companies by relying on a single respondent from each organization. Large, public organizations have many departments, functions, and divisions. Attempts need to be made to gather input from more than one respondent per organization in order to avoid a limited perspective of an organization's performance measures.

Purpose of the Study

The purpose of this study is to investigate to what extent learning organization dimensions impact multi-dimensional organizational performance among a wide sample of large, publicly-traded companies using a survey instrument developed by Marsick and Watkins (1993; 2003). This learning organization model was selected from among many others because it has an associated survey instrument which many other models lack. Also, the survey instrument has been field tested in a number of organizations and by several different researchers (Dymock, 2003; Ellinger et al, 2003; Hernandez, 2003; McHargue, 2003; Milton, 2003; Fatima Sta. Maria, 2003; Selden, 1998). Finally, the survey instrument has the most extensive validity and reliability testing of any other learning organization assessment (Lien et al., 2002; Yang et al, 1998; Yang, 2003).

This study attempts to answer the following questions:

1. To what extent are learning dimensions and learning capacity present in a multi-industry sample of large companies?
2. To what extent do learning dimensions and learning capacity differ according to company size and industry sector?

3. To what extent do learning dimensions and learning capacity relate to measures of operational performance?
4. To what extent do learning dimensions and learning capacity relate to measures of knowledge performance?
5. To what extent do learning dimensions and learning capacity relate to measures of financial performance?
6. To what extent do learning dimensions and learning capacity relate to multi-dimensional organizational performance?

Significance of the Study

For over a decade, learning organizations have promised growth and development for all individual members, greater collaboration among team members, and organizational success within an increasingly turbulent and highly competitive world environment. Whether it involves adapting to new challenges proposed by globalization, implementing flatter organizational structures, changing workforce demographics, or rapidly expanding technological applications, the learning organization is positioned as the most comprehensive solution to these powerful and pervasive forces.

There is much at risk in a haphazard or uninformed approach to implementing a learning organization. Since learning organization implementation has the potential to be wide in scope and long on timeframe, it is important to provide sound research to validate the grandiose claims of organizational transformation and increased financial and operational performance. An important part of any implementation plan is a thorough assessment of current conditions compared to desired objectives. Without a proper assessment using a validated instrument, an organization would be unable to establish a realistic implementation timeframe, provide a strategic sequence to implementation

activities, allocate scarce resources to areas that are suffering from the greatest degree of misalignment, or recognize past actions that have already made a contribution based on the recommendations of a learning organization model.

My personal interest and commitment to this research is connected to my professional work as an organization development consultant and human resources manager within several companies over the last fifteen years. Most business executives and department heads that I have worked with over my career agree that maximizing the learning that occurs in companies is critical for continued success and competitive advantage, especially with the increasing importance placed on knowledge workers. The critical issue, however, is being able to identify the most important types and levels of learning within large organizations out of the multitude which exist. No company has an endless budget by which it can introduce and sustain every form of employee learning and development. By identifying the most effective learning characteristics, human resource and training professionals can focus scarce time and budgets on organizational learning that has the highest impact on bottom-line performance. The findings of this research will have the potential to assist companies who are looking to leverage organizational learning to create higher levels of multi-dimensional performance within their organizations.

Definition of Terms

Learning organization: A learning organization is one that learns continuously and transforms itself... it proactively uses learning in an integrated way to support and

catalyze growth for individuals, teams, entire organizations, and the institutions and communities with which they are linked (Watkins & Marsick, 1993, p. 8)

Organizational learning: Occurs when individuals within an organization experience a problematic situation and inquire into it on behalf of the organization... in order to become organizational, the learning that results from organizational inquiry must become embedded in the images of the organization held in its members' minds (Argyris & Schon 1996, p. 16).

Human resource development: Various learning activities which seek to assist the organization in meeting its strategic goals including stakeholder training, education, career development, and organization development.

Human resource management: The personnel and staffing functions within a company including the subfunctions of employee recruitment, selection, compensation, benefits, and employee relations.

Organizational stakeholders: Individuals with a strong interest and commitment in the success of an organization including its executives, managers, employees, customers, suppliers, distributors, and community members.

Operational performance: The survey respondents' perception of current operational performance based on annual changes in general return-on-investment, average

productivity per employee, and overall market share. This dimension is termed (soft) financial performance in previous studies using the DLOQ survey instrument. This differs from hard financial performance measures published according to regulations by the Securities and Exchange Commission (see Objective financial performance definition).

Knowledge performance: The survey respondents' perception of current knowledge performance based on annual changes in overall customer satisfaction, number of suggestions implemented, and number of individuals learning new skills.

Objective financial performance: Public financial data published in accordance with Securities and Exchange Commission regulations. Key financial performance data includes the following measures: gross profit margin, return-on-assets ratio, and return-on-equity ratio.

CHAPTER II

Literature Review

Modern businesses are adopting organizational learning practices as a competitive advantage in today's rapidly changing marketplace. The archetype of a learning organization was proposed as an ideal form of an organization that integrates and sustains various levels and methods of organizational learning. This archetype is composed of earlier forms of learning within the workplace which were primarily developed between 1950 and 1990. Since 1990, several well-researched models of a learning organization have been created which share many similarities and some notable differences. An investigation into these models makes up a large portion of this chapter. Learning organizations have been studied in various ways to illustrate their intrinsic value to key stakeholders. Some examples include how learning organizations can improve the transfer of employee training, collaboration between work teams, strategic decision making, or even employee satisfaction. A small but growing trend in learning organization research explores the impact of learning on a firm's bottom-line, financial performance. It is the intent of this study to look at multi-dimensional performance indicators, of which, financial performance is a critical part.

The first section of this literature review begins by addressing the historical development of the learning organization from earlier theories and research about workplace learning, team learning, and organizational learning. The second section highlights the seven most prominent learning organization models from 1990 to present. The third section outlines the most comprehensive and validated learning organization model to date, along with its seven learning imperatives (Watkins and Marsick, 1993;

2003). The fourth section includes an overview of the literature as it relates to learning organization, especially concerning relationships with learning theory, management theory, and applications within various organizational settings. The literature is divided into classifications based on conceptual, qualitative, and quantitative methodologies. The fifth and final section explores the relationship between learning organizations and various dimensions of organizational performance. Included in this last section are different perspectives on learning and performance within human resource development, various models of performance improvement, and research studies that investigate the impact of learning organizations on performance improvement.

Historical Development of the Learning Organization

This section outlines the major fields of learning leading up to the first models of the learning organization. Although the first model of the learning organization was introduced by Peter Senge (1990) in his book, the *Fifth Discipline*, the five elements he proposed all existed in some previous form within the research, sometimes under different labels. The three main fields of learning which most influenced Senge's model included workplace learning, team learning, and organizational learning. Each of these fields of learning had their own set of theories and conceptual developments which were in existence twenty or more years before the term "learning organization" was marketed by Senge.

Workplace Learning

Learning in the workplace gained acknowledgement and acceptance with the need to transition military skills and knowledge into company requirements after each of the

world wars in the beginning of the twentieth century (Rothwell & Kazanas, 1992). At this time, learning in the workplace was simply understood to mean the existence of training programs that attempted to instill fundamental job-related skills and knowledge. Many of the methods used to train military personnel were adapted for use in factories. Due to the perceived advantages that employee training had on postwar production initiatives, systematic research was carried out in the 1950's and 1960's to determine how to make training practices even more efficient and effective. During the 1970's and 1980's, training efforts expanded from being primarily directed toward the cognitive and psychomotor domains to broader educational objectives including preparation for computer applications, robotics, engineering, and telecommunication technologies (Rowden, 1996). During the 1990's, many training initiatives were reframed and repackaged as performance consulting projects. The emphasis was not on how much training was being conducted but rather on whether the training was impacting strategic objectives and organizational performance (Robinson & Robinson, 1995).

Two reoccurring themes within workplace learning are performance improvement and informal learning. Since the 1970's, training program design has focused on measurable and observable skills directed at performance improvement. This orientation stresses the importance of learning for the purpose of increased productivity and organizational efficiency (Marsick & Watkins, 1986). It is during this period that much attention was focused on evaluating the effectiveness and impact of training programs. For instance, Kirkpatrick (1995) recommended a widely accepted evaluation system which sought to measure the impact of training according to participant reactions, the

retention of skills and knowledge, changes in job behavior, and linking the training to improvements in unit, department, or organizational productivity and efficiency.

Informal learning refers to the experiences of everyday living and working in which individuals learn something new (Merriam & Caffarella, 1999). Many believe that most learning that takes place in a work environment is informal and occurs through employee interaction with co-workers, in small work groups, through coaching and mentoring relationships, and within networking opportunities (Dixon, 1997; Marquardt & Alexander, 1999; Poell & Van der Krogt, 2003). Two of the most common forms of informal learning include new employee orientation and on-the-job training. Even if a company provides a formal session to orient new employees, much of the actual orientation takes place through trial-and-error and brief discussions with colleagues and peers. It is during this phase that new employees come to understand available resources, acceptable standards, and organizational values. On-the-job training, when it is not scheduled or sanctioned by management, can also be considered informal in nature. In this case, it is just-in-time training that is conducted on or near the job site by the employee's supervisor or by an experienced co-worker. Its advantages include savings in time and travel to attend formal training along with simulating conditions that are more closely aligned with actual job duties. The real value of on-the-job training seems to rest in the dialogue and demonstration which takes place between the trainer and the trainee.

This section on workplace learning has highlighted the following three elements which appear in the Senge (1990) and subsequent models of the learning organization: formal skills training, an emphasis on performance improvement, and informal learning opportunities in the workplace. First, learning organizations are known by the amount of

resources they spend on offering diverse skills training such as computer applications, supervisory skills, and project management. However, formal training alone is only one small part of the mission of a learning organization. Second, learning organizations promise performance improvement at the individual and the organizational levels. They understand that organizations must justify the expense of creating or sustaining comprehensive training and development activities, apart from mere interest in individual growth and fulfillment. Third, informal learning is one of the distinguishing characteristics of learning organizations compared with the objectives of a corporate training department. Learning organizations recognize that a good deal of workplace learning takes place outside of the corporate classroom. Several models refer to the value of employee interaction, sustained employee orientation, and creating opportunities for employee dialogue and discussion.

Team Learning

Most organizations have experienced comprehensive restructuring, expense control, and de-layering programs. In response, work teams were created by organizational leaders who charged them with doing “more” (tasks and responsibilities) with “less” (managerial direction and resources). Dyer (1984) defines a team as two or more people with a common goal, specific role assignments for each team member, and interdependence among team members. Oransu and Salas (1993) further describe teams as making decisions in the context of a larger task, possessing specialized skills and knowledge related to its assigned tasks, and navigating in an environment filled with high workloads and demanding time pressures. A work team exists when group members

choose to spend time and energy interacting and depending on one another in the belief that a better result can be achieved working together rather than working independently (Huszczko, 1996).

Team members learn and accomplish their performance goals through interaction with multiple systems, including the organization, other teams, and individual members (Jeris et al, 1996). To be effective learners, team members must first build a foundation of trusting and respecting each other, sharing critical information, and working collaboratively to produce new forms of knowledge. Brown and Duguid (1991) introduce the term “community of practice” and define it as a work group with individuals who understand that to achieve a common mission, they must be willing to propose new ideas and make honest mistakes. Learning occurs in these work communities through informal discussion and exchange of information among team members. A key concept of communities of practice is that they emerge as a natural result of individuals working and learning together.

DeChant and Marsick (1993) believe that most teams do not think of what they do as “learning.” Instead, these researchers introduced the concepts of “learning outcomes” and “learning processes.” They define learning outcomes as improvements in team performance measures, new approaches to doing work, new ways of thinking about work or operating as a team, and changes in social norms within the team. They define learning processes as the combination of thinking and action. Thinking includes how a team member initially views an issue, situation, or person and then reframes it as a result of incorporating new facts or knowledge. The reframing phase is primarily influenced through interaction with others or experimenting with ideas or new behaviors.

Organizational Learning

Organizational learning is learning that occurs within an organization and at a system level rather than an individual level. It generally does not exclude individual learning but rather emphasizes the power and desirability of collective learning (Dixon, 1992). Organizational learning has been defined as the “intentional use of learning processes in order to transform the organization in a direction that is increasingly satisfying to its stakeholders” (Dixon, 1994). In another source, organizational learning refers to “the process of improving actions through better knowledge and understanding” (Fiol & Lyles, 1985). The most comprehensive and theoretically developed definition of organizational learning describes organizational inquiry, problem solving, and modifications to existing procedures:

Organizational learning occurs when individuals within an organization experience a problematic situation and inquire into it on the organization’s behalf. They experience a surprising mismatch between expected and actual results of action and respond to that mismatch through a process of thought and further action that leads them to modify their images of organization or their understandings of organizational phenomena and to restructure their activities so as to bring outcomes and expectations into line, thereby changing organizational theory-in-use. In order to become organizational, the learning that results from organizational inquiry must become embedded in the images of the organization held in its members’ minds and in the epistemological artifacts (the maps, memories, and programs) embedded in the organizational environment (Argyris & Schon, 1996, p.16).

Several theorists have stated that the most common elements associated with organizational learning include mental models, double-loop learning, and action learning. Mental models are conceptualizations of reality held by individuals that may be explicit or implicit in their manifestation (Kim, 1993). When individuals make their mental

models explicit and work groups begin to adopt and develop their own mental models, organizational learning is enabled. As already mentioned, individual learning becomes organizational learning when the new and shared mental models are embedded in the organizational environment (Argyris & Schon, 1996). Senge (1990) believes mental models can either accelerate or impede learning because they provide motivation for an improved future condition or validate the maintenance of a current condition.

The ability to accept a new view of reality or to see things from a fresh perspective is referred to a double-loop learning (Argyris & Schon, 1978), generative learning (Senge, 1990), or anticipatory learning (Marquardt, 2002). This type of learning is generally seen as being a prerequisite to creative thinking, innovation, and the ability to project and prepare for future scenarios. Most learning organization strategies attempt to create more double-loop learning in organizations. In contrast to double-loop learning, another type of organizational learning is single-loop (Argyris & Schon, 1978) or adaptive learning (Senge, 1990; Marquardt, 2002). Single-loop learning occurs when an action leads to expected outcomes or when an error is corrected in a standard way to produce an expected outcome. Single-loop learning does not require a change in the perspectives or mindsets of organizational members. It is more a coping form of learning that does not directly lead to transformation or innovation. It emphasizes error detection and correction. Unfortunately, most learning that occurs in organizations can be categorized as single-loop learning (Coutu, 2002; Morgan, 1997; Senge, 1994).

Action learning is another key element associated with organizational learning. With this approach, employees spend time reflecting on critical incidents and identifying learning items based on past successes or failures (Revans, 1999). An action learning

program might begin in one unit or department and later expand throughout the entire organization. In general, action learning programs are most effective if they begin tackling a widely recognized problem that, if solved, would create stakeholder value for an organization (Marquardt & Reynolds, 1994). The following components of action learning contribute to higher levels of organizational learning: knowledge dissemination, problem focused, and learning culture. First, when action learning is implemented, it increases the body of institutional knowledge and accelerates the pace of institutional learning in user organizations (Dilworth, 1995). Second, action learning is problem focused and outcome oriented. It appeals to all levels of employees by engaging their natural inclination to solve problems and improve work productivity (Revans, 1999). Third, action learning promotes a culture of continuous learning that encourages experimentation and allows for mistakes within networks where people feel free to share knowledge, offer support and feedback, and challenge traditional assumptions (Senge, 1990).

Models of the Learning Organization

Before proceeding into a review of the various models of the learning organization, it is important to compare the definitions of a learning organization that are proposed by each model. Some definitions highlight the creative and empowering aspects of learning while others take a more practical approach to learning, such as reacting to changes in the environment surrounding the organization. Table 2.1 provides a summary of the definitions associated with the learning organization.

Table 2.1

Learning Organization Definitions

Senge (1990)	“Learning organizations are organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together.” (p.3)
Pedler et al. (1991)	“A learning company is an organization that facilitates the learning of all of its members and continuously transforms itself.” (p.1)
Watkins & Marsick (1993; 2003)	“A learning organization is one that learns continuously and transforms itself... it proactively uses learning in an integrated way to support and catalyze growth for individuals, teams, entire organizations, and the institutions and communities with which they are linked” (p.8)
Redding & Catalanello (1994)	“Learning organizations are firms that aggressively and systematically work to develop their learning capacity and their ability to continuously adapt to change and transform themselves.” (p.xi)
DiBella & Nevis (1998)	“The learning organization is characterized as having the capability to adapt to changes in its environment and to respond to lessons of experience by altering organizational behavior.” (p.6)
Garvin (2000)	“A learning organization is an organization skilled at creating, acquiring, interpreting, transferring, and retaining knowledge, and at purposefully modifying its behavior to reflect new knowledge and insights.” (p.11)
Marquardt (2002)	“A company that learns effectively and collectively and continually transforms itself for better management and use of knowledge; empowers people within and outside the organization to learn as they work; utilizes technology to maximize learning and production.” (p.247)

Definitions associated with learning organization models span a period of twelve years and include both similarities and a few notable differences. Similar components of the definitions include team or group learning (Marquardt, 2002; Pedler et al, 1991; Senge, 1990), the ability of the organization to transform itself (Marquardt, 2002; Pedler et al., 1991; Redding & Catalanello, 1994; Watkins & Marsick, 1993), ability of the organization to adapt to change (DiBella & Nevis, 1998; Redding & Catalanello, 1994), knowledge management (Garvin, 2000; Marquardt, 2002), and changes in organizational behavior (DiBella & Nevis, 1998; Garvin, 2000). Definitions containing unique components that are not duplicated by other models include the ability of learning how to learn (Senge, 1990), learning as a continuous process (Watkins & Marsick, 1993; 2003), integrated and multi-level learning (Watkins & Marsick, 1993; 2003), responding to past experiences (DiBella & Nevis, 1998), and the utilization of technology to increase both learning and production (Marquardt, 2002).

The theoretical models detailed in this section offer several advantages to understanding the concept of the learning organization. First, each of the models is based on extensive literature reviews and/or research that reinforce the major elements to their definitions of a learning organization. Second, each model attempts to bridge the areas of theory and practice. After illustrating the theoretical development of their model, each author provides practical evidence of the theory being implemented in a variety of organizations in both the private and public sectors. Most of this evidence comes from the direct experience of the authors working as human resource development consultants. Third, the models are presented in a chronological fashion from earliest (1990) to latest (2002) to illustrate how theoretical development and revision takes place. Each model

refers to elements of previous models and adequately summarizes the major conceptual themes on learning organizations that were prevalent at the time of publication.

The Senge Model

Peter Senge (1990) in his book, *The Fifth Discipline*, captures the early excitement of the companies which were experimenting with the competitive advantage of organizational learning. He admits that the major ideas inherent in his model were not new but rather an integration of organizational learning and management practices with his doctoral research on systems dynamics (Senge, 1990). The research base for his model also consisted of a comprehensive literature review and eleven years of developing and conducting leadership workshops for 4000 managers which focused on building shared vision and personal mastery. From this foundation, he proposed the following five disciplines associated with a learning organization: systems thinking, mental models, personal mastery, team learning, and shared vision. Systems thinking is the “fifth discipline” and is the cornerstone that acts as the incentive and means to integrate the other learning disciplines once they come into practice. He used the term “discipline” to refer to a technique that must be studied and mastered before it can be put into practice. Senge was primarily concerned with changing mindsets and achieving excellence in organizations, without specifically providing measurable success criteria. For him, organizations that will excel in the future are those that discover how to harness people’s commitment and capacity to learn at all levels in an organization (Senge, 1994).

Senge’s (1990) model of the learning organization consists of the following five disciplines and their associated definitions:

1. Personal Mastery – Learning to expand a personal capacity to create the results most desired, and to create an organizational environment which encourages all its members to develop themselves toward the goals and purposes they choose.
2. Mental Models – Reflecting upon, continually clarifying, and improving internal pictures of the world and seeing how they shape actions and decisions.
3. Shared Vision – Building a sense of commitment in a group, by developing shared images of the future, and developing principles and guiding practices to realize that future.
4. Team Learning – Transforming conversational and collective thinking skills so that groups of people can reliably develop intelligence and ability greater than the sum of individual members’ talents.
5. Systems Thinking – A way of thinking about, and a language for describing and understanding the forces and interrelationships that shape the behavior of systems. This discipline shows how to change systems more effectively and to act more in tune with the larger processes of the natural and economic world.

Writers have noted the contributions of Senge’s model to include the notion of organizational culture influencing learning structures, a systems approach to decision making, and directing organizational change through collaborative leadership. First, Senge is careful to note that the culture of an organization can strengthen or diminish the learning activities within a company (Sanford, 1995). Unless a company’s culture values the importance of continuous learning, attempts to integrate learning with standard operating procedures will yield minimal results. Second, Senge’s extensive use of a biological metaphor assists corporations in creating systems to adapt proactively to changing circumstances (Redding & Catalanello, 1994). Prior to this metaphor, many companies linked decision making with a mechanistic metaphor which stressed procedures over planning. Systems thinking reinforced that collaboration between different departments within a company could mitigate unintentional consequences in decision making that would appear in later stages. Third, Senge asserts that leaders in

learning organizations build the structure from which spontaneous change can emerge (Graham, 1995). Learning organizations ask leaders not to abdicate their responsibilities but to assume a role in which they facilitate the learning processes through which strategic change can occur.

Criticisms of Senge's model include his unrealistic ideas concerning the nature of dialogue between levels of management, the downside of inserting innovation in the workplace, and the loose boundaries which exist in most modern organizational systems. First, initial focus groups that followed a *Fifth Discipline* implementation project at a major company showed many managers discarding the notion of dialogue in communication. They stated that authenticity in communication could never be achieved because employees simply say what top managers want to hear and what will reward them related to choice assignments and promotions within the organization (Chandra, 1995). Second, the rhetoric of taking risk to achieve innovation is often detrimental and therefore unimaginable to employees who value job security (Levey & Levey, 1995). Innovative thoughts by employees or even managers which challenge existing responsibilities and power structures often have a negative impact on performance reviews, promotional opportunities, or future input into job-related decisions. Third, most modern organizations maintain loose boundaries between departments, subsidiaries, suppliers, and contractors (Long & Newton, 1997). When Senge discusses interactions within the organizational system, he fails to acknowledge the different perspectives contained in the many subsystems that overlap the primary organizational system. Because of these multi-dimensional systems within organizations, it is difficult to assess the quality of relationships and the roles upon which interdependence hinges.

The Pedler, Burgoyne, and Boydell Model

Michael Pedler, John Burgoyne, and Thomas Boydell (1991) develop the notion of the learning company along with 101 activities and diagnostic questionnaires aimed at a practitioner audience interested in creating a learning organization. They prefer “learning company” to “learning organization” because it emphasizes personal relationships, less hierarchical structures, and greater accessibility. A key feature of the Pedler et al (1991) model is the integration of organizational designs and human resource management functions to improve the quality of work life and yield higher levels of organizational performance. The research base for the model consists of fifteen years of collaboratively interviewing managers and facilitating work groups in the following British-based organizations: Procter &Gamble, British Steel, the Workers’ Educational Association, the Iron & Steel Industry Training Board, and Sheffield Polytechnic Institute. Their book, *The Learning Company*, borrows ideas from some early pioneers in the field like Gregory Bateson (deutero-learning), Donald Shon (learning systems), Reg Revins (action learning), and Argyris and Schon (organizational learning).

The Pedler et al. (1991) model of the learning organization consists of the following eleven elements and their associated definitions:

1. Learning Approach to Strategy – Company policy and strategy formation, together with implementation, evaluation, and improvement, are consciously structured as a learning process. Deliberate small-scale experiments and feedback loops are built into the planning process to enable continuous improvement in the light of experience.
2. Participative Policy Making – All members of the company have a chance to take part, to discuss, and contribute to major policy decisions. There is a deliberate fostering and

encouragement of contributions and recognition that successful debate involves working with the tension that exists between different values, positions, and views.

3. Informating – Information technology is used to inform and empower people through wide dissemination of information and formats that aid in understanding data. Databases empower others who can “interrogate” or “dialogue” with them in ways that are interesting, fun to use, and lead to learning.

4. Formative Accounting and Control – Ensures that systems of accounting, budgeting, and reporting are structured to assist learning, and hence delight internal customers.

5. Internal Exchange – Involves all internal units and departments seeing themselves as customers and suppliers, contracting with one another in a partly regulated market economy, and interacting in a spirit of collaboration rather than competition.

6. Reward Flexibility – Alternative reward systems will be introduced, shared, and examined to determine if participants are in agreement with the underlying principles.

7. Enabling Structures – Departmental and other boundaries are seen as temporary structures that can flex in response to future changes. Loosely fit structures are in line with established and contracted needs of internal customers, and allow for personal growth and experimentation.

8. Environmental Scanning – Scanning is carried out by all members who have contact with external customers, clients, suppliers, neighbors, etc. Boundary workers systematically collect and carry back information that is collated and disseminated.

9. Inter-Company Learning – Engaging in mutually advantageous learning activities like joint training, investment sharing, research and development, and job exchanges; learning from competitors and companies in other industries through benchmarking practices.

10. Learning Climate – Managers see their primary task as facilitating members’ experimentation and learning from experience, supporting time out to seek feedback, and to obtain data to aid understanding.

11. Self-Development for All Members – Resources and facilities for self-development are made available to all members of the company including employees at all levels and external stakeholders. With appropriate guidance, people are encouraged to take responsibility for their own learning and development.

This model has several strengths for such a pioneer effort. First, the idea of the boundary worker attaches the importance of learning within organizations to front-line workers (Watkins & Marsick, 1993). For example, bakery delivery people inquire about

complaints and ask supermarket managers what new products they would like to see in the future. This is a refreshing change from the traditional approach where managers believe they are an organization's intelligence and the seat of data gathering and decision making. Second, it communicates the importance of establishing ad-hoc organizational structures like cross-functional teams, task forces, and steering committees to initiate needed change (Redding & Catalanello, 1994). Pedler and associates (1991) liken the creation of temporary organizational structures to the erecting of scaffolding around a building which allows exploratory phases and transitioning periods before organizational change is implemented. Third, the model illustrates the need for generating healthy dissatisfaction which gently but persistently questions the basic assumptions that underlie traditional business policies and practices (Van der Krogt, 1998). These can be described as carefully staged disruptions which break up patterns and do the unexpected like doing without a meeting agenda if one is traditionally prepared or shifting the roles of key leaders to gain fresh insights and perspectives on other areas of a company.

