DISSERTATION

THE EFFECTS OF LEADERSHIP BEHAVIORS ON ORGANIZATION AGILITY: A QUANTITATIVE STUDY OF 126 U.S.-BASED BUSINESS UNITS

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ABSTRACT

THE EFFECTS OF LEADERSHIP BEHAVIORS ON ORGANIZATION AGILITY: A QUANTITATIVE STUDY OF 126 U.S.-BASED BUSINESS UNITS

Organizations face challenges related to swiftly and successfully adapting their products and services to meet the changing demands of the external environment to achieve long-term success. These challenges have prompted the study of organization agility, an organizational capability defined as the ability to swiftly and successfully change in order to achieve long-term financial success (Worley, Williams, & Lawler, 2014). Researchers have theorized that the behaviors and attributes of organization leaders impact organization agility (Worley et al., 2014; Holbeche, 2015). The purpose of this study was to conduct an inferential quantitative research study to determine if leadership behaviors predict organization agility.

The research sample included 126 U.S.-based business units within 47 organizations with greater than 1,000 employees. Organization agility was measured using the Agility Survey (short-form) developed by Worley, Williams, and Lawler (2014) to generate a Total Agility Score. The leadership behaviors and attributes of the business unit leaders were measured using the Multifactor Leadership Questionnaire (MLQ-5X; Avolio & Bass, 2004). Confirmatory and exploratory factor analysis determined an alternative five-construct model of leadership behaviors and attributes for this data set. Simultaneous linear regression determined that the leadership behaviors found to predict higher levels of organization agility included (a) exploratory behaviors that support a culture of discovering new ways to solve problems and conduct business, (b) latitude behaviors that provide employees with a high degree of freedom

and responsibility in achieving work results and resolving issues, (c) visionary behaviors that create a clear organization purpose and mission that define the "why" of the organization's existence, and (d) reflective behaviors that cause leaders to challenge their own assumptions and create mechanisms for the organization to do so as well. Simultaneous linear regression analysis also determined that leadership behaviors related to power and structure predict lower levels of organization agility.

In addition to the original research question, results were reported comparing the Total Agility Score for organization groups divided by type of organization, size of organization, and year founded; and for business unit groups divided by business unit leader gender and size of business unit. Inspection of these results' means indicated that the Total Agility Score for for-profit organizations (M = 3.97) was significantly higher than the Total Agility Score for nonprofits/government agencies (M = 3.67), a difference of .30 on a 5-point Likert scale (p = .009) and with a larger than typical effect size (d = .77). Inspection of the results also indicated that the Total Agility Score for organizations with 1,000 to 6,000 employees (M = 3.99) was significantly higher than the Total Agility Score for organizations with greater than 6,000 employees (M = 3.83; p = .038) with an effect size between smaller than typical or medium (d = .37).

This research study contributes to the body of knowledge of organization agility by informing scholars, practitioners, and organization leaders as to the leadership behaviors and attributes that predict both higher and lower levels of organization agility. Several additional research studies are suggested that would enhance knowledge related to the conceptual frameworks and theories of organization agility and leadership.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF KEYWORDS

Organization

Adaptable organizations. Adaptable organizations are organizations able to respond to the turbulences of the environment and focus upon the client's needs versus trying to fit the client's problems into its own organizational categories (Segal, 1974).

Agile organizations. Agile organizations are organizations with characteristics, such as flexibility, speed, and adaptability, that thrive in business environments that are unpredictable and continuously changing (Dove, 1999; Yusuf, Sarhadi, & Gunasekaran, 1999).

Nimble organizations. Nimble organizations succeed, repeatedly, in erratic environments by quickly and effectively adapting by efficiently allocating human and financial resources (Conner, 1998).

Organization agility. Organization agility is a characteristic of an organization or business unit that facilitates rapid and successful adaptation in response to changes in the external business environment (Worley et al., 2014).

Organizational ambidexterity. Organizational ambidexterity refers to an organization's ability to balance two strategies effectively: (a) the exploitation of existing products and services and (b) the exploration of new products and services made necessary by shifts in the external environment that may require transformational, discontinuous change (March 1991).

Organizational culture. Organizational culture is defined as the physical artifacts, espoused values, and shared beliefs of an organization, with an emphasis on shared learning and the shared mental models created through social interaction within an organization (Schein, 2010).

Organizational development. Organizational development is the systemic application of science to an organization's strategies, structures, and processes that results in organizational effectiveness (Cummings & Worley, 2009).

Resilient organizations. Resilient organizations are organizations able to face challenging conditions, both discrete events such as crises or scandals, and ongoing risks, such as competition, and emerge stronger and more resourceful (Vogus & Sutcliffe, 2007).

System. A system is comprised of parts that interact with one another to function (Kauffman, 1980).

Leadership

Leader. A leader is a person with power that engages in a relationship with followers (Burns, 1978).

Leadership. Leadership is the act of mobilizing resources to engage the motives of followers in achieving the purpose and motive of the leaders; also, the process of influencing followers to achieve a common objective (Burns, 1978; Northouse, 2013).

Leadership agility. Leadership agility is the ability to take effective action as a leader in complex, rapidly changing environmental conditions (Joiner & Josephs, 2007).

Leadership attributes. Leadership attributes are the inborn characteristics of a leader such as intelligence and extraversion (Avolio & Bass, 2004).

Transformational leadership. Transformational leadership characterizes leaders who determine and leverage a need within their followers by engaging the entire being of the follower and satisfying his or her higher needs in a way that uplifts and motivates (Burns, 1978).

Transactional leadership. Transactional leadership characterizes leaders who cater to the immediate self-interests of employees (Bass, 1995).

Change

Change management. Change management is broader than organizational development and reflects managing change such that knowledge and skills are transferred to lift an organization's capability to solve problems and achieve objectives (Cummings & Worley, 2009).

Incremental change. Incremental change is the evolutionary, ongoing change that occurs within an organization (Tushman & O'Reilly, 1996).

Organizational change. Organizational change refers to the more narrowly focused efforts of change within an organization upon cost, quality, and schedule (Cummings & Worley, 2009).

Transformational change. Transformational change refers to the revolutionary, or discontinuous change, which is, at times, necessary within an organization, that involves major shifts in culture, structure, strategy, products, and services (Tushman & O'Reilly, 1996).

Theory

Conceptual framework. Conceptual framework is the model produced during the conceptualization stage of theory building (Swanson & Chermack, 2013).

Hypothesis. A hypothesis is the surmised assumption that a relationship or condition exists (Krathwohl, 2009).

Models. Models are the smaller subsets of theories (Swanson & Chermack, 2013).

Theory. Theory is the description of a specific area of knowledge and how it works (Swanson & Chermack, 2013).

Theory building. Theory building is the process of advancing knowledge through research towards the establishment of accepted theory that advances both theory and practice (Swanson & Chermack, 2013).

CHAPTER 1: INTRODUCTION AND BACKGROUND

This chapter introduces the research topics of leadership and organization agility, including a discussion of the challenges related to organizations and the ability to adapt to changing external environments. This chapter also discusses the significance of this problem and includes a definition of key terms.

Introduction

The ability of U.S. business organizations to stay relevant and achieve sustained profitability for long periods of time is a critical issue in today's global economy (Holbeche, 2015; O'Reilly & Tushman, 2016; Worley, Williams, & Lawler, 2014). One important element of long-term financial performance is the ability to respond quickly to market changes (Kotter, 2012; Worley et al., 2014). In many instances, corporate leadership must build an adaptable culture that realizes that (a) shifts in the external environment are going to happen, and (b) an organization must change to react to these shifts (Crocitto & Youssef, 2003; Meyer, 2015).

These challenges of long-term corporate financial performance have driven interest by scholars, practitioners, and corporate executives in the conceptual frameworks of organization agility (Goldman, Nagel, & Preiss, 1995; Holbeche, 2015). Indeed, the ability to be agile as an organization is recognized by corporate leaders as being increasingly important (Holbeche, 2015; Meyer, 2015). Organization agility is defined as the ability to survive and thrive in an ever-changing external environment with shifting consumer preferences, regulations, competitive landscapes, and technology (Holbeche, 2015; Kotter, 2014; Meyer, 2015; Worley et al., 2014).

Agility has been researched at the individual, leader, business unit, and organizational levels (Holbeche, 2015; Sull, 2009). Agility has also been researched within specific industries

such as manufacturing and software development, and within specific areas of expertise such as supply chain management (Crocitto & Youssef, 2003; Sharifi & Zhang, 1999). This dissertation research study was focused upon organization agility at the business unit level within corporations, viewing each of these business units as its own organization, and thus, extending the findings of this research study to the understanding of organization agility. The specific area of interest was the relationship between the behaviors and attributes of the leaders of business units and the level of organization agility achieved by those business units.

Several conceptual frameworks of organization agility exist and are discussed at length in Chapter 2 (Holbeche, 2015; Meyer, 2015; Sharifi & Zhang, 1999; Sull, 2009; Worley et al., 2014). The conceptual framework developed by Worley et al. (2014) was chosen to represent organization agility for this study because this conceptual framework was not industry specific and was focused on agility at the organizational level with applicability to the business units within an organization. This conceptual framework also corresponded to an instrument for measuring organization agility (Worley et al., 2014).

Leadership, defined as the process of motivating followers towards a goal, has been studied for the last century with varying degrees of insight and success (Burns, 1978). While leadership was included as a construct or element in the conceptual frameworks of organization agility reviewed, an opportunity existed to further research the relationship between the behaviors and attributes of the leaders of an organization or business unit and the level of agility of that organization or business unit (Sull, 2009; Worley et al., 2014). This research study was focused upon how well leadership behaviors and attributes predict the level of agility of the business unit.

The Problem

Organizations are, at times, buffeted by environmental shifts that require rapid adaptation of products, services, and technologies to meet shifting market requirements (Holbeche, 2015; Kotter, 2012). External forces for change include rapidly evolving technology, intensifying competition, changing customer demands, changes in government regulations, and the rise of developing markets (Holbeche, 2015; O'Reilly & Tushman, 2016; Worley et al., 2014). A key first step for an organization is the ability to scan the environment and understand how external shifts drive a need for changes in the organization's strategies (Brown & Eisenhardt, 1998). Often this requires an organization to "think the unthinkable" and results in implementing a variety of change efforts (Chermack, 2001; Meyer, 2015; Worley et al., 2014).

Unfortunately, studies indicate that major change efforts are frequently unsuccessful (Aiken & Keller, 2009; Kotter, 2012). In a 2013 study conducted by the management consulting firm Strategy&, global senior executives rated only 54% of culture and change management initiatives as successful (Aguirre & Alpern, 2014). The obstacles related to implementing organizational change are varied and include challenges with resources and coordination, unanticipated problems, lack of skills, inadequate leadership and direction, change resistance, and uncontrollable external factors (Hussey, 2000).

This inability to change with evolving markets and industries can result in the death or decline of an organization (Dove, 1999). The average life expectancy of a new U.S. company in 2006 was only 6 years, and about half of the Fortune 500 companies fall off the list each decade (Worley et al., 2014). Only 10% of the firms founded in 1976 were in existence 10 years later, and only 160 of approximately 1,000 large firms survived from 1962 to 1998 (O'Reilly & Tushman, 2016). The conceptual framework of organization agility seeks to provide solutions for

these challenges by developing an organizational capacity to quickly and successfully react to shifts in the external environment by, in part, implementing change (Holbeche, 2015; Meyer, 2015; Worley et al., 2014).

Problem Statement

Thus, the problem statement that framed the basis of this research was:

> Corporations that are not able to quickly react to external market changes often face short- to long-term financial challenges that may lead to extinction or bankruptcy.

Significance of the Problem

The literature reviewed described a world littered with examples of companies that were not able to react fast enough or successfully enough to external shifts, such as Kodak, Polaroid, and Northwest Airlines (Cummings & Worley, 2009). These organizations faced shifts in the external environment that required internal changes to remain successful. Relevant external forces included rapidly changing technology, intensified competition, changing customer demands, changes in government regulations, and the rise of developing markets (Belasco, 1990; Brown & Eisenhardt, 1995; Burke & Litwin, 1992; Worley et al., 2014).

Research supports the challenges of long-term, sustained corporate financial success in the U.S. (Worley et al., 2014). Only 61 of the original Forbes 100 companies named in 1917 were still in operation in 1987, and of the remaining 39, only 18 remained in the top 100, and their return was 20% less than the overall market for that period (Beer, 2009). Rapid technological changes, industry discontinuities, and product life-cycle shifts are pushing organizations to be innovative and nimble (Cummings & Worley, 2009).

The inability to implement change has been cited as a key contributor to the inability of U.S. corporations to achieve long-term financial success (Meyer, 2015; O'Reilly & Tushman, 2016; Worley et al., 2014). Studies indicate that major change efforts are successful only 30% of the time (Aiken & Keller, 2009; Kotter, 2012). Not only does failure to achieve necessary organizational change result in lower overall corporate financial performance, it also results in wasted organizational resources and a lack of support for critical strategies that ensure the future success of the organization (Hussey, 2000). The decline in CEO tenure from 10.5 years in 1990 to less than 4 years in 2000 has been cited as an example of leadership's inability to achieve high levels of organizational financial performance in time of ever-increasing change (Beer, 2009).

The difficulty U.S. corporations have in implementing change in the face of shifting external conditions has driven an interest in the study of organizational agility (Dove, 1999), as noted by Dove (1999), "We view agility in organizations not as a goal or a strategy, but rather as a fundamental existence necessity" (p. 19). The environmental school of strategy outlined this viability issue as such (Mintzberg, Ahlstrand, & Lampel, 1998):

- The environment and general forces within the environment exist as the central character in the strategy-making process.
- Key to the organization's success is the ability to respond to these forces.
- Organizations are grouped in ecological-type niches and face potential hostile conditions and few resources.
- Leadership is primarily responsible for scanning the environment, determining the forces, and ensuring that the organization adapts as necessary to survive.
- An inability to respond to environmental forces will result in the death of the organization.

A discussion of the leadership behaviors and attributes associated with agile organizations is critical in understanding how to achieve success in implementing transformational change (Crocitto & Youssef, 2003). The literature reviewed indicated that the theories of change management and leadership have not been adequately integrated and that there is inadequate connection between the research, theory, and practice of leadership and organizational change (Eisenbach, Watson, & Pillai, 1999). Environmental changes are driving a critical need for transformational leaders who must articulate a vision of the future and change the structure, processes and practices of the organization to meet these changing environmental needs (Bass, 1999; Eisenbach et al., 1999).

Purpose of the Research

Given the framing of this study, the purpose of this research was to generate a greater understanding of how the leadership behaviors and attributes of U.S.-based business unit leaders impact the agility of each business unit. The knowledge gained via this research contributes to the organization agility and leadership body of knowledge and assists corporate leaders working to create organizations with higher levels of agility.

Research Question

Considering the problem statement and significance of the problem, the research question that frames the basis of this inquiry is stated as follows:

> RQ: What are the perceived behaviors and attributes of business unit leaders, as reported by the direct reports of business unit leaders and measured by the Multifaceted Leadership Questionnaire (MLQ – 5X), that predict higher scores on organization agility for that business unit, as measured by the Agility Survey (short-form)?

CHAPTER 2: REVIEW OF THE LITERATURE

This chapter summarizes and synthesizes the current body of knowledge related to organization agility and leadership. Select qualitative and quantitative research studies were included to exemplify the streams of conceptualization and theory building for both leadership and organization agility. A decision was made to focus upon transformational leadership as a thread of leadership theory because of the alignment with the elements of leadership in the conceptual frameworks of organization agility (Bass & Riggio, 2006; Holbeche, 2015; Meyer, 2015; Worley et al., 2014).

Introduction

Organization agility is an emerging topic, with streams of research specific to certain industries and various elements of an organization, including individuals, teams, and entire organizations (Dove, 1999; Nagel, 1992). A decision was made to focus on agility at the enterprise level. Leadership is a mature topic with various threads of theory development and many conceptual frameworks (Northouse, 2013). A decision was made to focus upon transformational leadership versus other conceptual frameworks and theories of leadership because many of the elements of the conceptual framework of transformational leadership align with the leadership behaviors and attributes identified as elements of organization agility (Bass, 1999; Gagel, 2017; Holbeche, 2015; Worley et al., 2014).

This chapter presents a synthesized account and critique of several conceptual frameworks of organization agility and the conceptual framework of transformational leadership and discusses the interrelation between the two bodies of knowledge as it relates to this dissertation.

Research Questions Framing the Literature Review

The following research questions framed the development of this literature review:

- How have the conceptual frameworks of organization agility developed and evolved over time?
- What constructs and elements are reflected in these conceptual frameworks?
- How has theory, research, and practice informed these conceptual frameworks of organization agility?
- How is organization agility measured?
- What elements of leadership are present in these conceptual frameworks of organization agility?
- How has the conceptual framework of transformational leadership evolved over time?
- How is transformational leadership measured?
- What elements of the conceptual framework of transformational leadership are relevant to the study of organization agility?

Each of these questions framed the search for and review of literature included in this chapter.

Method

To gain a deeper understanding of the conceptual frameworks of organization agility and transformational leadership, a literature review was conducted using recognized literature review methods (Torraco, 2005). Literature was located from September 2014 to April 2017 utilizing the databases Google Scholar and Research Gate using the key words “agility,” “organization agility,” “agile organization,” “strategic agility,” “leadership,” and “transformational leadership.” In addition, the reference lists of the studies obtained were reviewed to provide additional studies

for inclusion in this dissertation. These research studies represented the historical development of the conceptual framework of organization agility that has occurred since 1991, including the development of sub-streams of research related to agile manufacturing, agile software development, agile supply chain, and agile organizations.

To more clearly understand the emerging topic of organization agility, the abstracts of approximately 120 studies and books were reviewed before selecting four organization agility conceptual frameworks for inclusion in this chapter (Belasco, 1990; Goldman et al., 1995; Holbeche, 2015; Worley et al., 2014). These four conceptual frameworks of organization agility were chosen for inclusion in this chapter because each (a) was robust in representing several constructs and multiple elements, (b) was referenced in the research reviewed, and (c) was focused upon organization agility at the enterprise level without a contextual boundary of industry (Belasco, 1990; Goldman et al., 1995; Holbeche, 2015; Worley et al., 2014).

To gain a greater understanding of the current body of qualitative and quantitative research related to organization agility, 10 research studies were chosen for a more in-depth review for this dissertation because each study was (a) not industry specific, (b) reflected a focus on agility at the organizational level, and (c) utilized qualitative or quantitative research techniques. In addition, the reference lists of these studies were reviewed to provide approximately five additional studies for consideration in this literature review. Organization agility is an emerging topic, and as such, the research related to this conceptual framework is limited (Holbeche, 2015; Worley et al., 2014). The research studies chosen for inclusion, which included two qualitative and three quantitative studies, were selected because each reflects the general thematic direction of the research studies reviewed (Bahrami, Kiani, Montazeralfaraj,

Fallah Zadeh, & Zadeh, 2016; Brown & Eisenhardt, 1998; Farhang, Dadgar, & Arbabisarjou, 2015; Iivari & Iivari, 2010; Nafei, 2016; Worley et al., 2014).

The History and Context of Organization Agility

Before turning to the research related to the conceptual framework of organization agility, it is helpful to review the development of this conceptual framework over time. Springing from a 1991 government-backed roundtable on U.S. competitiveness, the term *agility* was originally applied to the manufacturing industry to describe the ability of an organization to achieve mass customization and high-quality products (Nagel, 1992). The roundtable consisted of an intense 4-month-long collaborative workshop that engaged 15 representatives of U.S. industry to identify the competitive strategies necessary to counteract Japanese lean efforts in manufacturing (Dove, 1999). Yusuf et al. (1999) defined agile manufacturers as (a) those able to mobilize core competencies and synthesize diverse technologies in response to social and environmental issues, and (b) those able to produce high quality, customized products in response to change and uncertainty. The use of the term agile suggests both the ability to move quickly and the ability to adapt (Dove, 1999).

Although the 1991 roundtable was considered by many to have launched the term agile in relation to organizations, study was being conducted on related conceptual frameworks prior to 1991. For example, Belasco (1990) studied the ever-changing nature of markets, customers, technology, and competition, and Belasco believed that organizational leaders were responsible for driving continual change to meet these changing needs via (a) strategies that met the new market conditions, (b) the right people to execute the strategies, and (c) the right resources to enable success. Belasco also discussed the need for organizations to quickly adapt, a key concept in organization agility.

The study of agility has occurred at many levels, including the study of agile individuals, agile teams, and agile organizations; and in several contexts, including manufacturing, software development, and supply chain (Crocitto & Youssef, 2003; Holbeche, 2015; Sharifi & Zhang, 1999). Crocitto and Youssef (2003), among others, proposed expanding the conceptual framework of agile organizations beyond product manufacturing to extend to the study of people, including organizational members, management, and leadership. At the organizational level, agility is defined as the ability to quickly and successfully react to shifts in the external environment, such as changes in regulations, consumer needs, or technology, to remain competitive and financially successful (Goldman et al., 1995; Worley et al., 2014). A perceived increase in the pace of these types of external shifts has prompted increased interest in organization agility by scholars and practitioners (Holbeche, 2015; Worley et al., 2014).

Organization Change

Organization agility is closely related to the theory of organization change, and research related to organization agility suggests a need to rethink organization change (Kotter, 2014; O'Reilly & Tushman, 2016). Early research on organization change focused upon two types of change: (a) the evolutionary incremental change that is nearly constant throughout a leader's career, and (b) fundamental, transformational changes that are dramatic and involve organizational upheaval of some type (Hussey, 2000). Transformational change is often driven by external forces that require entirely new behaviors from employees and often involve major shifts in strategies, mergers and/or acquisitions, and new technologies (Burke & Litwin, 1992; Kotter, 2012). These more transformative organizational transitions also frequently involve major shifts in culture, structure, and process (Dunphy & Stace, 1988).

As early as 1988, Dunphy and Stace argued that the dramatic effect of takeovers, mergers, and acquisitions was making incremental change models less valuable and relevant, and they discussed the growing literature on large-scale organizational transitions. Dunphy and Stace (1988) argued that the difference between incremental and transformative change was not the pace of the change but instead whether the organization was effecting change continuously or discontinuously. Some argue that transformational change is occurring more frequently within organizations and that instead of treating transformational change as unusual, organizations should treat transformational change as the norm (Holbeche, 2015; Meyer, 2015).

The Problem

Recent interest in organization agility has, in part, been driven by the lack of success in organization change initiatives within this contextual environment. A Kotter (2012) study indicated that only 30% of major change efforts were successful, and a McKinsey study of 1,546 business executives in 2009 produced a similar number (Aiken & Keller, 2009; Kotter, 2012). A 2013 study conducted by Strategy& asked global senior executives to rate the success of culture and change management initiatives, with 54% being rated as successful (Aguirre & Alpern, 2014).

During change, a multitude of variables exist that are hard to predict and control, making the management and achievement of change difficult (Burke & Litwin, 1992). Change fails for many reasons, including protracted implementation timeframes, unanticipated problems, inadequate activity coordination, competing priorities, lack of management skills, uncontrollable external factors, inadequate leadership and direction, lack of implementation task definition, and inadequate information systems to monitor implementation (Hussey, 2000).

Measuring Agile Organizations

Before discussing the research related to organization agility, it should be noted that there is debate among scholars as to how one identifies an agile organization. The selected literature was reviewed to determine the various organization performance variables utilized to identify an agile organization (see Table 1). There was little agreement of what organization performance metrics most accurately define organization agility. In the case of agile manufacturing, for example, little empirical evidence exists to validate the link between agile manufacturing and business performance (Vazquez-Bustelo, Avella, & Fernandez, 2007). Agreement on the measures of organizational performance that support the existence of organization agility would benefit future research.

Table 1

Examples of Organization Performance Metrics Used to Measure Organization Agility

Organization Performance Metric(s) Related to Organization Agility	Researcher(s)
Revenue growth	Brown & Eisenhardt, 1998
Market share, new product development, cost effectiveness metric	Sherehiy, Karwowski, & Layer, 2007
Marketing effectiveness, productivity, business excellence, and competitive advantage	Kuleelung & Ussahawanitchakit, 2015
Customer retention, financial performance	Shin, Lee, Kim, & Rhim, 2015
Financial performance: return on assets (ROA)	Worley, Williams, & Lawler, 2015

Agile Manufacturing Research

Although this dissertation is focused upon organization agility research that is not specific to an industry, the depth of qualitative and quantitative research related to agile manufacturing – and the possibility of its contribution to understanding organization agility in broader contexts – justified an analysis of this research.

The Research of Sharifi and Zhang

The research of Sharifi and Zhang (1999, 2001; Zhang & Sharifi, 2007) made a significant contribution to the study of agile manufacturing. Sharifi and Zhang (1999) developed a conceptual framework of agile manufacturing comprised of four capabilities – competency, responsibility, flexibility, and speed – by researching existing literature, piloting a questionnaire, and conducting interviews. In addition to these four agility capabilities, the conceptual framework of agile manufacturing developed by Sharifi and Zhang (2001) included the following constructs and elements: (a) levels of agility drivers, including the need to become agile, the strategic intent to become agile, and the agility strategy; and (b) agility providers, including organization, technology, people, and innovation related to practices, methods, and tools (Sharifi & Zhang, 1999).

This conceptual framework of agile manufacturing was used to create an agility assessment instrument comprised of 56 questions to measure agile manufacturing (Sharifi & Zhang, 2001). In addition, an agility need assessment instrument was developed to determine the level of agility necessary for a specific manufacturing organization (Sharifi & Zhang, 1999). Finally, a process was developed to define the methodology necessary to become agile (Sharifi & Zhang, 1999). This process included the following steps: (a) examining the level of agility needed using the agility need assessment tool, (b) examining the current level of agility using the

agility assessment tool, (c) employing a gap analysis to determine the need to develop agility capabilities and practices, and (d) outlining the specific actions to do so, including change strategies and the adoption of new strategies, abilities, and practices (Sharifi & Zhang, 1999).