Walton (1999) states that one criticism of this model is that it is more structural and "recipe driven" when compared with Senge's (1990) learning organization model. Its focus on processes and practices is illustrated in the visual image of the model as an 11-piece jigsaw puzzle. They naively lead the reader to believe that if all the pieces are in place, the puzzle is solved and the learning organization is successfully implemented.

The Watkins and Marsick Model

Karen Watkins and Victoria Marsick (1993) in their book, *Sculpting the Learning Organization*, introduced six action imperatives to help individuals and teams within

organizations to view the organization through a learning lens in order to identify practices that enhance the learning process and make plans to change the obstacles that prevent or impede organizational learning. They later revised their model and added a seventh imperative based on leadership in the learning process (Marsick & Watkins, 2003). They state the purpose for crafting their original model rested not in listing a few suggestions for improving organizational learning but rather “an analysis of the characteristics, qualities, and efforts of emerging learning organizations that will help to set a course and develop practices to create a learning organization” (p. xv.) Their perspective as educators rather than managers led them to focus on individualistic and employee-based strategies more than on issues dealing with organizational strategies, power, or structure. The research base for their model consists of in-depth case studies conducted at the following companies: Tel-Labs Inc., General Electric, Air Products and Chemicals, IBM, Whirlpool, Coopers & Lybrand, and Johnsonville Foods. Their literature review includes twelve previous research studies addressing related topics like collective learning, team learning, action-reflection learning, staff development, informal and incidental learning, and the facilitation of learning in the workplace.

The Watkins and Marsick (1993; 2003) model of the learning organization consists of the following seven action imperatives and their associated definitions:

1. Create Continuous Learning Opportunities – Fostering continuous learning through more effective planning for informal learning, learning how to learn, and just-in-time learning. Continuous learning is opportunistic and it is supported by experiments in teaching managers to be facilitators and coaches.
2. Promote Inquiry and Dialogue – Effective dialogue calls for open minds and open communication. Inquiry involves questioning that simultaneously challenges assumptions and yet does not attack the individual.

3. Encourage Collaboration and Team Learning – Team learning is enhanced when teams learn the skills of framing, reframing, experimenting, crossing boundaries, and creating an integrative perspective. Through teams, people learn how to work collaboratively, extending the organization’s capacity to achieve a unified action on common goals.

4. Establish Systems to Capture and Share Learning – Building organizational capacity for new thinking that is then embedded and shared with others. Finding ways to preserve what is learned so that it will endure even with a highly mobile, temporary workforce.

5. Empower People Toward a Collective Vision – Everyone in the organization has an idea of what the whole picture looks like, knows how to get something done, has a budget with which to take action, and has knowledge of how to influence others. Everyone has access to information about how to plan learning and how to assess their needs in relation to the needs of the organization.

6. Connect the Organization to its Community and Environment – Interdependencies between the organization and its internal and external environment are acknowledged and worked through. Being connected to the internal environment is being responsive to members of the organization and their work-life needs. External customers in the broadest sense include the earth, our society, and the communities in which the organization resides.

7. Provide Strategic Leadership for Learning – Leaders model, champion, and support learning; leadership uses learning strategically for business results.

Additional information about the Watkins and Marsick model is provided in the next section of this chapter including similarities and differences with the Senge (1990) and Pedler et al. (1991) models, references to elements of organizational learning that pre-date the term “learning organization,” and the development of a validated survey instrument which measures each of their seven learning imperatives.

The Redding and Catalanello Model

John Redding and Ralph Catalanello (1994) develop a model of the learning organization which links the concepts of strategic planning, change management, and organizational learning. The model was developed after they researched approximately

200 organizations seeking to determine why some organizations were more successful at managing change than other organizations. Motorola, Micro Switch, Apple Computer, General Dynamics, and Servicemaster were among the companies included in the research study. The overall results of their research revealed an organization's readiness for change and the degree to which the organization supports experimentation contributed most to effectively managing change. Both the peer review and a subsequent literature indicated that strategic change seemed to occur through a process of organizational experimentation and learning. The framework for their model is based on Kolb's (1984) experiential learning cycle which consists of the following sequential stages: planning, action, and reflection.

The Redding and Catalanello (1994) model of the learning organization consists of the following eleven elements and their associated definitions:

1. Learn from the Past – Consciously exploring organizational histories, benchmarks, problems, and successes in order to derive a few central lessons that will apply to an immediate problem or issue.
2. Anticipate Future Scenarios – Forecasting future business conditions through the use of environmental scanning techniques in order to detect weak, early signals of change and adapt to them.
3. Develop Strategic Vision – Creating a future state that is inspirational, achievable, and shared by all members of an organization.
4. Focus on Immediate Business Issues – Identifying the most pressing and concrete business problems facing an organization, devising quick action through short-term benchmarks, and providing for quick learning through quick review.
5. Encourage Experimentation – Supporting grass-roots change initiatives and establishing ad hoc structures to champion experimentation.
6. Encourage Cross Fertilization – Disseminating achievements and spreading knowledge from one area of the organization to another and from the fringes of the organization to its core.

7. Institutionalizing Change – Making permanent changes to the organization’s structure, rewards, procedures, policies, and information systems.
8. Provide Opportunities for Reflection – Creating frequent, ongoing opportunities for dialogue regarding problems that arise during implementation, periodic reviews of business plans, and predetermined moments for deep discussion.
9. Question Underlying Assumptions – Openly exploring different viewpoints and searching beyond simple answers for systemic solutions.
10. Generalize Insights Across the Organization – Asking how what was learned from one change initiative may be applicable elsewhere, to other problems, and to other parts of the organization struggling with similar issues.
11. Learning to Learn Techniques – Reflecting on the learning process itself in an attempt to identify ways in which it can be improved; increasing the speed, depth, and breadth of learning in an organization.

This model has several similarities with other learning organization models. First, the model states that strategic awareness can be raised by identifying environment forces which are likely to impact the organization in the near future, generating healthy dissatisfaction with the status quo, and helping employees understand how the organization functions using a “system thinking” framework. Second, the model recommends offering a multitude of learning resources and opportunities at the individual, team, and organizational levels. Third, self-organizing structures are created and sustained by building in systems of redundancy, minimizing structural layers, mirroring the variety found in the environment, and making use of temporary organizational structures like project teams, task forces, and redesign groups.

The DiBella and Nevis Model

Anthony DiBella and Edwin Nevis (1998) contribute to the learning organization literature through proposing a model which pools ideas and insights on this topic from the following three perspectives: normative, developmental, and capability. For example, within the normative perspective, some authors have stated that learning only takes place under a unique set of conditions (Pedler et al., 1991; Senge, 1990; Watkins & Marsick, 1993). The developmental perspective highlights the need for organizations to develop or progress through a series of distinct stages (Argyris & Schon, 1978; Dechant & Marsick, 1991). Lastly, the capability perspective presumes that learning is innate to all organizations and that there is no one best way for organizations to learn (Srivastva, 1983; Stata, 1989; Wenger, 1996).

DiBella and Nevis (1998) state that their model is the result of an extensive literature search regarding organizational learning, in-depth research in seven American and European companies, and field experience with twenty-five Fortune 500 companies. They state that the key objective in building organizational learning capability is to maintain or improve team and/or organizational performance. They define performance in the context of both business outcomes (profitability, return on equity, market share) and social outcomes (quality of work life, technological innovations, improved standards of living).

The DiBella and Nevis (1998) model of the learning organization consists of the following ten elements and their associated definitions:

1. Scanning Imperative – People gather information about the condition and practices outside their unit; they seek out information about the external environment.

2. Performance Gap – Shared perception of a gap between current and desired performance conditions.
3. Concern for Measurement – Considerable effort is spent defining and measuring key factors. Discourse over metrics is regarded as a learning activity.
4. Organizational Curiosity – Curiosity about conditions and practices, interest in creative ideas and new technologies, and support for experimentation.
5. Climate of Openness – Organizational members communicate openly; problems, errors, and lessons are shared.
6. Continuous Education – The organization is committed to providing high-quality resources for learning.
7. Operational Variety – Members value different methods, procedures, and appreciate diversity.
8. Multiple Advocates – New ideas and methods can be advanced by employees at all organizational levels; multiple advocates or champions exist.
9. Involved Leadership – Leaders are personally and actively involved in learning initiatives and in ensuring that a learning environment is maintained.
10. Systems Perspective – Recognition of interdependence among organizational units and groups; awareness of time delay between actions and their outcomes.

This model makes the case that the capability perspective is the ideal framework for viewing learning within most organizations. Because there is no one way for an organization to engage in learning activities, then a comprehensive appreciation must take place at the individual, team, and organizational levels. However, the authors' also state primary organizational learning objectives as improving team or organizational performance and recognizing the potential contribution and worth of each and every individual within an organization's structure. This "integrated strategy" seems to tackle more perspectives than it can resolve. Their meaning of "integrated strategy" leads a reader to believe that learning can have different outcomes depending on each

stakeholder perspective. They make this statement without describing how one perspective impacts the outcomes of another perspective. In other words, if the primary outcome of learning is improved organizational performance, then why should managers of the same organization spend scarce resources on developing the potential worth of every employee?

The Garvin Model

David Garvin (2000) believes most learning organization models have not established a strong connection between theoretical framework and practical implementation concerns voiced by managers and executives. Because of this concern, his model seeks to address pressing business needs by translating learning theory into concrete discussion on policies, programs, and procedures that are required for successful implementation of a learning organization. He states his focus as “increasing the odds of success and improving the breadth, depth, and speed of learning by following well-crafted processes and procedures” (p.xi). The research base for the model is derived from extensive case studies involving interviews, observations, and internal document reviews that were conducted at the following six organizations: Xerox Corporation, L.L. Bean, United States Army, General Electric, Timken, and Allegheny-Ludlum Steel.

The Garvin (2000) model of the learning organization consists of the following five dimensions and their associated definitions:

1. Establish a Learning Environment – The following conditions are essential to creating a supportive learning environment: the recognition and acceptance of divergent opinions; the provision of timely and unvarnished feedback; the pursuit of new ways of thinking and untapped sources of information; and the acceptance of errors, mistakes, and occasional failures as the price of improvement.

2. Gather Intelligence – Gathering data through search, inquiry, and observation. Search involves analyzing and researching public sources or documents. Inquiry involves framing and asking insightful questions within interviews and surveys. Observation relies on direct contact with users; the primary skills are attentive looking and listening.

3. Learn from Experience – Learning from repetition and exposure. Repetition ensures that the same tasks are performed more efficiently over time. Exposure ensures that a new set of talents is developed through the exploration of unfamiliar environments or the assumption of new responsibilities.

4. Provide Experimentation Opportunities – Experimenting through exploration and hypothesis testing. Exploration seeks to create a clearer map of an unknown territory usually through determined but open-ended search. Hypothesis testing seeks to discriminate among alternative explanations in order to confirm or discount prevailing views.

5. Develop Learning Leaders – Leaders within an organization are responsible for three primary tasks. First, they create opportunities for learning by designing settings and events that prompt the necessary activities. Second, they cultivate the proper tone by fostering desirable norms, behaviors, and rules of engagement. Third, they must personally lead the process of discussion, framing the debate, posing questions, listening attentively, and providing feedback and closure.

Garvin's model provides a comprehensive explanation of the following three types of organizational learning using a cognitive perspective: gathering intelligence, learning from past experiences, and providing opportunities for experimentation. However, other authors have insisted on including multiple perspectives when trying to explain the objectives and impact of a learning organization (Watkins & Marsick, 1993; Matthews, 1999). For instance, a behavioral perspective of learning focuses on individual learning that results from adapting to changing conditions and meeting performance objectives (Chalofsky, 1996; Redding & Catalanello, 1993). In addition, a humanistic perspective of learning focuses on the transformative power of personal relationships and individual emotions within the overall realm of individual and team learning (Dixon, 1997; Kofman & Senge, 1995; Vince, 2002).

The Marquardt Model

Michael Marquardt states that the reason for developing his comprehensive systems model has resulted from an extensive literature review and his direct experience with over 100 organizations struggling to become learning organizations (Marquardt & Reynolds, 1994; Marquardt & Alexander, 1999; Marquardt, 2002). He contends that the trouble with past models of learning organizations is that they focus on a single attribute like team learning, communication systems, organizational structures, or increased implementation of research and development activities. Furthermore, he believes most advocates of learning organizations rely too heavily on organizational development initiatives like total quality management, reengineering, change management, or employee involvement to create and sustain organizational learning.

The Marquardt (2002) model of the learning organization consists of the following five subsystems and their associated definitions:

1. Learning Dynamics - Includes three distinct but interrelated levels of learning (individual, group, organizational) and three types of learning that are crucial for organizational learning (adaptive, anticipatory, action learning).
2. Organizational Transformation - Consists of four dimensions (vision, culture, strategy, structure) that need to be transformed or maintained to allow focusing equally on learning and development as well as work and productivity.
3. People Empowerment - Includes six groups of stakeholders (employees, leaders, customers, business partners, suppliers/vendors, community groups) who must be empowered and enabled to learn and share their learning with one another.
4. Knowledge Management - Manages the acquired and generated knowledge of the organization through the following six distinct stages: acquisition, creation, storage, analysis, dissemination, and application.

5. Technology Support for Learning – The use of computer-based technology to a) create and maintain a knowledge management system within an organization and b) deliver learning programs with increased attention to speed and quality.

Marquardt (2002) utilizes the following comprehensive systems perspective for detailing each major dimension of learning within organizations: organizational structure, people, knowledge, and technology. On top of these four dimensions, the author applies a learning subsystem which includes five learning skills (mostly adapted from Senge, 1990) and three learning types (adaptive, anticipatory, action) related to common timeframes (past, future, present) respectively. First, although this approach works well with the people and knowledge dimensions, it seems to be an artificial application when treating the structure and technology dimensions. Since the author uses a heavy reliance on Senge (1990) to advance key learning skills, the humanistic traits of mental models and personal mastery seem to have little connection with the web-based learning and learning management systems highlighted in the technology section. Second, the author includes a survey instrument called the Learning Organization Profile in the appendix. This 50 item instrument attempts to quantitatively measure each of the model's dimensions in various organizations. The instrument, however, is only a first stage in assessing relevant learning dimensions that are active within organizations. The instrument only addresses organizational-level learning and lacks any validation of its psychometric properties.

Summary of the Learning Organization Models

The previous learning organization models were presented in a chronological manner to illustrate how some critical elements were sustained and adapted from one

model to the next model. It is sometimes difficult to trace the maintenance or development of similar learning organization elements because of differing terminology or the synthesis of several elements into one heading or label. For instance, Senge's (1990) concept of "personal mastery" appears in other models and is referred to as "an individual's commitment to learning" (DiBella & Nevis, 1998) or "self development opportunities for all people" (Pedler et al., 1991). Similarly, Senge's (1990) concept of "systems thinking" was primarily referred to as the functional interdependencies operating within an organizational system. In later models, systems thinking referred to the complex connections between an organization and its external environment (DiBella & Nevis, 1998; Watkins & Marsick, 1993). Table 2.2 shows each model that was included in this review and its corresponding critical elements.

Table 2.2

Learning Organization Model Elements	Senge	Pedler	Watkins & Marsick	Redding	DiBella & Nevis	Garvin	Marquardt
Personal Mastery/Continuous Learning for Individuals	X	X	X		X	X	X
Mental Models/Questioning Assumptions	X		X	X		X	
Shared Visions & Strategies	X	X	X	X			
Team Learning	X	X	X				X
Systems Thinking/Connecting the Environment	X		X		X		X
Participative Policy Making		X			X		
Information Technology & Information Sharing		X					X
Rewards for Learning		X					
Enabling Organizational Structures		X	X	X			X
Scanning the Environment for Critical Information		X	X		X		X
Positive Learning Climate		X	X	X	X	X	X
Systems to Capture and Share Learning			X	X		X	X
Open Dialogue			X		X		X
Anticipatory Learning				X			X
Action Learning				X			X
Adaptive Learning				X		X	X
Encouraging Learning to Learn			X	X			X
Performance Gap Analysis					X		
Operational Variety & Experimentation		X		X	X		X
Involved Managers & Leadership		X	X		X	X	X
Electronic Learning (E-Learning) Programming							X

After reviewing all of the learning organization elements listed in Table 2.2, there are some notable conclusions. Elements mentioned by five or more researchers include: personal mastery/continuous individual learning, positive learning climate, and involved leadership. Elements that were unique in nature and only mentioned by one researcher include: electronic learning (e-learning) programming, individual rewards for learning, and performance gap analysis. Senge's (1990) five disciplines have endured over the longest period of time and are integrated into most of the later models associated with the learning organization. The Marquardt (2002) model contains the greatest number of elements proposed by any other learning organization model. The Watkins and Marsick (1993; 2003) model contains the second greatest number of elements and captures most of Marquardt's (2002) technology-based storage and delivery systems in one dimension termed "learning systems."

Another observation of the models and their associated learning organization elements is the number of elements proposed in each one. The number of elements in each model range from five (Marquardt, 2002; Senge 1990) to eleven (Pedler et al., 1991; Redding & Catalanello, 1994). This observation, however, can be somewhat deceiving. For instance, Marquardt's model seems quite streamlined on the surface based on its five subsystems. But looking more closely reveals 29 components or 54 subcomponents within the aggregate of the five subsystems. For example, Marquardt's learning subsystem alone consists of three levels of learning (individual, team, organization), three types of learning methods (adaptive, anticipatory, and action-based), and five key learning skills (systems thinking, mental models, personal mastery, self-directed learning, and interpersonal dialogue). It therefore seems to be the attempt of most models of the

learning organization to present a manageable number of elements that are closely inter-related to one another. Watkins and Marsick (1993; 2003) take a relatively concise approach by presenting seven action imperatives. It is important to note that their model selects the “best of the best” by choosing elements that are aligned with Senge (1990) and Pedler (1991) and which have been validated by at least two other subsequent models.

A Comprehensive and Validated Learning Organization Model

The following section outlines the original framework and each of the seven dimensions or learning imperatives found within the Watkins and Marsick (1993; 2003) learning organization model. It also provides supporting evidence of each dimension from other learning organization models, conceptual articles, and empirical studies. First, this model is comprehensive because it contains the second largest number of learning elements (n=11) compared to the other six learning organization models highlighted in the last section. Second, this model is integrated because it states that organizational-level learning incorporates individual and group learning into the organization’s mission and performance outcomes. Watkins and Marsick (1996) believe that although people initiate change on their own as a result of their learning, organizations must create facilitative structures to support and capture learning in order to accomplish their missions and objectives. Third, there have been several, separate studies which sought to validate this model’s survey instrument termed Dimensions of the Learning Organization Questionnaire (DLOQ). Yang et al. (2003) examined the dimensionality of the construct of learning culture and identified the measurement domain with a non-random sample of

836 participants from multiple organizations. Hernandez (2000) and Lien et al. (2002) tested Spanish and Chinese versions of the DLOQ with high levels of reliability and similar psychometric properties as the original English version. It is for these reasons that the Watkins and Marsick (1993; 2003) model of the learning organization has been chosen as the primary framework for undertaking this research study.

Multiple and Integrated Levels of Learning

Watkins and Marsick (1993; 2003) state that learning takes place at successively more complex, inter-related levels in organizations encompassing individuals, groups and teams, business units, the organization itself, and its vast network of customers, suppliers, and distributors. They perceive learning within organizations as a highly social endeavor, triggered by countless ideas, discussions, reflections, and more discussions:

One individual may start the chain reaction by what he or she says or does, but others quickly respond, and then others react to this reaction. All group members make meaning of the events in initially disparate ways, but as they communicate with one another, they gradually build consensus. People's knowledge can be radically transformed by this experience... For example the organization might communicate new values and visions. Hundreds of individuals make sense of those values and visions based on their unique views of the world. Yet members of organizations gradually begin to share meanings and create a common vision (Watkins & Marsick, 1993, p. 9).

In a previous section, organizational learning was defined as the “intentional use of learning processes at the individual, group, and system level in order to transform the organization in a direction that is increasingly satisfying to its stakeholders” (Dixon, 1994). Many would agree that individuals are the basic units of groups and

organizations. Argyris and Schon (1978) note individual learning is a necessary but insufficient condition for organizational learning. Senge (1990) states organizations learn only through individuals who learn. Therefore, each person's commitment and ability to learn is an essential component for building a learning organization.

As organizations struggle with increasingly more complex problems, they are discovering that they must be skilled in group level learning. It is for this reason that Senge (1990) believes that unless teams can learn, the organization cannot learn. Teams learn to generate knowledge by analyzing issues, taking innovative action, and solving problems collectively. They become better able to learn from their past histories, to experiment with new approaches, and to quickly transfer knowledge among each member as well as other teams within an organization. Marquardt (2002) believes team learning requires three elements. First, teams need to address complex issues through collective insights. Second, teams need to constantly encourage innovative and coordinated action. Third, teams must be committed to encouraging learning among every member and stimulating learning in other teams.

Organizational learning occurs through the shared insights and knowledge of every member of an organization, regardless of team affiliation or personal interests. The two terms associated with this idea include embedded learning and organizational memory. Embedded learning involves a systematic effort to capture in some permanent way the leaning of individuals and groups (Watkins, 1996). This is especially the case with a workforce that is increasingly outsourced and contingent. For instance, a company loses intellectual capital if it allows key knowledge to depart with exiting employees.

Organization memory refers to stored information from an organization's history such as the successes and failures of past policies, strategies, and programs (Stata, 1988).

Although the learning associated with individuals, teams, and organizations are interrelated, organizational learning is seen as greater than the sum of individual and team learning (Marquardt, 2002; Senge, 1990). Learning by individuals is necessary for the organization to change, but not sufficient by itself. When individuals increase their capacity to learn, they collectively enhance the overall capacity of the organization to learn. Individuals and groups are the agents through which organizational learning takes place but the process is also influenced by a broad set of social, political, and structural variables (Argyris, 1999).

Continuous Learning for Multiple Stakeholders

A more comprehensive description of continuous learning by Watkins and Marsick (1993) includes: linking learning with business initiatives and organizational changes, developing support for learning from senior managers, involving line managers in learning initiatives, taking a long-range view of implementation, translating complex models of how people learn from experience into simple models and tools that can be clearly understood by all members of an organization, and redefining how learning should be delivered based on continuous learning principles. These principles are based on the need for innovation in the modern workplace and include: individual learning is built into routine tasks, employees are expected to learn the skills needed by others within their work group, and employees are expected to teach, as well as learn from, their co-workers.

Some believe that the organizational learning attends to the learning needs of multiple stakeholders because of more democratic values espoused by American managers in the 1980's and 1990's and linked to wide-scale initiatives like transformational leadership (Yammarino & Bass, 1990), quality improvement (Takeuchi & Quelch, 1983) and employee involvement (Lawler, 1988). Based on these developing thoughts, it is now widely believed that the learning organization has an inherent mission to serve and guide the learning activities of all its employees and stakeholders (Dymock, 2003; Marquardt, 2002).

Others, however, have been accepted the democratic ideals of learning within organizations. They believe that developing everyone within the organization to the fullest level of their potential is either some utopian dream or carefully crafted rhetoric meant to primarily manipulate and deceive others. The critics see, instead, a two-tiered system of knowledge which discriminates between managers who receive the bulk of training and development opportunities and production/support employees who receive little or no attention (Davis & Botkin, 1994; McMurrer et al., 2000; Westbrook & Veale, 2001). Based on the criticisms regarding this long-standing issue, it is important to investigate in this study whether managers and non-managers perceive critical elements of a learning organization in different ways.

The learning organization also attempts to satisfy multiple stakeholders because of a need to nurture and sustain the efforts of front-line workers who act as the “eyes and ears” of an organization. Pedlar et al. (1991) states that it is up to customer representatives or “boundary workers” to act as environmental scanners who systematically collect and disseminate critical information throughout an organization. A

learning organization has to break down boundaries separating the organization from its environment by closely connecting its products and services to current customers and potential customers (Morgan, 1997). Furthermore, DiBella and Nevis (1998) believe that meeting the learning needs of front-line workers must be accompanied by empowering them with authority to carry out necessary tasks but also information to make their own decisions.

Inquiry and Dialogue

Watkins and Marsick (1993) believe inquiry is based on open-minded curiosity that enables people to suspend presuppositions and judgments in the interest of seeking truth and better solutions to problems. They also believe that learning organizations should encourage discussions between members that are genuine, spontaneous, and enthusiastic. Furthermore, when members of an organization make explicit the reasoning that is implicit in their thinking and ask others in a situation to do the same thing, each party in the conversation has the potential to learn new things (Watkins & Marsick, 2003).

Developing a spirit of inquiry is important in order to attain deeper understanding of underlying assumptions and core beliefs. Bennett and Brown (1995) believe that a distraction free, informal setting and creating early opportunities for individuals to discover one another's commonalities are critical elements for encouraging inquiry and discovery. Garvin (2000) states that there are primarily two basic approaches to inquiry: descriptive and exploratory. Descriptive approaches involve precise, focused questioning with the goal of determining frequencies, patterns of use, or comparisons of products or

services. Exploratory approaches tend to use open-ended questions to elicit user's perceptions and needs. Frequently, stories and firsthand experiences are preferred sources because they are often thought to embody larger truths.

The discipline of dialogue is central to organizational learning because it enhances individual curiosity and augments team learning. Dialogue is often unproductive or frustrating because of unstated differences in meaning. This is especially the case when individuals come from diverse backgrounds, geographies, or life experiences (Garvin, 2000). Common problems include different uses of the same terms and different reference points. Marquardt (2002) believes that dialogue can be fostered by regarding fellow employees as colleagues, suspending long-standing assumptions, and slowing down the process of inquiry. This dimension also includes the freedom to openly express personal viewpoints and have a permissible degree of debate. If the organizational climate has a high degree of politeness and conformity, many potentially important views will be suppressed (DiBella & Nevis, 1998). Handy (1995) makes the point that opportunities for talking, meeting, and greeting are fast disappearing in most organizations due to faster paces and electronic communication. One-on-one discussions allow people to more readily share their values and concerns and help us determine whether we want to adopt these references as well. In some cases, this takes the form of informal, hallway conversations where members can share their true thoughts and concerns in a safe environment (Dixon, 1997).

Collaboration and Team Learning

Watkin and Marsick (1993) state that various group and organizational conditions have an impact on team learning and determining whether team learning becomes organizational learning. Team factors include an overall appreciation for teamwork, opportunities for individual expression, and operating principles which balance necessary tasks with maintaining healthy interpersonal relationships. Organizational factors include support for the operation of teams and collaboration across functional lines as a routine way of working.

Argyris and Schon (1978) mention the following team learning processes that are necessary for true collaboration: integrating perspectives, experimenting, and crossing boundaries. Integrating perspectives means that divergent views are synthesized and apparent conflicts are resolved without resorting to majority rule. Experimenting is an action that tests a hypothesis or attempts to discover some new information. Crossing boundaries means bridging the sometimes intangible lines that separate one team from another within an organization. People cross these boundaries when they ask for assistance, collaborate with others to accomplish a specific goal, or actively listen to another group's opinions. The most important organizational influences on team learning include managerial support for the operation of teams and support for working across functional, divisional, or hierarchical boundaries (Weintraub, 1995).

Additional models and benefits associated with team learning are included in the organizational learning discussion found in Section One.

Embedded Systems to Capture and Share Learning

Learning organizations put systems in place that promote individual and team learning and embed both learning outcomes and processes. Key features of embedded systems include information collection, rewards and recognition for learning and improvement, and widespread sharing of what is learned collectively and continuously through access to information. Organizations learn best when their culture, structure, strategy, and reserves are aligned to support the organizational mission (Watkins & Marsick, 1993).

Nonaka and Takeuchi (1995) state that a company's ability to capture and share learning is absolutely crucial for staying ahead of the competition in areas of speed, quality, innovation, and pricing. Organizations must learn how to manage the mechanics of knowledge just as they learned how to manage the mechanics of production in the industrial age (Marquardt, 2002). Various writers acknowledge three stages of knowledge management associated with organizational learning: information acquisition, information interpretation, and organizational memory (Daft & Huber, 1987; Dixon, 1992; Kuchinke, 1995; Slater & Narver, 1995).

The first step in knowledge management within an organization is information acquisition. According to Daft and Huber (1987), the literature approaches this process from both a macro and micro level. It is reported that the macro level focuses on the behaviors at the unit or organizational level while the micro level examines the behaviors of individuals procuring information. Organizations must be aware of activities occurring in their relevant environments. Individuals who hold positions responsible for gathering information are referred to as boundary-spanning personnel (Daft & Huber,

1987) or environmental scanners (Pedlar et al., 1991). Organizations can acquire necessary information through monitoring, probing, or grafting. Monitoring is described as a routine behavior through which information is gathered from sources such as professional conferences, industry reports, or trade journals (Daft & Huber, 1987). Probing involves a more intense and deliberate search typically initiated for the purpose of obtaining additional or specific information from competitor companies, key professional contacts, or external consultants (Daft & Huber, 1987). Grafting utilizes newly hired employees or employees joined through a merger to serve as sources of information (Dixon, 1992).

Information interpretation is the second stage of managing organizational knowledge. Interpretation is simply the process through which information is given meaning (Dixon, 1992; Kuchinke, 1995; Slater & Narver, 1995). The most central aspect of creating meaning is the reduction of equivocality and ambiguity (Daft & Huber, 1987). This places importance on the organization's ability to share meaning among its members. The process of interpretation requires that some organizational members may have to change or alter their cognitive maps or mental models (Senge, 1990; Dixon, 1992). As previously stated, mental models represent how individuals interpret reality including new information. In addition, the following attributes of the communication process influence the interpretation of information: the selected communication medium, the amount of information being presented, the frequency of communication, and the amount of unlearning individuals need to perform before new interpretations can be made (Kuchinke, 1995).

The final step for managing knowledge is storing information for later use and is often referred to as organizational memory. According to Dixon (1992), memory is located in individuals, processes, structures, or the physical environment. Organizational memory also resides in norms, codes of behavior, storytelling, organizational records and computer files (Huber, 1991; Kuchinke, 1995). Organizational memory acts as a reservoir for lessons learned, for discovering what has been successful in the past, and coming face to face with disappointments and failures (Dixon, 1992). Huber (1991) states that organizational memory is essential to the process of organizational learning and can be communicated and sustained by its linkage to performance management and the attainment of strategic goals.

Culture of Empowerment

According to Watkins and Marsick (1993), empowerment involves a sense of control over one's personality, cognition, and motivation; it is expressed in a sense of self-worth and an ability to make a difference. It requires a commitment at multiple levels of an organization to change deep structures and cultures that reward members for simply towing the line. Ingredients that help foster empowerment include flattening the hierarchy of an organization, decentralizing areas of responsibility, and developing a culture that supports decision making at the level closest to where work is performed (Watkins & Marsick, 1993).

The highest level of empowerment is said to lie in participative policy making in which all members of an organization take part in policy and strategy formation (Pedler et al., 1991). Managers, in particular, can exhibit empowering behavior by way of their

willingness to coach others, properly framing questions to investigate mental models, and being available as a resource for additional information (Ellinger & Bostrum, 1999).

Managers can also encourage their employees to engage in experimentation, provide time to do this, and be willing to tolerate mistakes when tackling new areas of responsibility (Nonaka & Takeuchi, 1995).

Looking at this dimension with a more critical perspective, several writers believe that the notion of empowerment is either a smokescreen for managerial domination of less influential members of an organization or, again, is sweet sounding rhetoric without much substance. One idea is that learning organizations attempt to increase control boundaries between managers and employees by having most collective knowledge favor managerial status and decision making (Coopey, 1995). Another concept, driven by the increases in corporate downsizing, states that the new employment contract which stresses flexibility over job security actually encourages members to hoard information and protect their vested interests (Byrne, 2001). Lastly, some believe that mostly metaphors and exaggerations exist in learning organization literature and it is focused on change management, individual empowerment, and personal development (Symon, 2000). A learning organization delivers reassuring messages which encourages employees to work harder in increasingly more hostile and chaotic conditions (Stewart, 2001).

Connection with Community and Environment

Learning organizations attempt to foster healthy and enduring relationships within their physical, social, and cultural environments. According to Watkins and Marsick

(1993), the primary connection with the individual can be found in the area of work-family balance. The quality of work life in an organization that has four or more family-friendly policies has been found to be higher than in those with fewer such policies. Examples of these policies include sick leave, maternity and paternity leave, personal leave for elder care, flextime, telecommuting options, job sharing, child-care vouchers, and employee assistance programs. The primary connection between the organization and its surrounding community can be found in diverse and vibrant volunteer programs. When organizations loan out human resource talent to coordinate a local United Way campaign, the environment thrives. When organizations donate space and materials to sponsor an on-site, March of Dimes 5K Run, the focus is on philanthropy rather than profitability.

Environmental scanning is a way for organizations to sense developing problems or opportunities and thereby plan a proper course of action in a proactive rather than reactive manner. Scanning is an organization's scouting function that provides the stimulation and direction of knowledge generation (DiBella & Nevis, 1998). Pedler and associates (1991) believe that the scanning function is the responsibility of all members, especially front line workers, and includes securing feedback from customers and gathering intelligence from suppliers and community members. Slater and Narver (1995) view the learning organization in terms of its market orientation and believe that the strongest connection exists between the organization and its customers. The strength of this connection can be measured primarily through customer satisfaction surveys, sales growth, new product launches, and profitability in core market segments.

Strategic Leadership for Learning

Watkins and Marsick (1997) added the strategic leadership imperative to their learning organization model after additional research confirmed that managers act as effective facilitators of learning for their employees. In addition, they believed that leadership skills can be practiced at any level within a learning organization and include: attending to information about organizational change, sharing ideas and inviting others' opinions on how to adapt to future changes, experimenting with new ideas and behaviors, and initiating appropriate rewards to encourage and recognize employee development opportunities.

Leaders within a learning organization must create and support an environment which nurtures customer service (Rolls, 1995). Customers ask that service providers know their business and get closer to their issues. Managers are asked to move from a "command and control" leadership style to become more effective in softer, interpersonal skills like mentoring, coaching, and facilitating. To be an effective and "generative" coach, managers should engage in building mutual commitment, trust, respect, and freedom of expression with their client (Murphy, 1995).

Many believe that primary responsibility of leadership within an organization involves setting a vision that encourages enhanced performance from members and stakeholders. In a learning organization, however, creating vision is not enough. Leaders must engage in hands-on implementation of the vision and show others that they have a deep commitment to reaching the goals espoused in that vision (DiBella & Nevis, 1998). Garvin (2000) believes that leaders have three primary learning tasks. First, leaders must create opportunities for learning by designing settings and events that prompt the pursuit

of knowledge. Second, they must foster desirable norms, behaviors, and rules of engagement. Third, they must personally lead forums for discussion by framing the debate, posing questions, listening attentively, and providing honest feedback to the participants. As senior managers become convinced of the learning organization's value, they must seek to become role models and coaches, both eager to learn themselves and eager to communicate the benefits to others (Marquardt, 2002). In addition, leaders are effective in this role when they establish learning mechanisms like project review teams and establish a culture of trust which is able to diminish a member's natural tendency to justify and defend their behavior (Popper & Lipshitz, 2000).

Conceptual and Empirical Research on Learning Organizations

There is a tremendous amount of information published about learning organizations. A recent search on the ABI-Inform database revealed over 12,000 hits on the term “learning organization.” In this mix of publications there are well developed pieces of research and haphazardly drafted pieces which merely take the terms “learning” and “organization” and position them together to create a level of interest for an unsuspecting or uninformed reader. It is the objective of this section to describe the more well-developed pieces found within the conceptual, qualitative, and quantitative forms of research. The relatively small percentage of qualitative and quantitative research studies indicates the continuing need to use traditional forms of research to further investigate the concept of the learning organization.

Conceptual Research

Approximately 65 percent of the articles discovered during the literature review for this study could be described as conceptual research. These conceptual pieces explore concepts or ideas from direct experiences within various organizations or engage a literature review to grant substance to a particular perspective or argument. In several cases, they do not specify their working definition of a learning organization, the biases that they bring to their argument, or the conceptual framework from which they engage in their research. The following categories of this type of research attempt to illustrate the diverse thinking and application given to learning organizations. There are nine main categories of conceptual research surrounding learning organizations. The categories are listed here and fuller descriptions of each one are provided in the next several paragraphs:

1) alignment with learning theory, 2) alignment with management theory, 3) alignment with managerial skills, 4) organizational barriers which diminish learning, 5) the use of literary devices in descriptions, 6) the connection to issues of control and power, 7) the need to invigorate a particular type of sector, 8) highlight the ongoing tension between learning and work demands, and 9) outline the similarities and differences between organizational learning and learning organizations.

First, many conceptual articles found within the literature review align learning organizations with an established learning theory. Action learning is believed to build learning organizations through just-in-time problem identification and collaborative problem solving (Marquardt & Alexander, 1999). Self-directed learning, by its emphasis on active participation and goal directedness, provides a strong foundation for various learning organization models (Confessore & Kops, 1998; Zemke, 1998). Double-loop learning provides a learning organization with competitive advantage through scenario planning, Merlin exercises, and practice fields (Fulmer & Gibbs, 1998). Behavioral learning tends to transition organizations from planning and reflection to performance results, and therefore encourages support for additional and sustained learning (Barrie & Pace, 1997; Yeo, 2002).

Second, other conceptual research aligns learning organizations with a singular branch of management theory. Leadership development impacts learning organizations by creating time and recognition for learning and establishing a culture of trust to counter defensive mental routines (Gratton, 1993; Overmeer, 1997; Popper & Lipshitz, 2000). Continuous process improvement emphasizes transitioning learning in terms of content and outcomes to learning in terms of process and the possibility to harness next

generation products and services (Chalofsky, 1996; Terziovski, 1998). Organizational change management frames the ideal learning organization as one that practices constant readiness, continuous planning, and improvised implementation (Gordon, 1992; Rowden, 2001). Employee involvement in decision making and planning stages will improve employee commitment to the team and organizational mission and therefore satisfy the tenants of a learning organization (Ellstrom, 2001; Matthews, 1999; Walderssee, 1997).

Third, some conceptual pieces connect learning organizations with a singular management skill. The learning organization is fundamentally a communication phenomenon and therefore communication research is particularly well suited to address the areas of collective thinking, idea evaluation, and idea extension (Sandine, 1997). Training new and tenured employees needs to be redefined to support the forces and methods that enhance spontaneous learning through structured on-the-job training or access to wide-ranging e-learning modules (Gayeski, 1996; Myers, 2001). A dynamic model of motivation should identify employee interests and values using mental, physical, and social dimensions to enhance learning capability at the individual level (Osteraker, 1999). Also, mentoring can help employees coping with rapid changes by finding teachable moments, providing support without supplying all the answers, and demonstrating authenticity in employee-manager relationships (Bell, 1997).

Fourth, learning within organizations is either diminished or circumvented by significant structural barriers. Watkins and Marsick (1993) list nine barriers including learned helplessness and entrenched bureaucracy that greatly impede learning within an organization, and if left unchecked, can thwart any attempt at building up the learning capacity of an organization. Thompson (1995) states that before a renaissance of learning

can be fully realized in the business world, partnerships with education must be re-negotiated and urgencies for short-term profits must be mitigated. Dilworth (1995) believes that a fixation on formal training programs and autocratic leaders are the primary obstacles. Kofman and Senge (1995) list examples of cultural dysfunction as fragmentation between business units, competition beyond reasonable standards, and a tendency to quickly assign blame when a mistake is made.

Fifth, there are several assertions that learning organizations are ideal notions that consist of no more than rhetorical devices, including some that are well meaning and others that have more manipulative purposes. Symon (2002) believes rhetorical devices such as metaphor, exaggeration, and justification are used to advance the causes of organizational change, individual empowerment, and personal development. Jackson (2000) uses a method of rhetorical criticism to substantiate that fantasy themes sustain the widespread interest in learning organizations. He believes the most damaging fantasies include the idea of leaders as teachers and organizational decision making as a collaborative practice between employees and managers. Several other writers highlight the importance of generalized learning outcomes based on their narrow consulting experiences with organizations (Byrd, 1995; Gauthier, 1995; Weintraub, 1995).

Sixth, learning organizations can directly or indirectly reinforce managerial domination of workers. Some believe that learning organizations directly exercise control over workers by using the disguise of learning programs (Byrne, 2001; Coopey, 1995). In this case, participation in learning programs by the majority of workers is intended to satisfy their basic interests in learning without a corresponding connection to either collaborative decision making or promotional opportunities within the

organization. Others believe that the indirect result of establishing learning organizations is that there is a separation between workers and managers reminiscent of early Tayloristic organizations (Snell & Chak, 1998; Stewart, 2001). In this scenario, there are learning programs meant to enhance the effectiveness of workers and there are other, distinct learning programs meant to enhance the effectiveness of managers or professionals. This situation, although it assists specific groups of employees with increasing their knowledge and skills, tends to reinforce the existing structure of an organization and diminishes opportunities for true collaboration and comprehensive empowerment.

Seventh, some conceptual research highlights the need to invigorate traditionally stagnant or entrenched organizations within the public or private sectors. Adopting a learning organization within a public school system proposes adults learning alongside students, decentralized planning, the value of multiple perspectives, articulating goals to the community, and continual learning throughout the year (Brown, 1998; Lipton & Greenblatt, 1992; Mohr & Dichter, 2001). Facilities management can meet the needs of decentralized procurement procedures, complex technologies impacting HVAC and powerplant controls, and mandated safety regulations and reporting procedures (Cain, 2000). Academic libraries are now focusing on satisfying customer needs, strategic planning, internal assessment plans, and visioning exercises (Hightower & Soete, 1995; Bender, 1997). Colleges and universities can provide more comprehensive educational and counseling services, planning with key stakeholders, and collaborative administration practices (Brown, 1997; Freed, 2001). Sole proprietorships can utilize the characteristics of a learning organization to balance production and marketing concerns, develop long-

range planning models, and create more reliable communication channels with customers (Guest, 1999).

Eighth, some research on learning organizations highlights the tension that exists between individual learning and organizational expectations for production and quality outcomes. Some believe that learning organizations should only sponsor mission-specific learning programs. Here, all individual learning would be fully integrated into the mission of the organization and learning not directly related to this agenda, should not be considered within an organization (Gardiner et al., 2001). Others believe that individual learning within an organization should contribute to both the development of the worker as an individual and to the advancement of the organizational mission (Van der Krogt, 1998). This group believes that if an individual receives training in problem solving, creative thinking, or career development, then these broader types of skills will have a long-range yet sustainable impact on the overall success of an organization.

Lastly, some conceptual research has taken the time to carefully lay out the similarities and differences which exist between learning organizations and organizational learning. This category of research is especially worthy of consideration because most of the conceptual research listed in the previous paragraphs tend to blur the distinctions between these two inter-related but independent concepts. Organizational learning refers to the process of learning at individual and group levels within an organizational setting while a learning organization refers to an organization that is continually improving its learning capacities through the alignment of multiple subsystems (Ortenblad, 2001). Also, organizational learning has the capacity to directly enhance intellectual capital by enhanced knowledge outputs of organization members,

whereas, knowledge management is the most critical subsystem of a learning organization and is necessarily integrated with people and technology subsystems (Arnett, 2001; Crossan et al., 1995).

The majority of conceptual writings found during the literature review reinforce the need to engage in empirical research which requires definition of terms, conceptual frameworks, well developed methodologies, and reliability measures. Based on the previous section, it is interesting to note that learning organizations have been applied to several forms of learning that occur within organizations and to several types of organizations that strive to improve their learning systems. On the down side, several instances of conceptual research take an overly optimistic approach to this topic. In other words, if a little learning is good for an organization then greater amounts of learning must be better for that same organization. The provocative label of “learning organization” must be tempered by careful and deliberate definition and application.

Qualitative Research

Approximately 20 percent of the learning organization pieces reviewed for this study could be classified as qualitative research consisting primarily of leader and/or employee interviews and including document reviews, direct observations, or focus groups. Qualitative research is an in-depth investigation into the meaning of a concept. The advantage of a qualitative methodology is that it produces a wealth of detailed information about a smaller number of cases compared to a quantitative methodology. This increases understanding of the cases and but reduces the ability to generalize the findings to other situations (Patton, 1990). There are six main categories of qualitative

research surrounding learning organizations. The categories are listed here and fuller descriptions of each one are provided in the next several paragraphs: 1) the identification of learning organization elements in various settings based on one or more theoretical models, 2) the impact of leadership, 3) the impact of organizational change, 4) the impact of organization demographics, 5) phases for implementing a learning organization, and 6) impact on organizational performance.

First, the greatest number of examples within this methodology includes the identification of learning organization elements in different types of organizations based on the Senge (1990) model, the Marquardt (2002) model, or a combination of several models. Some studies investigated the Senge disciplines in a grocery store chain in Virginia (Reed, 2001), a large petroleum company (Stamp, 1997), a division of Ford Motor Company (Bierema & Berdish, 2000), Australian manufacturing companies (Lennon & Wollan, 2001), and 15 managers enrolled in a human resources graduate course (Hodkinson, 2000). One study explored Marquardt's subsystems within two municipal government bodies in Michigan and Illinois (McGrath, 2002). Most of the other studies within this category created a hybrid model of the learning organization based on elements of multiple models. Some of these organizations included a family-owned Canadian manufacturing company (Eikenmeyer, 2003), an auto parts manufacturing in the United Kingdom (Giannopoulou & George, 1999), an Australian hardware chain (Morrison & Terzioski, 2001), and nine financial services firms in the Southeast (Goh, 1998).

Second, some qualitative studies looked at the connection between learning organizations and organizational leadership. Bales (1993) interviewed 17 Texas state

executives and identified 12 possessing high levels of skills associated with learning organizations and 5 having lower levels of the same skills. Vince (2002) interviewed 7 senior managers in a large, private company and found emotional intelligence skills to mediate learning organization elements. Watkins and Marsick (2000) investigated life histories of learning leaders within four companies and identified collaborative leadership traits which enhance the success of learning organizations. Ellinger and associates (1999) studied the perceptions of managers coaching employees and resulted in empowering behaviors and developmental opportunities for those employees who were coached on a regular basis.

Third, other qualitative studies examined the connection between learning organizations and the increased ability to manage organizational change initiatives. Alas and Sharafi (2002) studied resistance to change in various sectors within the country of Estonia and found that smaller size companies started before 1990 had more learning organization attributes than other companies within sample. Anderson and Skinner (1999) studied 6 manufacturing companies in the United Kingdom and discovered that programmed learning was more effective at later stages of the change process rather than earlier stages.

Fourth, some researchers investigated whether certain demographic characteristics of organizations were related to the amount of learning organization elements found within those organizations. Hjalager (1998) discovered a positive correlation between learning organization elements and an organization's size and years of operation. Elkjaer (2001) found that variations in an organizational reporting structure did not impact learning organization characteristics.

Fifth, other researchers focused on the actual implementation of a learning organization initiative in companies that had an interest in this transformation. Johnson (2002) stated that the most successful implementations start with a reasoning statement which addresses a current business need or challenge and communicates this statement to a wide audience of organizational stakeholders. Raper and associates (1997) found that a majority of learning organization implementations conceal the primary reasoning strategy. In fact, the underlying driving forces for starting a learning organization are more related to changes in the product market or information technology rather than individual development or group learning.

Sixth, some studies attempted to discover the relationship between learning organizations and organizational performance. Van Deusan and Mueller (1999) defined organizational learning as either seeking new knowledge (exploration) or refining existing knowledge (exploitation). Their results showed that top performing organizations utilized both exploration and exploitation effectively; moderate performing organizations utilized exploitation only; and low performing organizations primarily used exploration techniques. In another study, Shipton and associates (2002) investigated the learning factors in 44 manufacturing companies that predicted organizational effectiveness. The largest influences, in order, included profitability, environmental uncertainty, learning dimensions, centralization, human resource management philosophy, and quality initiatives.

The qualitative pieces that are listed in this section provide greater meaning and understanding to the concept of the learning organization, especially in the areas of key elements, leadership qualities, and the implementation process. A general criticism of

these pieces includes a reliance on a small number of participants (less than 20) or on one specific industry/organizational setting. The previous two studies which address the issue of organizational performance include valuable insights into the processes of learning but do little to address levels of performance that can be achieved by adopting elements attributed to the learning organization. In Van Deusan and Mueller's (1999) study, high performing organizations were merely identified by the ranking given by the study's participants. If the experiences of the participant were not typical of the experiences of the majority of organizational stakeholders, then their identifications would be false. In Shipton and associates (2002), the study relied on one respondent from each of the 44 manufacturing companies. No information was provided on the backgrounds of each respondent or their length of time with the company. Also, the respondents were asked to rank a pre-determined list of performance areas to determine organizational effectiveness. The list included areas like centralized processes, clearly communicated guidelines, and human resource management philosophy. The methodology for constructing the list was not revealed.

Quantitative Research

Only about 15 percent of the learning organization articles reviewed for this study could be classified as quantitative research consisting primarily of survey-based methodologies. Quantitative research provides a numeric description of some part of the population through a carefully constructed data collection process (Creswell, 1994). This data collection enables a researcher to generalize the findings from a sample of responses to a larger population. These examples of quantitative research can be sorted into the

following categories: 1) validation of a survey instrument, 2) the relationship between learning organization dimensions and individual traits and characteristics, 3) the relationship between learning organization dimensions and organizational traits and characteristics, and 4) the impact of learning organizations on organizational performance.

First, the majority of quantitative studies are classified as validations of survey instruments created to measure critical elements of learning organization models. Examples of these instrument validation studies include the Learning Organization Assessment (Kline & Saunders, 1993), the Learning Organization Practices Profile (Krol, 2001), the Learning Organization Profile (Griego & Geroy, 1999), the Learning Organization Diamond Assessment (Moilanen, 2001), the Learning Environment Survey (Tannenbaum, 1997), and the Dimensions of the Learning Organization Questionnaire (Hernandez, 2000; Lien et al., 2002; Yang, 2003).

Second, some researchers investigated the relationship between learning organization dimensions and individual traits and characteristics. Benabou (1999) found that polychromic employees are more compatible with a learning organization because of their multi-tasking and autonomous characteristics. Van Woerkom and associates (2001) found that the ability of an employee to engage in critical reflection, to share their personal visions, and to challenge traditional group thinking allows them to more fully experience the ideals of a learning organization initiative. Reio and Wiswell (2000) investigated the relationship between adult curiosity and workplace learning through the mediation of socialization-related training.

Third, other researchers explored the relationship between learning organization dimensions and organizational traits and characteristics. Coe (1997) examined innovative middle schools in Pennsylvania to determine their significance as learning organizations as defined by Senge (1990) and Kline & Saunder (1993). Lau and May (1998) investigated the perceived quality of work-life balance in 133 companies and compared the results to learning organization dimensions. Lim (2003) identified the relationships among organizational commitment, job satisfaction, and learning organization culture in a large Korean conglomerate. Abbey (2000) examined the impact of learning organization dimensions on creating a work environment in which employees feel encouraged to learn and develop new skills as part of work. Egan (2002) studied the relationship between learning organizations and the internal climate to transfer learning among IT employees in large firms in the United States.

Finally, five researchers investigated the impact of the learning organization on different dimensions of organizational performance (Ellinger et al., 2002; Holton & Kaiser, 2000; Hernandez, 2001; McHargue, 2000; Selden, 1998). These quantitative studies on organizational performance are outlined in the next section of this literature review including their survey population, primary findings, and various criticisms.

Research Summary

It is clear from this overview of the literature regarding learning organizations that most research to date has focused on conceptual or theoretical development, exploratory case studies, interviews with organizational leaders, and survey instruments to gain insights into a large sample of one organization or across different types of organizations.