Additional research by Sharifi and Zhang included case studies such as the 2001 study of two manufacturing organizations implementing agile methodologies, utilizing both the assessment of agility need and the assessment of agility level to identify company weak points. This research sought to expand upon the knowledge of agile manufacturing by identifying the practices that support the achievement of agility in manufacturing organizations (Sharifi & Zhang, 2001). A follow-up study in 2007 by Zhang and Sharifi surveyed 900 U.K. manufacturing organizations with annual revenues of £3 million to £120 million, first by piloting the survey with 200 organizations randomly sampled from the population and then by surveying the remaining 700 organizations, with 79 eventual respondents and 58 usable responses. Fourteen company case studies were developed to confirm the reliability of the data in the original returned instruments (Zhang & Sharifi, 2007). Cluster analysis created three clusters of companies - responsive player, quick player, and proactive player – and identified the characteristics of these types of manufacturing companies related to agility (Zhang & Sharifi, 2007).

Contributions of Additional Researchers

The Sharifi and Zhang body of research provided a conceptual framework of agile manufacturing, supported by qualitative and quantitative research, to understand how much manufacturing agility is needed, how much manufacturing agility exists, and how to further develop manufacturing agility. However, this conceptual framework has not been widely embraced, within or outside of manufacturing, as an agreed-upon conceptual framework for

studying agile manufacturing or organization agility (Yusuf et al., 1999). Others such as Yusuf, Sarhadi, and Gunasekaran (1999) and Crocitto and Youssef (2003) have put forth conceptual frameworks of agile manufacturing. Several studies reviewed related to agile manufacturing did not utilize any of these conceptual frameworks and instruments, preferring to develop a unique measurement tool and new conceptual framework of agile manufacturing for that research study (Arteta & Giachetti, 2004; Iivari & Iivari, 2010; Tsourveloudis & Valavanis, 2002).

For example, a recent mixed methods study by Shin, Lee, Kim, and Rhim (2015) focused upon Korean manufacturing firms utilized qualitative interviews to develop a unique agile manufacturing measurement instrument comprised of five constructs: technology capability, process orientation, collaborative improvement, knowledge management, and strategic alignment. This survey was utilized to divide 566 Korean manufacturing firms into three categories – low, medium, and high agility (Shin et al., 2015). The ensuing research determined that operational responsiveness mediates the effect of strategic agility on firm performance, including customer retention and financial performance (Shin et al., 2015). This demonstrates the lack of cohesive conceptual thinking about agile manufacturing, including how agile manufacturing is measured and how companies are categorized relative to the level of agile manufacturing achieved.

Summary of Agile Manufacturing Research

Although a body of research exists related to the conceptual framework of agile manufacturing, there is little agreement on the conceptual framework and constructs of agile manufacturing (Goldman et al., 1995; Meyer, 2015; Worley et al., 2014). There is little agreement upon how to assess agile manufacturing, including how it is related to organization performance (Sharifi & Zhang, 1999; Shin et al., 2015). Regardless of the seemingly fragmented

nature of the research related to agile manufacturing, this research does relate to the conceptual framework of organization agility and could be leveraged where possible to understand the elements of organization agility.

A body of knowledge and research exists related to agility within two additional industries: supply chain and software development (Iivari & Iivari, 2010; Ismail & Sharifi, 2006). This research has, at times, leveraged the research related to the conceptual framework of agile manufacturing. Approximately 10 research studies were reviewed related to agility in each of these industries. A full critique and analysis of the literature in these contexts was deemed unnecessary for the purposes of this dissertation because of the redundancy of information and the similar lack of cohesive conceptual framing of the concept of organization agility.

Conceptual Frameworks of Organization Agility

No specific conceptual framework has been adopted by the field of organization agility as an agreed-upon framework to move towards theory building (Goldman et al., 1995; Holbeche, 2015; Worley et al., 2014). One is reminded of the work of Morgan (2006) in exploring the images of an organization. Is an agile organization to be viewed as a machine? As an organism? A brain? Perhaps the image of an agile organization as flux and transformative within an environment of chaos and complexity best suites an agile organization (Morgan, 2006).

Four conceptual frameworks of organization agility, by both scholars and practitioners, were chosen for discussion in this dissertation because these conceptual frameworks represent a chronological demonstration of the evolution of thinking in the field (Belasco, 1990; Goldman et al., 1995; Holbeche, 2015; Worley et al., 2014). This dissertation described and analyzed each of these four conceptual frameworks in turn and then provided an overarching discussion of the field of organization agility.

Belasco Conceptual Framework

While Belasco (1990) did not use the term agile to describe the organizations he studied, the conceptual framework he presented reflected an organization that is agile because of a focus on speed and successful change in the strategic intent of the organization, two key characteristics of organization agility (Goldman et al., 1995; Worley et al., 2014). This conceptual framework was chosen for inclusion in this dissertation because it was developed prior to the 1991 roundtable that spawned the term agile and reflected early thinking on the constructs and elements related to organization agility. The image of a dancing elephant evoked thoughts of an organization that is nimble and able to move quickly and gracefully (Belasco, 1990). Belasco described the use of a chain to train young elephants – that after years of training, it becomes no longer necessary to anchor the chain, because the elephant will not escape or even realize that the chain is no longer inhibiting its movement. Belasco related this thinking to organizations that are often incapable of considering a different way of doing business, even in the face of intense environmental pressure to rethink the business model.

Belasco's (1990) conceptual framework of organizational change included four constructs:

1. Preparation. This construct defined the process of preparing an organization for the need to change and included two elements: (a) getting ready, which involves leadership creating a sense of urgency and a migration path from the old way of doing things to the new; and (b) anticipating obstacles, which involves anticipating challenges such as lack of time, mistakes, skeptics, and procrastination.
2. Creating tomorrow. This construct defined the process of determining the correct business strategies and the resources necessary to achieve a change to the new strategies

and included two elements: (a) strategies, which involves determining the strategic positioning of the company; and (b) resources, which involves securing the resources necessary to execute these strategies and eliminate nonessential activities.

3. Vision. This construct defined the process of preparing for change by developing a vision of the desired future state and included four elements: (a) action, which involves determining and demonstrating the actions necessary to support the vision; (b) expectation systems, which involves specifying numeric expectations; (c) people systems, which involves aligning hiring, orientation, training, and payment with the vision; and (d) culture systems, which involves developing a culture of empowered employees capability of letting go of the old way of doing things.
4. Change. This construct defined the process of managing change at the individual and organization level and included two elements: (a) individuals, who are empowered by leadership as change agents to address specific business issues; and (b) organization, where the vision provides focus, and urgency is the energy of change.

Summary of Belasco's conceptual framework. These four constructs and corresponding elements comprised the units of theory determined by the Belasco (1990) conceptual framework of organization agility. This conceptual framework of agile organizations leveraged theoretical thinking and conceptual frameworks related to areas, such as leadership, strategy, human resource management, culture, change management, performance management, and employee empowerment.

Critical analysis of Belasco's conceptual framework. This conceptual framework of organizational change reflected a focus upon discontinuous, transformational change that is intermittent rather than more continuous change faced by agile organizations that must embrace

change as the norm. However, Belasco (1990) did state that "change is a continuous process and not a destination. It never ends" (p. 28). This conceptual framework focused attention upon the actions, behaviors, and attributes of the leadership of the organization. Within this conceptual framework, it is leadership that develops the vision, leadership that determines the appropriate business strategies given the current environment context, and leadership that empowers and rewards employees for letting go of the old way of doing business to embrace a new way of accomplishing work.

The strengths of this conceptual framework are the elements of (a) leadership behaviors to enact change within the organization, (b) developing a culture of empowered employees, and (c) focusing on having the right talent within the organization to be able to execute the strategic intent of the organization (Belasco, 1990). The Belasco conceptual framework of organizational change was primarily inwardly focused and lacked the externally focused constructs of organization agility such as customer interaction and environmental scanning that are present in other conceptual frameworks discussed in this dissertation.

Goldman, Nagel, and Preiss's Conceptual Framework

Goldman, Nagel, and Preiss facilitated the 1991 roundtable that spawned the term agility as it related to an organizational capability to quickly and successfully change in reaction to shifts in the external environment. This conceptual framework of organization agility was chosen for inclusion in this dissertation because it reflected the thinking regarding agile organizations that emerged after this roundtable effort. Although the 1992 report from the roundtable was focused upon manufacturing (Nagel, 1992), the conceptual framework of organization agility developed by Goldman et al. (1995) specifically discussed the need for agility within both product and services organizations.

Goldman et al. (1995) described agility as an organization system made up of four constructs:

1. Enriching the customer. This construct defined the ability to provide goods and services that reflect a solution specific to the customer's problem.
2. Cooperating to enhance competitiveness. This construct defined the need for high levels of cooperation within the organization and with other companies to leverage resources regardless of location.
3. Organizing to master change and uncertainty. This construct defined the need to create an organization structure that facilitates rapid reconfiguration and learning.
4. Leveraging the impact of people and information. This construct defined the need to nurture an entrepreneurial culture that included distributed authority and a climate of mutual responsibility.

Goldman et al. (1995) also described the following subconstructs and elements:

1. Organization characteristics. The characteristics of an agile organization include concurrency, continuous education, customer-pulled organization, dynamic multiventuring, employees valued, empowered individuals in teams, being entrepreneurial, being environmentally enhancing, extended-enterprise concurrency, flexible (re)configurable, information accessible and used, knowledgeable, adaptable employees, lean, open architecture, optimum first-time solutions, quality of product life, rapid response, technology dependent, and vision-based leadership.
2. Enterprise elements. The elements of an agile organization include customer dialogue and support, communication and information, cooperation and teaming, continuous

improvement and change, enterprise-wide concurrency, environmental enhancement, flexible and rapidly responding operations, people support, and supplier support.

3. Enabling subsystems. The subsystems of an agile organization include continuous education and training, customer interactive systems, customized marketing and distribution systems, distributed information systems, empowered individuals in teams, extended-enterprise integration, financial accounting systems, global multiventuring, groupware, intelligent flexible machines, lean organization and methods, legal system, modular reconfigurable process components, organizational inventory listing, organizational practices, performance metrics and evaluation, prequalified partnering, product and service inventory, simulation and modeling, total quality management, ubiquitous communication, and waste management and elimination.

Summary of Goldman, Nagel, and Preiss's conceptual framework. These four constructs and the detailed subconstructs and elements together defined the conceptual framework of organization agility as determined by Goldman et al. (1995). This conceptual framework of agile organizations leveraged theoretical thinking and conceptual frameworks related to areas such as systems theory, strategy, collaboration, organization structure, culture, shared leadership, empowerment, knowledge management, lean practices, communication, change management, human resource management, and performance management (Goldman et al., 1995)

Critical analysis of Goldman, Nagel, and Preiss's conceptual framework. The four constructs of the Goldman et al. (1995) conceptual framework are dissimilar to the constructs of the Belasco (1990) framework, with much less focus on the actions, behaviors, and attributes of

leadership and more focus on the systems within an organization that define an ability to achieve agility. Dissimilar constructs include a focus on the customer, the need for internal cooperation to leverage resources, and the need for a rapidly reconfigurable organizational structure (Goldman et al., 1995). There is a shared focus upon creating a culture of entrepreneurialism and shared leadership between the Goldman et al. conceptual framework and the Belasco framework.

The Goldman et al. (1995) conceptual framework of organization agility provided greater detail as to the characteristics of an agile organization, the elements present in an agile organization, and the subsystems required to operate in an agile manner. However, there appeared to be a high degree of redundancy within the subconstructs and elements described by the authors. While describing the elements and subsystems of an agile organization in detail might facilitate a greater understanding of how to achieve organization agility, this conceptual framework would benefit from a more streamlined taxonomy that reduces elements of redundancy.

Worley, Williams, and Lawler's Conceptual Framework

The conceptual framework developed by Worley et al. (2014) was included in this review because this conceptual framework was frequently referenced in the literature reviewed and is grounded in qualitative research. In addition to developing this conceptual framework of organization agility, Worley et al. also developed an instrument for measuring organization agility that has been utilized by academic researchers.

Worley et al. (2014) described four constructs of agile organizations:

1. Agile strategizing. This construct describes actions related to developing organization strategies; managing, monitoring, and measuring the effectiveness of these strategies;

developing an aspirational purpose; and focusing on the breadth, aggressiveness, and differentiation of the strategic positioning of the organization.

2. Agile perceiving. This construct describes actions related to sensing the environment and sharing that information with decision-makers who then interpret the signals of the environment.
3. Agile testing. This construct describes actions related to setting up the test, running the test, and learning from the test of new strategies.
4. Agile implementing. This construct describes actions related to effectively implementing new strategies.

Worley and Lawler (2009) elaborated upon these four constructs by describing the critical elements of an agile organization.

Robust strategy. The first critical element of an agile organization, a robust strategy, consists of three components: (a) an alternative economic logic that embraces and leverages changes to create economic opportunity; (b) a strong future focus, including the ability to develop alternative futures that represent short- and long-term scenarios; and (c) flexible intent related to the momentary advantage (Worley & Lawler, 2009). The third component, flexible intent, was further defined by (a) breadth of products and services, (b) aggressiveness as defined by the level of enthusiasm, (c) urgency and resources focused upon executing a strategy, and (d) differentiation as defined by the product and service features that distinguish the products and services of an organization including quality, price, service, and warranty (Worley & Lawler, 2009).

Adaptable designs. The second critical element of organization agility described by Worley and Lawler (2009) was adaptable designs that have people, processes, structures, and

rewards focused upon capturing the flexible intent of the organization. This includes the development of a supporting culture whereby re-implementation of a robust strategy is a normal, constant process (Worley & Lawler, 2009). The key components of this type of organization include (a) a structure that maximizes "surface area," a term for the number of employees in direct contact with organizational stakeholders and influencers; (b) transparent information and decision-making processes that create a shared view of power and leadership within the organization; and (c) nimble talent management and reward systems that work to hire and reward quick learners who enjoy change and are entrepreneurial (Worley & Lawler, 2009).

Shared leadership and identity. Worley and Lawler (2009) discussed a third critical element of agile organizations, shared leadership and identity, which shifts leadership from an individual focus to a team responsibility. In this shared leadership model, many are involved in leading change, and high value is placed on the external and internal identity of the organization as represented in the organization's culture and brand. Worley and Lawler (2009) professed that agile organizations "have a clear sense of who they are and what they stand for, and this helps guide what they pursue" (p. 13).

Value creating. The final critical element discussed by Worley and Lawler (2009) was a value-creating capability related to an organization's ability to sustain agility, with the primary organization capabilities being change and learning. This critical element is closely related to organization ambidexterity in that it reflects the ability of an organization to effectively allocate resources for both present performance and future-focused investments (Worley & Lawler, 2009).

Worley and Lawler (2009) believed that the steps necessary to become an agile organization involve (a) diagnosing the current state of the organization and features that either

support or do not support agility, (b) developing a future focus in strategizing that creates awareness of and contingencies for various environmental changes, and (c) developing change and learning capabilities within the organization. These steps are often resisted because they may cause short-term performance decreases and challenge traditional bases of power (Worley & Lawler, 2009).

Summary of Worley, Williams, and Lawler's conceptual framework. These four constructs and the detailed critical elements together define the conceptual framework of organization agility as determined by Worley et al. (2014). This conceptual framework of agile organizations leveraged theoretical thinking and conceptual frameworks related to areas such as strategy, scenario planning, change management, organization structure and design, shared leadership, culture, and organization learning (Worley et al., 2014).

Critical analysis of Worley, Williams, and Lawler's conceptual framework. One of the key elements of the definition of organization agility is the ability to change *in reaction* to changes in the external environment (Dove, 1999). This would imply an ability on the part of an organization to sense what is happening in the environment (Chermack et al., 2001). The conceptual framework presented by Worley et al. (2014) is simplistic and yet focuses upon two externally concentrated constructs: perceiving changes in the environment and then strategizing about how best to focus and position the organization; and two internally focused constructs: testing new strategies and effectively implementing these strategies.

This conceptual framework could be perceived as overly simplistic and focused upon cycles of change rather than embracing continuous change (Worley et al., 2014). The four constructs – strategizing, sensing, testing, and implementing – could be perceived as implying a cycle of intermittent change rather than the ability to embrace continuous change associated with

organization agility (Worley et al., 2014). The critical elements described by Worley and Lawler are similar to the subconstructs and elements described by Goldman et al. (1995) and include a focus on the flexibility of the design of the organization and the need for shared leadership and accountability.

Holbeche's Conceptual Framework

Holbeche (2015) acknowledged the contribution of Worley et al. (2014) in the development of the conceptual framework she presented. This conceptual framework was chosen for inclusion in this study because it built upon earlier conceptual frameworks of organization agility and was robust and compressive in both the inclusion of elements and the description of how these elements and the constructs fit together (Holbeche, 2015). Holbeche described four major abilities of organization agility: (a) the ability to adapt, (b) the ability to manage change, (c) speed, and (d) innovation.

The conceptual framework presented by Holbeche (2015) contains four constructs and 24 elements:

1. Agile strategizing. This construct was described as ethical and agile thinking, practices and routings and included the elements of effective governance and risk management, agile benchmarking and scoreboard, deep customer insight, complexity capabilities, wide-deep scanning, and strategic commitment to core purpose and agility.
2. Agile operations. This construct was described as innovation and agile implementation and included the elements of flexible teams, assets, and systems; fast new product acquisition; lean processes and continuous improvement; rapid problem

solving and able decision making; rich information systems and knowledge processes; experimentation and testing; and learning from setbacks.

3. Agile people practices. This construct was described as mutual and fair employment relationship and included the elements of values-based leadership and management; continuous learning; change management and organizational development; adaptable structure and rich roles; high performance work climates; and multiskilled, diverse, flexible, engaged people.
4. Agile linkages. This construct was described as collaborative capabilities and included the elements of full deployment across boundaries; aligned suppliers and communities; performing partnerships; brand and reputation management; communication, involvement, and participation; and collaboration and conflict management.

Summary of Holbeche's conceptual framework. These four constructs and the detailed elements together define the conceptual framework of organization agility as determined by Holbeche (2015). This conceptual framework of agile organizations leveraged theoretical thinking and conceptual frameworks related to areas such as strategy, scenario planning, culture, teams, lean practices, continuous improvement, human resource management, values-based leadership, organization structure and design, change management, collaboration, brand, conflict management, empowerment, communication, and organization learning (Holbeche, 2015).

Critical analysis of Holbeche's conceptual framework. The conceptual framework presented by Holbeche (2015) was robust with well-organized elements related to each construct. The four constructs – strategizing within the context of the external environment, operational agility to allow response to strategic changes, people practices enabling agility at the individual

level, and agile linkages to facilitate external and internal communication, cooperation and alignment – seem relevant given the review of the proceeding conceptual frameworks and additional related research on organization agility (Holbeche, 2015).

One additional element that might enhance this framework is technology, as it plays a central role in many of the elements discussed (Worley et al., 2014). This conceptual framework might also be perceived as overly complicated by some members of the field of research related to organization agility. This conceptual framework does not have a great deal of qualitative or quantitative research related to it to provide substantiated evidence of the units of theory and appears to be more grounded in practices rather than research (Holbeche, 2015).

Discussion of the Four Conceptual Frameworks

The study of these four conceptual frameworks revealed a progression of thinking related to the concept of organization agility. Table 2 contains a concise summary of the primary constructs of each of the four conceptual frameworks and reveals areas of overlap between the four conceptual frameworks and areas of divided thinking within the field (Belasco, 1990; Goldman et al., 1995; Holbeche, 2015; Worley et al., 2014).

The Belasco (1990) conceptual framework was included in this dissertation because it illustrates that agility was a focus of thinking prior to the 1991 roundtable that spawned the term agility. The Belasco reference to "teaching an elephant to dance" demonstrated what was, at the time, relatively new thinking about the downside of large, potentially bureaucratic organizations incapable of changing quickly to meet changing market demands. However, the Belasco framework was almost completely focused upon how an organization internally focuses upon change and neglected to address the need for an organization to be outwardly focused to adequately understand what changes are necessary within the context of the external

environment (Goldman et al., 1995; Holbeche, 2015; Worley et al., 2014). This appears to be indicative of the early thinking on change management theory that bounded the study of change as internal to the organization, and at times, neglected the interactive nature of organizations and the external context (Cummings & Worley, 2009).

Table 2

The Constructs of the Four Discussed Conceptual Frameworks of Organization Agility

Belasco (1990)	Goldman et al. (1995)	Worley et al. (2014)	Holbeche (2015)
Preparation – Creating a sense of urgency and a migration path forward	Enriching the Customer – Providing goods and services that solve the customer's problem	Agile Strategizing – Developing and monitoring a differentiated, aspirational purpose and business strategy	Agile Strategizing – Developing core purpose, deep customer insight, effective governance, external scanning
Creating Tomorrow – Identifying the correct business strategies and the resources to execute them	Cooperating to Enhance Competitiveness – Leveraging resources within and outside the organization regardless of location	Agile Perceiving – Sensing and interpreting the environment	Agile Operations – Achieving innovation, experimentation and testing, effective implementation, lean processes, and continuous improvement
Vision – Determining the elements of the desired future state, including actions, expectations, people systems, and culture	Organizing to Master Change and Uncertainty – Creating an organization structure that facilitates rapid reconfiguration and learning	Agile Testing – Testing strategies and learning from these tests	Agile People Practices Developing fair, employment practices; values-based leadership; change management; organizational development; and diverse people
Change – Managing change at the individual and organization levels	Leveraging the Impact of People and Information – Nurturing an entrepreneurial culture and climate of mutual responsibility	Agile Implementing – Managing the implementation of change and monitoring results	Agile Linkages - Developing collaborative capabilities, including empowerment, supplier alignment, involvement, participation, and conflict management

The Goldman et al. (1995) conceptual framework of organization agility reflected an expansion of thinking in that it incorporated externally focused elements within the three constructs of organizational characteristics, enterprise elements, and enabling subsystems. These externally focused elements included being a customer-pulled organization and dynamic multiventuring (Goldman et al., 1995). However, there was little discussion of more recent thinking related to scenario planning and environmental scanning, two concepts now thought to be critical in organization agility (Holbeche, 2015; Worley et al., 2014). The conceptual framework developed by Goldman et al. reflected expanded thinking on the organization as a system, including a list of 22 subsystems relevant to agility, but there was limited discussion as to the nature of the boundary of the organization's systems and how the organization's system relates to the external environment. With three constructs and 51 elements, the Goldman et al. conceptual framework of organization agility could be viewed as overly complex with a high degree of overlap between the elements in the constructs of an organization's characteristics, such as dynamic multiventuring and being lean, and the elements within the construct of enabling systems, including global multiventuring, lean organization, and methods.

The Worley et al. (2014) conceptual framework of organization agility reflected what might be perceived as a swing in the opposite direction with an oversimplification reflected in the four constructs – strategizing, perceiving, testing, and implementing – and limited corresponding elements within each construct. This conceptual framework was frequently referenced in the literature reviewed, in part because the researchers developed a measurement instrument that has been utilized by other researchers to assess the level of agility within an organization (Worley et al., 2014). One potential downfall of this conceptual framework was the lack of in-depth discussion of leadership and culture as compared to the Belasco (1990) and

Goldman et al. (1995) conceptual frameworks (Worley et al., 2014). The Worley et al. conceptual framework also seemed to reflect a linear process within the organization: set the strategy, make sure it fits with the external needs, test your model, and then implement it (Worley et al., 2014). This conceptual framework would benefit from a greater level of systems thinking, such as that present in the Goldman et al. (1995) framework, and an expansion upon the focus on culture and leadership, such as that present in the Belasco (1990) conceptual framework of organization agility.

The Holbeche (2015) conceptual framework of organization agility struck an interesting balance between the simplicity of the Worley et al. (2014) conceptual framework of organization agility and the seemingly redundant, overly complex conceptual framework of Goldman et al. (1995). The four constructs and 24 elements reflected many of the constructs of the previous three conceptual frameworks of organization agility discussed in this dissertation, and a balance between the internal and external elements of agility (Holbeche, 2015). This conceptual framework was not frequently referenced in the literature reviewed and is perhaps grounded in practitioner experience rather than academic research.

Collectively, these four conceptual frameworks of organization agility reflect the complexity of this emerging topic (Belasco, 1990; Goldman et al., 1995; Holbeche, 2015; Worley et al., 2014). These conceptual frameworks built upon many different areas of theoretical and conceptual thinking (see Table 3). The adoption of a conceptual framework for organization agility by the academic community would be of benefit to facilitate progression towards an agreed-upon theory of organization agility.

The following observations can be made about the conceptual frameworks of organization agility (Belasco, 1990; Goldman et al., 1995; Holbeche, 2015; Worley et al., 2014):

- Strategic position: These conceptual frameworks generally contain some type of construct or element related to determining the strategic position and purpose of the organization. This is most typically determined by assessing the current environment context and perceived or anticipated changes in the environmental context. This underscores the need for strategies and tactics, such as scenario planning, which facilitate the gathering and analysis of external information.
- Organization design: These conceptual frameworks also contain a focus on the design of the organization, including the development of rapidly reconfigurable structures and subsystems that facilitate innovation, flexibility, organizational learning, and shared leadership.
- Human resource management: The management of human resources within an agile organization is also an important construct or element. Systems that govern recruitment, hiring, training, and retention of human resources with the skills and abilities necessary to thrive in an agile organization is critical, as well as reward systems that reinforce the desired behaviors.
- Leadership: Leadership plays an important role in organization agility. This includes the actions, behaviors, and attributes of formal leaders, as well as the actions, behaviors, and attributes of informal leaders. The construct of shared leadership was generally represented in each of the four conceptual frameworks of organization agility.
- Culture and change management: The conceptual frameworks also addressed the topics of culture and change management in an interwoven way, stressing the need to create a culture that embraces change as the norm rather than the exception. This includes the ability to take calculated risks and to learn from mistakes.