A report by the American Society for Training and Development (Gephart et al., 1996) concluded that many survey instruments attempt to diagnose an organization based on a change agent's practice and not by research. Instruments without a research base or lacking validation studies in multiple settings attempt to make recommendations to one organization from results in another organization without any or much evidence regarding the issue of generalizability. Furthermore, there is increased interest from the business community on research that links learning interventions with bottom-line financial performance. The Dimensions of Learning Organization Questionnaire (DLOQ) by Watkins and Marsick (2003) combines a strong body of research with several reliability studies. It also contains metrics for perceived changes in knowledge performance from the literature of knowledge and intellectual capital (Watkins & Callahan, 1998). It is for these reasons that the DLOQ provides the most promise for investigating the relationship between learning organizations and multiple measures of organizational performance.

Learning Organizations and Performance Improvement

Each learning organization model mentions something about the necessity of workplace learning to enable companies to respond to the growing expectations of their customers and the need to compete successfully in a global and fast-paced environment. A recent study of 575 large companies by the American Society for Training and Development (2001) found that those companies which invested more in training improved their total shareholder return by 6 percent. It is this combination of a long-held faith in the value of workplace learning and a handful of studies which have begun to show a favorable bottom-line impact for organizations that have created an urgency to show a strong connection between learning organization elements and performance improvement within an organization.

The Connection between Learning and Performance

A growing body of learning organization literature states that learning is related to performance and that those organizations who do not create and sustain continuous learning will not survive. Some more critical sources, however, state that only between 10 and 20 percent of capital invested in learning interventions will lead to enduring performance improvement (Broad, 2005; Swanson & Holton, 2000). Jacobs (1995) cautioned that research is needed to objectively test the claims of improved organizational effectiveness brought about by implementing a learning organization. This apparent conflict between the claims of companies who consider themselves learning organizations and actual evidence bolsters the need to further investigate the connection between learning and performance in organizations.

Traditionally, there has been a “learning versus performance” debate within the circles of human resource development (Bierema, 1996; Swanson, 1995; Watkins & Marsick, 1995; Swanson & Arnold, 1996). On one hand, some scholars believe that the development of individuals produces knowledgeable and critical-thinking adults who make decisions that cause themselves and their organizations to prosper. On the other hand, another group of scholars state that human resource development should contribute to accomplishing the strategic goals of an organization by improving employee performance. Unfortunately, the performance advocates have allowed performance to be perceived purely in financial terms and aligned with sometimes abusive, short-term initiatives like reengineering, down-sizing, and cost-cutting (Holton, 1999). When viewed in a comprehensive manner, performance is far from abusing or dominating the individual. Rather, it most closely follows the systems-thinking view of organizations and shows the most promise for building healthy, effective organizations over the long run.

Organization Performance Improvement Models

There are four theoretical models found in the literature that treat performance improvement interventions within organizations. Each of them is outlined below and includes a definition of performance, the theoretical framework on which their model is built, and specific performance measurements that align with their model. Table 2.3 lists a summary of each model’s recommended performance metrics and category.

Table 2.3

Multi-Dimensional Performance Improvement Indicators

Table 2.3: Multi-Dimensional Performance Improvement Indicators	Dimension/ Category	Swanson	Holton	Bates	Kaplan
Net Profit	Economic	X	X		
Return on Investment (ROI/ROA/ROE)	Financial/ Mission/ Economic	X			X
Expenditures for Training	Learning/ Economic	X			X
Employee Satisfaction	Psychological	X			
Amount of Feedback to Employees	Psychological	X			
Knowledge Management Processes	Psychological	X			
Amount of Team Communication	Systems/Operations	X		X	
Change Management Processes	Systems/Operations	X			
Strategic Planning Processes	Systems/Operations	X			
Market Share/New Business	Financial/ Mission		X		X
Customer Satisfaction	Knowledge/ Customer/ Process		X		X
Quality Standards	Process		X		X
Team Effectiveness	Subsystem		X		
Team Productivity	Psychological/ Subsystem		X	X	
Employee Productivity	Financial/ Psychological		X	X	
Rates of Promotion	Psychological			X	
Levels of Employee Motivation	Psychological			X	
Levels of Employee Innovation	Psychological			X	
Leader Goal Achievement	Sociological			X	
Employee Turnover Rate	Sociological			X	
Employee Absenteeism	Sociological			X	
Customer Loyalty	Customer				X
On-time Delivery	Financial/ Customer				X
Cycle-time Ratios	Process/Operations				X
Hours of Training Per Employee	Knowledge/ Learning				X

The first model by Swanson (1999), defines performance as “the valued productive output of a system in the form of goods and services” (p.5). He proposes the following set of theories as the foundation to performance improvement: economic theory, systems theory, and psychological theory. Economic theory is seen as a primary driver because it ensures the survival of the organization and it is most often referenced by financial metrics. Systems theory recognizes goals and relationships that can enhance or fragment organizational systems and subsystems. Psychological theory acknowledges human beings as the agents of production and recognizes their personalities, skills, and values which make them unique contributors within an organization. Swanson (1999) believes that any attempt to investigate performance improvement must incorporate and integrate these three theories into unified thinking and action. He also recommends various measures of performance that are aligned with each of these theoretical foundations. Economic theory would suggest investigating profit-making capability, return on investment, and expenditures for employee education and training. Since psychological theory is interested in how people make decisions and behave in organizations, the measurements associated with this theoretical base include employee satisfaction, the amount of questioning and feedback that takes place, and the types of knowledge management processes that are imbedded in the organization. Measurements associated with systems theory include the frequency and effectiveness of inter-group communication, change management efforts, and strategic planning.

The second model by Holton (1999) defines performance in terms of the “performance drivers” and “performance outcomes” associated with multiple levels and

functions within an organization. Performance outcomes are usually measures of financial and production effectiveness relative to core outputs by individuals, teams, divisions, and the organization. Performance drivers are leading indicators of future outcomes and tend to be unique to particular business units. Examples of performance drivers include employee training programs, quality improvement initiatives, team building, focus groups, and leadership development programs. He believes that performance outcomes and performance drivers should be considered jointly in order to accurately capture long-term performance improvement. Holton (1999) states that his model is developed from an extensive, cross-discipline literature review encompassing the fields of psychology, human resource management, professional ethics, total quality management, sociology, economics, business management, and industrial engineering. His model consists of four inter-related domains of performance: mission, process, critical subsystem, and the individual. Each domain is broken down into metrics dealing with performance outcomes and performance drivers. Performance measures associated with the mission domain include market share and economic returns; the process domain includes customer satisfaction and quality standards; the critical subsystem domain includes team effectiveness and team productivity; and the individual domain includes individual productivity and work output.

The third performance improvement model is authored by Bates (1999) and he defines performance as “outcomes achieved in carrying out explicit functions over specified periods of time” (p.49). In addition, he states that the conceptualization and the measurement of performance are at the center of performance improvement initiatives. In measuring performance, the criteria are the dependent variables, behaviors, or

outcomes used to represent multiple dimensions of performance at the organizational level. The theoretical framework for Bates' (1999) performance model rests on industrial-organizational psychology and sociology. In regard to the psychological framework, he states that performance measurement needs to subscribe to the principles of reliability, validity, and utility. In regard to the sociological framework, he believes that performance within an organization needs to be addressed at multiple levels and multiple dimensions. Multiple levels includes investigating performance at the individual, team, and organizational levels; it also includes making connections between levels in order to more fully understand the cause and effect relationships that exist among these levels. Multiple dimensions can be addressed by either composite or multiple measures (Bates, 1999). Composite measures include a summary combination of objective scores or ratings across several dimensions. For example, employee selection decision making usually identifies the primary performance factors and then combines scores on those factors into a composite that represents a single index of an individual's performance. In contrast, multiple measures resist combining diverse components into a single score and focus on the separate dimensions of performance. The following types of specific performance measures are linked to the psychological framework: reported understanding of individual and team performance objectives, rates of promotion or increased responsibility, levels of motivation, and levels of innovation. Subsequently, these performance measures stem from the sociological framework: individual performance ratings (especially key leaders or professionals), team performance ratings, exchange of information between teams, employee turnover, and employee absenteeism.

The fourth model was created by Kaplan and Norton (1996) and includes the following four categories of performance: financial, customer, internal business processes, and employee learning and growth. Kaplan and Norton (1996) define performance as “the cornerstone of a management system that communicates strategy and aligns individuals and teams to the strategy” (p.19). The theoretical framework for their model rests primarily in business management and secondarily in organizational behavior. The business management influence is evident in the model’s inclusion of accounting principles, financial measurements, and the ability to communicate and update strategic objectives. The model allows managers to review their shared assumptions about market conditions, the value propositions being offered to targeted customer segments, competitor behavior, and internal capabilities (Kaplan & Norton, 1996). Organizational behavior emphasizes cause-and-effect relationships and a reliance on systems thinking. In this way, the model enables individuals in various parts of the organization to understand how the units work together and how an individual’s role impacts that of others. They state the reason for creating their multi-dimensional model is based on the inadequacy of financial measures alone. For instance, some companies have established a market niche and have a following of loyal customers that virtually guarantees short-term financial stability yet it does not ensure long-term growth or resilience in the midst of changing economic conditions. A modern and vibrant organization, they contend, should balance all four categories of performance because they function as an information feedback and reporting system. Within these four categories, they recommend the following performance measures: return-on-assets, return-on-equity, new business growth, customer loyalty, customer satisfaction, on-time

delivery, business process quality, business process cycle time, training expenditures per employee, and total hours of training per employee.

Based on this outline of four performance improvement models, four common themes are identified. First, performance improvement needs to be measured. Improvement can only be realized through performance outputs and changes in outputs can only be assessed through some form of measurement. Second, performance improvement needs to be measured at various levels within an organization. The multiple determinants of individual job performance (skills, knowledge, and attitude) have long been recognized and demonstrated within the realm of human resources. The challenge is to model similar relationships, beyond the job and process levels, in order to examine performance improvement in an open system such as an organization. Third, performance improvement needs to be measured with multiple dimensions of performance. Just as multiple factors contribute to a manager's effectiveness (planning, organizing, developing, controlling), so multiple factors also contribute to an organization's effectiveness. When single dimensions of performance are studied in depth, it can often mask other conditions needing attention that would otherwise be revealed by multiple measures. Fourth, performance improvement must address practical, bottom-line concerns. Typical performance outcome measures include financial indicators such as return-on-investment or profitability. This is an important measurement because it helps the human resource development field fulfill its role as a business partner and promote its services to a managerial audience that expects and understands this level of reporting.

Research on Learning Organizations and Performance Improvement

Few research studies have attempted to highlight the connection between learning organizations and organizational performance improvement. Only within the last several years, has this phenomena been investigated (Ellinger et al., 2002; Hernandez, 2001; Kumar & Idris, 2006; Lien et al., 2002; McHargue, 2000; Power & Waddell, 2004; Selden, 1998; Zhang et al., 2003). The results of these initial studies have provided generally positive, yet somewhat mixed outcomes.

Each of these studies provides growing evidence of a relationship between performance and the elements of a learning organization. Most of the performance indicators, however, are based on respondent perceptions of their respective organizations. It is also important to note that each of these studies used a version of the Dimensions of the Learning Organization Questionnaire (DLOQ) constructed by Watkins and Marsick (1993; 2003). Table 2.4 outlines each study including information on survey sample description, respondent size, performance indicators, and study results.

Table 2.4

Learning Organization and Performance Improvement Studies

Author – Title	Sample Description	Performance Indicators (p-perception or o-objective)
Selden (1998). Dimensions of the learning organization in family-run businesses.	142 owners of 142 family-run businesses in the Southeast US; industries include retail and distribution	Soft financial (p) Knowledge (p)
McHargue (2000). Nonprofit learning organizations : issues for human resource development.	264 directors from 264 nonprofit, human services organizations in the US, each with revenue over \$1M	Soft financial (p) Knowledge (p) Mission (o) including debt ratio, net assets, savings ratio
Hernandez (2001). The impact of the dimensions of the learning organization on the transfer of tacit knowledge.	906 employees from 8 Columbian manufacturing companies	Tacit knowledge transfer (o) including types of knowledge dissemination and number of documents
Lien et al. (2002). An examination of psychometric properties of the Chinese version of the DLOQ in Taiwanese Context.	79 managers from 79 companies in Taiwan; industries include financial and hi-tech firms	Soft financial (p) Knowledge (p)
Ellinger et al. (2002). Relationship between the learning organization concept and firms' financial performance: an empirical analysis.	208 Logistics managers from 208 for-profit companies in the US; industries include manufacturers in electronics, chemicals, retail, automotive parts, food, and paper; size mostly 5k to 50k employees	Soft financial (p) Hard financial (o) including ROA, ROE, Tobin's Q, and MVA ratios
Zhang et al. (2003). Can Chinese state-owned enterprises become learning organizations?	477 HR managers from 477 state-owned and independent companies in China; industries include service & manufacturing	Soft financial (p) Knowledge (p)
Power & Waddell (2004). The link between self-managed work teams and learning organizations using performance indicators.	62 HR managers and assistants from 62 randomly selected large Australian companies; several industries but non-specific	Soft financial (p) Knowledge (p) Customer satisfaction (p) Employee turnover (p)
Kumar & Idris (2006). An examination of educational institutions' knowledge performance.	238 HR managers from 238 private colleges in Malaysia; education industry; size between 34 and 110 staff	Knowledge (p) Institution commitment (p)

Selden (1998) examined the relationships between the characteristics of learning organizations, company characteristics, knowledge performance, and financial performance in family-run businesses located in the southeastern United States. This study used a modified version of the DLOQ to measure the seven independent variables defined as action imperatives necessary for the development of a learning organization. Knowledge performance and soft financial performance, the dependent variables, were measured by comparing respondents' perception of prior year performance to current year performance. Results showed a strong relationship between the seven dimensions of the learning organization and both dependent variables.

McHargue (2000) explored the relationship of nonprofit organization characteristics, learning organization dimensions, and nonprofit organization performance. The purpose of the study was to examine the relationship between the seven dimensions of a learning organization using the DLOQ instrument and financial, knowledge, and mission performance domains in 264 human service organizations throughout the United States. These service organizations had to be in existence five years or more and have budgets of \$1 million or more. Bivariate and exploratory multiple regression analyses were used to answer the four research questions. The results indicated that embedded learning systems showed the strongest relationship with both financial performance and knowledge performance. The learning dimension of continuous learning showed the strongest relationship with various objective metrics encompassing mission performance.

Hernandez (2001) investigated learning organization impact on tacit knowledge transfer, performance improvement, and financial performance within eight medium-to-large size manufacturing companies in Bogota, Columbia. The results suggested that the impact of the seven learning dimensions on knowledge performance is strongly mediated by the tacit knowledge transfer process. The impact on financial performance was statistically insignificant and suggested the need to define more comprehensive measurement criteria for establishing financial performance or developing other indicators of performance improvement besides subjective measurements of knowledge performance and financial performance.

Lien and associates (2002) examined the psychometric properties of the Chinese version of the DLOQ instrument with companies located in Taiwan. The study surveyed 79 managers from various financial and hi-tech companies in this region. The results of this study revealed that the Chinese version of the DLOQ demonstrated good reliability estimates and the seven learning dimensions factor structure was stable in Taiwanese contexts. The evidence of predictive validity was obtained because the seven dimensions of learning had statistically significant correlations with perceptual measures of both soft financial and knowledge performance.

Ellinger and associates (2002) focused on the relationship between the concept of a learning organization and the organization's financial performance and yielded more promising and reliable results. The research design consisted of a random sample of 400 mid-level logistics managers working at manufacturing firms in the United States. The performance measures within the study contained both perceptual measures (return on investment, average productivity per employee, response time for customer complaints,

cost per business transaction) and objective financial measures (return on equity, return on assets, Tobin's q, market value additive). Study findings indicated that at least 24.6 percent of the variance in the respondents' perceptions of organizational performance and at least 10.4 percent of the variance in the financial indicators can be accounted for by seven dimensions of the learning organization included in their survey instrument. A criticism of the study included its reliance on logistics managers to ascertain learning and performance levels within their organizations and its reliance on one representative per company to accurately report on learning dimensions when most respondent firms were categorized as over \$1 billion in annual revenues (Baldwin & Danielson, 2002).

Zhang and associates (2003) surveyed 477 human resource managers from a sample of both state-owned and independent Chinese companies. This study also analyzed difference existing between service and manufacturing industry segments. Results indicated that the Chinese version of the DLOQ instrument demonstrated acceptable psychometric properties, the independent companies failed to show higher learning practices than their state-owned counterparts, and that four of the seven learning dimensions showed significant differences between companies in the service sector versus companies in the manufacturing sector.

Power and Waddell (2004) focused on the link between self-directed work teams and learning organization dimensions. The study used a random sample of 200 Australian companies to empirically examine the relationship between work teams and the learning organization using performance indicators as a medium. It was found that the learning organization concept displayed a moderate to strong link with three measures of performance: soft financial performance, knowledge performance, and customer

satisfaction. The study also found an insignificant relationship between self-managed work teams and the learning organization.

Most recently, Kumar and Idris (2006) explored the relationship between learning organization dimensions, institutional characteristics, and knowledge performance among 238 private colleges in Malaysia. It was discovered that there were positive and significant relationships between the seven dimensions of the DLOQ instrument and the dependent variable, perceived knowledge performance. The three dimensions that demonstrated strong relationships were team learning, embedded learning systems, and strategic leadership. The institutional characteristics that jointly affected organization performance were perceived levels of commitment to professional services and commitment to effective teaching.

The purpose of each of these research studies was to measure the impact of learning organization characteristics on various dimensions of organizational performance. In a similar fashion, this study will track both soft financial (operational) and knowledge performance measures included in the DLOQ survey instrument. What is unique, however, is that this study correlates learning organization dimensions with a comprehensive model of organization performance which includes weighted aspects of the following: operational performance, knowledge performance, and hard financial performance. Multi-dimensional performance is proposed as a more complete measure of organizational performance compared to uni-dimensional and subjective measurements of performance. This comprehensive model of organization performance is based on the performance improvement models found in the literature and previously outlined.

Acknowledging the rhetoric versus substance debate surrounding learning organizations (Dovey, 1997; Symon, 2002), there are some organizations that like to call themselves a learning organization but lack any objective criteria for doing so. Likewise, there are organizations that are not familiar with learning organization concepts or models but genuinely practice activities that attempt to enhance learning, development, and positive change (Pedler et al., 1991; Senge, 1990; Watkins & Marsick, 1993). A majority of the studies included in the literature overview section targeted a wide cross-section of companies which do not typically classify themselves as learning organizations. Likewise, my research study will attempt to include all companies that fit predetermined demographic criteria and not merely target companies that classify themselves as learning organizations. In summary, the purpose of my research study is to measure a wide sample of large, publicly-held companies and investigate the relationship between learning organization dimensions and company performance levels across multiple dimensions.

CHAPTER III

Methodology

Purpose Statement

The purpose of this study is to investigate the relationship between learning organization dimensions and multi-dimensional organizational performance among a wide sample of large, publicly-traded companies using a survey instrument developed by Marsick and Watkins (1993; 2003). This model was selected from many other learning organization models for a number of reasons. First, this model contains the largest number of learning dimensions that are cross-validated in other widely publicized and research-based models of the learning organization (DiBella & Nevis, 1998; Marquardt, 2002; Pedlar et al, 1991; Redding & Catalanello, 1994; Senge, 1990). Second, this model has an associated survey instrument that several other models lack (Greigo & Geroy, 1999; Tannenbaum, 1997). Third, this survey instrument has been field tested in a large number of organizations and by several different researchers (Dymock, 2003; Ellinger et al, 2003; Fatima Sta. Maria, 2003; Hernandez, 2003; McHargue, 2003; Milton, 2003; Selden, 1998). Fourth, this survey assessment has the most extensive validity and reliability testing out of any other learning organization assessment discovered in the literature review (Lien et al., 2002; Yang et al, 1998; Yang, 2003).

This study attempts to answer the following questions:

1. To what extent are learning dimensions and learning capacity present in a multi-industry sample of large companies?
2. To what extent do learning dimensions and learning capacity differ according to company size and industry sector?

3. To what extent do learning dimensions and learning capacity relate to measures of operational performance?
4. To what extent do learning dimensions and learning capacity relate to measures of knowledge performance?
5. To what extent do learning dimensions and learning capacity relate to measures of financial performance?
6. To what extent do learning dimensions and learning capacity relate to multi-dimensional organizational performance?

Research Approach

The primary purpose of this study is to investigate the relationship between learning organization dimensions and multiple measures of organizational performance. The learning organization concept has been discussed for over ten years in a variety of academic and professional disciplines including adult education, human resource development, instructional design, management theory, organizational psychology, and educational administration. Each of these disciplines contains its own unique insights into the purpose of learning, the modes of learning, and the impact of learning outcomes within organizational settings. Indeed, the articles and studies discovered in the literature review utilized a wide array of research methodologies.

A quantitative approach was chosen for this study for four reasons. First, there is a need for more empirical investigation to balance the majority of conceptual pieces found within the learning organization literature. Because of the preference for these methodologies, contributions in the literature remain largely prescriptive and only a few are grounded in well-developed research designs targeting a cross-section of

organizational settings (Gardiner, 1999; Iles, 1994; Jacobs, 1995). Second, quantitative techniques are particularly effective at studying large groups of subjects and applying generalizations from the sample being studied to broader groups beyond the study sample (Swanson & Holton, 1997). This is particularly useful when studying larger companies because lessons learned from the research population can be extended to other departments and locations within that company. Third, the business cultures of large, public organizations have a general preference for analyzing, interpreting and communicating information using objective measurements. Examples of quantitatively-based organizational reports include: quarterly financial statements, audit reports, actuarial valuations, annual performance appraisals, variable compensation plans, and balanced scorecard reports (Kaplan & Norton, 1996). A quantitative methodology will assist the researcher in sharing both the findings and recommendations with senior managers, profit center leaders, human resource professionals, and other key stakeholders in a more meaningful manner. Fourth, the very nature of the research question demands a quantitative approach. The ability to determine and analyze various objective financial performance factors associated with public companies is what differentiates this study from other learning organization studies that have already been conducted.

Research Design

Survey research is a method of data collection in which information is obtained directly from individuals who are selected so as to provide a basis for making inferences about a larger population (Fowler, 2002; Holton & Burnett, 1997). Survey research has been proposed as the best method for researchers to collect original data and investigate a

population that is too large to observe directly. Surveys are also excellent vehicles for measuring attitudes and orientations within a large population and making comparisons between subgroups of the population (Creswell, 1994). In the case of this research, comparisons will also be made between the results of the survey sample and the national benchmark established by Marsick and Watkins (2003).

Validity in quantitative research depends on careful instrument selection and proper design to be sure that the instrument measures what it is supposed to measure. The instrument must then be administered in an appropriate, standardized manner according to prescribed procedures. To ensure proper levels of validity and reliability, survey research must address the following key components: respondent selection, instrument selection/construction, pilot testing, completion directions, distribution procedures, monitoring returns, and follow-up procedures (Babbie, 2001). These components are individually addressed in the study population, instrument selection, and data collection sections. Additional supporting information is contained in the validity and reliability section of this chapter.

This study utilized web-based surveys sent to executives and human resource professionals within each targeted company. Web surveys are similar to those distributed through the mail service but also add the benefits of faster distribution, convenient access, and lower costs. However, some cautionary notes must accompany the benefits of improved efficiencies. These concerns include a respondent's access to the Internet, a respondent's skill and ability to use the required technology, pre-notification of the survey with an easily understandable yet distinguishable message, and ensuring the

confidentiality of respondents (Bowers, 1999; Shannon et al., 2002). These concerns are addressed in the instrument selection section of this chapter.

Study Population

Approximately 200 large, publicly-traded companies were identified with corporate headquarters and/or major divisions located within Pennsylvania. The Hoovers and Yahoo Financial databases were used to gather the initial list. For the purpose of this study, a large company is defined as a firm with 1000 or more total employees including all business locations and divisions in which the firm operates. Companies with headquarters or major operating divisions located within Pennsylvania were chosen as participants in this survey. The state of Pennsylvania was selected because of the researcher's professional associations in this region and the large number of companies with connections to the state university system. Publicly-traded companies were selected because they are mandated to publish financial results as regulated by the U.S. Securities and Exchange Commission. This data is readily available from several sources including Yahoo Financial, Hoovers.com, and Fortune.com. These results were used to establish the objective financial measures included in this study.

Existing research has found that organizational size is a major determinant in developing and sustaining formal training and development activities (Gutteridge et al., 1994). Smaller organizations tend to utilize more informal learning activities like on-the-job training, new employee orientation, and dialogue within meetings. Larger companies also tend to attract and retain leaders who recognize the value of offering learning

opportunities to the workforce (Van Eynde et al., 1997). Lastly, larger companies tend to invest a greater amount of resources in an education assistance program which encourages employees to engage in formal learning programs (Hewitt Associates, 2004). Executives, human resource managers, compensation and employee benefits professionals, and corporate training professionals were selected as potential participants within this study. Membership directories from the American Society for Training and Development (ASTD), the Society for Human Resource Management (SHRM), and WorldatWork Total Rewards Association (WAW) were consulted to identify members residing in Pennsylvania and employed by the 200 companies previously gathered. In addition, executive names and contact information from each company were selected from public records mandated by the Securities and Exchange Commission and published in the Hoovers and Yahoo Financial databases. For the final sample, 105 out of the 200 companies were selected because they had at least two contacts from any of the ASTD, SHRM, or WAW membership directories. The total number of potential respondents from this set of companies was 1202.

A former study on learning organizations was criticized because it relied on a single respondent from each large company included in the study (Baldwin & Danielson, 2002). It was questionable whether one manager could adequately represent the vast diversity inherent in a Fortune 500 company. It is for this reason that companies were included in this study only if two or more potential respondents from the membership groups could be identified. This approach will help gather multiple perspectives but still needs to be viewed with caution because even a dozen respondents per company will not provide adequate statistical representation from a large organization.

Survey Instrument

The researcher obtained permission from Karen Watkins to use the Dimensions of the Learning Organization Questionnaire or DLOQ (Watkins & Marsick, 1993; 1997) for the purposes of this study. The seven multi-level learning dimensions in the instrument included: creating continuous learning opportunities, promoting inquiry and dialogue, encouraging collaboration and team learning, creating systems to capture and share learning, empowering people toward a collective vision, connecting the organization to its environment, and providing strategic leadership for learning. Respondents were asked to rate three items included in each of the seven dimensions. For each item, they were required to determine the degree to which a learning aspect is either true or not true of their organization. If the item refers to a practice that rarely or never occurs, then the recommended rating would be a “1” on a Likert scale ranging from “1” to “6.” Consequently, if the item refers to a practice that is almost always true of the organization, then the recommended rating would be a “6” on the scale. A copy of the DLOQ survey is provided as Attachment A.

In addition to the 21 survey items that relate to the learning organization dimensions, the DLOQ also includes three items on respondent perceptions related to operational performance (percent of market share, cost per business transaction, and time to market) and three items on perceptions related to knowledge performance (number of new products or services, investments in formal learning programs, and investments in technology). The authors of the DLOQ included these survey items to provide basic

understanding into the overall financial health and intellectual capital present within an organization and to assist in confirming the connection between workplace learning and organizational improvement (Marsick & Watkins, 2003).

Marsick and Watkins (2003) note two limitations associated with using their DLOQ instrument. First, there is a reliance on self-report data and perceptual measures. Respondents are asked for their opinion regarding the general health of their organization. To address this concern, my study gathered hard, objective financial performance data from public databases in addition to the self-report items included in the DLOQ. Second, one-time administered surveys provide a snapshot of the organization at the time the data is collected. Current measures of performance may reflect consequences of earlier interventions. There is often a lag between learning initiatives and performance results so a snapshot approach does not capture changes still in incubation stages. Unfortunately, this is a valid concern that is not able to be addressed in this study given the parameters of the research design.

Several researchers have provided guidelines for the use of web-based survey instruments. First, web-based surveys are only viable options when respondents have the ability to receive them and send them back to the researcher (Shannon et al., 2002). In this study, respondent accessibility was not deemed to be a critical issue because the professional association databases ensured current membership status and valid e-mail addresses. Second, it was acknowledged that respondents must feel comfortable when responding to web-based surveys and trust researchers have taken precautions to guard their privacy (Bowers, 1999; Couper & Lamias, 2001). To protect the identity of individual respondents, the following actions were implemented: assurances were

provided in the introductory and follow-up emails that individual confidentiality would be maintained in the reporting phase of this research; and a third-party, high-security computer server with encryption capability was utilized to both distribute and collect the web-based surveys. Third, surveys which utilize key respondent perceptions as proxies for large organizations are inherently limited (Baldwin & Danielson, 2002). My study partially addressed this concern by ensuring a minimum of two respondents per company. There were five responses which were discarded from the data analysis because they were solitary respondents from their respective companies. The average number of respondents per company was six, thereby securing multiple perspectives from within a large company population.

One modification was made to the original 27-item version of the DLOQ survey. According to several researchers in the organizational performance field (Fitz-Enz, 1996; Kaplan & Norton, 2000; Ulrich, 2002), it is important to address other variables that may positively or negatively influence financial performance indicators within complex organizations. For this reason, one question was added to the survey which asked respondents if they have recently experienced a major event within their company such as a merger, acquisition, restructuring, or large scale legal action. The response to this question and the degree to which the major event could impact financial performance was used in adjusting the weighting of financial metrics associated with each responding company.

Data Collection

The researcher obtained permission from the Office of Regulatory Compliance at University Park to conduct this research after provisions for survey design, voluntary participation, and confidential treatment of data were satisfactorily addressed.

Several researchers confirm that on-line surveys need to follow the same data collection stages as traditionally found in paper-based survey methodologies (Babbie, 2001; Cooper & Emory, 1995; Fowler, 2002). The on-line version of this survey consisted of an e-mail cover letter, detailed instructions, a statement of confidentiality, and a hyperlink to the computer server containing the survey instrument. Upon opening the survey, the respondent was provided with a reminder of participation instructions and a statement of confidentiality. In addition, the introduction to the survey included instructions on how to contact the researcher, the significance of the study, who was being asked to participate in the study, and a statement emphasizing the voluntary nature of participation. See Appendices C, D, and E for copies of the survey welcome letter, survey instructions, and actual survey instrument.

The research literature strongly suggests that follow-up notifications provide an effective method for increasing overall survey return rates (Babbie, 2001; Creswell, 2000). Follow-up notifications should consist of multiple timeframes with reminder periods that provide positive motivation to the potential respondent. In this study, there were three follow-up notifications to target respondents. Each follow-up notice included the researcher's contact information including company affiliation, email address and phone number. The first follow-up notification was sent two weeks after the initial

survey distribution. The second follow-up notification was sent four weeks after the initial distribution. The third follow-up notification was sent six weeks after the initial distribution. Each follow-up notification included the study purpose, study parameters, and a hyperlink to begin the survey. The third follow-up notification included “final reminder” in the subject heading to instill a sense of urgency with potential respondents.

In addition to the data collected through the DLOQ instrument, the researcher added two additional performance dimensions: financial performance and multi-dimensional (aggregate) performance. The objective financial measures for each responding company were derived from the Hoovers database. Table 3.1 lists these measures along with their definitions and importance (Goetzmann, 2001).

Table 3.1

Financial Performance Measures and Definitions

Table 3.1 - Financial Performance Measures and Definitions	Definition	Importance
Gross Profit Margin	Revenues minus cost of sales, operating expenses, and taxes, over an annual period, expressed as a percentage	Earnings (profit) give an indication of the company's expected dividends and its potential for capital appreciation.
Return on Assets Ratio	The ratio of net income to the total assets of an organization	Used as a key financial measure to determine a company's performance relative to other companies and other industries
Return on Equity Ratio	Equal to a fiscal year's after-tax income (after preferred stock dividends but before common stock dividends) divided by book value, expressed as a percentage	Used as a general indication of a company's efficiency; How much profit a company is able to generate given the resources provided by its stockholders

The method for selecting these measures is based on the fundamental financial analysis method which involves examining key company areas like sales, earnings, growth potential, assets, debt, management, products, and competition. Fundamental analysis takes into consideration only those variables that are directly related to the company itself, rather than the overall state of the market or technical analysis/future prediction data (Goetzmann, 2001).

Company financial analysts vehemently argue about whether return on equity, return on investment, or return on assets is the most meaningful measure of investment return and overall company financial performance (Pratt, Reilly and Schweih, 2000). Proponents of return on equity say that the return on stockholder investment is what counts, and most adhere to this argument. Return on equity, however, is both a comprehensive and complex metric for it includes elements of profit, sales, assets, and equity. It is for this reason that return on equity figures are analyzed in addition to other key financial metrics. Return on investment recognizes both the shareholders and the debtholders and can be quite important if the company is contemplating a change in the capital structure. However, proponents of return on assets say that management should be measured by the return on total assets utilized, without regard for the company's capital structure or borrowing leverage, which can have a considerable bearing on return on equity if return on assets is held constant. For the purpose of this research, both return on assets and return on equity are considered because of the need to compare the financial performance of many companies across several different industries.

The researcher also added a multi-dimensional performance indicator which consisted of a weighted aggregate of the operational, knowledge, and financial

performance dimensions. Several sources in the literature review stated that measuring the overall health of an organization should take into account several different performance factors which include both short-term and long-term perspectives (Bates, 1999; Holton, 1999; Kaplan & Norton, 1996, 2001; Swanson, 1999). The objective financial performance indicator was weighted according to the respondents rating of the recent significant events survey item. Respondents were asked about recent events which may have impacted the financial measurements of their company. If any event was identified, then the respondents were asked to rate the relative impact of this event(s) on financial performance using a Likert scale of 1 (very little impact) to 5 (very large impact). If there was no significant event reported, the operational, knowledge, and financial indicators received equal weighting when calculating the aggregate performance dimension. If there was a very large impact reported by the respondent, the financial performance dimension was greatly minimized when calculating the aggregate performance dimension.

Reliability

Reliability refers to the consistency of a measure of a concept. Babbie (2001) states that when research designs include asking people for information, it is important to ask only about things the respondents are likely to know the answer to. This is primarily achieved through both the relevancy and clarity of survey questions (Babbie, 2001). Because the researcher has 18 years of experience as both a human resource management and corporate training professional, he possesses a keen awareness of how fellow professionals would interpret the terminology and format of the survey. Furthermore,

pilot testing with a select group of six training professionals in two different companies reinforced baseline reliability for the survey before its distribution to the target population. Internal reliability was established by previous DLOQ studies (Ellinger et al., 2002; McHargue, 1999; Selden, 1998; Yang et al., 2001) and pilot testing for this study sample.

Validity

Validity refers to the extent to which an empirical measurement accurately reflects the real meaning of the concept under consideration (Holton & Burnett, 1997). Initial validity of the instrument is supported by that fact that all of the learning organization dimensions contained within the instrument can be corroborated in at least two or more other learning organization models highlighted in the literature review (DiBella & Nevis, 1998; Marquardt, 2002; Pedlar et al, 1991; Redding & Catalanello, 1994; Senge, 1990; Watkins & Marsick, 1993).

Construct validity refers to properly deducing hypotheses from a theory and providing relevance to the concept. One method to substantiate construct validity is confirmatory factor analysis or CFA. In a study by Yang (2001), confirmatory factor analysis ranged from .82 to .93 across the seven learning organization dimensions. In a later study, Yang and associates (2004) presented evidence for instrument validity obtained from best model-data fit among alternative measurement models and nomological networking among learning organizations dimensions and organizational performance outcomes.

Instrument Reliability

The Cronbach coefficient alpha was used to test the reliability of the DLOQ instrument for this study. Cronbach's alpha is a commonly used test of internal reliability. It calculates the average of all possible split-half reliability coefficients. A computed alpha coefficient will vary between 1 (denoting perfect internal reliability) and 0 (denoting no internal reliability). Fowler (2002) reaffirms that reliability of .70 and higher is generally accepted as adequate for research purposes.

Past reliability tests for the DLOQ instrument were conducted by Yang and associates (2004) and other researchers using the DLOQ (Ellinger et al., 2002; McHargue, 1999; Selden, 1998). Based on these past reliability tests, the subscales of the DLOQ survey ranged from .704 to .836. Overall, the reliability estimates for the entire scale is .811 for the twenty-seven item version of the instrument (Yang et al., 2004). Table 3.2 presents the reliability estimates for my study for each DLOQ learning dimension. The survey can be considered reliable because the alpha results for each of the seven learning dimensions, the two self-reported performance dimensions, and the objective based financial dimension were higher than the research threshold.

Table 3.2

DLOQ Survey Dimensions and Reliability Results

Table 3.2 – DLOQ Survey Dimensions and Reliability Results	Coefficient Alpha
Continuous Learning (CL)	.744
Inquiry and Dialogue (ID)	.768
Team Learning (TL)	.828
Learning Systems (LS)	.731
Empowerment Culture (EP)	.836
Connection to Community (CC)	.749
Strategic Leadership (SL)	.813
Operational Performance (OP)	.715
Knowledge Performance (KP)	.704
Financial Performance (FP)	.819

Table 3.3 presents univariate correlations among both the learning dimensions and the performance dimensions. For the DLOQ dimensions, all of the correlation coefficients were significant at the .01 level. The highest levels of correlations among dimensions occurred within the strategic leadership and empowerment culture dimensions. Strategic leadership correlated the most strongly with learning systems, empowerment culture, and community connections (.717, .670, and .635). The empowerment culture dimension correlated most strongly with the following dimensions: community connections and learning systems (.657 and .643). Moderate levels of correlations were noted among the operational performance and knowledge performance dimensions. The weakest correlations occurred with the financial performance dimension and almost every other dimension. There was only one moderate correlation found between financial performance and learning systems (.155).

Table 3.3

Intercorrelations Among Learning Dimensions (Independent) and Performance Dimensions (Dependent) Variables (N=254)

Variables	1	2	3	4	5	6	7	8	9	10
1 Continuous Learning	1.00									
2 Inquiry & Dialogue	.647	1.00								
3 Team Learning	.437	.568	1.00							
4 Community Connection	.393	.497	.571	1.00						
5 Empowerment Culture	.564	.570	.582	.657	1.00					
6 Learning Systems	.483	.479	.550	.549	.643	1.00				
7 Strategic Leadership	.547	.575	.553	.635	.670	.717	1.00			
8 Operational Performance	.296	.299	.415*	.460*	.379	.477*	.464*	1.00		
9 Knowledge Performance	.273	.268	.383*	.465*	.497*	.437*	.489*	.488*	1.00	
10 Financial Performance	.107	.080	.038	.099	.019	.155*	.130	.136	.054	1.00

Note: This was a bivariate correlation using Pearson's two-tailed test.

*Correlations significant at the level of $p < .05$

Bold: Correlations significant at the level of $p < .01$

Data Preparation

Survey data were entered into the Microsoft Excel 2003 spreadsheet program and visually inspected for errors and missing values. Data entry errors were corrected and the item mean response was substituted for missing item responses. Data were analyzed using the statistical program SPSS/Windows, Version 10. Descriptive statistics were run and the data for both the learning sub-dimensions (survey items) and the learning dimensions were normally distributed. Independent sample t-tests for differences between means of key variables were conducted to check for non-response bias. Non-response bias can also include late responders who may feel compelled to respond solely

as a result of follow-up reminders (Fowler, 2002). Because of this issue, tests were performed to compare responses between early and late respondents. All t-tests indicated an absence of significant differences. The sample therefore appeared to be relatively free from non-response bias.

The unit of analysis was primarily at the individual respondent level (n=254) and secondarily at the industry level. Industry level consisted of 11 industry sector groups with the number of respondents ranging from 12 to 37 in each industry sector group. Company level analysis was not conducted because of the low percentage of respondents compared to overall employee populations at each company. The number of respondents from each company ranged from 2 to 14 and therefore did not constitute a representative sample at the company level.

Stepwise multiple regression was used to determine the strength of the relationship between each of the seven dimensions of the DLOQ (independent variables) and the dependent variable. Multiple regression is typically used when attempting to predict a single continuous, dependent variable using two or more continuous independent variables (Grimm & Yarnold, 2004). In addition to predicting the outcome variable for a new sample of data, regression analysis also provides the ability to assess how well the dependent variable can be explained by knowing the values of the independent variables. Multiple regression is widely recognized as a flexible and general approach to analyzing data for a variety of research designs, especially in the behavioral sciences (Creswell, 2000). The most basic form of multiple regression is known as simultaneous regression because the regression equation and multiple correlations are determined by analyzing all predictors at the same time. Another form of multiple

regression is stepwise regression. Stepwise regression has the benefit of allowing some control over the introduction of predictors (Huck, 1999). One important caution when using multiple regression is the issue of multicollinearity (Huck, 1999). Multicollinearity refers to the problematic situation of two or more highly correlated independent variables. This condition can be identified by examining the bivariate correlations between all pairs of predictors. If such a condition is found, it could mean that two variables measure the same construct and that only one of the variables should be used. Careful theoretical reasoning and empirical tests of construct validity can help to resolve these issues (Licht, 2004).

Data Analysis

The specific analyses used for each research question is now presented.

Research Question 1: To what extent is learning dimensions and learning capacity present in a multi-industry sample of large companies?

Data was compiled and analyzed using the Microsoft Excel 2003 spreadsheet program. Descriptive statistics were used for each DLOQ survey item including frequencies, means, and standard deviations. These statistics were used to better understand the extent to which each learning organization attribute and dimension is being implemented in the companies within the survey sample. Descriptive statistics were used to illustrate the range of responses with regard to the learning dimensions, learning subdimensions (individual survey items), and to compare respondent data with the Watkins and Marsick (2003) DLOQ survey database consisting of a large,

international sample of almost 3000 respondents. Since the DLOQ dimensions are a compilation of survey items, the Cronbach Coefficient Alpha of Homogeneity was used as a reliability test to ensure consistency of the survey instrument in measuring results within this study. When a variable is generated from a set of questions and returns a stable response, then the variable is considered reliable. Cronbach's Alpha is an index of reliability associated with the variation accounted for by the true score of the underlying construct (Santos, 1999).

Research Question 2: To what extent do learning dimensions and learning capacity differ according to company size and industry sector?

Descriptive statistics were used to compare respondent data in each industry category with the overall cross-industry sample. This method allowed industry-specific descriptions and comparison of differences. The descriptive statistics used for this research question included means, ranges, and standard deviations for each learning organization dimension and the overall learning capacity from each respondent within each target company. One-way analysis of variance (ANOVA) was conducted to determine significant differences among the various learning dimensions. Post-hoc pairwise multiple comparisons using the Bonferroni method were conducted to determine significant differences among the means within each learning dimension.

Research Question 3: To what extent do learning dimensions and learning capacity relate to measures of operational performance?

General linear regression was used to measure the bivariate relationship between the independent variable (learning capacity) and the dependent variable (operational

performance dimension). Multiple stepwise linear regression was used to measure the bivariate relationships between the independent variables (learning organization dimensions) and the dependent variable (operational performance dimension). Coefficients of determination (R-squared), direct indicators of shared variance, were calculated to interpret the regression coefficients. Multicollinearity was examined by identifying the bivariate correlations between all pairs of predictors.

Research Question 4: To what extent do learning dimensions and learning capacity relate to measures of knowledge performance?

General linear regression was used to measure the bivariate relationship between the independent variable (learning capacity) and the dependent variable (knowledge performance dimension). Multiple stepwise linear regression was used to measure the bivariate relationships between the independent variables (learning organization dimensions) and the dependent variable (knowledge performance dimension). Coefficients of determination (R-squared), direct indicators of shared variance, were calculated to interpret the regression coefficients. Multicollinearity was examined by identifying the bivariate correlations between all pairs of predictors.

Research Question 5: To what extent do learning dimensions and learning capacity relate to measures of financial performance?

Prior to analysis, company financial performance data needed to be converted to the same Likert scale used for the operational and knowledge performance data. This conversion consisted of sorting company financial data for each subdimension and

grouping data into sextiles. Each sextile was coded with the equivalent rating from the six-point Likert scale.

General linear regression was used to measure the bivariate relationship between the independent variable (learning capacity) and the dependent variable (financial performance dimension). Multiple stepwise linear regression was used to measure the bivariate relationships between the independent variables (learning organization dimensions) and the dependent variable (financial performance dimension). Coefficients of determination (R-squared), direct indicators of shared variance, were calculated to interpret the regression coefficients. Multicollinearity was examined by identifying the bivariate correlations between all pairs of predictors.

Research Question 6: To what extent do learning dimensions and learning capacity relate to multi-dimensional organizational performance?

Prior to analysis, a multi-dimensional performance score was formulated using a weighted compilation of the following dimensions: operational performance, knowledge performance, and financial performance. The financial dimension was weighted according to the respondent rating of the significant event impact question contained within the final section of the survey instrument. Significant events could include mergers, acquisitions, major restructuring, major litigation activity, or large-scale product recall. In cases where there was no significant impact reported by respondents, there was an equal weighting given to each of the three performance dimensions or 33.3 percent for each dimension. In cases where there was a low impact reported, the weighting of financial performance was reduced to 26.4 percent while the weighting of operational

performance and knowledge performance were increased to 36.8 percent for each one. In the same way, moderate-low impact resulted in a financial performance weighting of 19.8 percent; moderate-high impact resulted in a financial performance weighting of 13.2 percent; and high impact resulted in a financial performance weighting of 6.6 percent. In other words, when a significant event was perceived to have a high impact on reported financial performance, the weighting for financial performance was reduced from 33.3 to 6.6 percent to counter non-standard financial reporting attributed to the significant event.

General linear regression was used to measure the bivariate relationship between the independent variable (learning capacity) and the dependent variable (multiple performance dimension). Multiple stepwise linear regression was used to measure the bivariate relationships between the independent variables (learning organization dimensions) and the dependent variable (multiple performance dimension). Coefficients of determination (R-squared), direct indicators of shared variance, were calculated to interpret the regression coefficients. Multicollinearity was examined by identifying the bivariate correlations between all pairs of predictors.

Limitations

First, a great deal of concern must always be present when attempting to generalize findings from one study into another setting (Creswell, 1994). Using a criterion sample for this research allows for only a moderate degree of generalization to other organization apart from this sample. As stated previously, the understanding and the implementation of a learning organization differs a great deal between organizations. The most common reasons for this discrepancy include inherent differences in

organizational size, mission, values, industry sector, national origin, and organization life cycle. Although organization size and industry sector were addressed in this research study, many of the other differences were outside the scope of this research.

Second, survey research that is conducted during a single time period can often be impacted by an unusual, simultaneously occurring event that could bias the respondent ratings at the time the survey was distributed (Fowler, 2002). It is for this reason that longitudinal studies are preferred over single occurrence studies because multiple periods of response can reveal anomalies within patterns. Unfortunately, longitudinal studies with many, cross-industry companies are nearly impossible. Rapidly changing business conditions within one, single industry company creates sufficient conditions to skew long-term results. This condition is multiplied exponentially when tracking many companies among many industries, with each industry impacted by unique environmental factors. Although this condition was addressed by asking respondents a question concerning a recent critical event which could impact financial performance, there are other internal and environmental factors which impact organizations and are outside the scope of this research.

CHAPTER IV

Results

Introduction

This chapter presents an analysis of the results obtained through the Dimensions of Learning Organization Questionnaire (DLOQ) with a sample of large, publicly traded companies located within Pennsylvania. The first part of the analysis included demographic statistics associated with the sample. It included frequencies and percentages regarding respondent affiliation, respondent per company, industry sector, number of employees, financial ratios, and overall learning organization classification. Demographic information is intended to describe the sample as clearly as possible without revealing identities of specific respondents or their companies. The second part of this chapter presents results associated with each of the research questions proposed in the previous chapter.

Sample Description

A total of 1202 executive and human resource professionals from 105 publicly traded companies with either headquarters or major operating divisions located within Pennsylvania were selected to participate in this study. Once the companies were identified, potential respondents were identified through the researcher's professional network and memberships in the following professional associations: American Society for Training and Development, Society for Human Resource Management, and World at Work (American Compensation Association). Of this target population, 259 actually responded to the survey invitation. The overall response rate was 21.5 percent. An

important consideration in this study was to have multiple respondents from various companies. Five responses were eliminated from the study because they were the sole respondent from their perspective company. Based on this, 254 responses or 21.1 percent were included in the final data analysis. The 254 respondents represent 60 different companies within 11 industry sectors. See Table 4.1 for a listing of frequencies and percentages associated with the respondents in this study.

Table 4.1

Target Population and Respondent Number

Targeted Respondents	1202	
Returned Surveys	259	21.5%
Useable Surveys	254	21.1%

Respondent Affiliation

Most of the respondents were identified by membership in their respective professional association. The researcher is a member in each of these associations. The largest group of respondents was identified through the membership directory of the Society for Human Resource Management (SHRM). The next largest group of respondents was affiliated with the American Society for Training and Development (ASTD). Table 4.2 presents a breakdown of respondent affiliation. Members of these two professional associations accounted for 82.7% of the survey respondents. Executives were identified through publicly available financial records listed on the Hoovers.com database.

Table 4.2

Respondent Affiliation

Executives	15	5.9%
Society for Human Resource Management	132	52.0%
American Society of Training and Development	78	30.7%
World at Work	29	11.4%
Total Respondents	254	100%

Respondents per Company

A critical component of the survey design included gathering multiple respondents from each target company. Criticisms of past research regarding learning organizations have highlighted the low levels of credibility associated with a single respondent representing very large and complex organizations. To ensure multiple perspectives from representatives of the target companies, almost 50 percent of the companies included in this research had four or more responses. Five survey responses were eliminated from the data analysis because they were sole respondents. Table 4.3 lists the number of respondents from each represented company in the survey.

Table 4.3

Respondents Per Company

8 or more per company	4	6.7%
7 per company	4	6.7%
6 per company	6	10.0%
5 per company	6	10.0%
4 per company	9	15.0%
3 per company	18	30.0%
2 per company	13	21.6%
Total Companies	60	100%

Industry Sector Representation

Attempting to link any organizational intervention with financial performance is a challenging endeavor. There are many variables both internal and external in a for-profit organization which impact financial performance over a period of time. One important variable is the industry sector of a company. Some sectors place high importance on the functions of research and development, strategic marketing, information technology, and systems engineering while other sectors do not support or minimize these functions (ASTD, 2005; Dinero, 2005; Hodges, 2002). Because of the large number of knowledge workers associated with these functions, some sectors place more emphasis on organizational learning. Other manifestations of this emphasis include the amount of resources devoted to formal training, the orientation and development of work teams, and government regulations which mandate certain forms of training (Marquardt, 2002). It is

for this reason that industry sector is included as a key variable when analyzing the survey results. The largest group of respondents came from the financial sector and the second largest group of respondents came from the pharmaceutical sector. Indeed, respondents from the financial, pharmaceutical, and manufacturing sectors comprised 48.6 percent of the total respondents. Table 4.4 lists the number of companies and respondents representing each industry sector.

Table 4.4

Company and Respondent Number Per Industry Sector

Industry Sector	Companies	Respondents	
Pharmaceutical	6	37	14.5%
Medical Supply/Equipment	6	24	9.4%
Financial	10	51	20.1%
Manufacturing	11	36	14.1%
Utilities	4	18	7.1%
Oil and Gas Production	2	7	2.7%
Business Services	5	19	7.5%
Entertainment	2	14	5.5%
Retail	7	20	7.9%
IT Software/Services	3	12	4.7%
Chemical Production	4	16	6.3%
Total Companies/Respondents	60	254	100%

Company Size

Several researches have stated that organizational learning is more valued or more prevalent in larger companies compared to smaller companies (Garvin, 2000; Marquardt, 2002; Thompson, 1995). Other researchers have found that larger companies provide a wider variety of formal training courses while smaller companies rely on informal or tacit learning (Dixon, 1997; Marsick, 1999; Nilson, 1999). It is for this reason that company size is considered when analyzing the survey data. A company having at least 1000 employees was a parameter of this research. The following three categories of company size were established for purposes of comparison: large companies consisting of over 15,000 employees, medium-large companies consisting of between 5,000 and 15,000 employees, and medium companies consisting of between 1,000 and 5,000 employees.

Table 4.5

Respondents by Company Size

Company Size	Respondents	
Large (over 15,000 employees)	107	42.1%
Large-Medium (5000 to 15,000 employees)	69	27.2%
Medium (1000 to 5000 employees)	78	30.7%
Total	254	100%

Research Questions and Results

Question 1: To what extent are learning dimensions and learning capacity present in a multi-industry sample of large companies?