Table 3

Examples of the Areas of Knowledge Leveraged in the Four Conceptual Frameworks of Organization Agility Discussed

Theory/Construct	Belasco (1990)	Goldman et al. (1995)	Worley et al. (2014)	Holbeche (2015)
Change Management	X	X	X	X
Collaboration	X	X		X
Communication	X	X		X
Conflict Management				X
Continuous Improvement				X
Culture	X	X	X	X
Empowerment		X		X
Human Resource Management	X	X		X
Innovation				X
Knowledge Management	X	X		
Leadership	X	X		
Lean Practices	X	X		X
Organization Learning			X	X
Organization Structure	X		X	X
Performance Management	X			
Scenario Planning			X	X
Shared Leadership	X	X	X	
Strategy	X	X		X
Systems Theory		X		
Teams				
Values-based Leadership				X
Vision	X			

For the purposes of this dissertation research, the Worley et al. (2014) conceptual framework of organization agility was utilized. This framework is utilized in the academic research related to organization agility outside of a specific industry context such as manufacturing, and this conceptual framework has an existing measurement instrument for the assessment of the level of agility within an organization (Worley et al., 2014).

Organization Agility Research

As the body of knowledge related to agile manufacturing has progressed, additional researchers have applied this body of knowledge to agility as an enterprise characteristic outside of a manufacturing context. As early as 1995, Goldman, Nagel, and Preiss, the facilitators of the original manufacturing-focused roundtable that spawned the term agility, expanded their conceptual framework of organization agility beyond manufacturing to include services. As mentioned earlier, Crocitto and Youssef (2003) also proposed expanding the model of agile organizations beyond product manufacturing to extend to the study of people, specifically organizational members, management, and leadership. Sherehiy, Karwowski and Layer (2007) also provided early thinking on the opportunity to expand research on agility beyond manufacturing to the entire enterprise.

While organization agility is an emerging topic, a body of research does exist, both qualitative and quantitative, that seeks to expand our knowledge of the conceptual framework of organization agility, including the constructs and elements, and how organization agility relates to other organization conceptual frameworks, constructs, and elements, such as organization learning and organization innovation (Belasco, 1990; Goldman et al., 1995; Holbeche, 2015; Worley et al., 2014). What follows is a critical analysis of selected qualitative and quantitative

research studies chosen to be representative of the themes of the research studies reviewed related to organization agility.

Qualitative Case Study Research

Research related to organization agility has relied upon interpretivist qualitative research in the form of intrinsic, instrumental and collective case studies to construct conceptual frameworks of organization agility (Brown & Eisenhardt, 1998; Holbeche, 2015; Worley et al., 2014). Two case studies were chosen for discussion and critical analysis from the limited research available (Brown & Eisenhardt, 1998; Worley et al., 2014). These case studies were chosen because one reflects the early research of the 1990s and one reflects more recent research, and because each reflects the general thematic direction of the limited qualitative research reviewed. Each is described and analyzed in turn.

Case study 1: Brown and Eisenhardt (1998). An early collective case study of organization agility by Brown and Eisenhardt (1998) studied 12 European, Asian, and North American organizations in the computing industry. The study was grounded in complexity and evolutionary theory and sought to replace what the researchers considered to be mature paradigms dominating strategy and organization thinking (Brown & Eisenhardt, 1998). Six pairs of companies were identified, one pair in each computing market segment, with one company identified as the dominant player having revenue growth of approximately 20% a year in the 1990s, and one company identified as a very good business with close to 5% revenue growth during the same period (Brown & Eisenhardt, 1998). Data were collected via interviews, questionnaires, observations, and secondary sources (Brown & Eisenhardt, 1998). Analysis was conducted by creating in-depth individual case studies of each company and comparing across case studies to create a conceptual framework of organization agility (Brown & Eisenhardt,

1998). This conceptual framework of organization agility consisted of five constructs: improvisation, co-adaptation, regeneration, experimentation, and time pacing.

The computing industry was chosen for this research because of the elevated level of turbulence in the industry (Brown & Eisenhardt, 1998). Although the 12 companies studied were all in the computing industry, the qualitative study was expanded upon anecdotally with case study information from over 30 additional organizations across a broad spectrum of industries, and the researchers stated a belief that their study results applied beyond the computing industry (Brown & Eisenhardt, 1998).

Critical review of case study 1: Brown and Eisenhardt (1998). This qualitative case study research project was rigorous in its approach with an extensive methods section presented (Brown & Eisenhardt, 1998). Accepted qualitative data analysis techniques were utilized to analyze the qualitative data collected during the research (Brown & Eisenhardt, 1998). It was also well grounded in theory, such as complexity and evolutionary theory (Brown & Eisenhardt, 1998). However, there are a multitude of additional theories related to organization agility – including knowledge management theory, leadership theory, and culture theory – and a deeper investigation of how a broader range of these theories interplay with organization agility would have enhanced the quality of the research. There was also little discussion as to how the five constructs developed compare to the constructs developed by other researchers who were investigating organization agility.

There was limited discussion of the performance metrics related to organization agility. The paired companies were chosen because of the relative revenue growth of each company, implying that revenue growth is the single organization performance metric related to organization agility (Brown & Eisenhardt, 1998). Additional studies have focused upon different

organization performance metrics related to agility, which fuels the debate of how to identify an agile organization (Brown & Eisenhardt, 1998). This research study would have benefitted from a deeper discussion related to the chosen performance metric of revenue growth and additional organization performance measures that were considered (Worley et al., 2014).

Case study 2: Worley, Williams, and Lawler (2014). A more recent example of qualitative case study research related to organization agility by Worley et al. (2014) reported the culmination of three streams of research. The first stream of research entailed a literature review related to strategic change, adaption and evolution; and formed the conceptual framework of organization agility (Worley et al., 2014). The second stream of research focused upon understanding sustained organizational financial performance and involved studying the financial performance of 424 organizations in 22 industries over the years 1980 to 2012 (Worley et al., 2014). This research defined three levels of financial performance: (a) 18% of these companies' return on assets (ROA) outperformed industry 80% of the time, (b) 13% of these companies' ROA underperformed the industry mean 80% of the time, and (c) "thrashers," the remaining 68% of companies, thrashed between outperforming and underperforming the industry (Worley et al., 2014). The purpose of the third stream of research was to understand if the organizations with higher levels of financial performance possessed an agility capability that the others did not (Worley et al., 2014). An analysis of the companies with higher levels of financial performance led to the creation of a 51-item instrument to measure organization agility with four constructs: agile strategizing, agile perceiving, agile testing, and agile implementing (Worley et al., 2014).

Critical review of case study 2: Worley, Williams, and Lawler (2014). The strength of this case study research was that it represented a broad array of industries and culminated in an

instrument for measuring organization agility (Worley et al., 2014). The depth of analysis related to the financial performance of the included organizations was extensive. However, return on assets (ROA) was chosen as a one-dimensional representation of the ability of an organization to achieve agility (Worley et al., 2014). This study would have benefitted from a more thorough discussion of additional possible organization metrics related to organization agility (Worley et al., 2014).

The methods of the study were not as clearly articulated as in the case of Brown and Eisenhardt (1998; Worley et al., 2014). There was little discussion of the theories that support or interact with the conceptual framework of organization agility developed (Worley et al., 2014). This case study research study would have benefitted from a more thorough discussion of the foundational theories considered during the analysis of the companies included in the study (Worley et al., 2014). This research study provided an example of yet another set of constructs developed to represent the conceptual framework of organization agility. The research study did not discuss the constructs or elements developed by other researchers investigating the conceptual framework of organization agility (Worley et al., 2014).

Summary of the qualitative research on organization agility. Organization agility is an emerging topic (Worley et al., 2014). Limited case study research exists to support the development of the conceptual framework of organization agility, including the two research studies discussed (Worley et al., 2014). There is little agreement as to the constructs of the conceptual framework of organization agility (Worley et al., 2014). This has resulted in fragmented research and an inability to compare results across research studies (Worley et al., 2014). Future research on organization agility would benefit from the development of an agreed-upon conceptual framework that guides future research and a more complete understanding of

organization agility. Additional qualitative study is necessary to more deeply explore the conceptual framework of organization agility.

Quantitative Case Study Research

For the purposes of this dissertation, approximately 10 quantitative studies were analyzed to gain an understanding of the body of quantitative research related to organization agility. Three studies were selected (Bahrami, Kiani, Montazeralfaraj, Zadeh, & Zadeh., 2016; Farhang et al., 2015; Nafei, 2016) for critical analysis in this dissertation because each represents current efforts to research organization agility and how it is related to other constructs and theories, such as organization performance, culture, knowledge management, and innovation (see Table 4). These studies were selected because each study utilized a different measure of organization agility, each utilized quantitative research techniques and statistical data analysis, and each was a recent publication or manuscript accepted for publication. This study includes a discussion and critical review of each of the three studies.

Research study 1: Organization agility and organizational learning. Authors Bahrami, Kiani, Montazeralfaraj, Zadeh, and Zadeh (2016) conducted a quantitative research study in 2015 using stratified-random sampling to assess organizational learning, organizational intelligence, and organization agility in four teaching hospitals in Yazd City, Iran.
The following instruments were utilized to measure each variable:

- Albercht (2003) to measure organizational intelligence
- Neefe (2001) to measure organizational learning
- Sharifi and Zhang (1999) to measure organization agility

Table 4

A Summary of the Quantitative Organization Agility Studies Included for Review

Organization Agility Study and Author(s)	Independent Variable; Instrument of Measurement	Dependent Variable	Study Design	Coefficients
Study 1: Bahrami et al. (2016)	Organization Intelligence	Organization Agility Sharifi & Zhang (1999) Cronbach's Alpha .80	Structural Equations Modeling	Path coefficient .57
Study 2: Farhang et al. (2015)	Organization Culture Cronbach's Alpha .89	Organization Agility Worley & Lawler, (2010) Cronbach's Alpha .91	Correlation	
		– Sustainable strategy		.52, p = .009
		– Adaptable plans		.40, p = .009
		– Leadership and shared identity		.40, p = .098
		– Ability to create value		.51, p = .003
Study 3: Nafei (2016)	Organization Agility Jaworski & Kohli, (1993)	Organization Performance	Multiple Regression Analysis	.85; p < .01
	– Sensing agility (ACC .88)	Comparative Performance (ACC .67)		.83; p < .01
	– Decision-making agility (ACC .96)	Internal Performance (ACC -.76)		.79; p < .01
	– Acting agility (ACC .83)			.72; p < .01

Likert scales were used for each instrument. The authors stated that the reliability of the data was determined by calculating Cronbach's alpha coefficients of .96, .75, and .80 for each of the three questionnaires (Bahrami et al., 2016). Although the authors stated that these are valid questionnaires, no evidence was provided to support this claim of instrument validity (Bahrami et al., 2016).

Data were collected from 370 administrative and medical staff, and data analysis was completed utilizing R and SPSS 18 statistical software (Bahrami et al., 2016). No mention was made of whether the data were essentially normal or skewed but Tables 1, 2, and 3 containing

the descriptive statistics of the data for each instrument indicate that all data collected were normally distributed (Bahrami et al., 2016).

Amos software was used to draw a conceptual model and measurement model that was tested using structural equation modeling (SEM; Bahrami et al., 2016). The authors stated that there was a significant relationship between organizational intelligence and organization agility, with a regression coefficient of .57, and they further stated that the combination of organizational intelligence and organizational learning had a greater impact on organization agility, with a combined effect regression coefficient of .98 (Bahrami et al., 2016). The reported regression coefficient measuring the relationship between organizational learning and organization intelligence was .98, which may indicate that these instruments were measuring the same elements (Bahrami et al., 2016). The authors stated that improving organizational learning abilities can positively affect organization agility, a characteristic critical to the success of an organization (Bahrami et al., 2016). There was no discussion of effect size.

As with each of the quantitative studies discussed in this dissertation, the validity of the instruments utilized received minimal discussion (Bahrami et al., 2016). Sound research begins with an understanding of the constructs and elements to be measured, and a determination of valid and reliable instruments for the measurement of these constructs and elements (Morgan, Leech, Gloeckner, & Barrett, 2013). This research study would have benefited from a deeper discussion and investigation of the constructs and elements of interest and how the instruments chosen were valid selections to ensure appropriate measurement of the correct constructs and elements (Bahrami et al., 2016).

Research study 2: Organization agility and organizational culture. Farhang, Dadgar, and Arbabisarjou (2015) conducted a correlation quantitative research study in 2012 and 2013

that involved the simple random sampling of tenured staff at Zahedan University of Medical Sciences in Zahedan, Iran, to measure the relationship between organizational culture and organization agility. The following instruments were utilized to measure each variable:

- Schein (2003) to measure organizational culture
- Worley and Lawler (2009) to measure organization agility

The reliability of the instruments was stated via calculated Cronbach's alpha of .89 and .91 respectively (Farhang et al., 2015). The authors stated that conceptual validity existed but presented no evidence to support this claim or any additional claim of validity (Farhang et al., 2015).

Data were collected from 187 people, and data analysis was completed utilizing statistical analysis (Farhang et al., 2015). Pearson correlation coefficients were calculated to determine a stated significant relationship between organizational culture and sustainable strategy ($r = .052$, $p = .009$), between organizational culture and adaptable plans ($r = .397$, $p = .009$), between organizational culture and leadership and shared identity ($r = .394$, $p = .098$), and between organizational culture and ability to create value ($r = .513$, $p = .003$; Farhang et al., 2015). There was no discussion of effect size in the study.

The relationship between organizational culture and the construct of leadership and shared identity would not appear to be significant at $p > .05$ and a stated relative certainty level of 95% was utilized in the study (Morgan et al., 2013). The authors inaccurately concluded that "the more organizational culture increases, a certain amount could consequently lead to organization agility" (Farhang et al., 2015, p. 31). This statement was inaccurate as there was no active independent variable in this study (Morgan et al., 2013).

The primary critique of this study is a lack of clarity as to what constructs and elements of culture were being measured. General statements about "increasing culture" were unclear, and more clarity could have been provided as to what constructs and elements of culture were under investigation and how these relate to organization agility (Farhang et al., 2015).

Research study 3: Organization agility and organizational performance. Nafei (2016) conducted a quantitative research study in the pharmaceutical industry of Egypt, containing three attribute independent variables: sensing agility, decision-making agility, and acting agility, as well as one dependent variable: organization performance. The purpose of the study was to investigate the impact of organization agility on organization performance (Nafei, 2016). The following instruments were utilized to measure each variable:

- A measurement developed by Jaworski and Kohli (1993) was utilized to measure the three areas of organization agility: sending agility, decision-making agility, and acting agility
- Measurements developed by Darroch (2003), Pathirageet et al. (2007), and Chen and Mohamed (2008) were utilized to measure organizational performance, including comparative performance and internal performance

A Likert scale was used for all instruments (Nafei, 2016). Calculated Cronbach's alpha for each was .94 and .65, respectively (Nafei, 2016). The first was exceedingly high and may indicate that the same elements were being measured or that more items were included than was necessary (Morgan et al., 2013). The second falls below the generally accepted standard of .70 (Morgan et al., 2013). There was no discussion of validity.

The author conducted a pilot study of interviews of 30 employees, and from that developed three hypotheses and research questions about the relationship between the three

constructs of agility and organization performance within the context of the pharmaceutical industry in Egypt (Nafei, 2016). Data were collected from 310 people (Nafei, 2016). Nafei (2016) stated that the study supported a significant relationship between organization agility and organizational performance, with Pearson correlation coefficients of .83 for sensing agility, .80 for decision-making agility, and .72 for acting agility, and an overall coefficient of .85 (Nafei, 2016). All these reported statistics were significant at the $p < .01$ level (Nafei, 2016). Additional multiple regression analysis was reported to determine the relationship between each of the elements measured by the organization agility instrument and organizational performance (Nafei, 2016). The author advocated for organizations to pay more attention to organization agility to achieve organizational performance (Nafei, 2016).

The primary critique of this study is that the combined measurement tool utilized for organization performance was not well explained, including the construct and elements of interest and the validity of the instrument (Nafei, 2016). The study report contained no discussion of the validity of any of the instruments utilized, leading one to question if the data of the research were measuring the intended constructs and elements (Nafei, 2016).

Summary of quantitative research on organization agility. These three quantitative research studies are examples of the quantitative research related to organization agility that attempts to both define organization agility as a conceptual framework and describe how this conceptual framework relates to other constructs and theories through structural equations modeling, correlation, and regression statistics (Bahrami et al., 2016; Farhang et al., 2015; Nafei, 2016). Each study presented a different foundational model of thinking about organization agility and utilized different measurement instruments and factors of organization agility (Bahrami et al., 2016; Farhang et al., 2015; Nafei, 2016). Two studies (Bahrami et al., 2016; Farhang et al.)

viewed organization agility as the outcome, or dependent variable, while one study (Nafei, 2016) viewed organization agility as the independent variable that impacts organization performance (Bahrami et al., 2016; Farhang et al., 2015; & Nafei, 2016). The lack of standardization in selecting measurement instruments created an inability to compare research results across these studies (Bahrami et al., 2016; Farhang et al., 2015; & Nafei, 2016). Organization agility is an emerging topic, and these three quantitative research studies demonstrate the fragmented thinking related to the conceptual framework of organizational agility (Bahrami et al., 2016; Farhang et al., 2015; & Nafei, 2016). Agreement on standard measures of organization agility and a conceptual framework of organization agility would benefit future quantitative research.

Discussion of the Three Research Studies

The field of study related to organization agility would benefit from agreement upon the definition of the conceptual framework of organization agility and related theory (Sarkis, 2001). In the literature reviewed, there was broad agreement that the term agile refers to the ability of an organization to swiftly and successfully react to external market shifts (Goldman et al., 1995; Worley et al., 2014). Although numerous conceptual frameworks exist – with some tied to specific industries, such as manufacturing, supply chain, and software development, and others more broadly applied without industry context – the specific constructs and elements of agile organization remain under debate (Holbeche, 2015; Meyer, 2015; Worley et al., 2014). The performance measures of an agile organization are also unclear as discussed earlier. Is it purely financial performance? Or are elements such as customer retention and new product cycle time relevant measures? The academic community would benefit from reaching agreement on the conceptual framework of agile organization, the theory underlying this conceptual framework, and the related metrics of organizational performance that define an agile organization.

Transformational Leadership Research, Practice, and Theory

The study of leadership is a mature topic, with several conceptual frameworks of leadership theory, including responsible leadership, values-based leadership, servant leadership, and transformational leadership (Burns, 1978; Northouse, 2013). The following includes a broad discussion of leadership and a more in-depth discussion and analysis of transformational leadership. As stated earlier, transformational leadership theory was chosen for this study because many of the behaviors and attributes reflected in the conceptual framework of transformational leadership are reflected in the conceptual frameworks of organization agility (Bass & Riggio, 2006; Holbeche, 2015; Meyer, 2015; Worley et al., 2014).

Defining Leadership

Before narrowing our focus to transformational leadership, it is helpful to explore the theories of leadership and the concepts of how leaders effect change. Leaders implement change via Intellectual Stimulation by (a) setting challenging goals and motivating followers to determine new ways to achieve those goals, and (b) appealing to the followers' needs for growth and desire to achieve these goals (Eisenbach et al., 1999; Northouse, 2013). A leader is described as someone who creates a vision of the future, aligns followers with that vision, and inspires and motivates them to overcome obstacles and achieve the future vision (Kotter, 2012). Kotter (2012) also discussed the difference between management and leadership, stating that managers deal with budgets, plans, tasks, and so forth, and leaders set direction, align, and motivate. Setting high performance expectations and rewarding the behaviors that support achieving these goals and the vision of the future are important behaviors for leaders (Eisenbach et al., 1999). Trust in leadership is a critical component in driving employee commitment to the organizational values (Bass, 1999).

Defining Transformational Versus Transactional Leadership

In 1978, Burns stated that there was no central, agreed-upon framework for leadership because various disciplines were pursuing various issues and solution in unrelated ways. Burns then created groundbreaking work on introducing the concepts of transformational and transactional leadership (Bass 1999). Burns (1978) described transactional leaders as those who interact with their followers by exchanging a transaction, one thing for another, with their followers. Transactional leadership is focused upon the exchange relationship between a follower and a leader to meet the distinct interests of each (Bass, 1999). Transactional leaders drive performance via goal setting, defining outcomes, providing feedback, and providing rewards for accomplishments (Dvir, Avolio, & Shamir, 2002). Transactional leadership centers on motivating followers by providing equitable rewards for inputs (Pearce & Sims, 2002). Transactional leadership can, at times, lead to mediocrity, especially when the leader does not have direct control over the rewards or penalties associated with the desired transaction or employee exchange (Bass, 1991).

Burns (1978) alternately described transformational leaders as those who determine and leverage a need within their followers. Burns (1978) further described transformational leaders as seeking to engage the entire being of followers and satisfying their higher needs. Transactional leaders cater to the immediate self-interests of employees, while transformational leaders "uplift the morale, motivation and morals of their following" (Bass, 1995, p. 9).

Transactional and transformational leadership are described, at times, as an either/or bifurcation or a spectrum that leaders operate within, and there is, at times, lack of agreement on this distinction (Pawar, 2003). While Burns believed that transactional and transformational leadership are at opposite ends of a spectrum, Bass (1999) argued that the best leaders are both

transactional and transformational and display various levels of both theories at various times (Judge & Piccolo, 2004).

Further Defining Transformational Leadership

Transformational leadership occurs when the leader builds support for the broader mission and vision of the group and organization and intellectually stimulates employees to work to achieve the desired future state (Bass, 1991). The leader must first articulate the vision of the future and then make changes in structure, process, and practices that are communicated throughout the organization (Bass, 1999). Transformational leaders elevate goal setting and provide followers with the confidence to exceed expectations (Dvir et al., 2002).

Transformational leaders focus upon purpose and thereby guide and leverage the hopes and aspirations of their followers (Burns, 1978). Burns (1978) discussed the array of needs of the follower, relating it to Maslow's needs hierarchy, and stated that transformational leaders operate from a higher level of needs. Transformational leaders elevate the interests of followers beyond the lesser needs of food and safety to self-actualization and achievement (Bass, 1995). Transformational leaders cause followers to move past immediate self-interests through charisma, inspiration, Intellectual Stimulation, or Individualized Consideration (Bass, 1999). Transformational leaders align the followers' self-interests with the interests of the organization, society, or group (Bass, 1999). Transformational leaders turn followers into leaders and disciples (Bass, 1995).

Transformational leadership focuses upon values and emotions (Yukl, 1999). The characteristics of a transformational leader include optimism, inspiration that motivates followers, Intellectual Stimulation, and an ability to treat followers with individual consideration (Dvir et al., 2002). Transformational leaders and their followers interact in a way that raises

motivation and morality (Burns, 1978). Transformational leaders are engaged and thrust themselves into the relationship with their followers (Burns, 1978). These leaders pay close attention to their employees and their individual needs, acting as mentors and encouraging them to look at problems in new ways and determine rational solutions (Bass, 1991). These leaders cultivate organizational cultures that are conducive to innovation and creativity, problem solving, and risk taking (Bass, 1999).

The Bass and Riggio (2006) model of a transformational leadership is comprised of five distinct components. The first component, Idealized Influence (II), is described as having two elements: (a) the attributes the followers attribute to the leader such as persistence, determination, and outstanding capabilities; and (b) the behaviors of the leader, which are described as those of a role model with high moral and ethical standards (Bass & Riggio, 2006). The transformational leader is focused upon the need for a common mission and is admired, trusted, and respected by his or her followers (Bass & Riggio, 2006). This component is reflected in two elements in the current version of the MLQ-5X: Idealized Influence (behavior) and Idealized Influence (attributed; Bass & Riggio, 2006).

The third component, Inspirational Motivation (IM), is described as the behaviors of a transformational leader that motivate and inspire those around them, including a focus on providing meaning and challenge in the work setting (Bass & Riggio, 2006). This component of transformation leadership involves providing a vision of the desired future state, clearly communicating common goals and inspiring followers through team spirit, enthusiasm, and optimism (Bass & Riggio, 2006).

The fourth component, Intellectual Stimulation (IS), is the component of transformational leadership related to a leader's ability to cause followers to question assumptions, look at

problems in new ways, and display a high level of creativity (Bass & Riggio, 2006). The leader does not publicly criticize mistakes, but instead encourages new ideas, new approaches, and new ways of thinking (Bass & Riggio, 2006).

The last concept, Individualized Consideration (IC), describes how transformational leaders pay attention to the needs of each individual, working to develop the individual to his or her full potential in a supportive climate (Bass & Riggio, 2006). This involves "management by walking around" (Bass & Riggio, 2006, p. 7), strong two-way communication, and treating the follower as a whole person, not just an employee (Bass & Riggio, 2006). Transformational leaders are adept at delegating tasks, coaching, and teaching their followers (Bass & Riggio, 2006).

A Gender Lens

One interesting aspect of transformational leadership relates to applying a gender lens to the topic. Burns (1978) discussed the biases that exist of assuming that all leaders at a higher level are male and that women do not possess the skills required for transformational leadership, even though examples of great female leadership exist in history (e.g., Eleanor Roosevelt and Margaret Thatcher). Bass (1999) believed that women are more inclined than their male counterparts to be transformational but stated that more studies are required on the subject. In a study conducted by Bass and Avolio (1994), 582 male and 219 female direct reports rated 150 male and 79 female managers from six Fortune 500 companies on 80 items. The study found that women leaders were viewed as more effective and satisfying to work for and more able to garner extra effort from their followers (Bass & Avolio, 1994). Female leaders were rated higher in three of the four areas of transformational leadership: Idealized Influence, Inspirational Motivation, and Individualized Consideration (Bass & Avolio, 1994). Bass and Avolio (1994)

described the profile that emerged of women leaders as trusted and respected leaders who are more concerned for the individual needs of the follower.