Learning Dimensions

Means and standard deviations were calculated for all respondents within the study. The highest scoring learning dimensions were continuous learning (4.06) and community connections (4.02). The lowest scoring learning dimensions were learning systems (3.40) and the capacity for inquiry and dialogue (3.57). Table 4.6 lists the mean and standard deviation for each of the learning dimensions contained in the DLOQ instrument.

Table 4.6

Mean Scores of Learning Dimensions (n=254)

	Mean	SD
1-Continuous Learning (CL)	4.06	.80
2-Inquiry and Dialogue (ID)	3.57	.79
3-Collaboration and Team Learning (TL)	3.79	.88
4-Embedded Learning Systems (LS)	3.40	.96
5-Culture of Empowerment (EP)	3.76	.91
6-Connection to Community (CC)	4.02	.92
7-Strategic Leadership (SL)	3.82	.95

Learning Sub-Dimensions

Frequencies, means, and standard deviations were calculated for each of the twenty-one learning sub-dimensions or survey items within the DLOQ instrument. The

highest scoring sub-dimensions were “people help each other learn” (4.48) within the continuous learning dimension and “leaders ensure consistent values” (4.08) within the strategic leadership dimension. The lowest scoring survey items were “organization lessons are shared” (3.09) and “training outcomes are consistently measured” (3.35) both contained within the learning systems dimension. Table 4.7 lists descriptive statistics for each of the survey items included in the DLOQ instrument.

Table 4.7

Mean Scores of Learning Sub-Dimensions (Survey Items)

	Dimension-Item Code	N	Mean	SD
People help each other learn	CL1	254	4.48	0.92
Leaders ensure actions consistent with values	SL3	239	4.08	1.12
Work together with outside community to meet mutual needs	CC2	241	4.04	1.14
People encouraged to get answers across the organization	CC3	241	4.02	1.13
Teams can revise their thinking	TL2	252	4.01	1.00
Time given to support learning	CL2	254	4.01	1.01
Global perspective expectation	CC1	242	3.99	1.12
Recognition for taking initiative	EP1	247	3.96	0.99
Leaders look for opportunities to learn themselves	SL2	241	3.87	1.06
Teams can adapt their goals	TL1	252	3.77	1.03
Performance measurements are ongoing	LS1	246	3.75	1.14
Support for taking calculated risks	EP3	247	3.69	1.08
Rewards for learning	CL3	254	3.68	1.02
People have control over needed resources	EP2	247	3.64	1.06
People build trust with one another	ID3	254	3.63	0.98
People ask others what they think	ID2	253	3.62	0.89
Teams trust the organization to take action	TL3	252	3.59	1.03
Leaders mentor and coach others	SL1	241	3.51	1.17
Support for open and honest feedback	ID1	253	3.45	1.01
Training measurements are ongoing	LS3	246	3.35	1.27
Organization lessons are shared widely	LS2	247	3.09	1.15

Learning Capacity

The primary focus of this research highlights the connection between levels and types of organizational learning and organizational performance. To address this connection, a mean score was developed which consisted of all twenty-one learning sub-dimensions for each respondent grouped by company. This mean score represents the overall learning organization capacity for each respondent. An aggregate mean score was preferred over a cumulative rating score because of occasional skipped items in the completed surveys. It is acknowledged that systematic error can occur when developing aggregate mean scores, however, there is a strong likelihood that these errors are minimized because they are randomly distributed across each of the respondents.

Since there is no benchmark to determine the survey score of a high level learning organization compared to a low level learning organization, three equal groups of learning capacity definitions were developed through the process of rank ordering the mean scores of the target companies. As a result of this categorization, high learning capacity companies were found to have an overall mean score of 4.21, moderate learning capacity companies had a mean score of 3.79, and low learning capacity companies had a mean score of 3.13. The mean learning capacity for the entire respondent group was 3.77 with a standard deviation of 0.70. Table 4.8 lists the mean scores and standard deviations for each learning dimension according to learning capacity categorization.

Table 4.8

Learning Dimensions by Learning Capacity

	Overall Mean N=60	SD	Low Lrng Capcty N=20	SD	Mod Lrng Capcty N=20	SD	High Lrng Capcty N=20	SD
CL	4.06	.80	3.54	.64	4.09	.75	4.31	.96
ID	3.57	.80	3.13	.63	3.57	.74	3.90	.95
TL	3.79	.88	3.14	.72	3.79	.85	4.33	.76
LS	3.40	.96	2.67	.93	3.40	.91	3.95	.87
EP	3.76	.91	3.17	.92	3.76	.82	4.24	.98
CC	4.02	.92	3.21	.76	4.04	.86	4.64	.82
SL	3.82	.95	2.91	.70	3.88	.88	4.29	.96
Capacity	3.77	.70	3.13	.61	3.79	.64	4.21	.71

Dimension Comparisons with Other DLOQ Studies

Since several other studies have been conducted using the DLOQ instrument with their results recorded by Watkins and Marsick (2003), it is important to compare other mean scores of leaning and performance dimensions with this study. The results of the Ellinger and associates (2002) study are reported separately because the survey population included large, domestic, publicly-traded companies which were somewhat similar to the survey population of this research. It is important to note that the Watkins and Marsick (2003) database includes survey results from seven major studies with diverse study populations including private, public, and not-for-profit companies based in the following countries: United States, Columbia, and Malaysia. Table 4.9 lists the mean

scores from this study, the Ellinger and associates (2002) study, and the Watkins and Marsick (2003) database of several past DLOQ studies.

Several observations can be made when reviewing mean scores in this study with the mean scores gathered by Ellinger et al. (2002) and Watkins and Marsick (2003). First, this study illustrates lower mean scores for every one of the learning and performance dimensions compared with the other studies. Mean scores for objective financial performance were not collected in the other studies. The widest gap exists with the inquiry and dialogue learning dimension and the strategic leadership learning dimension with differences of 0.49 and 0.52 respectively. Second, the other studies reported very similar mean scores for overall learning capacity. This study revealed a lower mean score of between 0.28 and 0.30. A general observation here is that respondents of this study reported lower overall levels of learning occurring within their organizations.

Table 4.9

Learning Dimension Mean Scores Across Various DLOQ Studies

	Chajnacki (2006) N=254	Ellinger (2002) N=208	Watkins & Marsick Database (1997- 2003) N=2896
Continuous Learning	4.06	4.12	4.16
Inquiry and Dialogue	3.57	4.04	4.06
Team Learning	3.79	4.13	4.05
Learning Systems	3.40	3.70	3.80
Culture of Empowerment	3.76	3.93	3.97
Connection to Community	4.02	4.19	4.09
Strategic Leadership	3.82	4.26	4.34
Overall Learning Capacity	3.77	4.05	4.07
Operational Performance	4.15	4.31	4.51
Knowledge Performance	3.98	4.16	4.28
Financial Performance	3.66	n/a	n/a

Question 2: To what extent do learning dimensions and learning capacity differ according to company size and industry sector?

Company Size Differences

As stated previously, several researchers believe that organizational learning is more valued or more prevalent in larger companies compared to smaller companies (Garvin, 2000; Marquardt, 2002; Thompson, 1995). When making comparisons according to company size, it is important to clearly define the meaning and parameters of size. Although all of the companies included in this study could be considered “large,”

artificial distinctions were created for the purpose of comparison. The three sizes of companies analyzed in this section include total employees between 1,000 and 5,000, total employees between 5,000 and 15,000, and an employee population of over 15,000. The belief that larger companies exhibit higher levels of learning was not evident within this study. Indeed, the mean score of overall learning with the largest size companies was 3.69 compared to the smallest size companies reporting a mean score of 3.84. This suggests that within the sample overall learning slightly decreases as the size of the company increases above the initial inclusion parameter of the study. In addition, the highest mean scores for each learning dimension were found in the 1,000-5,000 employee and 5,001-15,000 employee companies. Team learning, learning systems, and culture of empowerment were most prevalent in the smallest company category. Continuous learning, inquiry and dialogue, connection to community, and strategic leadership were most prevalent in the middle company category. Table 4.10 lists means and standard deviations of each learning dimension for each company size category. Table 4.11 lists the one-way analysis of variance data for the comparison of means among each category. As a result of this analysis of variance, only the team learning dimension was found to contain significant differences based on company size. In order to identify which means within this dimension differed from one another, a post-hoc pairwise multiple comparison was conducted using the Bonferroni method. The Bonferroni method revealed significant differences between the 1,000-5,000 employee and the 5,001-15,000 employee companies. These means are highlighted in Table 4.10.

Table 4.10

Learning Dimensions by Company Size

	Overall Mean N=254	SD	Size 1000-5000 N=78	SD	Size 5001-15000 N=69	SD	Size Over 15000 N=107	SD
CL	4.06	.80	4.12	.87	4.19	.68	3.93	.84
ID	3.57	.80	3.58	.77	3.66	.70	3.50	.87
TL	3.79	.88	4.01	.84	3.59	.88	3.76	.89
LS	3.40	.96	3.47	.94	3.33	.92	3.38	1.01
EP	3.76	.91	3.86	.90	3.81	.92	3.66	.90
CC	4.02	.92	4.02	1.02	4.08	.83	3.98	.91
SL	3.82	.95	3.82	.97	3.91	.93	3.75	.95
Capacity	3.77	.70	3.84	.72	3.81	.62	3.70	.74

Table 4.11

ANOVA Results by Company Size

	F	p
CL	2.545	.080
ID	0.863	.423
TL	4.278	.015*
LS	0.407	.666
EP	1.279	.280
CC	0.221	.802
SL	0.574	.564
Capacity	1.129	.325

Industry Sector Differences

Few learning organization studies have investigated differences in learning dimensions based on uniqueness according to industry sector classification. Industry sector however is an important factor in business planning, financial analysis, and human resources decision making (Cooper & Emory, 1995; Fitz-Enz, 2000; Pratt et al, 2000). A recent study by the American Society for Training and Development reported large differences in average training expenditures per employee and average training hours per employee across nine different industries (ASTD, 2005). In this study, comparing learning capacity and learning dimensions among industry sectors also resulted in some notable differences. The highest scores in learning capacity were reported in the chemical production (4.17) and entertainment (4.07) sectors. The lowest scores in learning capacity were reported in business services (3.36) and oil and gas production (3.48). Tables 4.12a, 4.12b, 4.12c, and 4.12d list means and standard deviations for each financial performance metric and each learning dimension for the eleven industry sector categories. Table 4.13 lists the one-way analysis of variance data for the comparison of means among each category. At the level of .05, the following learning dimensions were found to have significant differences across industry sectors: continuous learning, team learning, embedded learning systems, and strategic leadership. In order to identify which means within these dimensions differed from one another, a post-hoc pairwise multiple comparison was conducted using the Bonferroni method. The following differences were noted using the Bonferroni method: continuous learning (utilities, oil and gas, medical equipment, manufacturing, entertainment, chemicals, business services), team learning (retail and information technology), learning systems (utilities, retail, and

pharmaceutical), and strategic leadership (pharmaceutical, finance, and entertainment).

The means of each of these dimensions are highlighted in Tables 4.12a, 4.12b, 4.12c, and 4.12d. The analysis of variance needs to be interpreted with some caution because of the differences in sample size for each industry.

Table 4.12a Dimensions by Sector	Utilities N=18		Retail N=22		Pharmaceutical N=37	
	Mean	SD	Mean	SD	Mean	SD
Profit	9.38	6.06	3.82	3.31	16.84	7.04
ROA	4.62	1.11	6.73	4.50	10.39	4.25
ROE	17.57	9.99	27.97	39.02	33.28	18.51
CL	4.67	0.44	3.78	0.73	3.97	0.80
ID	3.85	0.67	3.40	0.86	3.39	0.74
TL	3.78	0.86	3.68	0.96	3.64	0.70
LS	3.29	0.80	3.39	1.04	3.03	0.76
EP	3.90	0.92	3.77	0.95	3.39	0.78
CC	4.23	0.97	3.72	1.12	3.90	0.84
SL	4.29	0.80	3.47	1.00	3.54	0.65
Capacity	4.00	0.57	3.60	0.89	3.55	0.63

Table 4.12b Dimensions by Sector	Oil and Gas Production N=7		Medical Equipment & Supply N=24		Manufacturing N=36	
	Mean	SD	Mean	SD	Mean	SD
Profit	3.63	1.28	7.15	4.65	7.50	5.51
ROA	6.73	0.96	6.10	3.60	8.39	5.78
ROE	35.89	2.14	11.54	5.56	21.14	17.29
CL	4.05	0.52	3.90	1.00	4.20	0.75
ID	3.33	0.64	3.35	0.91	3.68	0.61
TL	2.95	0.85	4.06	0.92	3.75	0.74
LS	3.14	0.74	3.49	1.16	3.51	1.01
EP	3.86	0.63	3.80	1.06	3.87	0.91
CC	3.71	0.73	4.24	1.12	4.10	0.85
SL	3.33	1.17	3.95	1.09	3.87	0.89
Capacity	3.48	0.88	3.83	0.92	3.85	0.83

Table 4.12c Dimensions by Sector	Information Technology Services N=12		Finance & Insurance N=51		Entertainment N=14	
	Mean	SD	Mean	SD	Mean	SD
Profit	-2.06	21.56	15.73	8.36	3.70	1.14
ROA	7.33	9.16	3.53	5.29	3.15	2.33
ROE	-6.54	12.67	12.97	5.93	12.30	10.38
CL	3.64	0.74	4.21	0.81	4.26	1.01
ID	3.56	0.64	3.67	0.84	3.88	1.16
TL	3.89	0.46	3.85	0.91	3.88	1.17
LS	3.78	1.03	3.45	0.79	3.92	0.92
EP	3.67	0.62	3.87	0.89	3.95	0.84
CC	3.92	0.57	3.99	0.89	4.21	0.79
SL	3.61	0.81	3.87	0.99	4.36	0.87
Capacity	3.72	0.68	3.85	0.90	4.07	0.89

Table 4.12d Dimensions by Sector	Chemical Production N=16		Business Services N=19	
	Mean	SD	Mean	SD
Profit	6.86	1.94	3.07	2.41
ROA	5.56	1.44	6.03	5.06
ROE	13.74	3.37	16.69	17.11
CL	4.15	0.44	3.47	0.57
ID	3.85	0.63	3.28	0.76
TL	4.35	0.84	3.49	1.02
LS	3.94	0.87	2.77	1.11
EP	4.19	0.84	3.37	1.09
CC	4.54	0.48	3.63	1.19
SL	4.17	0.97	3.49	1.05
Capacity	4.17	0.71	3.36	0.92

Table 4.13

ANOVA Results by Industry Sector

	F	P
CL	3.462	.000*
ID	1.610	.104
TL	1.998	.034*
LS	2.794	.003*
EP	1.627	.101
CC	1.528	.130
SL	2.205	.018*
Capacity	2.457	.008

Question 3: To what extent do learning dimensions and learning capacity relate to measures of operational performance?

Operational Performance

Using descriptive statistical analysis, the mean of all operational performance ratings was 4.15 with a standard deviation of 0.88. The low and high operational performance grouping was determined by calculating plus and minus one standard deviation. In the companies reporting high levels of operational performance, mean learning capacity was 4.26 compared to the total sample which reported 3.77. The highest rated learning dimensions in the companies with high levels of operational performance were community connection (4.69), strategic leadership (4.41), and continuous learning (4.33).

Table 4.14

Learning Dimensions by Operational Performance Level

	Overall Mean N=254	SD	Low N=36	SD	Mod N=172	SD	High N=27	SD
CL	4.06	.80	3.62	.93	4.09	.69	4.33	1.01
ID	3.57	.80	3.15	.72	3.60	.72	3.86	1.08
TL	3.79	.88	3.16	.88	3.80	.71	4.27	.92
LS	3.40	.96	2.61	.69	3.44	.93	3.98	.84
EP	3.76	.91	3.18	.96	3.78	.80	4.26	1.04
CC	4.02	.92	3.28	.98	4.05	.84	4.69	.75
SL	3.82	.95	3.07	.85	3.86	.86	4.41	1.04
Capacity	3.77	.70	3.15	.67	3.81	.61	4.26	.76

In order to better interpret the results of the data using regression analysis in Research Questions 3 through 6, Table 4.15 presents univariate correlations among both the DLOQ learning dimensions and the performance dimensions. For the learning dimensions, all of the correlation coefficients were significant at the .01 level. The highest levels of correlations among dimensions occurred within the strategic leadership and empowerment culture dimensions. Moderate levels of correlations were noted among the operational performance and knowledge performance dimensions. The weakest correlations occurred with the financial performance dimension and almost every other dimension.

Table 4.15

Intercorrelations Among Learning Dimensions (Independent) and Performance Dimensions (Dependent) Variables (N=254)

Variables	1	2	3	4	5	6	7	8	9	10
1 Continuous Learning	1.00									
2 Inquiry & Dialogue	.647	1.00								
3 Team Learning	.437	.568	1.00							
4 Community Connection	.393	.497	.571	1.00						
5 Empowerment Culture	.564	.570	.582	.657	1.00					
6 Learning Systems	.483	.479	.550	.549	.643	1.00				
7 Strategic Leadership	.547	.575	.553	.635	.670	.717	1.00			
8 Operational Performance	.296	.299	.415*	.460*	.379	.477*	.464*	1.00		
9 Knowledge Performance	.273	.268	.383*	.465*	.497*	.437*	.489*	.488*	1.00	
10 Financial Performance	.107	.080	.038	.099	.019	.155*	.130	.136	.054	1.00

Note: This was a bivariate correlation using Pearson’s two-tailed test.

*Correlations significant at the level of $p < .05$.

Bold: Correlations significant at the level of $p < .01$.

Simple regression was used to predict operational performance (dependent variable) from overall learning capacity (independent variable). Table 4.16 lists the model summary for this regression analysis, including the R and R-squared values, the Beta coefficient, standard estimate of error, and level of significance. The result of the regression calculation is that 25.7 percent of operational performance is predicted by overall learning capacity.

Table 4.16

Regression Model for Operational Performance and Learning Capacity

	R	R-square		beta	Se(b)	p
1	.507	.257		1.752	.272	.000

Multiple linear stepwise regression was used to predict operational performance (dependent variable) based on the ratings from each of the seven learning dimensions (independent variables). Table 4.17 lists the model summary for this regression analysis. Based on the model, community connections and learning systems had the most ability to predict operational performance. Indeed, the combination of these two learning dimensions can predict 28.4 percent of operational performance.

Table 4.17

Regression Model for Operational Performance and Learning Dimensions

	R	R-square	R-square change	beta	Se(b)	p
1 CC	.477	.227		2.329	.226	.000
2 CC, LS	.533	.284	.057	2.039	.228	.000

Question 4: To what extent do learning dimensions and learning capacity relate to measures of knowledge performance?

Knowledge Performance

The mean of all knowledge performance ratings was 3.98 with a standard deviation of 0.85. The low and high operational performance grouping was determined

by calculating plus and minus one standard deviation. In the companies reporting high levels of knowledge performance, mean learning capacity was 4.34 compared to the total sample which reported 3.77. The highest rated learning dimensions in the companies with high levels of knowledge performance were community connection (4.74), strategic leadership (4.56), and a culture of empowerment (4.49).

Table 4.18

Learning Dimensions by Knowledge Performance Level

Table 4.18- Dimensions by knowledge Performance	Overall Mean N=254	SD	Low N=39	SD	Mod N=156	SD	High N=36	SD
CL	4.06	.80	3.71	.74	4.06	.78	4.38	.80
ID	3.57	.80	3.32	.72	3.54	.76	3.92	.89
TL	3.79	.88	3.30	.88	3.76	.81	4.26	.75
LS	3.40	.96	2.67	.75	3.39	.89	4.09	.95
EP	3.76	.91	3.10	.81	3.75	.82	4.49	.75
CC	4.02	.92	3.51	.88	3.96	.87	4.74	.77
SL	3.82	.95	3.05	.86	3.81	.85	4.56	.84
Capacity	3.77	.70	3.24	.62	3.75	.64	4.34	.60

Simple regression was used to predict knowledge performance (dependent variable) from overall learning capacity (independent variable). Table 4.19 lists the model summary for this regression analysis, including the R and R-squared values, the Beta coefficient, standard estimate of error, and level of significance. The result is 26.2 percent of knowledge performance is predicted by overall learning capacity.

Table 4.19

Regression Model for Knowledge Performance and Learning Capacity

Table 4.19 Model	R	R-square		beta	Se(b)	p
1	.512	.262		1.630	.265	.000

Multiple linear stepwise regression was used to predict knowledge performance (dependent variable) based on the ratings from each of the seven learning dimensions (independent variables). Table 4.20 lists the model summary for this regression analysis. Based on the model, empowerment culture, strategic leadership, learning systems, and inquiry and dialogue had the most ability to predict operational performance. Indeed, the combination of these four learning dimensions can predict 31.7 percent of knowledge performance.

Table 4.20

Regression Model for Knowledge Performance and Learning Dimensions

Table 4.20 Model	R	R-square	R-square change	beta	Se(b)	p
1 EP	.497	.247		2.199	.211	.000
2 EP, SL	.540	.292	.045	1.901	.219	.000
3 EP, SL, LS	.552	.305	.013	1.858	.219	.000
4 EP, SL, LS, ID	.563	.317	.012	2.055	.239	.000

Question 5: To what extent do learning dimensions and learning capacity relate to measures of financial performance?

Financial Performance

The mean of all financial performance ratings was 3.66 with a standard deviation of 1.34. The low and high operational performance grouping was determined by calculating plus and minus one standard deviation. In the companies reporting high levels of financial performance, mean learning capacity was 3.76 compared to the total sample which reported 3.77. The highest rated learning dimensions in the companies with high levels of financial performance were community connection (4.08), continuous learning (4.08), and team learning (3.85). From a descriptive level of analysis, it seems that companies with moderate levels of financial performance actually reported higher learning dimensions than companies with high levels of financial performance.

Table 4.21

Learning Dimensions by Financial Performance Level

Table 4.21- Dimensions by financial performance	Overall Mean N=254	SD	Low N=61	SD	Mod N=128	SD	High N=65	SD
CL	4.06	.80	3.84	.60	4.14	.85	4.08	.85
ID	3.57	.80	3.47	.73	3.63	.84	3.54	.75
TL	3.79	.88	3.80	.76	3.75	.98	3.85	.78
LS	3.40	.96	3.22	1.07	3.47	.96	3.40	.84
EP	3.76	.91	3.76	.85	3.83	.96	3.61	.84
CC	4.02	.92	3.87	.94	4.05	.89	4.08	.96
SL	3.82	.95	3.58	.94	3.94	1.01	3.77	.78
Capacity	3.77	.70	3.65	.66	3.83	.75	3.76	.64

Simple regression was used to predict financial performance (dependent variable) from overall learning capacity. Table 4.22 lists the model summary for this regression analysis, including the R and R-squared values, the Beta coefficient, standard estimate of error, and level of significance. The result is only 1.1 percent of financial performance is predicted by overall learning capacity.

Table 4.22

Regression Model for Financial Performance and Learning Capacity

Table 4.22 Model	R	R-square		beta	Se(b)	p
1	.103	.011		2.915	.458	.000

Multiple linear stepwise regression was used to predict financial performance (dependent variable) based on the ratings from each of the seven learning dimensions (independent variables). Table 4.23 lists the model summary for this regression analysis. Based on the model, community connection, a culture of empowerment, and embedded learning systems had the most ability to predict financial performance. Indeed, the combination of these three learning dimensions can predict 6.2 percent of financial performance.

Table 4.23

Regression Model for Financial Performance and Learning Dimensions

Table 4.23 Model	R	R-square	R-square change	beta	Se(b)	p
1 CC	.152	.023		2.732	.382	.000
2 CC, EP	.215	.046	.023	3.095	.407	.000
3 CC, EP, LS	.249	.062	.016	3.000	.407	.000

Question 6: To what extent do learning dimensions and learning capacity relate to multi-dimensional organizational performance?

Organization Performance

Aggregate performance is defined as the cumulative performance of the operational, knowledge, and financial performance dimensions with a weighting on financial performance determined by the recent major event rating provided by respondents. Based on the organizational performance models reviewed in Chapter Two, a performance metric which includes both internal and external, subjective and objective performance criteria would be a more realistic and representative metric for illustrating the overall health and success of an organization.

The mean of all aggregate performance ratings was 3.96 with a standard deviation of 0.75. The low and high operational performance grouping was determined by calculating plus and minus one standard deviation. In the companies reporting high levels of multi-dimensional performance, mean learning capacity was 4.21 compared to the total sample which reported 3.77. The highest rated learning dimensions in the

companies with high levels of multi-dimensional performance were community connection (4.64), team learning (4.32), and strategic leadership (4.30).

Table 4.24

Learning Dimensions by Organization Performance Level

Table 4.24- Dimensions by multi performance	Overall Mean N=254	SD	Low N=34	SD	Mod N=180	SD	High N=40	SD
CL	4.06	.80	3.54	.64	4.07	.75	4.31	.96
ID	3.57	.80	3.13	.63	3.57	.75	3.90	.95
TL	3.79	.88	3.14	.71	3.79	.86	4.32	.76
LS	3.40	.96	2.67	.93	3.40	.90	3.95	.87
EP	3.76	.91	3.17	.92	3.76	.82	4.24	.99
CC	4.02	.92	3.21	.76	4.05	.86	4.64	.83
SL	3.82	.95	2.91	.70	3.89	.88	4.30	.97
Capacity	3.77	.70	3.13	.61	3.80	.63	4.21	.71

Simple regression was used to predict multi-dimensional performance (dependent variable) from overall learning capacity (independent variable). Table 4.25 lists the model summary for this regression analysis, including the R and R-squared values, the Beta coefficient, standard estimate of error, and level of significance. The result is 9.8 percent of multi-dimensional performance is predicted by overall learning capacity.

Table 4.25

Regression Model for Organization Performance and Learning Capacity

Table 4.25 Model	R	R-square		beta	Se(b)	P
1	.313	.098		2.133	.315	.000

Multiple linear stepwise regression was used to predict multi-dimensional performance (dependent variable) based on the ratings from each of the seven learning dimensions (independent variables). Table 4.26 lists the model summary for this regression analysis. Based on the model, community connections and learning systems had the most ability to predict multi-dimensional organization performance. Indeed, the combination of these two learning dimensions can predict 18.0 percent of this performance dimension.

Table 4.26

Regression Model for Organization Performance and Learning Dimensions

Table 4.26 Model	R	R-square	R-square change	beta	Se(b)	p
1 CC	.400	.160		2.441	.218	.000
2 CC, LS	.424	.181	.021	2.287	.225	.000

Summary

This chapter described the findings for the research questions related to learning dimension and organizational performance dimensions associated with the DLOQ instrument. Research question 1 investigated to what extent learning dimensions and

learning capacity were present in the sample of respondents representing companies with over 1000 employees. The highest scoring learning dimensions were continuous learning (4.06) and community connections (4.02). The lowest scoring learning dimensions were learning systems (3.40) and the capacity for inquiry and dialogue (3.57). Learning capacity was defined as the group mean of all learning dimensions for each respondent. High learning capacity companies were found to have an overall mean score of 4.44, moderate learning capacity companies had a mean score of 3.87, and low learning capacity companies had a mean score of 3.23. The mean learning capacity for the entire respondent group was 3.77 with a standard deviation of 0.68.

Research question 2 explored differences in learning dimensions and learning capacity for various size companies and eleven industry sectors. The three sizes of companies analyzed in this section include total employees of between 1000 and 5000, total employees between 5000 and 15,000, and an employee population of over 15,000. Indeed, the mean score of overall learning with the largest size companies was 3.69 compared to the smallest size companies reporting a mean score of 3.84. This suggests that within the sample overall learning slightly decreases as the size of the company increases above the initial inclusion parameter of the study. Team learning, learning systems, and culture of empowerment were most prevalent in the smallest company category. Continuous learning, inquiry & dialogue, connection to community, and strategic leadership were most prevalent in the middle company category. Some caution needs to be exercised when analyzing differences in industry sectors due to the small sample size in some industry categories. The highest scores in learning capacity were reported in the chemical production (4.17) and entertainment (4.07) sectors. The lowest

scores in learning capacity were reported in business services (3.36) and oil & gas production (3.48).

Research questions 3, 4, and 5 investigated the impact of learning dimensions and learning capacity on each of the following performance dimensions: operational, knowledge, and financial. Financial performance was defined as the combination of gross profit, return-on-asset, and return-on-equity figures for each company over a 9 month period of time preceding the survey distribution. The resulting multiple regression equations for operational and knowledge performance were determined to be significant. Based on this, learning capacity predicted 25.7 percent of the variance of operational performance and 26.2 percent of the variance of knowledge performance. Various learning dimensions predicted up to 28.4 percent of the variance of operational performance and 31.7 percent of knowledge performance. Financial performance was also found to be significant but at a very low variance percentage. The correlation coefficients, while relatively low for some of the dimensions, are consistent with the results of other studies using the DLOQ.

Research question 6 explored the impact of learning dimensions and learning capacity on multi-dimensional performance indicator which takes into account the combined influence of the three performance dimensions reviewed individually in the previous research questions. A multi-dimensional performance indicator was chosen because it better reflects the complex nature of organizational success as illustrated by various organization performance models (Bates, 1999; Holton, 1999; Kaplan & Norton, 1996; Swanson, 1999). The resulting multiple regression equation for multi-dimensional performance was determined to be significant. Based on this, learning capacity predicted

9.8 percent of the variance of multi-dimensional performance and various learning dimensions predicted up to 18.1 percent of multi-dimensional performance. Although this performance dimension did not achieve the same prediction levels as operational performance and knowledge performance, it proved to be statistically significant at a much greater level than financial performance alone. The multi-dimensional performance indicator proved valuable by incorporating both internal, self-report data from respondents as well as objective financial report data gathered from external sources.

CHAPTER V

Discussion and Recommendations

Introduction

This chapter presents a summary of the study, discusses the results of the study, and considers the implications of the study to current theory and practice. The findings and implications from this study apply to the fields of adult education, human resource development, and management theory.

This study attempted to answer the following questions:

1. To what extent are learning dimensions and learning capacity present in a multi-industry sample of large companies?
2. To what extent do learning dimensions and learning capacity differ according to company size and industry sector?
3. To what extent do learning dimensions and learning capacity relate to measures of operational performance?
4. To what extent do learning dimensions and learning capacity relate to measures of knowledge performance?
5. To what extent do learning dimensions and learning capacity relate to measures of financial performance?
6. To what extent do learning dimensions and learning capacity relate to multi-dimensional organizational performance?

The relationship between learning organization characteristics and company performance is not well understood. For over a decade, learning organizations have been referred to as a remedy to increased competition in the marketplace, an increase in the number of knowledge workers, and growing change management issues. To better

understand the learning organization and its relationship with company performance, executives and human resource professionals from large, publicly traded companies were surveyed using the Dimensions of Learning Organization Questionnaire (DLOQ) developed by Watkins and Marsick (2003). The DLOQ instrument assesses the following seven learning organization dimensions: continuous learning, dialogue and inquiry, team learning, a culture of empowerment, learning systems, connection with the community, and strategic leadership.

The Marsick and Watkins (1993, 2003) model was selected from many other learning organization models for a number of reasons. First, this model contains the largest number of learning dimensions that are cross-validated in other widely publicized and research-based models of the learning organization (DiBella & Nevis, 1998; Marquardt, 2002; Pedlar et al, 1991; Redding & Catalanello, 1994; Senge, 1990). Second, this model has an associated survey instrument that most other models lack (Greigo & Geroy, 1999; Tannenbaum, 1997). Third, this survey instrument has been field tested in a large number of organizations and by several different researchers (Dymock, 2003; Ellinger et al, 2003; Fatima Sta. Maria, 2003; Hernandez, 2003; McHargue, 2003; Milton, 2003; Selden, 1998). Fourth, this survey assessment has the most extensive validity and reliability testing out of any other learning organization assessment discovered in the literature review (Lien et al., 2002; Yang et al, 1998; Yang, 2003).

Learning Organization Dimensions

Research question 1 asked to what extent learning dimensions and learning capacity are present in a multi-industry sample of large, publicly traded companies. The descriptive statistics used to evaluate this question showed which dimensions were most highly present in the sample and how these perceptions compared with other studies using the DLOQ instrument. Responses to research question 1 are found in the next section and according to each of the seven learning dimensions.

Learning Dimension 1 - Create Continuous Learning Opportunities

Watkins and Marsick (2003) defined this dimension in terms of learning designed into work processes so that employees can learn on the job and opportunities are provided for ongoing education and professional growth. The survey items associated with this dimension included: 1) people help each other learn, 2) people are given time to support learning, and 3) people are rewarded for learning.

In this study, this dimension was ranked highest out of the seven learning dimensions by respondents with a mean score of 4.06. This dimension in other DLOQ studies had means ranging from 3.74 (Zhang et al, 2003) to 5.13 (Power & Waddell, 2004). Other studies had very mixed results in regard to this dimension's ranking. Selden (1998) and Power and Waddell (2004) were the only other studies which resulted in this dimension being ranked first out of the other learning dimensions. Hernandez (2001) and Lien (2002) reported that this dimension was ranked last compared to the other learning dimensions.

By focusing on continuous learning rather than one-time training events, organizations can forge a new relationship with employees, one that highlights their contribution to the success of the organization. Various types of continuous learning can include guest speakers, panels, plant tours, educational newsletters, videoconferences, lunch-time learning sessions, and tuition assistance programs (Marquardt, 2002). The results of the study for this learning dimension indicate a high level of continuous learning within the sample of respondents.

Learning Dimension 2 - Promote Inquiry and Dialogue

This learning dimension highlights a solid foundation of interpersonal communication skills combined with a high level of productive reasoning ability. It is the overall capacity to listen and explore the interests of others in order to gain fuller understanding and differing perspectives. This dimension included the following survey items: 1) people give open and honest feedback to each other, 2) whenever people state their view, they also ask what others think, and 3) people spend their time building trust with each other.

This dimension ranked six of seven by respondents with a mean of 3.57. Other DLOQ studies reported means for this dimension ranging from 3.78 (Zhang et al, 2003) to 4.52 (Power and Waddell, 2004). This sample therefore reported lowest levels of this dimension compared to the other studies.

Over a decade ago, Senge (1990) stated that individuals within organizations have a low incidence of providing open and honest feedback with one another. It seems that this is still the situation with the respondents in the sample. Many companies struggle

with this learning dimension when it comes to their performance management system. Many front-line leaders tend to equate performance management with the annual performance appraisal. Other more engaging elements within performance management which can promote meaningful dialogue about individual goals and objectives include the management-by-objective process and interim performance reviews.

Learning Dimension 3 - Encourage Collaboration and Team Learning

Watkins and Marsick (2003) viewed this learning dimension as an organization's willingness to engage in greater problem solving and action planning by leveraging the capacity of teamwork. The organization expects groups to work together and learn together to achieve better results than the work of isolated individuals. The survey items associated with this dimension included: 1) teams have the freedom to adapt their goals as needed, 2) teams revise their thinking as a result of group discussions or new information collected, and 3) teams are confident that the organization will act on their recommendations.

This dimension ranked four of seven by respondents and had a mean of 3.79. Other DLOQ studies reported means for this dimension ranging from 3.77 (Zhang et al, 2003) to 4.60 (Power & Waddell, 2004) and similar ranking among the other dimensions.

Team learning is important because it helps disseminate ideas and solutions throughout the organization. Work teams are the vehicle where individuals transfer their learning into the wider organization. Teams are gatherings where opposing thoughts can be brought together and confronted in ways in which individuals alone would not be able

or willing to do (Senge, 1990). The results of the study indicate a moderate amount of team learning within the sample.

Learning Dimension 4 - Create Embedded Systems to Capture and Share Learning

This learning dimension includes utilizing both high and low technology systems to keep track of organizational learning and providing wide and easy access to that learning. The DLOQ instrument included these items with this learning dimension: 1) my organization creates systems to measure gaps between current and expected performance, 2) my organization makes its lessons learned available to all employees, and 3) my organization measures the results of the time and resources spent on training.

This dimension ranked last by respondents and had a mean score of 3.40. Other DLOQ studies reported means for this dimension ranging from 3.44 (Selden, 1998) to 4.32 (Power & Waddell, 2004) and similarly found this dimension to be one of the lowest rated compared to the other dimensions.

Since organizations are continually creating or acquiring information, the potential for learning is always present. To realize that potential, organizations must have the capacity to capture the right kind of information, disseminate it to the right people in the fastest time, and encourage its implementation in order to alter decisions, behaviors, and cultures (DiBella & Nevis, 1998). Within the area of employee learning and development, Kirkpatrick (1995) has been advocating formal evaluation for company training programs for several decades. His idea was that training activities are only valued by company management when they are measured and reported to meet primary

objectives. The results of the study indicate that the sample reported low levels of this learning dimension and indeed recognize obstacles in the path of full implementation.

Learning Dimension 5 - Empower People Toward a Collective Vision

Watkins and Marsick (2003) believed that employees should be involved in setting, owning, and implementing a joint vision which successfully advances the mission of the organization. They understood that responsibility and rewards should be made available to every member of the organization including the lowest ranking hourly worker. This dimension included the following survey items: 1) my organization recognizes people for taking initiative, 2) my organization gives people control over the resources they need to accomplish their work, and 3) my organization supports employees who take calculated risks.

This dimension ranked five of seven by respondents and had a mean score of 3.76. This result is similar to other DLOQ studies reporting mean ranges from 3.75 (Zhang et al, 2003) to 4.21 (Hernandez, 2001).

Learning organization advocates state that enthusiastic and empowered employees are more creative and committed to both learning and productivity. In the ideal, operations and responsibilities are decentralized and delegated equally among both individuals and teams within the organization. However, it has also been acknowledged that many organizations have assigned accountability without ensuring empowerment and this has led to great amounts of internal strife and tension (Marquardt, 2002). This final point seems to be evident within the study sample since it reported rather low levels of this learning dimension.

Learning Dimension 6 - Connect the Organization to Its Community and Environment

This learning dimension shows how employees are helped to see the impact of their work both inside and outside the organization. The survey items associated with this dimension included: 1) my organization encourages people to think from a global perspective, 2) my organization works together with the outside community to meet mutual needs, and 3) my organization encourages people to get answers from across the organization when solving problems.

This dimension ranked in second place by respondents and had a mean of 4.02. This result is similar to other DLOQ studies reporting means for this dimension ranging from 3.96 (Hernandez, 2001) to 4.53 (Power & Waddell, 2004).

Learning organizations acknowledge the interdependencies which exist between the organization and its internal and external environment. Being connected to the internal environment includes information sharing between departments and being responsive to employees and their work-life needs. The external environment includes the local community, supporting organizations, and legislative representatives (Pedler et al, 1991). This systems perspective within organizations seems to be relatively strong as reported by the sample of respondents.

Learning Dimension 7 - Provide Strategic Leadership for Learning

Watkins and Marsick (2003) believed that managers and executives within organizations are the true catalysts for organizational learning. They insisted that leaders

need to model, champion, and support learning by the words and actions. The DLOQ instrument included these items within this learning dimension: 1) leaders mentor and coach those they lead, 2) leaders continually look for opportunities to learn, and 3) leaders ensure that the organization's actions are consistent with its values.

This dimension ranked three of seven by respondents and had a mean of 3.82. Other DLOQ studies reported means for this dimension ranging from 4.00 (Zhang et al, 2003) to 4.73 (McHargue, 2000). This sample therefore reported lower levels of this dimension compared to other such studies.

Learning organizations urge their leaders to share their distinctive perspectives about company strategies, purposes, and values. They are told to develop a “teachable point of view” that communicates and captivates employees through stories and parables. They are instructed to lead management development sessions, share their own successes and failures, mentor both new and high-potential managers, and tell others about their favorite tools and techniques (Garvin, 2000). The results of this dimension portray a mixed message. On one hand, the mean score tends to illustrate a moderate level of this learning dimension. On the other hand, the mean score is below the range established by the preceding DLOQ studies.

In summary, the continuous learning and community connections learning dimensions were rated highest by respondents. Embedded learning systems and inquiry and dialogue were rated lowest by respondents. It is difficult to compare these findings with past studies utilizing the DLOQ survey instrument for three reasons. First, past studies were conducted in very different organization types such as small family businesses, large non-profit entities, hi-tech entrepreneurial firms, government staffs, and

both private and public for-profit companies. Second, past studies were conducted in different geographic and cultural areas including Southeastern United States, Southwestern United States, Taiwan, Columbia, Malaysia, Australia, and China. Third, past studies except one did not distinguish between industry sectors in their data analysis. Both adult learning and management theory widely recognize differences which exist based on variations in organizational structure, cultural contexts, and organizational mission. Just as these variables can fluctuate to a great degree, so do the results of the learning dimensions contained in other DLOQ studies.

In the next section, results of research question 2 illustrate some significant differences which were noted in regard to company size and industry sector that are in contrast with previous DLOQ studies. Additional studies utilizing the DLOQ instrument will need to carefully describe the survey sample in great detail and analyze these differences based on organization size, industry, and geographic regions.

Company Size and Industry Differences

Research question 2 asked to what extent learning dimensions differ according to company size and industry sector. Three other DLOQ studies analyzed differences based on organization size and found them to be statistically non-significant (Kumar & Idris, 2006; McHargue, 2000; Selden, 1998). Only one other DLOQ study investigated differences based on industry sector and found several significant findings between manufacturing and non-manufacturing companies (Zhang et al, 2003). Table 5.1 lists the results of other DLOQ studies which investigated the link between the learning organization and performance improvement.

Table 5.1

Other DLOQ Studies and Performance Improvement Results

Author	Company size or industry sector differences	Results – Performance Dimensions and Effect Sizes (all – 7 DLOQ dimensions) (bf – best fit model for select dimensions)
Selden (1998)	Size – Non significant	Soft financial (p) .18 all Knowledge (p) .22 all
McHargue (2000)	Size – Non significant	Soft financial (p) .26 bf with learning systems, leadership Knowledge (p) .26 bf with learning systems, continuous learning Mission (o) .16 bf with continuous learning, team learning
Hernandez (2001)	N/A	Knowledge transfer (o) only correlations analyzed, strongest with empowerment, learning systems
Lien et al. (2002)	N/A	Soft financial (p) + Knowledge (p) .27 all
Ellinger et al. (2002)	N/A	Soft financial (p) + Knowledge (p) .31 all Hard financial (o) .11 all
Zhang et al. (2003)	Sector - Manufacturing companies had higher community connection; Service companies had higher continuous learning, inquiry and dialogue, learning systems	Soft financial (p) .11 all Knowledge (p) .12 all
Power & Waddell (2004)	N/A	Soft financial (p) + Knowledge (p) + Customer satisfaction (p) + Employee turnover (p) .36 all
Kumar & Idris (2006)	Size – Non significant	Knowledge (p) .41 bf with learning systems, leadership, team learning

In regard to company size differences, respondents from the largest companies in the sample actually reported lower levels (3.93) of continuous learning compared to respondents in companies having either 1000 to 5000 or 5000 to 15,000 employees (4.12 and 4.19). This could mean that learning opportunities level off or slightly diminish in the largest of companies. This disputes some of the literature which found that learning opportunities tend to increase based on the overall size of the organization (Garvin, 2000; Marquardt, 2002; Thompson, 1995).

The team learning dimension also showed significant differences in regard to company size. Respondents from the largest companies reported a moderate level (3.76) of team learning while respondents from the smaller companies reported higher levels (4.01). This finding could reveal that team structures are more common or more valued in smaller companies and therefore team learning is an important element in maintaining these structures. This could also highlight the importance of team building at smaller companies which tend to have fewer layers of management control and more need to foster front-line decision making and accountability from its members (Dyer, 1990; Huszycz, 1996). Once again, these findings dispute the results of other DLOQ studies which found no significant differences based on company size (Kumar & Idris, 2006; McHargue, 2000; Selden, 1998).

Industry sector differences have not received adequate attention in past DLOQ studies. In fact, only one other DLOQ study investigated this area using two general industry categories (manufacturing and service) to classify the 477 companies included in their study (Zhang et al., 2003). Building on Zhang and associates (2003), this study also

found several difference in learning dimensions based on company affiliation with various industry sectors. Where Zhang and associates (2003) used two sector categories, this study used eleven sector categories. Difference in learning practices based on industry sector affiliation are supported by a recent national study by the American Society for Training and Development (ASTD, 2005) which tracked nine different industry sectors. Differences in learning dimensions by industry sector found in this study are outlined below.

First, the business services sector reported the lowest levels of the continuous learning dimension (3.47) compared to the utility industry which reported the highest levels (4.67). This finding disputes Zhang and associates (2003) which found that service firms reported significantly higher levels of this leaning dimension compared to the sample of manufacturing companies. The different findings between these two studies could be based on cultural differences between service sector operations based in the United States versus China. The service sector in the United States is often viewed as a commodity producer in which service issues are handled with system-wide efficiency rather than individualized and customized client solutions.

Second, the lowest level of embedded learning systems was reported by the business services sector (2.77) and the highest level was reported by chemicals producers (3.94). A culture of measurement can usually be found in companies which place a premium on employee health and safety or quality improvement programs. This usually consists of mandated employee safety training and reporting, continuous process improvement, Six Sigma initiatives, and total quality management. The contrast between these two industrial sectors would tend to support this fact.

Third, the lowest level of strategic leadership was reported by the oil and gas sector (3.33) and the highest level was reported by the entertainment industry sector (4.36). Many change management programs recommend that leaders must “walk the talk” when introducing new systems or initiatives within organizations. Many leadership development programs highlight not only self development but the development of direct reports and the need to develop active and effective succession planning programs. There has also been an increase in coaching training for managers based on research which highlights the effectiveness of this role in organizational leadership ranks (Ellinger, 1997; Fulmer & Conger, 2004; Whitworth et al., 1998).

Operational Performance

For this research, operational performance included the assessment of the relative health and effectiveness of functional departments to achieve organizational success. It included the major business functions of customer service, sales and marketing, and company finance. Operational performance is based on respondent perceptions that these business functions are performing at higher levels compared to one year previous. In other studies, it was referred to as perceived or soft financial performance.

This study analyzed operational performance with two methods: simple linear regression and multiple stepwise regression. Simple linear regression determined the impact of all of the seven learning dimensions on this performance dimension. Stepwise regression determined the impact of each of the seven learning dimensions, one at a time, to create a best fit model for this performance dimension.

Using linear regression, this study found that 25.7 percent of the variation in operational performance could be explained by the learning organization dimensions. This result is greater than the impact determined by Selden (1998) of 18 percent or the impact determined by Zhang and associates (2003) of 11 percent.

Using stepwise regression, this study found that 28.4 percent of the variation in operational performance could be explained by the following learning organization dimensions: community connections and embedded learning systems. Using similar analysis methods, McHargue (2000) found that 26 percent of operational (soft financial) performance could be explained by embedded learning systems and strategic leadership.

This high correlation level would seem to indicate that companies which excel at operational performance tend to have higher levels of learning associated with thinking from a global perspective, problem solving with input from across the organization, measuring gaps in individual and team performance, and measuring the return-on-investment associated with training and development programs.

Knowledge Performance

For this research, knowledge performance included the enhancement of products and services because of increased learning and knowledge capacity. It included the number of individuals in formal learning programs, the number of employee suggestions which were actually implemented within the organization, and the overall perceived level of customer satisfaction.

This study analyzed knowledge performance with two methods: simple linear regression and multiple stepwise regression. Simple linear regression determined the

impact of all of the seven learning dimensions on this performance dimension. Stepwise regression determined the impact of each of the seven learning dimensions, one at a time, to create a best fit model for this performance dimension.

Using linear regression, this study found that 26.2 percent of the variation in knowledge performance could be explained by the learning organization dimensions. This result is greater than the impact determined by Selden (1998) of 22 percent or the impact determined by Zhang and associates (2003) of 12 percent for this performance dimension.

Using stepwise regression, this study found that 31.7 percent of the variation in knowledge performance could be explained by the following learning organization dimensions: empowerment culture, strategic leadership, embedded learning systems, and inquiry and dialogue. Using similar analysis methods, McHargue (2000) found that 26 percent of knowledge performance could be explained by embedded learning systems and continuous learning. Kumar and Idris (2006) found that 41 percent of knowledge performance could be explained by embedded learning systems, strategic leadership, and team learning.

Almost every past DLOQ study indicates either a moderate or a high correlation level between perceived knowledge performance and the learning organization dimensions. Indeed, embedded learning systems was determined in each of the three best fit regression models as a primary influencer of this correlation. This seems to indicate that companies which excel at knowledge performance have refined systems in place which share organization lessons across a wide audience of stakeholders, carefully measure outcomes of training activities against established objectives, and maintain an

effective performance management system to track goal attainment at both the individual and organizational levels.

Financial Performance

Financial performance for this study was defined as the cumulative impact of gross profit margin, return-on-assets, and return-on-equity for each respondent's company over a period of nine months (three financial reporting quarters) preceding the research study. The combination of individual financial indicators and the timeframe for analysis take into account that corporate financial indicators are the result of multiple leaders and stakeholders making complex decisions over a set period of time. It is widely acknowledged that financial metrics tend to be "lagging" rather than "leading" indicators of organizational performance.

This study analyzed financial performance with two methods: simple linear regression and multiple stepwise regression. Simple linear regression determined the impact of all of the seven learning dimensions on this performance dimension. Stepwise regression determined the impact of each of the seven learning dimensions, one at a time, to create a best fit model for this performance dimension.

Using linear regression, this study found that only 1.1 percent of the variation in financial performance could be explained by the learning organization dimensions. In a similar fashion, Ellinger and associates (2002) used the DLOQ to assess the relationship between the learning organization and hard financial data of publicly traded companies. Their research suggested a significant, positive relationship between learning organization dimensions and the following financial indicators: return on equity (ROE),

return on assets (ROA), Tobin's q, and market valued added (MVA). They found that 10.8 percent of the variance in four financial performance indicators that can be explained by the dimensions of the learning organization. The difference in study results could possibly be explained by the respondents included in each of the study samples. Ellinger and associates (2002) relied on one logistics manager from each of the targeted companies. This study relied on several respondents per targeted company who were in executive leadership positions or from various human resource functions like employee compensation, benefits, or training and development.

Using stepwise regression, this study found that 6.2 percent of the variation in financial performance could be explained by the following learning organization dimensions: community connections, empowerment culture, and embedded learning systems. Only McHargue (2000) used a similar data analysis method to measure which learning dimensions impacted mission (financial) performance at large non-profit organizations in the United States. McHargue (2000) found that 16 percent of this performance area could be explained by continuous learning and team learning. The differences in study results could possibly be explained by McHargue's sample of non-profit organizations. The success of non-profit organizations is not measured by profit or simply by the quantity of delivered services but by the achievement of their mission and by changing individual lives, which often eludes tangible measurements.

The results of this research question dictate an extremely cautious response when attempting to correlate learning organization characteristics with a firm's hard financial performance. In fact, it could be argued that the best way to boost the bottom line of any profit driven company in the short term is to eliminate the investment expenses related to

employee training programs, knowledge management systems, or comprehensive performance management systems. This is certainly not a recommendation endorsed by this researcher but it is only mentioned to illustrate the position of extreme critics of the learning organization concept.

Organization Performance

This is the first attempt at examining the relationship between the learning organization and a comprehensive multi-dimensional metric to illustrate overall organizational performance. The multi-dimensional performance metric consisted of a combination of internal (operational and knowledge) and external (financial) performance areas with a distinct weighting given by respondents to capture the validity of recently published financial reports used by this researcher to capture hard measures of financial performance. The multi-dimensional approach is preferred because the relative health of an organization has been described as the combination of performance dimensions which contains both “leading” and “lagging” indicators by several researchers (Bates, 1999; Holton, 1999; Kaplan & Norton, 1996; Swanson, 1999).

This study analyzed multiple dimension organization performance with two methods: simple linear regression and multiple stepwise regression. Simple linear regression determined the impact of all of the seven learning dimensions on this performance dimension. Stepwise regression determined the impact of each of the seven learning dimensions, one at a time, to create a best fit model for this performance dimension.