Measuring Transformational Leadership

Bass (1999) developed the Multifactor Leadership Questionnaire (MLQ) to measure whether a leader is utilizing the behaviors associated with transformational leadership. Bass (1995) developed the MLQ by asking 70 senior male executives to describe the behaviors of someone they considered to be a transformational leader – "someone who raised their awareness about issues of consequence, shifted them to higher-level needs influenced them to transcend their own self-interests for the good of the group or the organization, and to work harder than they originally had expected they would" (Bass, 1995, p. 29). Bass (1995) repeated this exercise with two groups of MBA students and drafted 142 items, which were then reviewed and narrowed to 73 statements. Bass (1995) then developed the framework of the MLQ around four key areas: Charismatic Leadership, Inspirational Motivation, Intellectual Stimulation, and Individualized Consideration. Later, Bass (1999) substituted Idealized Influence (behavior and attributed) for Charismatic Leadership because of the varying definition of charisma in the media at the time, the association of charisma with dictatorial leaders such as Hitler, and because some researchers were using Charismatic Leadership as an all-encompassing definition for all four of his transformational factors, thus contributing to the confusion between transformational and charismatic leaders.

Evaluating Transformational Leadership Effectiveness

Burns (1978) measured the effectiveness of transformational leadership by the degree to which the promised change is accomplished. Much research exists exploring the impact of transformational leadership on individuals and organizations (Bass, 1991; Podsakoff, Mackenzie,

Moorman, & Fetter, 1990). This literature review includes a sampling of these research studies related to the effect of transformational leadership on individual, business unit, and organizational performance (Bass, 1991; Hater & Bass, 1988; Howell & Avolio, 1993; Keller, 1992; Podsakoff et al., 1990).

Bass (1991) asserted that transformational leaders are more likely to be viewed as effective, as measured by the MLQ. One study of 58 managers in an engineering firm that involved gathering data from 228 employees determined that, of the "four star" leaders, those ranked in the top 25% on the MLQ score, 75% to 82% of them had employees who reported giving extra effort, versus the 22% to 24% of employees who reported giving extra effort for the "one star" leaders (Bass, 1991). This study also showed that employees are more satisfied with organizational performance appraisal systems when led by transformational leaders (Bass, 1991).

Podsakoff, MacKenzie, Moorman, and Fetter (1990) studied the impact of transformational leadership behaviors on followers' citizenship behaviors and the components of trust and employee satisfaction as mediators of the impact of transformational leadership on employee trust and satisfaction. The Podsakoff et al. (1990) research involved 988 employees of a large petrochemical company and measured six key transformational leadership behaviors based upon a review of extant literature: (a) identifying and articulating a vision, (b) providing an appropriate model, (c) fostering the acceptance of group goals, (d) setting high performance expectations, (e) providing individualized support, and (f) providing Intellectual Stimulation. Podsakoff et al. (1990) found that the transformational leadership behaviors of Individualized Consideration had a positive impact on employee trust and satisfaction, whereas Intellectual Stimulation had a negative impact on employee trust and satisfaction.

Howell and Avolio (1993) studied whether the behaviors of transformational leadership predict business unit performance by studying 78 managers in the top four levels of management at a large Canadian financial institution. Howell and Avolio (1993) developed five hypotheses related to (a) Management-by-Exception, (b) Contingent Reward Leadership, (c) Charismatic Leadership, (D) Transformational Leadership, and (E) Locus of Control. Howell and Avolio (1993) stated that their research supports the validity of the Bass model for transformational leadership in that the transactional and transformational leadership framework of the MLQ demonstrated discriminant validity and that transformational leadership directly and positively predicted unit-level performance among other outcomes.

In 1988, Hater and Bass hypothesized that transformational leaders are able to motivate employees to perform beyond ordinary expectations. These leaders develop a sense of mission and purpose and stimulate learning experiences and new ways of thinking. The Hater and Bass (1988) study was conducted utilizing employees from a U.S. corporation specializing in express delivery of goods and information. Hater and Bass (1988) found that transformational leadership added to the prediction of followers' evaluations of leader effectiveness and employee satisfaction. Managers who were identified independently as top performers also rated higher on transformational leadership behaviors, as measured by the MLQ compared to a randomly chosen group of conventional managers (Hater & Bass, 1988).

Keller (1992) studied the ability of the leaders of R&D projects to encourage and motivate bold and innovative thinking. Sixty-six project teams made up of 462 employees were measured at Time 1, and 61 project teams were measured at Time 2 (Keller, 1992). As measured by the MLQ and rated by both managers and members, transformational leadership predicted

higher project quality, schedule performance, and budget performance at both Times 1 and 2 (Keller, 1992).

Dvir et al. (2002) created a framework for transformational leadership focused upon motivation, morality, and empowerment. From this framework, Dvir et al. (2002) developed three hypotheses: (a) that transformational leaders have a positive impact on their followers' motivation, (b) that transformational leaders have a positive impact on their followers' ability to internalize the moral values of the organization, and (c) that transformational leaders positively impact their followers' empowerment. A final hypothesis synthesized these into a statement that transformational leadership has a positive impact on follower performance (Dvir et al., 2002). The Dvir et al. (2002) study of 54 military leaders, 90 direct reports, and 724 indirect reports showed that transformational leadership has an impact on at least one measure each of motivation, morality, and empowerment but did not support the impact of transformational leadership on active engagement, internalization of moral values, and self-actualized needs.

Critiques of Transformational Leadership Theory

Some are critical of the constructs and theory of transformational leadership. Pawar, in his 2003 review of transformational leadership research, identified six key conceptual issues, including (a) lack of clarity regarding the applicability of transformational leadership in organizations, (b) the defined relationship between transactional and transformational leadership, (c) the difference between charismatic and transformational leadership, (d) the focus of transformational leadership on achieving change, (e) the relationship between organizational context and transformational change, and (f) the different types of transformational leadership processes.

Yukl (1999) provided an extensive comparison and critical evaluation of widely known theories of charismatic and transformational leadership. Yukl (1999) was critical of most transformational leader theories for overly focusing upon the leader's direct influence on the follower and not on the group or organizational processes, stating that an essential component of leadership is to help an organization adapt and survive and to influence culture, structure, technology, and management systems. Yukl (1999) also contended that much ambiguity exists around the underlying influence processes of transformational leadership and that the identification of transformational behaviors has been mostly based on an inductive process without sufficient explanation of the theoretical rationale.

Pawar (2003) pointed out that the research related to transformational leaders has focused upon different aspects of organizational change, namely, the change in the individual followers and the change in the institution, or both, and that addressing the specific nature of the change to be achieved by the transformational leader is important in assessing their effectiveness. Most leadership studies show a "snapshot" of leaders' influence and determine effectiveness from that point only, creating difficulty in collecting valid data of the effectiveness of leadership and a corresponding gap in literature (Bommer, Rich, & Rubin, 2005). There is a need for more longitudinal studies that demonstrate the effectiveness of leadership behavior to influence employee attitudes over time (Bommer et al., 2005).

Relating Transformational Leadership and Organizational Agility

Burns (1978) related transformational leadership to the concepts of affecting change within an organization, a community, or society at large. Organizational context is important because different contexts drive varying levels of need for transformational leadership, varying levels of support for transformational leadership, and varying types of transformational

leadership itself (Pawar, 2003). There is not agreement on whether a crisis is necessary as a driver for transformational leadership (Eisenbach et al., 1999). Pawar (2003) argued that the type of transformational leadership described by Burns may apply in sweeping societal contexts but may not be applicable within an organization or may be constrained by the presence of explicit goals or nonresponsiveness by followers to ideological appeals. Transformational, charismatic, and visionary leaders can affect change successfully by exhibiting the correct behaviors during the appropriate phase of the organizational transformation process (Eisenbach et al., 1999). These behaviors include defining an appealing vision of the future state of the organization, including both a strategic and motivating focus (Eisenbach et al., 1999).

Leadership Characteristics of Agile Organizations

The decline in CEO tenure from 10.5 years in 1990 to less than 4 years in 2000 has been cited as an example of leadership's inability to be successful in times of ever-increasing change (Beer, 2009). A discussion of the leadership characteristics associated with agile organizations is critical in understanding how to achieve success in implementing transformational change (Crocitto & Youssef, 2003). The literature reviewed indicated that the theories of change management and leadership have not been adequately integrated and that there is not enough connection between the research, theory, and practice of leadership and organizational change (Eisenbach et al., 1999). The literature reviewed espoused the belief that environmental changes are driving a more critical need for transformational leaders, who must articulate a vision of the future and change the structure, processes, and practices of the organization to meet these changing environmental needs (Bass, 1999; Eisenbach et al., 1999). The environmental school of strategy points to the key role of leadership in achieving change related to shifting environment forces (Mintzberg et al., 1998).

This literature reviewed focused upon the following seven characteristics of the leadership of agile organizations (Brown & Eisenhardt, 1998; Goldman et al., 1995; Holbeche, 2015; Meyer, 2015; Worley et al., 2014).

- Exploring and understanding the need for change
- Creating a culture that supports agility
- Building a structure that supports the culture
- Communicating vision, mission, and strategies
- Empowering, motivating, and rewarding employees
- Demonstrating democratic and ethical leadership
- Understanding oneself as an impediment

Each of these leadership characteristics is explored in turn.

Exploring and understanding the need for change. Leaders of adaptable organizations must be able to read and react to signals of change in the environment (Girneata, 2014). The focus is not upon predicting the future, but rather in liberating people's insights as to shifting forces in the environment (Schwarz, 1991). This involves extensive information gathering, from traditional and nontraditional sources, to create an awareness of environmental changes (Schwarz, 1991).

When the worldview changes, leaders need to help their management understand the new common view of the world (Wack, 1985a). Wack (1985a) believed that organizational problems do not arise from poor strategic reasoning but instead from a crisis of perception – the inability to see an emerging new reality. Leaders must prepare their organizations for multiple possible futures, and when these new worldviews arise, leaders must mobilize the organization to embrace the new worldview and change (Chermack, Lynham & Ruona, 2001). Cummings and

Worley (2009) submitted that sensitizing the organization to the external pressures to change is one of the key steps in motivating organizational change. In realizing the need for change, leaders are the key character in crafting the strategy, targeting a culture and modeling the new behaviors (Straks, 2006). Leaders help the organization understand the information and events occurring externally and internally within the context of the organization (Youngblood, 1997).

Creating a culture that supports agility. Iivari and Iivari (2010) contended that a misalignment between the culture of the organization and the concepts of agility contribute significantly to the difficulty in becoming an agile organization. Cheese, Silverstone, and Smith (2009) described an agile organization as having an adaptive culture, and they stated that creating that type of culture is one of the greatest challenges in creating an agile organization. Plant and Murrell (1997) referenced Schein's (2010) definition of culture as the cornerstone of organizational adaptability and competitiveness. Youngblood stated that leaders of organization cannot be expected to determine the strategic vision, develop detailed operating plans, direct organizational member activities, and in sum, "be smarter than everyone else, know more than anyone else, and leap tall buildings in a single bound" (Youngblood, 1997, p. 10). Rather, the role of the quantum leader shifts to creating an organizational culture that supports the empowerment of employees (Youngblood, 1997).

***Definition of the culture of an organization*.** Schein (2010) believed that the culture of an organization is reflected in the vision and mission, which spring from the collective operating philosophy of the organization. The culture of an organization is comprised of the history of the organization's actions, symbols, decisions, and philosophy (Crocitto & Youssef, 2003). Schein (2010) believed that there are three levels of culture:

1. Artifacts – reflection of culture in physical artifacts, such as décor, dress, office configuration, and language
2. Espoused beliefs and values – those beliefs and values that are stated and desired but may not be operationalized
3. Basic underlying assumptions – solutions to problems that work repeatedly and become taken for granted

Basic underlying assumptions drive behavior, including what an organization pays attention to and members' emotions and actions (Schein, 2010). Culture reflects an organization's need to cope and learn and provides stability, predictability, and meaning (Schein, 2010). Culture is learned, culture is taught, and culture is adaptive to changing external conditions (Godwyn & Gittell, 2012). Youngblood (2000) described culture as involving every aspect of the organization, including its design, people, how they relate, what they consider to be true and important, and decision criteria.

Creating a culture that embraces change, knowledge, learning, and innovation. Leaders of agile organizations are adept at creating learning organizations and cultures that accept change (Crocitto & Youssef, 2003). This includes understanding how anxiety is unleashed during change (Schein, 2010). Agile organizations create a culture that accepts change as a constant; that motivates the desired behaviors such as continuous, active learning, and innovation; and that leverages technology to quickly retrieve organizational knowledge (Cheese et al., 2009). Resilient organizations hold the belief that they have the ability to easily cope with a vast array of changes and continually build the capacity to do so (Vogus & Sutcliffe, 2007). Nimble organizations recognize that discomfort, irritation, and aggravation come with the

territory of change management and hire people with a comfort level for ambiguity (Conner, 1998).

In an agile organization, human knowledge is as important as market knowledge (Crocitto & Youssef, 2003). Employees of nimble organizations believe they will advance based upon their ability to learn and their success at mastering new skills (Williams, 2008). Knowledge is viewed as the primary asset of a nimble organization, and expertise is highly valued (Williams, 2008). Scenario planning is also a tool for organizational learning in that it encourages a culture that focuses less on predicting the future and more on thinking in a new way that enables adaptive change (Chermack et al., 2001); challenging the mental models that exist individually and as an organization is an important step in learning and knowledge reaction (Chermack et al., 2001).

In quantum organizations, radical innovation is considered a distributed responsibility rooted in the culture of the organization (Youngblood, 2000). Nimble organizations value people who bring diversity of thinking and are able to look at issues and challenges differently (Williams, 2008). Leaders of resilient organizations must have the fortitude to challenge conventional wisdom and even the strategies linked to past success (Blohowiak, 1996). In an adaptable organization, leaders create a culture in which empowered employees do not fear failure, but in fact, learn from it and share their experiences with others (Girneata, 2014).

Agile organizations have a culture of collaboration at every level of the organization (Cheese et al., 2009). Youngblood (2000) believed that quantum cultures rely on three key dimensions: (a) renewal – the ability to continually innovate new business concepts, (b) agility – the ability to generate adaptability by providing people with the freedom and resources to respond quickly, and (c) vitality – a reflection of employee energy, commitment, and well-being.

Building a structure that supports the culture. Plant and Murrell (1997) submitted that an agile organization grounds its cultural assumptions related to Schein's (2010) sociotechnical model of organizational innovation and that the culture cannot be separated from the structure. Problems can arise when an organization with multiple structures attempts to respond with agility to changing market conditions (Segal, 1974). Godwyn and Gittell (2012) wrote, "Organizations succeed to the extent that their structures match the requirements of their environments, including both competitive positions and the technological requirements of their tasks" (p. 587). Adaptable organizations adopt an organizational structure that is flat and organic in that resources may be shifted to meet changing internal and external needs (Girneata, 2014). Traditional, bureaucratic organizations cannot react quickly enough to remain successful in times of change (Williams, 2008). Organizations must function not as closed systems but as open systems able to interact with the environment and re-organize as necessary (Williams, 2008). In nimble organizations, people work in transient, cross-functional teams, and people operate with flexible interpretations of their roles and responsibilities (Williams, 2008).

Communicating vision, mission, and strategies. Crocitto and Youssef (2003) used the term *agile management* to reflect leaders' ability to craft an agile vision and mission for the organization. Leaders of quantum organizations focus the members on the shared vision through active participation and extensive dialogue and promote organizational focus on short- and long-term organizational goals (Youngblood, 1997). The role of the leader is to (a) unify the organization by building community around common values, vision and loyalty; (b) clear the path for valuable experts/knowledge workers and provide them with the resources they need to be successful; and then (c) get out of the way (Williams, 2008). This includes the ability to create new products, services, and technologies to meet the needs of new or changing markets

(Girneata, 2014). Members of nimble organizations share a deep sense of shared purpose (Williams, 2008).

Empowering, motivating, and rewarding employees. "People breathe life into organizations through their commitment and positive energy" (Youngblood, 1997, p. 12). Leaders of quantum organizations empower people, giving them the power to make decisions at the lowest level and transferring both the authority and accountability to the individual (Youngblood, 1997). Leaders who accomplish this not only unleash the creative potential of their organization, they also maximize their own potential and sense of empowerment (Youngblood, 1997). Youngblood (1997) asserted that critical attributes of the leader are (a) cultivating the organization, (b) growing the people within it by asking them to own the success of the business, (c) helping individuals and groups within the organization connect and collaborate, (d) promoting an environment of continual learning and diverse ideas, and (e) nourishing the human spirit.

The ability to motivate employees is one of the four key attributes of adaptable organizations (Girneata, 2014). Leaders of agile organizations must understand what motivates the organization's members, suppliers, and clients and align reward systems with the ability to foresee, react to, and effect change in the organization's environment (Crocitto & Youssef, 2003). Social identity theory and related research support the framework that leaders must embody the norms of the group they lead, exhibit justice and fairness, and align the reward system of the organization to the desired behaviors defined by the group (Haslam, 2004). Employees of nimble organizations feel valued because of their current performance, not their tenure, and this is reinforced with formal and information reward systems (Williams, 2008).

Demonstrating democratic and ethical leadership. Leadership attributes that have been linked to organizational agility include visionary thinking, overcoming resistance, initiative taking, gaining buy-in, creating meaning, open-mindedness, and assertiveness (Meyer, 2015; Worley et al., 2014). Leaders of agile organizations must demonstrate the behavior they desire in the organization's culture, and the literature reviewed does not support the command-and-control style as successful in these types of environments (Cheese et al., 2009). Research supports democratic leadership as the style most favorable to group performance versus autocratic or laissez-faire leadership styles (Haslam, 2004). In quantum organizations, the leader becomes a living example of the desired behaviors (Youngblood, 1997). Resilient organizations are led by ethical leaders who embody integrity (Blohowiak, 1996).

In a nimble organization, leadership must become comfortable with the fact that they are just one component of the successful organization and are neither more nor less important than any other component (Williams, 2008). Strak (2006) cited Goleman's leadership styles and stated that Goleman's research supports multiple possible styles of leadership for the nimble organization, including affiliative, democratic, and coaching. Leaders of nimble organizations need to be driven by a desire to have a positive impact on all of the stakeholders of the organization while adapting to the changes made necessary by the environment (Strak, 2006).

Leaders understanding themselves as potential impediments. Leaders can, at times, be the largest impediment to achieving agility as an organization (Cheese et al., 2009). Being averse to risk and uncertainty can, at times, drive leaders to rely on past successes and blame resistance to change by the organization's members as the key obstacle to change (Cheese et al., 2009). During times of rapid change and uncertainty, the existing mental models of leaders create a situation in which it is difficult to break out of an old worldview and embrace the need

to change (Wack, 1985b). When leaders have a specific way of framing an issue, it is difficult to envision solutions outside of that framework Wack (1985b). Resilient organizations do not rely on past successes but instead anticipate that the organization will need to change to remain competitive (Vogus & Sutcliffe, 2007).

Leaders must be able to think the unthinkable in order to not be an impediment to the change necessary for survival of the organization (Chermack et al., 2001). Scenario planners attack this issue by promoting a proactive embracement of multiple future worldviews, depicted by scenario plots, to stimulate an ability to grasp these possible future worldviews (Chermack et al., 2001). Leaders can overcome reliance on past success and "group think" by surrounding themselves with "devil's advocates" and cultivating external networks that provide different viewpoints, new ideas and perspectives on shifting environmental forces (Cummings & Worley, 2009). Schwartz (1991) believed that leaders can overcome their preconceived notions of success by exposing themselves to challenging environments, reading material outside of their industry, or networking with people who offer out-of-the box thinking.

Discussion of Transformational Leadership Research, Practice, and Theory

There is a critical need for organizations to be able to adapt an ever-increasing pace of change related to environmental forces, such as technology, regulation, consumer needs, and globalization (Cheese et al., 2009; Sull, 2009). The development of the concept of agile organizations has been explored as one framework for understanding how to create an organization able to rapidly and repeatedly change in order to meet these changing conditions (Dove, 1999). The literature reviewed revealed the following characteristics of agile organizations (Belasco, 1990; Goldman et al., 1995; Holbeche, 2015; Worley et al., 2014) who plan for change by:

- Focusing upon short- and long-term success
- Seeking nontraditional sources of information and viewpoints
- Developing alternative future scenarios
- Monitoring the changing forces of the environment

Agile organizations create a culture that embraces change by:

- Accepting change as a constant
- Building individual and organizational internal capabilities and knowledge
- Hiring quick learners and promoting learning, innovation, and diverse thinking
- Rewarding people not for tenure but for current performance and alignment

Agile organizations structure themselves for change by:

- Abandoning traditional hierarchies in favor of virtual organizations able to quickly reconfigure
- Driving shared leadership and decision making at the lowest level
- Promoting teamwork and collaboration at every level
- Employing knowledge workers who can quickly learn and change job responsibilities

Agile organizations are able to implement change to:

- Achieve speed, flexibility, and adaptability
- Rapidly develop products to meet new needs
- Implement multidimensional strategies simultaneously
- Survive, thrive, and remain competitive

Understanding the leadership characteristics of agile organization is critical in that the leader is ultimately responsible for setting the direction of the organization, and as stated in the environmental school of strategy, the most important role of the leader of an organization is to

scan the environment and craft strategies that successfully align with current and future shifts in the environment (Sull, 2009; Worley et al., 2014). These characteristics include:

- Exploring and understanding the need for change
- Creating a culture that supports agility
- Building a structure that supports the culture
- Communicating vision, mission, and strategies
- Empowering, motivating, and rewarding employees
- Demonstrating democratic and ethical leadership
- Understanding that they may be an impediment

Conclusion

Organization agility is an emerging topic, and while progress has been made in researching this concept, additional research is needed to reach agreement on the primary constructs and the conceptual framework of organization agility, the organizational performance metrics that support delineated levels of organization agility, and the instrument to measure organization agility (Belasco, 1990; Goldman et al., 1995; Holbeche, 2015; Worley et al., 2014).

While progress has been made in researching the constructs and elements of an agile organization, additional research is necessary to more clearly define and defend a conceptual framework of organization agility that is broadly embraced by scholars, practitioners, and organizational leaders (Holbeche, 2015; Meyer; 2015; Worley et al., 2014). The Holbeche (2015) conceptual framework of organization agility is comprehensive, containing constructs and elements that are reflected in the Belasco (1990), Goldman et al. (1995), and Worley et al. (2014) conceptual frameworks. However, this conceptual framework appears to be more grounded in practice than in academic research (Holbeche, 2015). The Worley et al. (2014) conceptual

framework of organization agility achieved a balance between parsimony and complexity and was utilized for the dissertation research on this topic. Future research related to defining the constructs and elements of the conceptual framework of organization agility is necessary to build upon the research reviewed with a goal of achieving accepted theory (Belasco, 1990; Goldman et al., 1995; Holbeche, 2015; Worley et al., 2014).

By leveraging the bodies of research related to both industry-specific and non-industry-specific research on organization agility, future research could move the conceptual framework of organization agility towards a more cohesive body of research and theory of organization agility (Belasco, 1990; Goldman et al., 1995; Holbeche, 2015; Worley et al., 2014). Organization agility is a critical issue facing organizations, given the need to react to shifts in the external environment, and robust, rigorous research related to organization agility would greatly benefit organizations (Holbeche, 2015; Worley et al., 2014). Collaborative thinking by researchers working on the topic of organization agility could decrease the current level of fragmented thinking and create progress towards agreed-upon theory. This would benefit scholars, practitioners, and corporate leaders alike.

The evidence supporting a more rapidly changing external environment supports the claim that every organization must achieve some workable level of agility (Dove, 1999; O'Reilly & Tushman, 2016). There is a great deal of literature that has defined the characteristics of agile organizations and the closely related concepts of resilient, adaptable, nimble, and quantum organizations (Meyer, 2015; Worley et al., 2014). Much less attention has been given to how organizations go about achieving the desired end state of organizational agility. Focusing upon the leadership characteristics of agile organizations and how to replicate these characteristics will lead to a deeper understanding of how to help an organization achieve agility (Sull, 2009). This

understanding would be further enhanced by attaining agreement on the conceptual framework for organization agility and conducting research on the leadership behaviors and attributes necessary to develop a culture that supports this framework.

CHAPTER 3: RESEARCH METHOD

The purpose of this chapter is to present the research context, research question, research design, population and sampling techniques, variable measurement instruments, data collection techniques, and data analyses utilized for this research study.

Research Context

The purpose of this research study was to gain additional insight into the relationship between leadership behaviors and attributes of organization leaders and the agility of that organization. Agility has been studied within specific industries, such as manufacturing and software, and has also been studied to a more limited degree without specification to industry (Worley et al., 2014; Yusuf et al., 1999; Zhang & Sharifi, 2007). This study sought to contribute to this more limited knowledge base of agility by studying organizations across a wide array of industries to enhance the generalizability and utility of the results for various industries (Worley et al., 2014). The context of this study was narrowed to include only organizations with greater than 1,000 employees as there is some indication that larger organizations are more challenged in achieving organization agility (Brown & Eisenhardt, 1998). The context of the study was then further narrowed to the study of U.S.-based business units within both U.S. and global organizations to mitigate foreign cultural influences on the study. The organization types studied included privately-held for-profit, publicly traded for-profit, not-for-profit, and government agencies.

Agility has been studied at the organization level, the business unit level, and even the individual level (Crocitto & Youssef, 2003; Holbeche, 2015). This study was focused upon the study of organization agility at the business unit level. For the purposes of this study, a business

unit was defined as a distinct, U.S.-based operating group within an organization of 1,000 or more employees that is responsible for the execution of a defined set of strategies and tactics related to the performance of the organization. The decision to study organization agility at the business unit level was driven by three factors: (a) the desire to add to the limited body of knowledge related to organization agility at the business unit level; (b) the assumption that multiple business units from an organization would participate in the study, thus increasing the sample size from each organization secured to participate; and (c) that the data collected would lend insight into the degree of variation in organization agility among business units from the same organization and how organizational context influences organization agility at the business unit level (Worley et al., 2014).