Using linear regression, this study found that 9.8 percent of the variation in organization performance could be explained by the learning organization dimensions. Lien and associates (2002) determined an effect size of 27 percent for organizational performance. Ellinger and associates (2002) reported an effect size of between 24 and 31 percent using various multivariate tests. Power and Waddell (2004) determined an effect size of 36 percent on organization performance. It is assumed that this study's result is lower than other DLOQ studies which defined organizational performance as the combination of both soft financial and knowledge performance areas and did not account for hard financial metrics taken over the course of a nine month period.

Using stepwise regression, this study found that 18.1 percent of the variation in organization performance could be explained by the following learning organization dimensions: community connections and embedded learning systems. No previous study used a best fit regression model to determine the impact of specific sets of learning organization dimensions on organization performance defined as the weighted combination of perceived (operational and knowledge) and objective (hard financial) performance information.

Summary of Key Findings

This study is unique on several points from other DLOQ studies which investigated relationships between learning organization characteristics and organizational performance dimensions. It is the hope of this researcher that the ten year period of studies utilizing the DLOQ instrument will be enhanced by the research design, data analysis, and findings of this research study.

First, this study found the continuous learning dimension to be the highest rated learning dimension. Respondents in the study reported high levels of employees helping each other to learn and employees being given time to pursue learning. Only Selden (1998) found a similar result in his study on learning practices in small, family-owned businesses. Most other studies found the strategic leadership dimension to be rated highest. Reasons in support of continuous learning practices can include: an increasing rate of change regarding systems, procedures, and markets in the workplace; higher levels of employee turnover and shorter tenure with companies as loyalty rewards such as pension retirement programs and accrued vacation programs are diminished; and increased responsibilities for entry-level employees as a result of periodic downsizing initiatives. In short, employees are asked to do more and varied tasks and are being provided learning opportunities to succeed in these new roles. A recent ASTD State of the Industry Report (2005) seems to validate these findings. In 2000, they found that companies in their survey sample reported 23.5 hours of annual training per employee. In 2004, they reported 32.4 hours of annual training per employee resulting in overall increase in training hours. In regard to lower levels of strategic leadership, some of these same dynamics could apply: fewer managerial levels and increased organizational change mean that senior leaders are forced to devote more time to large-scale planning, budgeting, and negotiation and less time on being role models and mentors for organizational learning, even though many leaders still believe this to be an important role for them to fulfill (Society for Human Resource Management, 2004).

Second, this study had significantly lower mean scores for each learning dimension compared to previous DLOQ studies. The following dimensions had mean

scores which were below the range of mean scores from past studies: inquiry and dialogue, embedded learning systems, and strategic leadership. This result seems to counteract the average annual training hours reported by ASTD (2005) for the years 2000 to 2004. Reasons for this discrepancy could include: respondents in past DLOQ studies had simply perceived more organizational learning because of their own self-directed learning interests or higher levels of organizational learning can be occurring in other regional areas compared to the Pennsylvania focus of this study. Personally, I wish to discredit this second reason. Although the focus of this study was companies with headquarters or major divisions in Pennsylvania, companies also needed to have at least 1000 employees to be included in this study. Many companies in my study also had a diverse range of products and markets. I conclude that although the companies in my study had a Pennsylvania connection, they were large and diverse enough to represent a wider geographic area.

Third, this was only the second DLOQ study to analyze the relationship between learning dimensions and industry sectors. Significant differences were found among the following variables: continuous learning and utilities companies, team learning and chemicals manufacturers, embedded learning systems and chemicals manufacturers, and strategic leadership and entertainment companies. Zhang and associates (2003) examined manufacturing versus non-manufacturing companies and found continuous learning, inquiry and dialogue, and learning systems to be higher at a significant level in non-manufacturing companies. This result also seems to be validated by the ASTD State of the Industry Report (2005) which reported on training practices within the following industry segments: technology, manufacturing, transportation and utilities, finance and

insurance, business services, and health care. The report indicates many training differences across industries. Annual training hours per employee ranged from a low of 24.2 in the manufacturing industry to a high of 82.7 in the technology industry. Annual expenditures per employee ranged from a low of \$659 in health care to a high of \$1278 in finance and insurance. This ASTD report also reveals differences in training content across industries: management development training ranged from a low of 12.1% in the utilities industry to a high of 21.4% in business services; sales training ranged from a low of 0.3% in health care to a high of 10.8% in manufacturing; and compliance training ranged from a low of 6.4% in finance and insurance to a high of 29.6% in the utilities industry.

Fourth and most importantly, this study found that 18.1 percent of multi-dimensional organization performance could be explained by the following specific learning dimensions: community connections and embedded learning systems. Higher effect sizes have been determined by other DLOQ studies but only when measuring one or two of the following perceptual variables: soft financial performance and knowledge performance. No previous study used a best fit regression model to determine the impact of specific sets of learning organization dimensions on organization performance where organization performance is defined as the weighted combination of both perceived (operational and knowledge) and objective (hard financial) performance information.

Discussion

The community connections learning dimension proved to have the greatest impact in the following performance areas: operational, financial, and multi-dimensional

organization performance. This signifies that learning items like global thinking, working with the community for mutual needs, and seeking out answers from across the organization are rated most important by the highest performers on almost every level. The good news is that these areas have shed light on traditionally overlooked learning practices. The bad news is that the learning items which make up this learning dimension are not very well understood when it comes to implementation. In other words, how do we get employees to think with more of a global perspective and how do we encourage employees to seek out answers from various divisions and departments across an organization?

Encouraging employees and managers to think creatively with a global perspective is a key element in this learning dimension. As technology takes over many jobs once done by people, creative and global thinking will not only be a source of competitive advantage in the marketplace but also a source of future jobs. The off-shoring of routine work is leading many business leaders to predict that the majority of jobs remaining in developed countries like the United States will require a new set of skills. Organizations will need to place greater emphasis on more “right brain” capabilities such as big picture thinking and the ability to bring together disparate ideas to create new synergies, products, and services.

The embedded learning systems dimension refers to the organization’s commitment to formally measure and evaluate learning and performance activities within the organization. Learning systems are important because they both guide and predict organizational performance at multiple levels. They ensure that learning is not left to chance or overlooked but rather valued and integrated into all levels of the organization.

Out of all the other learning dimensions, this dimension consistently appears as significant or prominent within other DLOQ studies (Hernandez, 2001; Kumar & Idris, 2006; McHargue, 2000). It is a common business understanding that the things that are considered important are the things that are measured.

Within the field of organizational learning and development, a great deal of attention has been placed on evaluating the quality of learning that takes place in various training programs. Although training evaluation is certainly important, a well-designed performance management system should be even more foundational to organizations. Performance management levels should build on one another. A primary system clearly states employee expectations in the form of measurable goals, identifies necessary resources to accomplish goals, provides ongoing employee feedback, and communicates the consequences of both excellent and poor performance standards. An advanced system includes additional elements which make use of the embedded learning systems dimension. These elements include strategic organizational goals which cascade from the top to the lowest levels of the company, the use of motivational performance interventions that go beyond basic compensation practices, and the development of performance competencies which highlight the human behaviors which will have the greatest impact on the company's long-term success.

Lastly, overall study results indicate a positive relationship between organizational learning and four performance dimensions. While each performance dimensions may have certain unique limitations, they are considered to be indicators of company's overall health and relative effectiveness. Operational performance and knowledge performance showed the strongest correlations with a company's learning

orientation and financial performance showed the weakest correlation, however still at a statistically significant level. Because of the variety of internal and external factors which can impact performance measures, this study shows that direct, objective measures of performance are an important ingredient in providing a clear picture of the well being of a company. For instance, averaging the actual gross profit of a company over several quarters can provide more detailed performance information than asking one company employee if he/she thinks the company has been profitable. The study attempted to control strong and recent external factors upon financial performance by asking respondents if they have experienced any significant events and, if so, what they thought was the relative impact on financial performance.

Recommendations to Practitioners

First, adult educators within corporate settings should focus on the key learning dimension of connections with the community since this learning dimension was found to have the greatest impact on three of the four performance areas. Possible reasons for this could be the increasing globalization of business markets or the increasing expansion of products and services for companies of this size and scale. One learning action that can encourage this dimension is training all employees to think with a global perspective. This topic had traditionally been included in executive education programs but it needs to be adapted and included in leadership and employee development programs which have the capacity to reach wider audiences throughout an organization.

Another way to enhance this learning dimension is for organizations to provide more opportunities for multicultural diversity programs and systems thinking discussions.

Diversity programs can be integrated into larger systems of business practices like total quality management and management development team building (Marquardt, 2002). Systems thinking moves people from seeing parts to seeing wholes; from reactive stances to proactive planning (Senge, 1990). Systems thinking within large companies can be addressed by sponsoring cross-member project teams whereby various departments and divisions come together to solve mutual problems. Other learning actions related to this dimension include soliciting company volunteers for participation in the annual United Way campaign, securing university partnerships to aid in research or training initiatives, and sponsoring on-site recycling fairs which can communicate environment-friendly policies and programs.

Second, practitioners should spend time building and/or refining embedded learning systems within their organizations. They can use the results of this study to establish a culture which values the measurement of learning and identifying the learning gaps which act as significant barriers to individual, team, and organizational effectiveness. A company's performance management system is one of the most powerful tools to embed learning. Performance appraisals should include competency areas for individual learning and leaders developing others. In this way, learning is considered important enough to be formally reviewed and regularly rewarded. In addition, practitioners can implement more robust levels of training evaluation which target knowledge transfer and behavioral change on the job (Kirkpatrick, 1995). In this way, training programs will be seen to have more of a direct impact on performance improvement, both at the individual and team levels.

Third, adult educators should help foster an organizational culture of empowerment for all employees. There are many similarities between this learning dimension and classroom practices which stress emancipatory pedagogies (Wilson & Cervero, 1997). Adult educators are in a unique position to argue and struggle for workplaces that open up space for non-coerced communication and honest feedback pertaining to the control and purposes of work (Welton, 1995). Two ways to increase empowerment in the workplace is through a flexible tuition reimbursement program and an interactive job-posting system. Tuition reimbursement programs should offer two levels of funding, one for job-related courses and one for business-related courses. In this way, employees have the ability to not only improve their proficiency in their current job but also be able to plan for a different job or career within the organization. An interactive job posting system encourages employees to be aware of staffing changes and career development opportunities. The system should allow employees to inquire about new jobs without the penalty of being perceived as “jumping ship.” Employees should be able to investigate new jobs within the company without fear or apprehension from their current manager or work team.

Fourth, practitioners should introduce the concept of leaders who are learning stewards within their organizations. Leaders are in the best position to build leadership bench strength through coaching (Ellinger, 1996; Fiol & Lyles, 1987) and mentoring (Tichy, 1994). True leadership coaching encourages the person being coached to identify the critical issues and come up with their own solutions. Performance management training for both new and seasoned leaders can illustrate the logistics of the appraisal process and the best ways to conduct an appraisal meeting. In addition, this training

should include basic information and role play opportunities for leaders to coach their employee in performance issues. Mentoring is another critical role for leaders. Creating a formal mentoring program is not an easy task but has a much higher rate of success because it establishes clear objectives and levels of accountability. Leaders who mentor others within the organization show a strong commitment for sharing their talents and encouraging their protégées to go out and mentor others in return.

Recommendations for Future Research

First, large organizations are always in flux. Indeed almost half of the companies listed on the Fortune 500 twenty years ago can no longer be found. Incompetent or unethical senior management, mergers and acquisitions, government regulations, or large scale legal actions can all prove deadly to large companies. Since both financial results and learning practices are always changing, a longitudinal study of one or several companies could provide valuable insights into how these variables interact over the course of time.

Second, definitions of performance are only as powerful as their key ingredients. This research study has defined organizational performance as the aggregate of operational, knowledge and financial performance dimensions with adjustments for recent significant organizational events which may impact published financial metrics. Future research needs to address multiple performance areas in general and financial performance in particular. There is an overabundance of financial metrics and ratios associated with large companies. This study defined financial performance with three key variables but perhaps other studies could include other financial performance

indicators like return-on-total-capital, leverage ratios, earnings per share or price-to-earnings equity ratio. Human performance experts need to keep up with financial analysis experts to better understand each other's perspectives related to high-performing organizations.

Third, an ideal study would include every employee of an organization. Even if the researcher has insider status, this would be a near impossibility. Future research should nevertheless strive for fuller representation of key departments and business units/divisions within large company structures. This study was based on responses from key individuals at the executive level and in the human resource function within target companies. The data suggest a lack of perceptual agreement between respondents from the same company. Future research should seek to balance the needs of depth and breadth among target companies. To adequately capture the essence of an organization, representation must be ensured among key functions beyond the executive suite and the human resources department such as marketing, information technology, corporate law, research and development, health and environmental safety.

Fourth, additional studies utilizing the DLOQ instrument will need to carefully describe the survey sample in great detail and analyze differences based on organization type, size, industry, and geographic regions. Past studies have shown large differences in mean scores and standard deviations associated with each learning dimension. Even the ranking of the seven learning dimensions has not shown consistent results from one study to another. By focusing on similar organization sizes and types, future studies may be able to reveal trends associated among the learning dimensions.

Limitations

This study was based on a sample of companies with headquarters or major divisions within Pennsylvania. This parameter of the study may limit its generalizability. Operational and knowledge performance dimensions are self-reported measures subject to the perspectives and biases associated with the individuals responding to the survey. Business markets are changing at an increasingly faster and more complex fashion. This study can only represent a snapshot of the overall state of the target companies. While the survey assesses the overall financial performance of companies based on the preceding three quarters of financial information, system wide changes are at the heart of a learning organization (DiBella & Nevis, 1998; Senge, 1990; Watkins & Marsick, 1993) and take several years to implement and sustain. Longitudinal studies using similar companies or similar industries could attempt to discover this important aspect linked to all learning organizations.

Conclusion

Although the concept of the leaning organization is over a decade old, empirical assessment of learning organization characteristics is still at an early stage. Research exploring the relationship between learning organization dimensions and hard financial performance has only been conducted by one other study using the DLOQ survey instrument (Ellinger et al., 2002). This research study has added an appreciation of the differences between industrial sectors and a multi-dimensional approach to measure organizational performance. A multi-dimensional performance indicator was chosen

because it better reflects the complex nature of organizational success as illustrated by various organization performance models (Bates, 1999; Holton, 1999; Kaplan & Norton, 1996; Swanson, 1999). This new performance dimension included weighted results from the following three organizational performance areas: operational performance, knowledge performance, and hard financial performance. Respondents determined weightings for each performance area based on their knowledge of the organization and recent significant events like mergers, acquisitions, and large-scale restructuring initiatives. The research revealed that over 18 percent of multi-dimensional organizational performance could be explained by the following DLOQ learning dimensions: community connections and embedded learning systems.

This study provided greater understanding of the learning organization characteristics which directly impact various performance indicators which are common to all types of organizations. Results from this study can help companies establish a sound business case for investments in learning programs and corporate training initiatives. Furthermore, this study can help these same companies assess the business impact associated with the learning investment and reinforce the long-term rewards that can be realized by establishing and maintaining the key dimensions of the learning organization model.

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APPENDICES

APPENDIX A

Human Subjects Review

IRB REVIEW NUMBER 22079

Dear Gregory Chajnicki,

The Office for Research Protections (ORP) has reviewed the above-referenced study and determined it to be exempt from IRB review. This study qualifies under the following category:

Category 2: Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observations of public behavior unless: (i) information obtained is recorded in such a manner that human participants can be identified, directly or through identifiers linked to the participants; **and** (ii) any disclosure of the human participants' responses outside the research could reasonably place the participants at risk of criminal or civil liability or be damaging to the participants' financial standing, employability, or reputation. [45 CFR 46.101(b)(2)]

PLEASE NOTE THE FOLLOWING:

- Include your IRB number in any correspondence to the ORP.
- The principal investigator is responsible for determining and adhering to additional requirements established by any outside sponsors/funding sources.
- **Record Keeping**
 - The principal investigator is expected to maintain the original signed informed consent forms, if applicable, along with the research records for at least three (3) years after termination of the study.
 - This will be the only correspondence you will receive from our office regarding this determination.
 - **MAINTAIN A COPY OF THIS EMAIL FOR YOUR RECORDS.**
 - **Consent Document(s)**
 - The exempt consent form(s) will no longer be stamped with the approval/expiration dates.
 - The most recent consent form(s) that you sent in for review is the one that you are expected to use.
- **Follow-Up**
 - The Office for Research Protections will contact you in three (3) years to inquire if this study will be on-going.
 - If the study is completed within the three year period, the principal investigator may complete and submit a **Project Close-Out Report**.
<http://www.research.psu.edu/orp/areas/humans/applications/closeout.rtf>
- **Revisions/Modifications**
 - Any changes or modifications to the study must be submitted to the Office for Research Protections on the Exempt Modification Request Form available on our website:
<http://www.research.psu.edu/orp/areas/humans/applications/exemptmod.rtf>

Thank you,

Mary Becker, Associate Director
Office for Research Protections
The Pennsylvania State University
201 Kern Graduate Building
University Park, PA 16802
Phone: (814) 865-1775
Fax: (814) 863-8699

APPENDIX B

Permission to Use Survey

We are delighted to give you permission to use the DL)Q for this purpose.

Please share with us what you learn.

Best wishes,

--

Karen E. Watkins
Associate Dean for Research, Technology, and External Affairs
College of Education
The University of Georgia
G10 Aderhold Hall
Athens, GA 30602
W 706-542-4558
F 706-542-8125
<http://www.coe.uga.edu/research/>

From: "Chajnacki, Greg" <Chajnacki@Telrx.com>
Date: Sat, 4 Jun 2005 14:34:12 -0400
To: <kwatkins@uga.edu>
Cc: "Chajnacki, Greg" <Chajnacki@Telrx.com>
Subject: Permission to use DLOQ for PSU doctoral research

Dear Dr. Watkins-

I am in the Penn State Adult Education Program being advised by Daniele Flannery. My former adviser was Andrea Ellinger.

My research proposal is on the relationship between learning organizations and multi-dimensional organizational performance among large, public companies.

Do I have your permission to use the DLOQ instrument for this purpose?

Please let me know if you have any questions. Thank you.

APPENDIX C

Survey Invitation

DLOQ Survey - Email Invitation

Subject: Penn State Study on Learning Organizations

Dear XXXX

Most business professionals agree that maximizing the learning that occurs in companies is critical for continued success and competitive advantage. The critical issue, however, is being able to identify the most important types and levels of learning within large organizations out of the multitude which exist.

By identifying the most effective learning characteristics, human resource and training professionals can focus scarce time and budgets on organizational learning that has the highest impact on the bottom-line.

You are invited to participate in a graduate research study on the characteristics of a learning organization being conducted by a veteran HR professional and doctoral student within the Adult Education/Behavioral Sciences program at Penn State University. This study targets over 1000 executives and human resources professionals among 89 medium to large companies within Pennsylvania.

Your participation involves less than 7 minutes to complete a brief and confidential web survey.

Results of this study are available upon request. Please see the end of the survey for details.

Please click on this secure link to begin the survey: <survey link>

Thank you for your participation!

Please Note: If you do not wish to receive further emails about this study, please click on this link to be removed from the invitation list: <remove link>

Sincerely,

Greg Chajnacki
Manager, Talent Management & Development
Saint-Gobain North America
Gregory.m.chajnacki@Saint-gobain.com

APPENDIX D

Survey Introduction

DLOQ Survey – Email Introduction (follows email invitation)

You are invited to participate in a graduate research study on the characteristics of a learning organization being conducted by a veteran HR professional and doctoral student within the Adult Education/Behavioral Sciences program at Penn State University. Your participation involves less than 7 minutes to complete a brief, multiple choice, web survey.

This study investigates the relationship between characteristics of a learning organization and the following multi-dimensional performance measures: knowledge performance, operational performance, and financial performance.

If you would like to participate in the study, please click on the link below to begin the survey.

Please note that by clicking on this link, you are verifying your consent to have your information be a part of this research.

Your participation in this survey is completely voluntary. The results of the study will not identify individuals within specific companies and only the researcher will have access to individual information. There is no penalty should you choose not to participate in the study. You can also decide not to complete the survey at any time during your participation. Your confidentiality will be maintained to the degree permitted by the technology used. Specifically, no guarantees can be made regarding the interception of data sent via the Internet by any third parties. Participants in this research must be 18 years of age or older.

Thank you in advance for considering participation in this research. If you have any questions, please contact me by the phone/email listed below or you can contact Dr. Daniele Flannery, Penn State Harrisburg at ddf3@psu.edu or 717-948-6219.

Regards,
Greg Chajnacki
610-341-7538
Gregory.m.chajnacki@Saint-gobain.com

APPENDIX E

Survey Instrument

Dimensions of the Learning Organization Questionnaire

Introduction: A learning organization is one that learns continuously and transforms itself. Learning is a continuous, strategically used process that is integrated with and runs parallel to work. In the past decade, organizations have experienced wave after wave of rapid transformation as global markets and external political and economic changes make it impossible for any business or service to cling to past ways of doing work. A learning organization arises from the total change strategies that institutions of all types are using to help navigate these challenges. Learning organizations proactively use learning in an integrated way to support and catalyze growth for individuals, teams, and the entire organization.

Directions: Please respond to each of the following items. For each item, determine the degree to which this is something that is or is not true of your organization. If the item refers to a practice that rarely or never occurs, score it a one (1) on the scale. If it is almost always true of your organization, then score the item as a six (6) on the scale.

Section/Question	Almost Never			Almost Always		
	1	2	3	4	5	6

Section One: Learning Dimensions

Individual Level

(Continuous Learning; Dialogue and Inquiry)

1. In my organization, people help each other learn
2. In my organization, people are given time to support learning
3. In my organization, people are rewarded for learning
4. In my organization, people give open and honest feedback to each other
5. In my organization, whenever people state their view, they also ask what others think
6. In my organization, people spend time building trust with each other

Team Level

(Team Learning)

7. In my organization, teams have the freedom to adapt their goals as needed
8. In my organization, teams revise their thinking as a result of group discussions or data collected
9. In my organization, teams are confident that the organization will act on their recommendations

Organization Level

(Learning Systems; Empowerment; Community Connections; Leadership)

10. My organization creates systems to measure gaps between current and expected performance
11. My organization makes its lessons learned available to all employees
12. My organization measures the results of the time and resources spent on training
13. My organization recognizes people for taking initiative
14. My organization gives people control over the resources they need to accomplish their work
15. My organization supports employees who take calculated risks
16. My organization encourages people to think from a global perspective
17. My organization works together with the outside community to meet mutual needs
18. My organization encourages people to get answers from across the organization when solving problems
19. In my organization, leaders mentor and coach those they lead
20. In my organization, leaders continually look for opportunities to learn
21. In my organization, leaders ensure that the organization's actions are consistent with its values

Section Two: Measuring Learning Results

In this section, we ask you to reflect on the relative performance of your organization. You will be asked to rate the extent to which each statement is accurate about the organization's current performance when compared to the previous year. There are no right or wrong answers. We are interested in your perception of current performance.

Operational Performance

22. In my organization, response time for customer complaints is better than last year
23. In my organization, market share is greater than last year
24. In my organization, the cost per business transaction is less than last year

Knowledge Performance

25. In my organization, the number of new products and services is greater than last year

26. In my organization, the percentage of total spending devoted to technology and information processing is greater than last year

27. In my organization, the percentage of individuals enrolled in training and development programs is greater than last year

Additional Information

28. Has your company experienced a recent significant event (i.e. merger, acquisition, major restructuring, major litigation suit, product recall, etc.) within the last 12 months which may have impacted financial performance? Yes No

29. If yes, to what degree to you feel this significant event impacted your company's financial performance? Less than 20% 20-40% 40-60% 60-80% More than 80%

Thank you for participating in this survey.

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APPENDIX F

Survey Follow Up Reminders

DLOQ Survey – Email Follow up Notice

Subject: (First) (Second) (Third and Final) Reminder - Penn State Study on Learning Organizations

Dear XXXX

As a follow up to my previous email, you are invited to participate in a graduate research study on the characteristics of a learning organization being conducted by a veteran HR professional and doctoral student within the Adult Education/Behavioral Sciences program at Penn State University. This study targets over 1000 executives and human resources professionals among 89 medium to large companies within Pennsylvania.

By identifying the most effective learning characteristics, human resource and training professionals can focus scarce time and budgets on organizational learning that has the highest impact on the bottom-line.

Your participation involves less than 7 minutes to complete a brief and confidential web survey.

Results of this study are available upon request. Please see the end of the survey for details.

Please click on this secure link to begin the survey: <survey link>

Thank you for your participation!

Please Note: If you do not wish to receive further emails about this study, please click on this link to be removed from the invitation list: <remove link>

Sincerely,

Greg Chajnacki
610-341-7538
Gregory.m.chajnacki@Saint-gobain.com

VITA

Gregory M. Chajnacki

Education

B.A., St. Charles Borromeo Seminary, Overbrook, PA, May 1987
Major: Philosophy and Education

M.P.A., Kutztown University of Pennsylvania, Kutztown, PA, May 1995
Major: Public Administration

D.Ed., The Pennsylvania State University, Harrisburg, PA, May 2007
Major: Adult Education (Human Resource Development)

Publications

Chajnacki, G.M. & Ellinger, A.D. (1999). The impact of a company-union career development program. In K.P. Kuchinke (Ed.), *Academy for Human Resource Development Conference Proceedings*, Arlington, VA: AHRD Press.

Employment Experience

2005 to present	Saint-Gobain Corporation, Valley Forge, PA Manager, North American Talent Management
2004 to 2005	Telrx Marketing, Inc. (Merck and Co., Inc), Horsham, PA Director, Human Resources
1998 to 2004	Harleysville Insurance Group, Inc., Harleysville, PA Consultant, Organization Development
1992 to 1998	Bethlehem Steel Corporation, Bethlehem, PA Manager, Training and Career Development

Professional Designations

Certified Benefits Professional (CBP), Worldatwork, 2006

Certified Compensational Professional (CCP), American Compensation Association, 2002

Senior Professional in Human Resources (SPHR), Human Resources Certification Institute, 1998