Research Question

The purpose of this research was to determine the degree to which the leadership behaviors and attributes of U.S.-based business unit leaders predict the organization agility of that business unit, thereby advancing the theory of organization agility at the business unit level with generalizability to the organization level.

The following research question was established for this research study:

RQ: What are the perceived behaviors and attributes of business unit leaders, as reported by the direct reports of business unit leaders and measured by the Multifaceted Leadership Questionnaire (MLQ – 5X), that predict higher scores on organization agility for that business unit, as measured by the Agility Survey (short-form).

The following hypothesis was made:

H1: The presence of certain leadership behaviors and attributes for a business unit leader, as measured by the MLQ-5X, predicts a higher score on organization agility for that business unit, as measured by the Agility Survey (short-form).

The null hypothesis is:

H0: The presence of certain leadership behaviors and attributes of a business unit leader, as measured by the MLQ–5X, have no relation to the level of organization agility of that business unit, as measured by the Agility Survey (short-form).

Research Design

The research design followed a quantitative, nonexperimental design utilizing Likert scale survey instruments for the measurement of the independent and dependent variables with an assumption of normally distributed data (Tabachnick & Fidell, 2007). A survey design was deemed to be appropriate as surveys are an effective method for measuring the opinions of individual behaviors and attributes and organization routines and capabilities (Tabachnick & Fidell, 2007).

Research Model

The research model, illustrated in Figure 1, contained an the assumption of nine independent variables (the nine elements of the MLQ – 5X developed in 2004) to identify the leadership behaviors and attributes of each business unit leader: Idealized Influence (attributed; four items), Idealized Influence (behavior; four items), Inspirational Motivation (four items), Intellectual Stimulation (four items), Individualized Consideration (four items), Contingent Reward (four items), Management-by-Exception (active; four items), Management-by-Exception (passive; four items), and Laissez-Faire Leadership (four items); and one dependent variable, the

organization agility of the business unit, as measured by the Agility Survey (short-form) Total Agility Score (Bass & Avolio, 1994; Bass & Riggio, 2006; Worley et al., 2014)

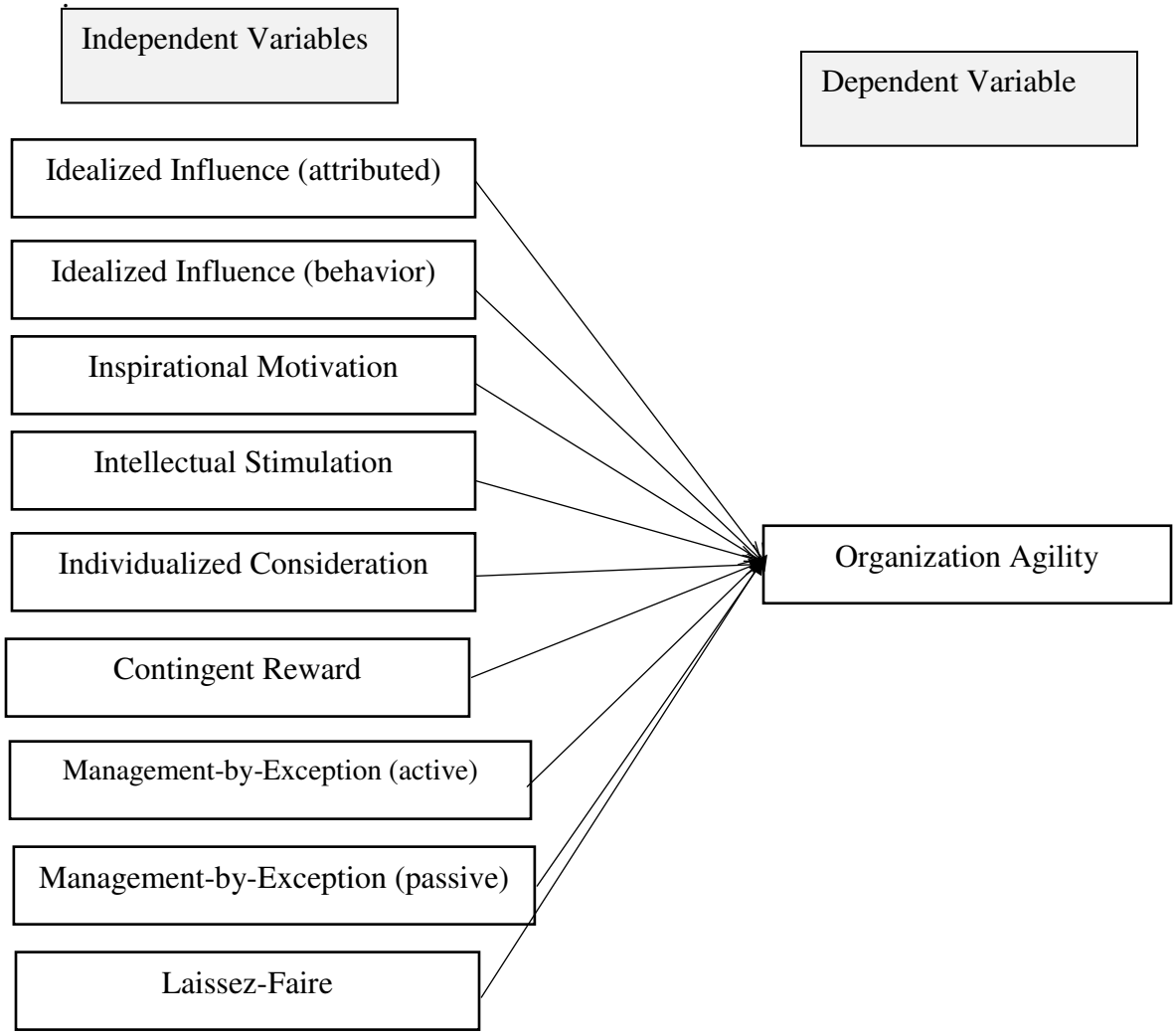

Figure 1. Research design representing nine elements as independent variables.

Prior research has supported a relationship between the nine elements of the MLQ-5X and three leadership constructs: (a) Transformational Leadership, comprised of Idealized Influence (attributed), Idealized Influence (behavior), Inspirational Motivation, Intellectual Stimulation, and Individualized Consideration; (b) Transactional Leadership, comprised of Contingent Reward and Management-by-Exception (active); and (c) Passive-Avoidance

Leadership, comprised of Management-by-Exception (passive) and Laissez-Faire Leadership (see Figure 2; Bass & Riggio, 2006). This research study also explored the relationship between these three leadership constructs and organization agility, as illustrated in Figure 2.

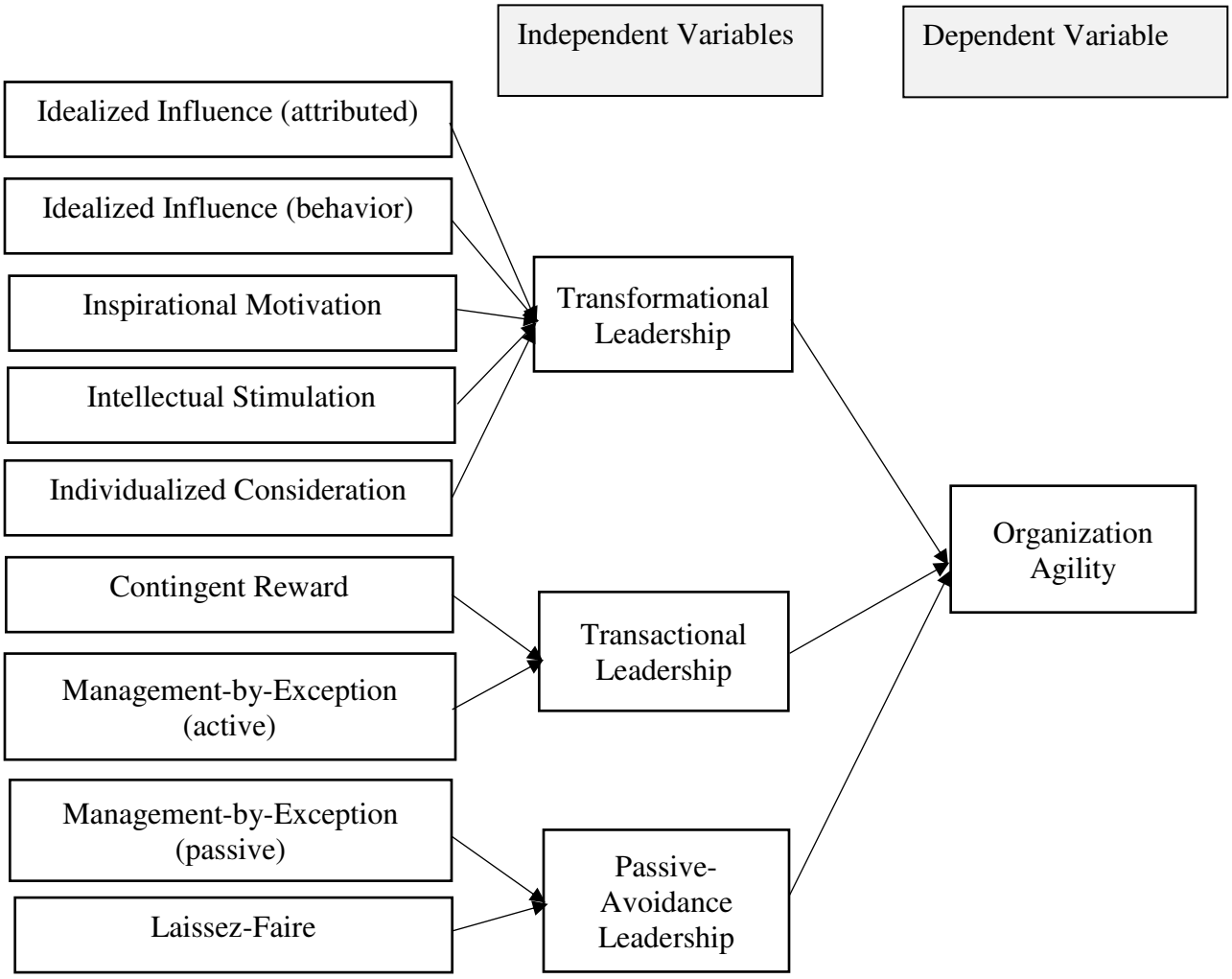

Figure 2. Research design representing three leadership constructs as independent variables.

Confirmatory factor analysis and exploratory factor analysis were utilized to explore the validity of the MLQ-5X model for this data set, and the results of this statistical analysis are presented in Chapter 4. Simultaneous linear regression was chosen as the statistical analysis method to explore the relationship between the nine elements of the MLQ-5X, the independent

variables, and the dependent variable, as measured by the Total Agility Score; and between the three leadership constructs of the MLQ-5X, the independent variables, and the dependent variable, as measured by the Total Agility Score. The analysis included an examination of the assumptions that must be met for simultaneous linear regression to be an appropriate statistical analysis tool. A more thorough discussion of the data analysis process is provided later in this chapter. Results for this analysis are presented in Chapter 4.

Population and Sample

This researcher focused upon the study of U.S.-based business units located within U.S. or globally based organizations with greater than 1,000 employees. A decision was made to include U.S.-based business units of foreign-held organizations because a large and increasing number of U.S. companies are held by foreign investors.

Theoretical Population

The theoretical population of interest was U.S.-based business units within U.S. or global organizations, of any type, with more than 1,000 employees. As of the first quarter of 2016, there were over 11,000 U.S. organizations with over 1,000 employees (see Table 5; U.S. Bureau of Labor and Statistics, Table G, n.d.). It was assumed that the number of potential business units to study was a number greatly larger than this.

Table 5

Distribution of Private-Sector Firms by Size Class 2016 Q1 not Seasonally Adjusted; in Thousands

Firm Size (No. of Employees)	1 to 4	5 to 9	10 to 19	20 to 49	50 to 99	100 to 249	250 to 499	500 to 999	Over 1,000
2016 Q1	2,854	982	622	415	135	79	24	12	11

Sampling Methods

The sampling methods of random selection and convenience sampling were utilized to solicit the participation of U.S.-based business units and business unit leaders within organizations with greater than 1,000 employees (Tabachnick & Fidell, 2007). Prior to initiating the research study, a sample size of 119 business units was selected to achieve a margin of error of .03, with an alpha of .05 and $t = 1.96$ (Bartlett, Kotrlik, & Higgins, 2001).

A power analysis was also completed to determine the necessary sample size for this study. Power refers to the probability of producing a statistically significant result in the data analysis and involves examining the estimated size of anticipated effect, the variability expected, the desired alpha (in this case .05), and the typical desired power of .80 (Tabachnick & Fidell, 2007). G*Power statistical software was utilized to determine that for a desired power of .80, effect size f2 of .15 (medium), and nine predicting variables, the sample size necessary was 114 (see Figure 3).

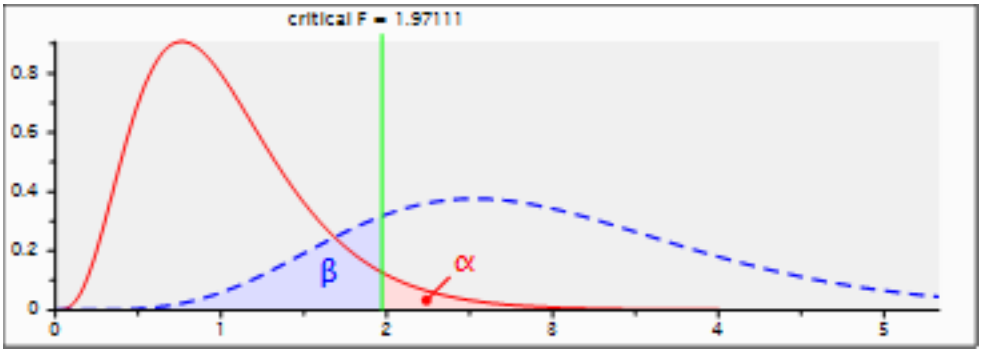

Figure 3. Power analysis.

Random sampling method. To initiate the random sampling method, a database containing 12,136 e-mail addresses for CEOs of organizations with greater than 1,000 employees was located from RSA Associates, and a randomly selected sample of 5,000 of these 12,136 records was purchased. It was estimated that each of these organizations contained at least 10

U.S.-based business units, for a total of 20,000 possible participating business units from this database.

The contacts included in this database were sent four e-mails via Constant Contact on September 27, 2017, October 27, 2017, February 4, 2018, and April 18, 2018, containing the IRB-approved solicitation e-mail requesting their company's participation in the study. The number of companies receiving the e-mail ranged from an initial number of 3,743 to a final number of 3718, as duplications and nonvalid e-mails contained within the purchased database were removed. The open rate for each campaign ranged from 12% to 20%.

In all instances, additional information regarding the study was requested via a telephone conversation, either with the CEO, or more commonly, with someone within a supporting function such as Human Resources, Strategy, or Organizational Development. These conversations were necessary given the complicated nature of the study and were held with individuals representing approximately 120 companies, of which 32 agreed to participate, accounting for 89 of the 126 business units studied, or 70.63%.

Of those that declined to participate, the most common reasons were fear of survey fatigue, concerns of confusing this effort with other initiatives or projects, lack of resources to support the data collection model, and the prioritization of other initiatives. Only one potential participant did not believe that the study of agility was relevant, and all other conversations anecdotally supported and expressed great interest in the topic of organization agility. Anecdotally, companies were more likely to participate if an operations leader was involved in the initial conversation versus a human resource leader.

Convenience sampling method. A study assumption was made that convenience sampling of participating organizations would be necessary to augment the random sample to

achieve the necessary 119 business units for the research study. Convenience sampling was utilized to approach the leaders of U.S.-based business units to solicit participation. These business unit leaders were all personally known to the researcher, and these efforts resulted in 37 companies agreeing to participate, with a total of 30 of the 126 business units, or 29.37%. The convenience sampling process followed that of the random sampling method by providing the IRB-approved solicitation e-mail to initiate the request for participation. The sample size of 126 business unit study participants by sampling method is included in Chapter 4. Analysis was completed on data from 47 organizations and 126 business units.

Instruments and Measurement

The literature review provided in Chapter 2 reviewed the development of the theory and conceptual frameworks of leadership, including transformational leadership and organization agility over the past 3 decades. Leadership theory, while a mature topic, continues to evolve through rigorous research (Bass & Riggio, 2006). A decision was made to focus upon the study of transformational theory because of the alignment of this theory with the research related to the leadership of agile organizations (Brown & Eisenhardt, 1998; Holbeche, 2015; Meyer, 2015; Worley et al., 2014). Organization agility, an immature body of knowledge, offers the unique challenge and opportunity of contributing to a limited knowledge base (Brown & Eisenhardt, 1998; Holbeche, 2015; Meyer, 2015; Worley et al., 2014). The following is a discussion of how the measurement instruments for each theory were chosen for this study.

Measuring Leadership Behaviors and Attributes

As discussed in Chapter 2, several instruments exist to measure leadership behaviors and attributes (Arteta & Giachetti, 2004; Iivari & Iivari, 2010; Shin et al., 2015; Tsourveloudis &

Valavanis, 2002). The MLQ–5X (Bass & Riggio, 2006) was chosen for this research study for several reasons.

Alignment with organization agility theory. Those researching organization agility have described leadership as a critical organization capacity (Brown & Eisenhardt, 1998; Holbeche, 2015; Meyer, 2015; Worley et al., 2014). These researchers described effective leaders of agile organizations as those that create a climate of open and candid communication with deliberate forums designed to encourage the questioning of organizational assumptions (Meyer, 2015; Worley et al., 2014). The leaders of highly agile organizations encourage experimentation and foster a culture in which learning and reflection are valued capabilities (Sull, 2009). These leaders are humble and understand that their position is not about power but instead about understanding they do not have all the answers and should engage others in creating organization strategies (Brown & Eisenhardt, 1998; Holbeche, 2015). The leaders of agile organizations challenge their own assumptions and encourage others within the organization to do so as well (Dove, 1999; Worley et al., 2014). These leaders support organizational systems that define the purpose of the organization, set clear goals, provide effective feedback, and align incentives with the achievement of these goals (Goldman et al., 1995; Worley et al., 2014). These leaders want problem solvers on their team who have the freedom and responsibility to develop more effective ways of accomplishing the mission of the organization (O'Reilly & Tushman, 2016; Worley et al., 2014).

The MLQ-5X leadership survey was chosen for this study because of the alignment between several of the items of the survey and the described behaviors and attributes of the leaders of highly agile organizations ((Brown & Eisenhardt, 1998; Holbeche, 2015; Meyer, 2015; Worley et al., 2014). The items "gets me to look at problems from many different angles"

and “suggests new ways of looking at how to complete assignments” seem to align with leaders of agile organizations who encourage their followers to challenge assumptions and look for new ways of attacking problems (Meyer, 2015; O’Reilly & Tushman, 2016). Additional items in the MLQ-5X, such as “specifies the importance of having a strong sense of purpose” and “emphasizes the importance of having a collective sense of mission,” seem to align with the behaviors associated with the leaders of highly agile organizations related to purpose and mission setting (Worley et al., 2014). Learning and reflection is also addressed by the MLQ-5X in items such as “re-examines critical assumptions to question whether they are appropriate” (Brown & Eisenhardt, 1998; Meyer, 2015). The MLQ-5X also includes items that seem to align with the goal-setting and compensation aspects of leadership within agile organizations in items such as “discusses in specific terms who is responsible for achieving performance targets,” “makes clear what one can expect to receive when performance goals are achieved,” and “expresses satisfaction when I meet expectations” (Holbeche, 2015).

An opportunity may exist in the future to create a leadership measurement instrument that even more closely aligns with the researched behaviors and attributes of the leaders of highly agile organizations. While there are many items in the MLQ-5X that align with the behaviors and attributes of these leaders, the instrument does not address certain other behaviors and attributes, such as the creation of a culture of openness and candor, humility, and the engagement of employees in strategy settings (Brown & Eisenhardt, 1998; Holbeche, 2015; Meyer, 2015; Worley et al., 2014). An instrument specifically developed to align with the leadership of agile organizations would also focus additional attention on the behaviors that support the agile routines of perceiving and testing, such as behaviors related to resource allocation to new ideas

and the development of systems to gather, distill, and act upon changes in the environment (Chermack et al., 2001; O'Reilly & Tushman, 2016; Worley et al., 2014).

Reliability. Those utilizing the MLQ-5X in prior research studies have reported high levels of reliability, as measured by Cronbach's alpha (see Table 6). As noted by Bass and Riggio (2006), "The MLQ scales have demonstrated good to excellent internal consistency, with alpha coefficients above the .80 level for all MLQ scales, using the most recent version of the MLQ across a large sample" (p. 22). Cronbach's alpha for this study is reported in Chapter 4.

Table 6

Reports of Prior Study MLQ-5X Score Reliability

Study	Leadership Instrument	Cronbach's Alpha
Franco and Matos (2013)	MLQ-5X	.93
Gencer and Samur (2016)	MLQ-5X	.81
Luo, Wang, Marnburg, and Ovaard, (2016)	MLQ-5X	.90
Popli and Rizvi (2016)	MLQ-5X	.93

Validity. The research utilizing the MLQ-5X has achieved high levels of construct validity, although there is recognition that several researchers have been unable to replicate the nine-element model of the MLQ-5X (Bass & Riggio, 2006). The review of literature included both studies confirming score validity for the nine-element construct model for the MLQ-5X and studies that did not conduct confirmatory or exploratory factor analysis to assess score validity for the nine-element construct model for the MLQ-5X (Bass & Riggio, 2006; Flanigan, Bishop, Brachle, & Winn, 2017; Frieder, Hemsworth, Muterera, & Baregheh, 2013; Wang, & Oh, 2018).

Accessibility. The MLQ-5X was an accessible measurement instrument for this study. Permission to use the MLQ-5X as the measurement instrument for leadership behaviors and

attributes of the business unit leaders was obtained through the purchase on October 14, 2017, of a license to electronically distribute the instrument.

Measuring Organizational Agility

As discussed in Chapter 2, the conceptual framework of organization agility has only been studied since approximately 1991 and is a relatively immature field of study (Dove, 1999). A review was conducted of organization agility research studies executed from 2015 through early 2017 to determine the instruments most frequently utilized to measure organizational agility. Two instruments were prevalent in the research reviewed related to organization agility: (a) Sharifi and Zhang (1999) and (b) Worley, Williams, and Lawler (2014).

The Sharifi and Zhang (1999) instrument for the measurement of organization agility was developed specifically for a manufacturing context, while the Worley, Williams, and Lawler (2014) instrument, the Agility Survey (short-form), was developed for use across multiple industries. Given that the context of this research study was also across multiple industries, the Agility Survey (short-form) was chosen as the measurement instrument for organization agility.

The Agility Survey (short-form) contains four subscales (Worley et al., 2014):

- Agile strategizing – developing an organizational strategy; managing, monitoring, and measuring the effectiveness of the strategy; developing an aspirational purpose; and focusing on the breadth, aggressiveness, and differentiation of the strategic positioning of the organization (Worley et al., 2014)
- Agile perceiving – sensing the environment and sharing that information with decision makers who then interpret the signals of the environment (Worley et al., 2014)
- Agile testing – setting up the test, running the test, and learning from the test of new strategies (Worley et al., 2014)

- Agile implementing – managing the implementation of change and monitoring the delivery of expected results (Worley et al., 2014)

Because this is an emerging topic, few research studies exist that have used this instrument to measure agility and report reliability and validity. However, a recent study by Mirinezhad, Keivani, and Rad (2014) using this instrument reported Cronbach's alpha for the data of .91. The Cronbach's alpha for this dissertation study was .96, as reported in Chapter 4. Factor analysis was not performed to explore the four constructs, as only a Total Agility Score comprised of the average of the four subscale scores was utilized. This is consistent with prior research studies. Permission to utilize the Agility Survey (short-form) for the measurement of organization agility for this study was received by contacting Dr. Christopher Worley, who stated that this instrument was free for use with adequate referencing.

Instrument structure. The instruments selected for use in this study previously used 4-, 5-, and 7-point Likert scales. A 5-point Likert was chosen for this study as this was the prevalent choice in the research reviewed.

Data Collection

Permission to proceed with data collection was received from the Colorado State University Institutional Review Board (IRB) Committee on September 22, 2017. The study commenced by soliciting the CEOs of the 5,000 randomly selected organizations with greater than 1,000 employees, and the solicitation of participating organizations followed the study sampling method described earlier. The IRB-approved solicitation e-mail (see Appendix A) was initially sent to each of these CEOs on September 27, 2017, and the final solicitation was sent on April 18, 2018. Each of these e-mails explained the study, including the required time commitment and the information that would be gathered, and requested that company's

participation. At the same time, convenience sampling was utilized to contact leaders of U.S.-based business units to solicit participation in the study. The number *(N)* of actual participants by sampling technique is included in Chapter 4. The final list of participating organizations was secured on May 1, 2018.

For each organization, the demographic variables collected included the state of each organization whose headquarters were located in the US, as well as total number of employees in the organization, year of founding of the organization, and the organization's primary industry. The original list of demographic variables for each business unit included gender, age, and number of years in that position. However, it proved difficult to gather this information from the participating business units, and a decision was made to reduce the demographic variables for each business unit to business unit leader gender and business unit size, as measured by number of employees in the business unit. A summary of the demographic profile of the sample is provided in Chapter 4.

The IRB-approved e-mail, which was sent to each participant via Qualtrics, requested the direct reports of each business unit leader as well as requesting the business unit leader to complete an MLQ-5X leadership survey for that specific business unit leader (see Appendix B). The first question of the electronic survey confirmed the participants' reporting relationship to that business leader by stating, "I report to and am evaluating Jane Doe." A total of 751 responses were received for the MlQ-5X for 126 business unit leaders, providing the data for the independent variable and perceptions of leadership behaviors and attributes for each participating business unit leader.

To measure the agile routines of each of the 126 participating U.S.-based business units, a random sample of 20 employees of that specific business unit, or in some cases all employees

in that business unit, were asked via an IRB-approved e-mail to complete the Agility Survey (short-form) for that business unit (see Appendix C). Each survey began with a statement requesting that the participant specifically consider the business unit in question when responding to the survey to ensure that the participant was responding within the context of the business unit, not the entire organization or a specific team. The 1,479 responses to the Agility Survey (short-form) provided the data for the dependent variable, the Total Agility Score of that specific business unit. Data collection for this study was completed on May 17, 2018.

Data Analysis

This section describes the data analysis techniques utilized to examine the data collected. Prior to analyzing the data, the data were reviewed for missing or incorrect data by evaluating descriptive statistics, including frequency, minimum, maximum, and range (Morgan et al., 2013). Measures of central tendency, including mean, median, and mode, and measures of variability, including range and standard deviation, were evaluated and are reported in Chapter 4 (Gliner, Morgan, & Leech, 2009). Normalcy and skewness were also analyzed and are included in Chapter 4. Multicollinearity was investigated between the independent variables by running bivariate correlations in SPSS and by ensuring that there were no VIF > 5 and tolerance < .2 in each of the multiple regression analysis models (Morgan et al., 2013).

As described earlier, confirmatory and exploratory factor analysis were conducted on the MLQ-5X leadership survey data to determine reliability (Gliner et al., 2009). The assumptions that were confirmed and the results of this analysis are presented in Chapter 4. Simultaneous linear regression was chosen as the primary statistical tool for analysis of the relationship between leadership behaviors and attributes and organization agility. An alternative, hierarchical

linear modeling was considered but was not deemed necessary because of the lack of an additional differentiating variable for each business unit (Gliner et al., 2009).

Assumptions

The core assumptions for simultaneous linear regression are (a) linear relationship, (b) independence of observations, (c) normalcy of variance, and (d) equality of variance (Morgan et al., 2013).

Linear relationship. A linear relationship exists between two variables when one is dependent upon the other, and the relationship is described by a linear equation (Morgan et al., 2013). Scatterplots were generated to verify the assumption of a linear relationship between the independent and dependent variables by visually confirming the linear relationship (Morgan et al., 2013). In addition, linearity was assessed using residual plots during the simultaneous linear regression process, with an evaluation that residual plots approximated the desired distribution (Tabachnick & Fidell, 2007, p. 83).

Independence of observations. Homoscedasticity is reached when the occurrence of one event does not change the probability of another (Morgan et al., 2013). For homoscedasticity to be satisfied, the variability of scores for one item must be approximately the same at all values for another continuous variable (Tabachnick & Fidell, 2007). For the assumption of independence of observation, the data were analyzed using residual plots (Morgan et al., 2013). This information is reported in Chapter 4.

Normalcy of variance. This assumption indicates that the data, when plotted, reflect a normal curve (Morgan et al., 2013). A normal, or Gaussian, distribution reflects, via the central limit theorem, that an adequate sample size has been achieved and that the data are represented by a bell-curve shape (Tabachnick & Fidell, 2007). Data is considered normal if the skewness

statistic is approximately 1.0 or less (Morgan et al., 2013). Multivariate normality is the assumption that all linear combinations of the variables, and each variable, are normal (Gliner et al., 2009). Skewness was examined to determine the normalcy of the data, and normalcy curves were created using SPSS. This information is reported in Chapter 4.

Equality of variance. This assumption, homogeneity of variance, indicates that there is equality of variance among the data sets of different groups within the study (Tabachnick & Fidell, 2007). For potential violations of homogeneity, transformation of variables was initially considered but determined not to be necessary (Tabachnick & Fidell, 2007). The assumption of equality of variance was tested using Levene's test of equality of variance and is reported in Chapter 4.

In addition to the above-mentioned efforts to ensure that the assumptions necessary for simultaneous linear regression were met, residual scatterplots were utilized to assess the assumptions of normality, linearity, and homoscedasticity by evaluating the scatterplots for the desired appearance (Tabachnick & Fidell, 2007, p. 126).

Reliability

Reliability within a study refers to the consistency of measurement of the variable (Gliner et al., 2009). The observed score is equal to the true score plus or minus the error, and reliability is expressed as a coefficient reflecting the variance of the true scores from the variance of the observed scores (Gliner et al., 2009). A correlation coefficient greater than .80 is desirable, although some researchers utilize .70 (Gliner et al., 2009). For a particular study, instruments should be chosen that have a past reliability of greater than .80, and the samples should be as similar as possible (Gliner et al., 2009). Ways to increase reliability include the use of test/retest, using a parallel form for the retest, the measurement of internal consistency utilizing Cronbach's

alpha or split-test method, observation reliability related to interrater reliability and percentage agreement, and interclass coefficients (Gliner et al., 2009). Reliability for this study was confirmed using Cronbach's alpha and is presented in Chapter 4.

Validity

Validity, the assurance that the instruments used indeed measure the intended concept, is considered by many to be more challenging to achieve than reliability (Gliner et al., 2009). External validity measures – whether the intervention or independent variable was indeed the cause of the difference or whether other extraneous variables were responsible – are concerned with the generalizability of the results beyond the study to the target population (Gliner et al., 2009). External validity for the target population of organizations with greater than 1,000 employees was increased by randomly selecting 5000 participating organizations from a total population greater than 11,000 and an accessible population of 12,136. The conditions of testing were also controlled via the use of a standardized electronic testing method, although the conditions during participant execution of the instrument were not controlled.

As described earlier, exploratory and confirmatory factor analyses were performed on the MLQ–5X leadership survey data to confirm the anticipated nine-element structure (Morgan et al. 2013). Eigen values, which are also an indication of validity, were calculated for each factor, and results are reported in Chapter 4 (Tabachnick & Fidell, 2007). The Kaiser-Meyer-Olkin (KMO) value was also calculated to ensure a value greater than .5 as an indication of validity (Tabachnick & Fidell, 2007).

Effect Size

Effect size is an estimate of the magnitude of the effect on this sample of data, or the strength of relationship between the independent and dependent variables (Gliner et al., 2009).

Effect size is a measurement of the strength of prediction in the model analyzed (Tabachnick & Fidell, 2007). R-squared (R^2) was calculated to report upon effect size and is reported in Chapter 4.

Ethical Considerations

This research study received exempt status from the Colorado State University IRB as no identifying information was collected and all participants were over the age of 18. Each participating business unit leader and corresponding company were identified using a unique letter combination, and no information was retained post dissertation defense that related this letter combination to the actual company or business unit leader. Informed consent was solicited in the language of the e-mail requesting participation in the study, and the nature of the study and intended use of the data collected, including the assurance of anonymity, were clearly explained (see Appendix A). This included a statement of the intent to publish the summary data in this dissertation and in subsequent studies related to the study, with an assurance of individual anonymity. The e-mail addresses of the CEOs of the sample of 5,000 organizations were not used for any additional purpose.

Conclusion

This chapter described a sampling method and research design that were rigorous to ensure that the results achieved would contribute to the body of knowledge related to transformational leadership and organization agility. The original time frame for participant solicitation and data collection was extended to ensure that an adequate sample size was achieved. Considerable thought was dedicated to the use of appropriate statistical analysis tools to achieve accurate results that reflect high levels of reliability and validity. The study data and the results of the statistical analysis are presented in Chapter 4.

CHAPTER 4: FINDINGS

This chapter presents the descriptive statistics and assumptions for analysis, inferential statistical analysis results, reliability, and validity for the sample data. The purpose of this research was to determine if the leadership behaviors and attributes of the leaders of U.S.-based business units within organizations with greater than 1,000 employees, as measured by the MLQ -5X, predict the level of organization agility of that business unit indicated by the presence of agile routines, as measured by the Agility Survey (short-form; Bass & Riggio, 2006; Worley et al., 2014).

Research Question

The research question guiding this research was:

RQ: What are the perceived behaviors and attributes of business unit leaders, as reported by the direct reports of business unit leaders and measured by the Multifaceted Leadership Questionnaire (MLQ – 5X), that predict higher scores on organization agility for that business unit, as measured by the Agility Survey (short-form).

Prior research has reported that nine elements were measured by the MLQ-5X: Idealized Influence (attributed; four items), Idealized Influence (behavior; four items), Inspirational Motivation (four items), Intellectual Stimulation (four items), Individualized Consideration (four items), Contingent Reward (four items), Management-by-Exception (active; four items), Management-by-Exception (passive; four items), and Laissez-Faire Leadership (four items); and that these nine elements reflect three leadership constructs: (a) Transformational Leadership (comprised of Idealized Influence [attributed], Idealized Influence [behavior]), Inspirational Motivation, Intellectual Stimulation, and Individualized Consideration); (b) Transactional

Leadership (comprised of Contingent Reward and Management-by-Exception [active]), and (c) Passive-Avoidance Leadership (comprised of Management-by-Exception [passive] and Laissez-Faire Leadership; Bass & Riggio, 2006). The nine elements and the three leadership constructs of the MLQ-5X represented the independent variables of this study (see Figure 4; Bass & Riggio, 2006).

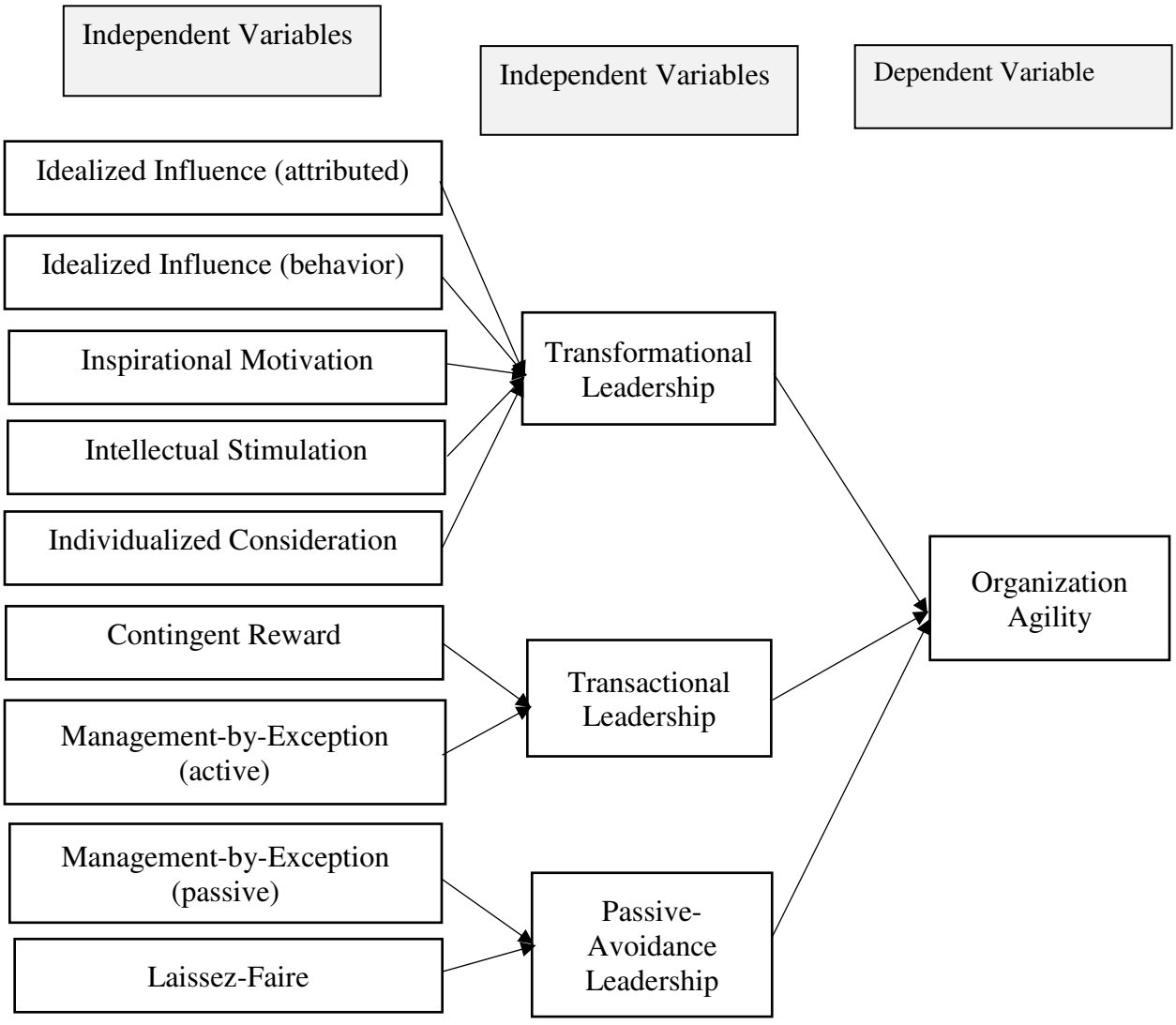

Figure 4. Research design representing nine elements and three leadership constructs as independent variables.

The Total Agility Score, the dependent variable, was calculated for each business unit by averaging the four agile routine scores, as measured by the Agility Survey (short-form; Worley et al., 2014).

Descriptive Analysis

Data were collected from November 1, 2017, to May 17, 2018, from 126 U.S.-based business units within 47 organizations with greater than 1,000 employees. A sample size of greater than 119 business units was necessary to achieve a margin of error of .03, with an alpha of .05 and $t = 1.96$ (Bartlett et al., 2001). Data for the MLQ-5X leadership survey were collected from 751 individuals, and data for the Agility Survey (short-form) were collected from 1,479 individuals.

Sampling Method and Results

The random sampling method described in Chapter 3 accounted for 65.96% of the participating companies and 70.63% of the business unit sample. The remaining business unit sample was secured using convenience sampling (see Table 7).

Table 7

Research Study Sampling Method Statistics

Sampling Method	*n* Organizations	% Organizations	*n* Business units	% Business units
Random	31	65.96	89	70.63
Convenience	16	34.04	37	29.37
Total	47	100.00	126	100.00

A comparison of the Total Agility Score for these two categories revealed that the Total Agility Score for the organizations in the random sample ($M = 3.97$, $SD = .39$) was not significantly different from the Total Agility Score for the organizations in the convenience sample ($M = 3.82$, $SD = .50$); $t = 1.80$, $df = 124$, $p = .074$.

Sample Demographic Profile

Demographic information was collected for each participating organization and business unit, and this information is displayed in Table 8. Each participating organization was categorized by type: (a) for-profit (both privately held and publicly traded) and (b) not-for-profit/government agency. The founding year of each organization was obtained, and the organizations were divided into two groups: (a) those founded in 1960 or before, and (b) those founded in 1961 or after. The approximate number of employees of each organization was determined at the time of data collection, and the organizations were divided into two groups: (a) 1,000 to 6,000 employees and (b) over 6,000 employees. The gender of each business unit leader was obtained, as well as whether the business unit was comprised of fewer than or greater than 100 employees. A coding form was created to transform each of the demographic variables to a numeric value for SPSS.

A diverse range of industries was represented in the data sample and is shown in Table 9. A graphical representation of the Total Agility Scores by industry is located in Appendix D. The 47 organizations included in the study were headquartered in 20 U.S. states and the District of Columbia (see Table 10).

One assumption made prior to data collection was that each participating organization would volunteer multiple business units to participate in the study. However, 46.8% of the participating organizations chose to have only one business unit participate to minimize the impact of the study on the organization. This created a need to increase the number of participating organizations from the original assumption of 25 organizations to the actual number of 47 organizations and extended the data collection period from the original goal of 4 months to

the actual time frame of 7 months. Table 11 reflects the distribution of number of business units participating for each participating organization.

Table 8

Study Sample Demographic Profile

Sample Demographic	*n* Organizations	% Organizations	*n* Business units	% Business units
Type of Organization:				
For Profit	41	87.23	101	80.16
Not-for profit/Gov. Agency	6	12.87	25	19.84
Total	47	100.00	126	100.00
Number of Employees:				
1,000 to 6,000	22	46.81	62	49.21
Over 6,000	25	53.19	64	50.79
Total	47	100.00	126	100.00
Year Founded:				
1960 and before	28	59.57	58	46.03
1961 and after	19	40.43	68	53.97
Total	47	100.00	126	100.00
Business Unit Leader Gender:				
Male	NA	NA	86	68.25
Female	NA	NA	40	31.75
Total			126	100.00
Number of Employees in the Business Unit:				
Less than 100	NA	NA	57	45.24
100 or more	NA	NA	69	54.76
Total			126	100.00

Table 9

Industries Represented in the Study Sample

Industries Represented	*n* Organizations	% Organizations	*n* Business units	% Business units
Construction	12	25.53	29	23.02
Energy	7	14.89	12	9.52
Government Agency	5	10.64	10	7.94
Healthcare	3	6.38	9	7.14
University	3	6.38	5	3.97
Manufacturing	3	6.38	8	6.35
Engineering	3	6.38	9	7.14
Insurance	2	4.26	9	7.14
Hospitality/Food Retail	1	2.13	15	11.9
Mining	1	2.13	5	3.97
Food Distribution	1	2.13	1	.79
Employment Services	1	2.13	5	3.97
Transportation	1	2.13	2	1.59
Real Estate	1	2.13	1	.79
Food Retail	1	2.13	1	.79
Technology	1	2.13	4	3.17
Human Services	1	2.13	1	.79
Total	47	100.00	126	100.00

Table 10

US Headquarter Locations of the Study Sample Organizations

U.S. State	Number (*n*) of Organizations with Headquarters in this U.S. State	Percentage
Colorado	10	21.28
California	7	14.89
Illinois	4	8.51
Texas	4	8.51
Minnesota	3	6.38
Washington DC	2	4.26
Arizona	2	4.26
Michigan	2	4.26
Delaware	1	2.13
Alabama	1	2.13
Kansas	1	2.13
Virginia	1	2.13
Washington	1	2.13
New Jersey	1	2.13
Indiana	1	2.13
Georgia	1	2.13
Wisconsin	1	2.13
Massachusetts	1	2.13
Ohio	1	2.13
Maryland	1	2.13
South Dakota	1	2.13
Total	47	100.00

Table 11

Distribution of Number of Business Units Per Organization

Number of Business Units That Participated From Each Organization	Frequency	Percentage
1 business unit	22	46.81
2 business units	9	19.15
3 business units	5	10.64
4 business units	2	4.26
5 business units	4	8.51
6 business units	1	2.13
7 business units	2	4.26
8 business units	1	2.13
15 business units	1	2.13
Total Organizations	47	100.00

Assumptions

The assumptions required for confirmatory factor analysis, exploratory factor analysis, and simultaneous linear regression were analyzed prior to proceeding with statistical analysis of the data. The following is a discussion of how each assumption was evaluated for this study.

Linear Relationship

As stated earlier, a linear relationship exists between two variables when one is dependent upon the other, and the relationship is described as a linear relationship (Morgan et al., 2013). Scatterplots and residual plots were created to ensure the assumption of linear relationship was met by all data, including the evaluation of R^2 linear and R^2 quadratic for all variables (Morgan et al., 2013; Tabachnick & Fidell, 2007). Table 12 reports the results of each of these scatterplot evaluations. These results indicate a nonlinear relationship between Idealized Influence (behavior; IB) and Total Agility Score, as the quadratic line appears to be a better fit with $R^2 = .12$. All other independent variables have a linear relationship with the dependent variable, Total Agility Score.

Table 12

Results of Scatterplot Evaluations for Each Independent Variable Versus the Dependent Variable of Total Agility Score

Independent Variable	R^2 Linear	R^2 Quadratic
Idealized Influence (attributed) (IA)	.02	.02
Idealized Influence (behavior) (IB)	.03	.12
Inspirational Motivation (IM)	.22	.22
Intellectual Stimulation (IS)	.18	.18
Individualized Consideration (IC)	.06	.07
Contingent Reward (CR)	.01	.01
Management-by-Exception (active) (MBEA)	.03	.03
Management-by-Exception (passive) (MBEP)	.15	.16
Laissez-Faire Leadership (LF)	.13	.15
Transformational Leadership	.20	.20
Transactional Leadership	.03	.03
Passive-Avoidance Leadership	.18	.20

Independence of Observations

For the assumption of independence of observation, residual plots were created and evaluated for an acceptable appearance (Morgan et al., 2013).

Normalcy

Descriptive statistics were evaluated utilizing SPSS to report mean, standard deviation, and skewness. All independent variables, the nine elements and three leadership constructs of the MLQ-5X, and the dependent variable, Total Agility Score, were normal with skewness of less than 1.0 (Morgan et al., 2013; see Table 13).

Table 13

Means, Standard Deviations, and Skewness for Study Variables

Variable	*M*	*SD*	Skewness
Total Agility Score	3.91	.43	-.64
Idealized Influence (attributed) (IA)	3.30	.38	-.28
Idealized Influence (behavior) (IB)	2.62	.27	.30
Inspirational motivation (IM)	3.49	.33	-.59
Intellectual stimulation (IS)	3.79	.54	-.73
Individualized consideration (IC)	3.05	.26	.12
Contingent Reward (CR)	3.45	.36	-.43
Management-by-Exception (active) (MBEA)	3.02	.29	-.07
Management-by-Exception (passive) (MBEP)	3.66	.57	-.42
Laissez-Faire Leadership (LF)	3.50	.31	-.39
Transformational Leadership	3.25	.25	-.74
Transactional Leadership	3.24	.29	-.21
Passive-Avoidance Leadership	3.59	.40	-.45

Reliability

Cronbach's alpha was calculated to determine the degree of fit for each of the nine elements of the MLQ-5X leadership survey, the three leadership constructs, and the Total Agility Score (see Table 14). These results indicate a low level of reliability for all nine elements, except for Intellectual Stimulation (Cronbach's alpha = .78) and Management-by-Exception

(Cronbach's alpha = .78), which showed a level of data reliability (Morgan et al., 2013). These results indicate a moderate level of reliability for the Transformational Leadership style, an adequate reliability for the Passive-Avoidance Leadership styles, and low levels of reliability for the Transactional Leadership style for the MLQ-5X original factors (Morgan et al., 2013). Cronbach's alpha was also calculated for the data for the Total Agility Score (alpha = .96), which indicates a high level of reliability (Morgan et al., 2013).

Table 14

Cronbach's Alpha for All Dependent and Independent Variables

Independent and Dependent Variables	No. of Items	Reported Cronbach's Alpha
Idealized Influence (attributed)	4	.12
Idealized Influence (behavior) (IB)	4	-.19
Inspirational Motivation (IM)	4	.21
Intellectual Stimulation (IS)	4	.78
Individualized Consideration	4	.02
Contingent Reward (CR)	4	.24
Management-by-Exception (active) (MBEA)	4	-.16
Management-by-Exception (passive) (MBEP)	4	.78
Laissez-Faire Leadership (LF)	4	.31
Transformational Leadership	20	.69
Transactional Leadership	8	.37
Passive-Avoidance Leadership	8	.75
Total Agility Score	19	.96

Validity

Confirmatory factor analysis was selected to determine the score validity of the MLQ-5X. Data analysis commenced by checking the assumptions. For factor analysis, the two primary assumptions were that (a) there would be a relationship between the items, and (b) a sufficient sample size would be present to generate reliable factor analysis results (Morgan et al., 2013). The number of variables should not exceed the number of participants, and in this

instance, the number of items, 36, did not exceed the number of participants, which was 751 (Morgan et al., 2013).

The results of the confirmatory factor analysis of the MLQ-5X are shown in Figure 5. These results indicate that the anticipated framework of nine elements was not present for this data set, as the chi-square reported was 5.321, which was greater than the necessary result of 5.0 (Brown, 2015). The Root Mean Square Error of Approximation (RMSEA) of .078 also indicated only a moderately good fit for this model (Brown, 2015).

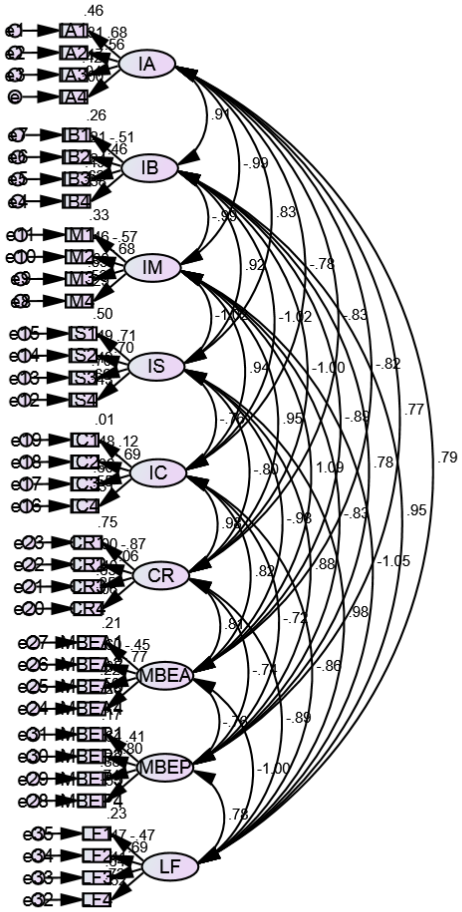

Figure 5. Confirmatory factor analysis for the MLQ-5X nine-element model.

In addition, confirmatory factor analysis was performed to explore the goodness of fit of the data for the model of the three expected leadership constructs – transformational, transactional, and passive-avoidance – to determine if these constructs as described earlier existed for this data set (see Figure 6). The reported chi-square of 6.40 indicates a poor model fit, as does the RMSEA of .129, which should be less than .05 to indicate a good model fit and between .05 and .10 to indicate a moderate model fit. (Brown, 2015).

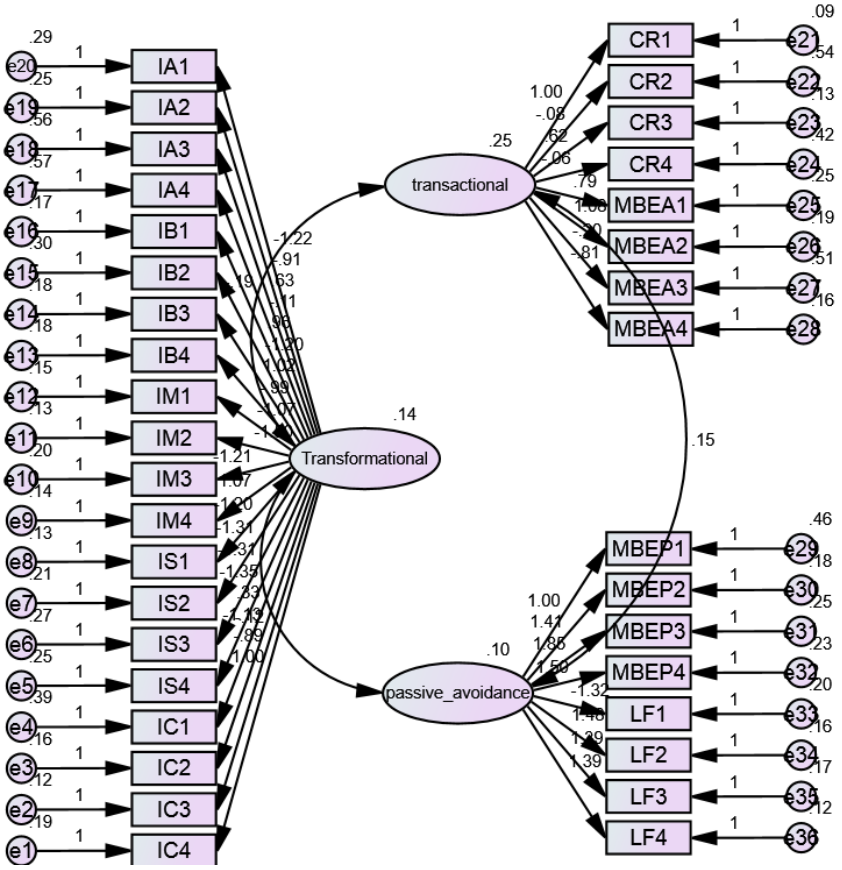

Figure 6. Confirmatory factor analysis for the MLQ-5X three-leadership-construct model.

In summary, the confirmatory factor analysis performed did not confirm the validity of either the nine-element model or the three-leadership-construct model for the MLQ-5X for this data set.

Simultaneous Linear Regression – Original Research Model

Although the confirmatory factor analysis did not support the validity of the original nine elements of the MLQ-5X, as well as the corresponding conceptual leadership constructs of Transformational, Transactional, and Passive-Avoidance Leadership, simultaneous linear regression was conducted to investigate the best prediction of Total Agility Score using both the nine elements of the MLQ-5X and the three leadership constructs of the MLQ-5X.

Prior to conducting simultaneous linear regression, hierarchical linear regression was explored as the appropriate statistical tool. One concern of the sample data was the potential grouping of business unit scores by organization, creating nested data and the need for hierarchical linear regression (Gliner et al., 2009). The Total Agility Scores for the business units within each organization reflected a large range of scores, indicating that the agility of the business unit was independent of the organization (see Table 15). For example, the five business units from Organization 44 reported Total Agility Scores from 2.79 to 3.97 on a 1-5 Likert scale.

Simultaneous Linear Regression – Nine-Element MLQ-5X

Simultaneous linear regression was conducted to investigate the best prediction of Total Agility Score using the nine elements of the MLQ-5X as the independent variables. The means, standard deviations, and intercorrelations are shown in Table 16. Variables were highly correlated at .50 and above (Leech, Barrett, & Morgan, 2015). High correlations were reported between Intellectual Stimulation (IS) and Individual Motivation (IM), between Management-by-Exception (passive; MBEP) and Individual Motivation (IM), between Laissez-Faire (LF) and Individual Motivation (IM), between Management-by-Exception (passive; MBEP) and Intellectual Stimulation (IS), between Laissez-Faire (LF) and Intellectual Stimulation (IS), and between Management-by-Exception (passive; MBEP) and Laissez-Faire (LF; See Table 16).

Table 15

Total Agility Scores for Business Units by Organization

Participating Organization	BU1	BU2	BU3	BU4	BU5	BU6	BU7	BU8
1	3.77	3.42						
2	3.72	3.69	3.98					
3	3.52	3.52	3.69	3.34				
4	3.71							
5	4.22							
6	3.37	3.70						
7	4.14	2.43	3.86	3.15	3.19	3.61		
8	3.36	3.24						
9	4.02							
10	4.48							
11	3.32							
12	4.27	3.92	4.18	4.20	4.45	4.41	4.15	3.90
13	4.18							
14	3.60	3.87						
15	4.03							
16	3.71	3.74	3.55	4.01	3.68	4.04	4.39	
17	3.97							
18	3.16	4.42						
19	3.93							

(continued)

Table 15

Total Agility Scores for Business Units by Organization

Participating Organization	BU1	BU2	BU3	BU4	BU5	BU6	BU7	BU8
20	3.38	3.84						
21	4.54	4.10	4.18	4.54	3.99			
22	3.75							
23	3.55	3.17						
24	4.09							
25	3.85	4.31	4.11	4.02				
26	4.39	4.63	4.54					
27	3.54							
28	2.91							
29	3.78	3.86	4.13	4.10	4.25			
30	4.13							
31	4.34	4.57	4.30	4.25	4.56	4.60	4.45	
32	4.38							
33	4.24	4.45	4.09	3.63	3.76			
34	4.25							
35	3.99	4.16	4.30					
36	3.42	3.15	3.16					
37	3.70	3.53						
38	3.87	3.97						

(continued)

Table 15

Total Agility Scores for Business Units by Organization

Participating Organization	BU1	BU2	BU3	BU4	BU5	BU6	BU7	BU8
39	4.14	3.43	4.04	4.34	4.46	4.39	4.33	
39 (cont.)	4.00	4.07	4.22	4.08	4.37	4.37	4.37	4.04
40	4.39							
41	3.95	4.11	3.26					
42	3.84							
43	3.54							
44	2.79	3.05	3.45	3.97	3.33			
45	3.96							
46	3.90							
47	3.69							

Table 16

Means, Standard Deviations, and Pearson Correlation for Total Agility Score and MLQ-5X Nine Elements as Predictor Variables

Variable	*M*	*SD*	IA	IB	IM	IS	IC	CR	MBEA	MBEP	LF
Total Agility Score	3.92	.43	.15	.16	.47**	.43**	.24**	.11	.18*	.39**	.37**
IA	3.30	.37		.16	.45**	.38**	.09	.41**	.31**	.31**	.26**
IB	2.62	.27		--	.32**	.26**	-.02**	.20	.20*	.20*	.32**
IM	3.49	.33			--	.70**	.32**	.34**	.39**	.58**	.68**
IS	3.79	.54				--	.18*	.54**	.50**	.78**	.74**
IC	3.05	.26					--	-.03	-.06	.30**	.32**
CR	3.45	.36						--	.53**	.44**	.29**
MBEA	3.02	.29							--	.37**	.32**
MBEP	3.67	.57								--	.59**
LF	3.50	.31									--

Note. *$p < .05$; **$p < .01$.

The combination of variables to predict the Total Agility Score from the nine elements of the MLQ-5X was found to be significant, F (9, 116) = 4.86, p < .001. The beta coefficients are presented in Table 17. The adjusted R^2 value was .22, indicating that 22% of the variance in Total Agility Score was explained by the model. According to Cohen (1988), this was large or larger than typical effect (R^2 = .26).

Table 17

Simultaneous Linear Regression Summary for MLQ-5X Nine Elements Predicting Total Agility Score

Variable	*B*	*SE B*	β	*t*	*p*
Idealized Influence (attributed) (IA)	-.07	.11	-.06	-.62	.536
Idealized Influence (behavior) (IB)	-.04	.14	-.02	-.27	.788
Inspirational Motivation (IM)	.44	.17	.34	2.64	.009
Intellectual Stimulation (IS)	.21	.14	.26	1.51	.134
Individualized Consideration (IC)	.14	.15	.08	.93	.357
Contingent Reward (CR)	-.18	.13	-.15	-1.39	.169
Management-by-Exception (active) (MBEA)	.02	.15	.02	.15	.882
Management-by-Exception (passive) (MBEP)	.08	.10	.10	.79	.432
Laissez-Faire (LF)	-.11	.18	-.08	-.62	.534

Note. Adjusted R^2 = .22; F (9, 116) = 4.86, p < .001.

If Tolerance is low, below .2 or .1, or VIF is greater than 5, this may indicate a problem with multicollinearity (Tabachnick & Fidell, 2007). These values were examined, and no multicollinearity was reported. The residual scatterplot indicated that the error, or residual, was normally distributed and uncorrelated with the predictors, satisfying the assumption of independence of observations, or homoscedasticity.

Simultaneous Linear Regression – Three Leadership Construct MLQ-5X

Although the research design of this study utilized the nine elements of the MLQ-5X as the independent variables, it was common practice within the research studies reviewed that utilized the MLQ-5X to conceptualize the leadership styles of Transformational, Transactional,

and Passive-Avoidance as variables. A decision was made to also explore the relationship between these three leadership styles and the Total Agility Score.

Simultaneous linear regression was conducted to investigate the best prediction of Total Agility Score from the independent variables of the three leadership constructs: Transformational, Transactional, and Passive-Avoidance. The means, standard deviations, and intercorrelations are shown in Table 18. A high level of correlation was reported between Transformational and Passive-Avoidance Leadership (.78).

Table 18

Means, Standard Deviations, and Pearson Correlation for Total Agility Score and MLQ-5X Three Leadership Constructs as Predictor Variables

Variable	*M*	*SD*	Transformational Leadership	Transactional Leadership	Passive-Avoidance Leadership
Total Agility Score	3.92	.43	.44**	.16	.43**
Transformational Leadership	3.25	.25	--	.51**	.78**
Transactional Leadership	3.24	.29		--	.47**
Passive-Avoidance Leadership	3.59	.40			--

Note. *$p < .05$; **$p < .01$.

The combination of variables to predict the Total Agility Score from Transformational, Transactional, and Passive-Avoidance Leadership was found to be significant, F (3, 122) = 11.6, $p < .001$. The beta coefficients are presented in Table 19. The adjusted R^2 value was .20, indicating that 20% of the variance in Total Agility Score was explained by the model. According to Cohen (1988), this is between a medium or typical effect ($R^2 = .13$) and a large or larger-than-typical effect ($R^2 = .26$).

Table 19

Simultaneous Linear Regression Summary for MLQ-5X Three Leadership Constructs Predicting Total Agility Score

Variable	*B*	*SE B*	β	*t*	*p*
Transformational Leadership	.569	.233	.32	2.45	.016
Transactional Leadership	-.168	.142	-.11	-1.18	.240
Passive-Avoidance Leadership	.247	.142	.22	1.73	.085

Note. Adjusted R^2 = .20; F (4,122) = 11.6, p < .001.

Tolerance and VIF values were examined, and no multicollinearity was reported. The residual scatterplot indicated that the error, or residual, was normally distributed and uncorrelated with the predictors, satisfying the assumption of independence of observations, or homoscedasticity.

Summary of Original Research Model

The results of the confirmatory factor analysis indicated a lack of construct validity for the MLQ-5X in that the nine anticipated elements were not present for this model. Ignoring this fact and conducting simultaneous linear regression utilizing the nine elements resulted in a significant relationship with 22% of the variance in the Total Agility Score explained by this combination of nine variables. The Individualized Motivation (IM) variable displayed a significant relationship (alpha = .009). Confirmatory factor analysis was also used to evaluate the validity of the MLQ-5X leadership styles, Transformational, Transactional and Passive-Avoidance, and this model was also not confirmed. Ignoring this fact and conducting simultaneous linear regression to explore the relationship between these three leadership models and the Total Agility Score resulted in a significant model, with 22% of the variance in Total Agility Score explained by these three variables. There was a significant relationship between Transformational Leadership and Total Agility Score (alpha = .016).

Alternative Research Model

Prior research has indicated that the 36 items of the MLQ-5X factor into various models for different data sets (Bass & Riggio, 2006). A 2004 meta-analysis of the MLQ-5X explored eight different models of factor patterns (Avolio & Bass, 2004). Given the results reported above and this information, data analysis was conducted to explore an alternative model of leadership behaviors and attributes present for this data set. This analysis began by assessing the descriptive characteristics of the data set as reported earlier in this chapter.

Validity

Exploratory factor analysis of principal factor analysis with promax rotation was conducted to assess the underlying structure of the 36 items of the MLQ-5X. After rotation, the first factor accounted for 31.6% of the variance, Factor 2 accounted for 5.1% of the variance, Factor 3 for 4.3%, Factor 4 for 2.7%, and Factor 5 for 1.8%, for a total explained variance of 45.6%. Table 20 displays the items and factor loading for the rotated factors. The reported KMO was .91, indicating sampling adequacy, $df = 630$ and alpha = .001. A full listing of the MLQ-5X items by factor is located in Appendix E.

The first factor gathered around reported leadership behaviors and attributes that reflect an "exploratory" leader, with items such as "gets me to look at problems from many different angles" and "suggests new ways of looking at how to complete assignments," and a "hands-off" leader, with items such as "waits for things to go wrong before taking action," "shows that he/she is a firm believer in 'if it ain't broke, don't fix it,'" and "demonstrates that problems must be chronic before taking action." Factor 1 was labeled Exploratory/Latitude Leadership Behaviors

Table 20

Exploratory Factor Loadings for the MLQ-5X Items

Item	Factor Loadings				
	1	2	3	4	5
MBEP4	.831				
MBEP3	.787				
MBEP2	.777				
IS3	.638				
IS4	.445				
IM3	.345				
IM1		.819			
MBEA2		.790			
LF2		.728			
IS1		.722			
IS2		.598			
LF4		.551			
IB2		.471			
MBEA1		.407			
IM4			-.838		
IC4			-.792		
IB1			-.688		
IA3			-.630		
MBEA4			-.623		
IC3				.636	
CR3				.575	
IC2				.552	
IB4				.493	
MBEP1				.487	
CR1				.463	
MBEA3					.652
CR4					.628
IA4					.585
CR					.584
Percentage of Variance	31.6	5.1	4.3	2.7	1.8

Note. Loadings < .3 are omitted.

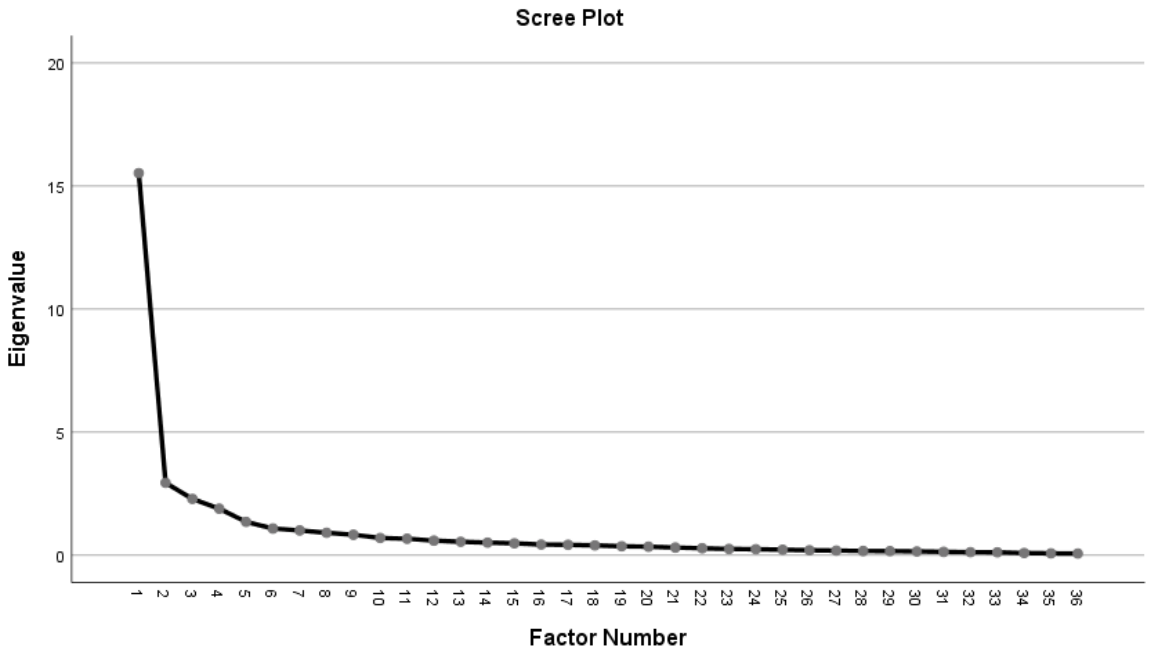

Figure 7. Scree plot of eigenvalues for exploratory factor analysis of the MLQ-5X.

The second factor gathered around reported leadership behaviors and attributes that reflect (a) a "visionary" leader, with items such as "specifies the importance of having a strong sense of purpose," and "talks optimistically about the future"; (b) a "reflective" leader, with items such as "re-examines critical assumptions to question whether they are appropriate," "seeks differing perspectives when solving problems," "focuses attention on irregularities, exceptions, and deviations from standards," and "concentrates his/her full attention when dealing with mistakes, complaints and failures"; and also (c) a "hands off" leader, with items such as "is absent when needed" and "delays responding to urgent questions." Factor 2 was labeled Visionary/Reflective/Latitude Leadership Behaviors.

The third factor gathered around reported leadership behaviors and attributes that reflect (a) "value-based" leadership, with items such as "talks about their most important values and beliefs" and "acts in ways that build my respect"; and also (b) an "achievement" leader, with items such as "expresses confidence that goals will be achieved," "directs my attention towards

failures to meet standards," and "helps me develop my strengths." Factor 3 was labeled Values/Achievement Leadership Behaviors.

The fourth factor gathered around reported leadership behaviors and attributes that reflect "developer" leadership skills, with items such as "considers me as having different needs, abilities, and aspirations from others," "treats me as an individual rather than just as a member of a group," "provides me with assistance in exchange for my efforts," and "makes clear what one can expect to receive when performance goals are achieved. Factor 4 was labeled Developer Leadership Behaviors.

The fifth factor gathered around reported leadership behaviors and attributes that reflect (a) "structure" leadership, with items such as "discusses in specific terms who is responsible for achieving performance targets," "expresses satisfaction when I meet expectations," and "keeps track of all mistakes"; as well as (b) "power" leadership, with items such as "displays a sense of power and confidence." Factor 5 was labeled Power/Structure Leadership Behaviors.

Confirmatory factor analysis was selected to further assess the score validity of the alternative five-factor MLQ-5X model. The two primary assumptions of relationship and sufficient sample size were satisfied. The results of the confirmatory factor analysis of the alternative five-factor MLQ-5X model are shown in Figure 8. The reported chi-square was 3.369, which indicated a good model fit for this data (Brown, 2015). The Root Mean Square Error of Approximation (RMSEA) of .058 also indicated a good fit for this model (Brown, 2015).

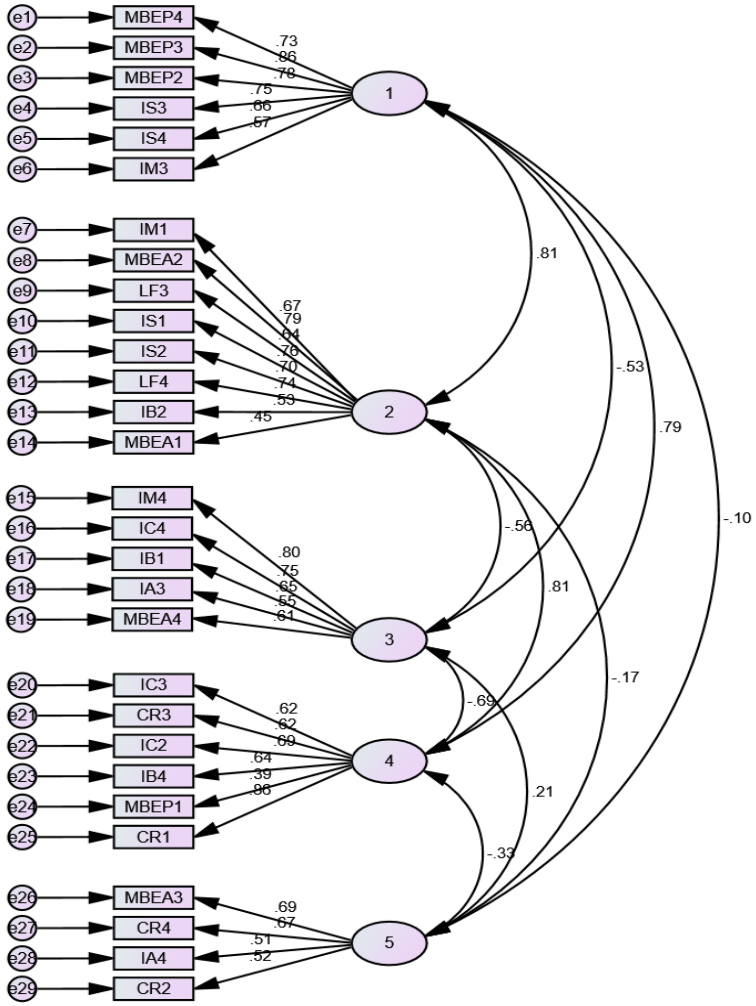

Figure 8. Confirmatory factor analysis for the MLQ-5X alternative five-factor model.

Reliability

To assess the reliability of the data, Cronbach's alpha was calculated for each of the new factors and is reported in Table 21. Each of the five factors reported a high Cronbach's alpha, indicating a high level of score reliability (Morgan et al., 2013). The reported Cronbach's alpha for Factor 5 – Power/Structure Leadership Behaviors, was .69, and all others were above .70.

Table 21

Reported Cronbach's Alpha for Alternative Model Dependent and Independent Variables

New Factor No.	Independent and Dependent Variables	No. of Items	Reported Cronbach's Alpha
1	Exploratory/Latitude Leadership Behaviors	6	.87
2	Visionary/Reflective/Latitude Leadership Behaviors	8	.87
3	Values/Achievement Leadership Behaviors	5	.80
4	Developer Leadership Behaviors - 6 items	6	.79
5	Power/Structure Leadership Behaviors	4	.69
	Total Agility Score	19	.96

Alternative Model Assumptions

The result of the reliability and validity analysis was a new research model consisting of the five new factors of the MLQ-5X, labeled above as the independent variables, and the Total Agility Score as the dependent variable (see Figure 9). Prior to conducting simultaneous linear regression analysis for the new research model, the necessary assumptions were analyzed.

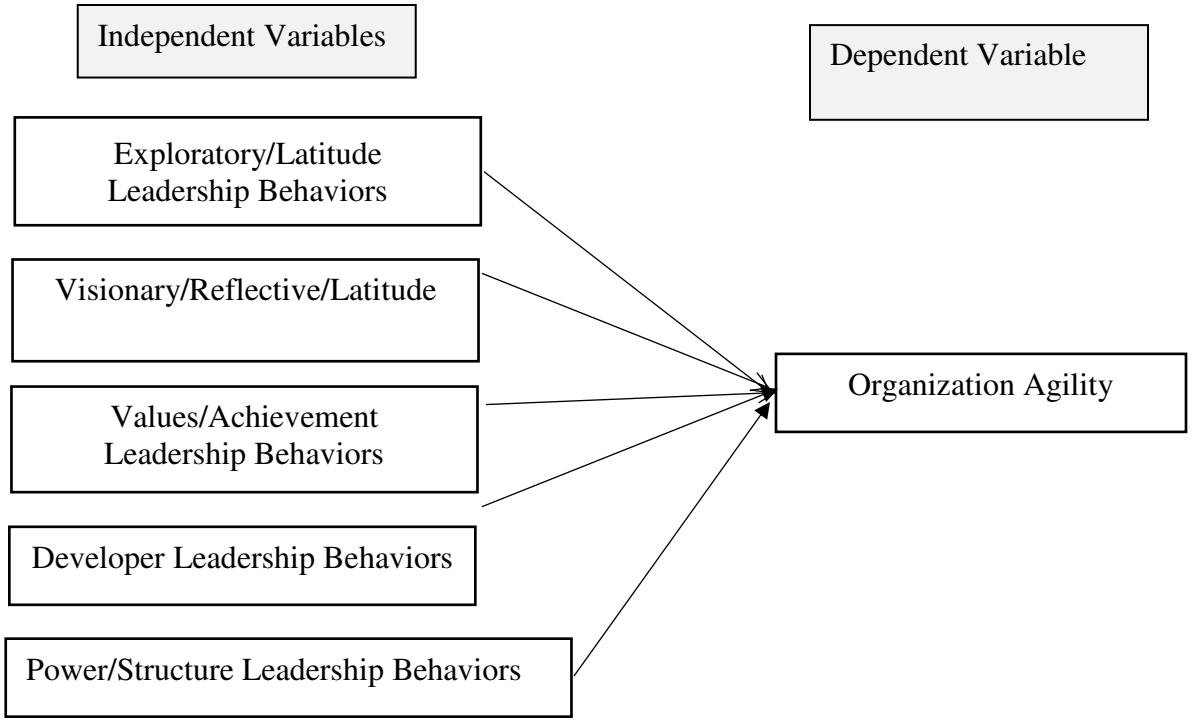

Figure 9. Alternative MLQ-5X factor model and research design.

Linear relationship. Scatter and residual plots were generated to verify the assumption of a linear relationship between the independent and dependent variables, including the evaluation of R^2 linear and R^2 quadratic for all variables (Morgan et al., 2013; Tabachnick & Fidell, 2007). Table 22 shows the results of each of these scatterplot evaluations.

Table 22

Results of Scatterplot Evaluations for Independent Variables Versus the Dependent Variable of Total Agility Score

Independent Variable	R^2 Linear	R^2 Quadratic
New Factor 1	.19	.19
New Factor 2	.21	.23
New Factor 3	.07	.13
New Factor 4	.13	.13
New Factor 5	.03	.03

Independence of observations. This assumption indicates that the occurrence of one event does not change the probability of another. For the assumption of independence of observation, the data were analyzed using residual plots.

Normalcy. The descriptive data for all variables is reported in Table 23. Factor 3, Values/Achievement Leadership, was not normally distributed (skewness = 2.25), but all other variables were normal (Gliner et al., 2009).

Simultaneous Linear Regression – Alternative Model

Simultaneous linear regression was conducted (n = 126 business units) to investigate the best prediction of organization agility using the five factors determined through exploratory factor analysis. The means, standard deviations, and intercorrelations are reported in Table 24. A significant correlation was reported between four of the five factors (see Table 24).

Table 23

Means, Standard Deviations, and Skewness for Alternative Model Variables

Variable	*M*	*SD*	Skewness
Total Agility Score	3.92	.43	-.64
Exploratory/Latitude Leadership Behaviors	3.69	.57	-.70
Visionary/Reflective/Latitude Leadership Behaviors	4.13	.51	-1.25
Values/Achievement Leadership Behaviors	1.56	.48	2.25
Developer Leadership Behaviors	4.16	.43	-1.13
Power/Structure Leadership Behaviors	2.59	.56	0.18

Table 24

Means, Standard Deviations, and Pearson Correlation for Total Agility Score and MLQ-5X Five-Factor Leadership Behaviors as Predictor Variables

			Leadership Style				
Variable	*M*	*SD*	Exploratory/ Latitude	Visionary/ Reflective/ Latitude	Values/ Achievement	Developer	Power/Structure
Total Agility Score	3.92	.43	.44**	.46**	-.27**	.36**	-.17
Exploratory/ Latitude Leadership Behaviors	3.69	.57	--	.75**	-.57**	.71**	.09
Visionary/ Reflective/ Latitude Leadership Behaviors	4.13	.51		--	-.60**	.70**	.01
Values/ Achievement Leadership Behaviors	1.56	.48			--	-.62**	-.02
Developer Leadership Behaviors	4.16	.43				--	-.13
Power/Structure Leadership Behaviors	2.59	.56					--

*$p < .05$; **$p < .01$

The combination of variables to predict the Total Agility Score from Exploratory/Latitude Leadership (Factor 1), Visionary/Reflective/Latitude Leadership (Factor 2), Values/Achievement Leadership (Factor 3), Developer Leadership (Factor 4), and Accountability Leadership (Factor 5) was found to be significant, F (5, 1.3) = 9.0, p <.001. The beta coefficients are presented in Table 25. The R^2 value was .27, adjusted R^2 of .24, indicating that 24% of the variance in Total Agility Score was explained by the model. According to Cohen (1988), this was a large or larger-than-typical effect.

Table 25

Simultaneous Linear Regression Summary for MLQ-5X Five-Factor Leadership Behavior Model Predicting Total Agility Score

Variable	*B*	*SE B*	β	*t*	*p*
Exploratory/Latitude Leadership Behaviors	0.231	0.100	0.30	2.32	.022
Visionary/Reflective/Latitude Leadership Behaviors	0.272	0.110	0.32	2.46	.015
Values/Achievement Leadership Behaviors	0.040	0.095	0.04	0.42	.678
Developer Leadership Behaviors	-0.081	0.130	-0.08	-0.63	.531
Power/Structure Leadership Behaviors	-0.161	0.064	-0.21	-2.52	.013

Note. Adjusted R^2 = .24; F (5,120) = 9.0, p < .001

If Tolerance is low (below .2 or .1) or VIF is greater than 5, this may indicate a problem with multicollinearity (Tabachnick & Fidell, 2007). These values were examined, and no multicollinearity was reported. The residual scatterplot indicated that the error, or residual, was normally distributed and uncorrelated with the predictors, satisfying the assumption of independence of observations, or homoscedasticity.

Because Factor 3, Values/Achievement Leadership, was not normal (skewness = 2.25) and potentially did not represent a linear relationship with the dependent variable, Total Agility

Score, and because both Factor 3, Values/Achievement Leadership Behaviors, and Factor 4, Developer Leadership Behaviors, reported high correlation, simultaneous linear regression was conducted with this factor removed from the new model (see Table 26).

Table 26

Means, Standard Deviations, and Pearson Correlation for Total Agility Score and MLQ-5X Three-Factor Leadership Model

Variable	*M*	*SD*	Exploratory/ Latitude Leadership Behaviors	Visionary/ Reflective/ Latitude Leadership Behaviors	Power/Structure Leadership Behaviors
Total Agility Score	3.92	.43	.44**	.46**	-.17
Exploratory/ Latitude Leadership Behaviors	3.69	.57	--	.75**	.09
Visionary/ Reflective/ Latitude Leadership Behaviors	4.13	.51		--	.01
Power/Structure Leadership Behaviors	2.59	.56			--

Note. $*p < .05$; $**p < .01$.

The combination of variables to predict the Total Agility Score from Exploratory/Latitude Leadership, Visionary/Reflective/Latitude Leadership, and Power/Structure Leadership was found to be significant, F (3, 122) = 14.9, $p < .001$. The beta coefficients are presented in Table 27. The R^2 value was .27, adjusted R^2 value of .25, indicating that 25% of the variance in Total Agility Score was explained by the model. According to Cohen (1988), this was a large or larger-than-typical effect.

If Tolerance is low (below .2 or .1) or VIF is greater than 5, this may indicate a problem with multicollinearity (Tabachnick & Fidell, 2007). These values were examined, and no multicollinearity was reported. The residual scatterplot indicated that the error, or residual, was

normally distributed and uncorrelated with the predictors, satisfying the assumption of independence of observations, or homoscedasticity.

Table 27

Simultaneous Linear Regression Summary for MLQ-5X Three-Factor Leadership Behavior Model Predicting Total Agility Score

Variable	*B*	*SE B*	β	*t*	*p*
Exploratory/Latitude Leadership Behaviors	.194	.090	.255	2.17	.032
Visionary/Reflective/Latitude Leadership Behaviors	.231	.100	.270	2.31	.023
Power/Structure Leadership Behaviors	-.149	.061	-.191	-2.44	.016

Note. Adjusted $R^2 = .25$; $F\ (3, 122) = 14.9$ $p < .001$.

For this model, Factor 1 and 2, the Exploratory/Latitude Leadership Behaviors and Visionary/Reflective/Latitude Leadership Behaviors, were found to predict a higher Total Agility Score; and Factor 5, the Power/Structure Leadership Behaviors, was found to predict a lower Total Agility Score.

Supplemental Results

Beyond the original purpose and hypothesis of the study, supplemental hypotheses were explored related to the difference in Total Agility Score for groups identified by the demographic data collected. The assumptions evaluated for *t*-tests included those already mentioned, normalcy and linearity, as well as equality of variance, or homogeneity, which was evaluated using Levene's test of equality of variance. The following additional hypotheses were put forth:

H2: There is a difference in the level of organization agility, as measured by the Agility Survey (short-form), by company type defined by the categories (a) for-profit (publicly traded and privately help) and (b) not-for-profit/government agency.

H3: There is a difference in the level of organization agility, as measured by the Agility Survey (short-form), by year of organization founding.

H4: There is a difference in the level of organization agility, as measured by the Agility Survey (short-form), by size of the organization defined by the number of employees.

H5: There is a difference in the level of organization agility, as measured by the Agility Survey (short-form), based upon the gender of the business unit leader.

H6: There is a difference in the level of organization agility, as measured by the Agility Survey (short-form), based upon the number of employees in the business unit.

The data reported in Table 28 indicate that each of these hypotheses was false except for H2 and H3. Inspection of the two group means indicated that the Total Agility Score for for-profit organizations (M = 3.97) was significantly higher than the Total Agility Score for nonprofits/government agencies (M = 3.67), a difference of .30 on a 5-point Likert scale (p = .009). The effect size, d = .77, indicated large, or larger than typical, strength of relationship (Morgan et al., 2013). Inspection also indicated that the Total Agility Score for organizations with 1,000 to 6,000 employees (M = 3.99) was significantly higher than the Total Agility Score for organizations with greater than 6,000 employees (M = 3.83). The effect size, d = .37, indicated a smaller than typical or medium strength of relationship (Morgan et al., 2013).

Conclusion

The statistical analysis reported in this chapter evaluated the reliability and validity of the two measurement instruments utilized in this study, as well as the relationship between the variables measure by the MLQ-5X leadership survey and the Total Agility Score. A discussion of these results and related implications are presented in Chapter 5.

Table 28

Comparison of Total Agility Score for Organization Type, Organization Year Founded, Organization Size, Business Unit Leader Gender, and Business Unit Size

Variable	*M*	*SD*	*t*	*df*	*p*	*d*
Organization Type			2.77*	31.6*	.009	.77
For-Profit	3.97	.39				
Not-for-profit/government agency	3.67	.51				
Year Organization Founded			.11	124.0	.912	.02
1960 or before	3.92	.47				
1961 or after	3.91	.40				
Organization Size			2.10*	113.6*	.038	.37
1,000 to 6,000 employees	3.99	.37				
Over 6,000 employees	3.83	.48				
Business Unit Gender Leader			-.45	124.0	.652	.09
Male	3.90	.43				
Female	3.94	.45				
Business Unit Size			.306	124.0	.760	.07
Less than 100 employees	3.93	.49				
100 employees or more	3.90	.39				

Note. **t* and *df* were adjusted because variances were not equal.

CHAPTER 5: DISCUSSION OF FINDINGS

This chapter presents a discussion of the findings presented in Chapter 4, the conclusions that may be drawn from this study, the limitations of the study, and implications for practice, theory, and future research. The purpose of this study was to explore whether the leadership behaviors and attributes of the leaders of U.S.-based business units, measured by the MLQ–5X predict the Total Agility Score of that business unit, as measured by the Agility Survey (short-form; Bass & Riggio, 2006; Worley et al., 2014). The research question guiding this research was:

> RQ: What are the perceived behaviors and attributes of business unit leaders, as reported by the direct reports of business unit leaders and measured by the Multifaceted Leadership Questionnaire (MLQ – 5X), that predict higher scores on organization agility for that business unit, as measured by the Agility Survey (short-form).

The following discussion first explores the expected leadership factor model of the MLQ-5X and then discusses the factors present in the alternative five-factor model present in this data set.

Discussion of the Expected Research Model

The MLQ-5X was chosen as the measurement instrument for leadership behaviors and attributes for this study because of its longstanding use and reported reliability in previous studies and the inclusion of items related to the behaviors and attributes of leaders of agile organization as conceptualized by researchers of organization agility (Bass & Riggio, 2006; Franco & Matos, 2013; Gencer & Meyer, 2015; Luo et al., 2016; Popli & Rizvi, 2016; Samur, 2016; Worley et al., 2014). As described in Chapter 4, confirmatory factor analysis determined that score validity was not present for the MLQ-5X for this research study for the nine-element

model described by prior researchers (Bass & Riggio, 2006; Howell & Avolio, 1993). Several potential explanations may exist for the lack of score validity and reliability for the MLQ-5X for this study.

Researchers have reported an inability to replicate the nine-element model of the MLQ-5X for their data, which indicates potential lack of score validity and reliability in other research studies (Bass & Riggio, 2006). This includes early studies by Hunt (1991), Smith and Peterson (1988), and Yukl (1994; 1999), and there has been discussion by the developers of the MLQ-5X that ongoing refinement of the instrument is necessary (Bass & Riggio, 2006). Bass and Avolio (1994) wrote:

> The original factor structure presented by Bass (1985) does still represent conceptually and in many instances empirically, the factors of transformational, transactional and laissez-faire leadership. But already we see that the structure is more complex than originally proposed. Further refinements are in the offing. (p. 61)

The leaders of today are leading in a much different environment than when the MLQ-5X was developed in 1985 (Kotter, 2014; O'Toole, 2996; Sull, 2009). Today's business environment is characterized by higher levels of environment volatility and requires leadership skills that may not have been conceptualized in 1985 (O'Reilly & Tushman, 2016; Sull, 2009; Worley et al., 2014). This has created a focus on flatter organizations and increases in share leadership, which may render the term "higher authority" more ambiguous (Holbeche, 2015; O'Reilly & Tushman, 2016).

Finally, generational changes, including the increase of millennials in the workforce, may have shifted the discussion of leadership behaviors and attributes such that the items of the MLQ-5X no longer measure the intended behaviors and attributes (Graen & Scheimann, 2013;

Laird, Harvey, & Lancaster, 2015). Millennials have different needs as followers and require different behaviors and attributes in effective leadership, including being less interested in working together to achieve common goals (Twenge, Campbell, Hoffman, & Lance, 2010). These generational considerations have shifted the demographics of the U.S. workforce, and one might assume the perspectives of members of that workforce, as measured by the MLQ-5X

In summary, there are several possible explanations for the lack of score validity for the MLQ-5X leadership survey for this data set. Future research could possibly provide further evidence supporting these possible explanations.

Discussion of the Alternative Research Model

As described in Chapter 4, the exploratory factor analysis conducted for this study resulted in a modified five-factor model for the MLQ-5X, and simultaneous linear regression revealed significant relationships between three of these factors and the Total Agility Score of that business unit (see Figure 10). Each is discussed here in turn.

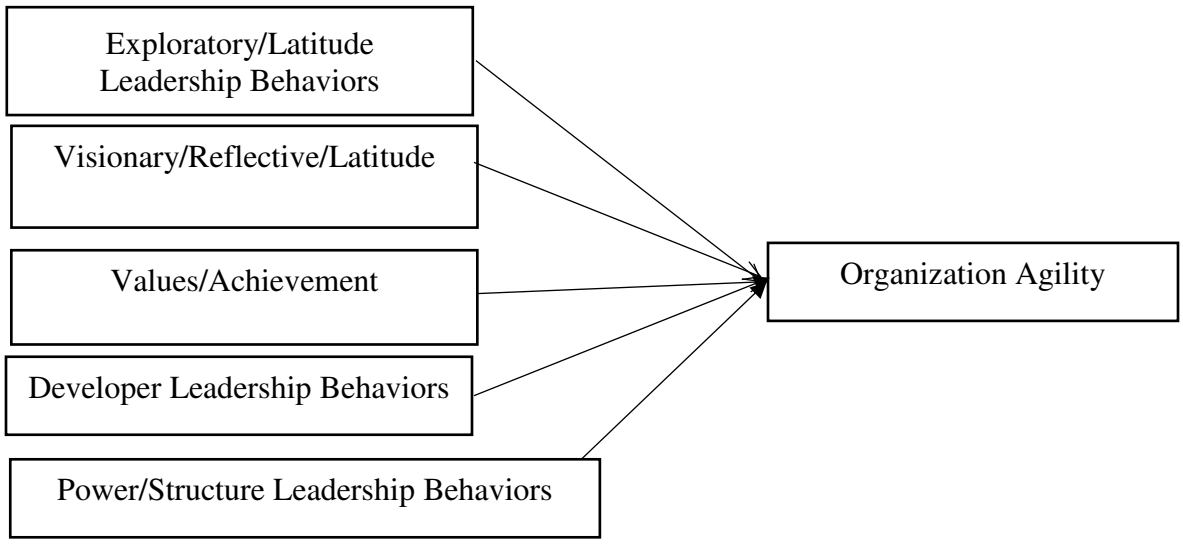

Figure 10. Modified five-factor MLQ-5X agility leadership model.

Factor 1 Discussion – Exploratory/Latitude Leadership

Factor 1, labeled Exploratory/Latitude Leadership, seems to reflect two primary elements of leadership behaviors: (a) encouraging employees to look at new ways of completing assignments and solving problems, and (b) avoiding involvement in issues until they become chronic. The positive correlation between this factor and the Total Agility Score seems to be supported by research on organization agility (Brown & Eisenhardt, 1998; Dove, 1999; Holbeche, 2015; Meyer, 2015; Nagel, 1992; Worley et al., 2014).

The first element, looking at new ways of completing assignments and solving problems, was one of the core elements of several conceptual frameworks of agility in that the culture of the organization must support the engagement and empowerment of employees to explore new ways of doing business (Brown & Eisenhardt, 1998; Goldman et al., 1995; Holbeche, 2015; Meyer, 2015; Worley et al., 2014). The proponents of values-based leadership describe successful leaders as those who listen to the "wild ideas" of others and encourage opinions (O'Toole, 1996). These leaders create a culture that reduces the risk of sharing new, seemingly wild ideas and encourages new perspectives (Crocitto & Youssef, 2003; Kotter, 2012; Meyer, 2015). Specific attention is given to the development of devil's advocates that stimulate alternative views and a willingness to take risks (Sull, 2009).

The second element of leadership behaviors reflected in this factor, involving the lack of leader engagement in problems before they become chronic, was less obvious when comparing this element to the research on organization agility (Holbeche, 2015; Meyer, 2015; Nagel, 1992; Worley et al., 2014). However, researchers of organization agility do describe the leaders of agile organization as having a hand-off approach in which employees have the latitude to complete their work within the guidelines of the overarching mission and purpose of the organization

(Worley et al., 2014). Leadership derived from military strategy, a command-and-control style that involves a tight hold on the reins of the organization, does not foster organization agility (Meyer, 2015; Northouse; 2013; O'Toole, 1996). There needs to be a dynamic stability between the potential chaos of a complete lack of organization structure and the restrictive nature of a command-and-control leadership style (Crocitto & Youssef, 2003). The correlation between this factor and organization agility in this study seems to indicate that the leaders of highly agile organizations take more of a laissez-faire approach to leadership. The leaders of agile organizations often take a hand-off approach, empowering those who work for them to take responsibility and lead (Brown & Eisenhardt, 1998; Kotter, 2012). This includes identifying elements of the organization that make empowerment and the ability to act difficult, including systemic issues such as hierarchical operating systems (Kotter, 2012, 2014).

In summary, research related to organization agility seems to support a strong positive correlation between Factor 1, Exploratory/Latitude Leadership, and organization agility (Dove, 1999; Brown & Eisenhardt, 1998; Holbeche, 2015; Meyer, 2015; Nagel, 1992; Worley et al., 2014). Leaders who exhibit behaviors that encourage exploring new ways of conducting business and lead in a manner that provides latitude and empowerment for their team members to lead, make decisions, and resolve issues on their own, promote an organization culture that fosters higher levels of organization agility (Holbeche, 2015; Goldman et al., 1995; Nagel, 1992; Worley et al., 2014).

Factor 2 Discussion – Visionary/Reflective/Latitude Leadership

Factor 2, labeled Visionary/Reflective/Latitude Leadership, seems to support three elements of leadership behaviors that have a positive correlation to the Total Agility Score: (a) the elements related to setting a clear purpose and a positive future vision of the organization, (b)

the reflective element of re-examining critical assumptions and seeking different perspectives, and (c) the similar hand-off element of Factor 1 – Exploratory/Latitude Leadership.

The first element, behaviors related to defining the purpose of the organization, was supported by research on organization agility as being important to achieving high levels of organization agility (Holbeche, 2015; Nahmias & Perkins, 2012; Worley et al., 2015). By defining a compelling sense of purpose for the organization, the leader is creating the foundation that supports the agile-related routines of strategizing and implementing (Worley et al., 2014). This includes the creation of a common identity made up of the vision, values, and culture of the organization, all aligned to support agility (O'Reilly & Tushman, 2016). By declaring a purpose, employees understand the "why we exist," giving them the latitude to be exploratory in the "how we accomplish this" (Nahmias & Perkins, 2012). Organizational purpose lays the foundation for employees to generate creative solutions to emerging problems (Schein, 2010).

The reflective element – while similar to the exploratory element in Factor 1 related to exploring new ways of doing things – was more reflective in nature in that it relates to re-examining critical assumptions considering today's business environment, a core leadership capability in agile organizations (Crocitto & Youssef, 2003; Joiner & Josephs, 2007; Nahmias & Perkins, 2012; Worley et al., 2014). Worley et al. (2014) stated:

> We know from psychology that there is a bias to dismiss such data even though they may be right. TMT's must possess the methods and group dynamics to challenge their own assumptions, or have a process in place for having others, such as a board of directors, who can challenge assumptions. Either way, having a culture in which the status quo can be challenged is important. (p. 78)

Leaders of agile organizations encourage others to challenge automatic thoughts (Goldman et al., 1995; Meyer, 2015). Employees are encouraged to take responsibility for their own learning, to seek new perspectives, and to challenge assumptions and experiences (Nahmias & Perkins, 2012). This includes the art of actively noticing issues and problems that arise, trying on new perspectives, and creatively thinking on one's feet (Meyer, 2015; Nagel, 1992). Employees must have the freedom and voice to challenge the status quo (Beer, 2009; Holbeche, 2015). The final element, latitude, was reflected in this factor as described above.

In summary, research related to organization agility seems to support a strong positive correlation between Factor 2, Visionary/Reflective/Latitude Leadership, and organization agility (Goldman et al., 1995; Holbeche, 2015; Nagel, 1992; Worley et al., 2014). Leaders who exhibit behaviors that create a strong sense of purpose for the organization, encourage employees to challenge assumptions and explore new perspectives, and empower them to lead and resolve issues, are supporting the development of higher levels of organization agility (Goldman et al., 1995; Holbeche, 2015; Nagel, 1992; Worley et al., 2014).

Factor 3 Discussion - Values/Achievement Leadership

While this factor did not have a correlation to the Total Agility Score, it is worth reflecting on briefly. This factor seems to reflect two elements of leadership behavior: (a) behaving in a way that is values-based and moral, and (b) focusing upon the achievement of organizational goals. Several theories of leadership discuss ethics and values as a component of that leadership style, indicating that a factor reflecting values behavior may not be a differentiating point for leadership behaviors and attributes (Bass & Riggio, 2006; Greenleaf, 1977; Lynham & Chermack, 2006; Northouse, 2013; O'Toole, 1996).

Factor 4 Discussion – Developer Leadership

This factor reflected elements of leadership behavior related to a leader as someone who develops those who work for them by considering them as individuals with unique needs, making clear what will be received when achieving performance goals, and providing employees with assistance. This factor did not correlate to the Total Agility Score, which was consistent with the limited discussion of these types of behaviors in the literature reviewed relative to organization agility (Goldman et al., 1995; Holbeche, 2015; Nagel, 1992; Worley et al., 2014). The leaders of agile organizations exhibit behaviors that are focused more upon empowering people as leaders who take on responsibility for their own development and are responsible leaders (Meyer, 2015; O'Toole, 1996). The lack of correlation between the leadership behaviors related to developing the skills of employees through individual development and assistance and organization agility appears to be supported by research (Holbeche, 2015; Goldman et al., 1995; Nagel, 1992; O'Toole, 1996; Worley et al., 2014).

Factor 5 Discussion – Power/Structure Leadership

This factor appears to reflect the elements of leadership behavior related to setting and achieving goals and putting structure in place, including defining who within the organization is responsible for what tasks, expressing satisfaction when goals are met, and keeping track of mistakes, as well as leaders exuding power and confidence. As described in Chapter 4, this factor was found to have a negative correlation with the Total Agility Score for the business units studied. Research indicates that an important leadership element of organization agility is promoting a culture in which mistakes are treated as learning opportunities versus treating them as failures, as is implied by this factor (Goldman et al., 1995; Holbeche, 2015; Schein, 2010; Worley et al., 2015). The element of assigning tasks of this factor appears similar to a more

structured, bureaucratic style of leadership that does not support the flexibility of structure and rapidly reconfigurable resources necessary for an organization to have high levels of agility (Worley et al., 2014).

In summary, the research reviewed related to organization agility supports a negative correlation between this factor and the agility of the organization (Goldman et al., 1995; Holbeche, 2015; Meyer, 2014; Nagel, 1992; Worley et al., 2015). Agile organizations encourage new ideas without fear of mistakes and a fluid organization structure that supports the need for constant change in reaction to changes in the business environment (Goldman et al., 1995; Meyer, 2015; Worley et al., 2014). This is in direct contrast to the leadership behaviors and attributes reflected in this factor.

Discussion Summary

The positive correlations between Factor 1, Exploratory/Latitude Leadership, and Factor 2, Visionary/Reflective/Latitude Leadership, and the Total Agility Score for each business unit, suggests that certain leadership behaviors conceptualized by organization agility research as being supportive of agile organizations are substantiated (Goldman et al., 1995; Holbeche, 2015; Nagel, 1992; Worley et al., 2015). The elements of leadership that are reflected in these two factors – including leadership behaviors that support a culture of exploration and reflection that is aligned with the purpose, or identity, of the organization – have been widely discussed in the literature reviewed on organization agility (Brown & Eisenhardt, 1998; Holbeche, 2015; Meyer, 2015; Worley et al., 2014).

The elements of hands-off leadership behaviors, or latitude, are somewhat more surprising and would benefit from future research efforts. The lack of leadership engagement and behaviors, such as waiting until an issue has become chronic or not being available when needed,

have not been described at length in the literature reviewed during this study and are less intuitive, although the research on organization agility maintains that a leader must provide employees with empowerment and responsibility (Dove, 1999; Holbeche, 2015; Meyer, 2015).

Informal Qualitative Observation of Culture

One unanticipated informal qualitative measure observed during the study was the measure of the days between initiating a conversation with an organization regarding participation in the study, and the number of days until completing data collection. The number of days informally appeared to loosely correlate with the Total Agility Score of the organization in that the more days required to complete the study, the lower the Total Agility Score of the organization. This is an intriguing variable that might be worth including in future studies, as well as how this variable relates to the perceptions of culture of the organization.

Limitations of the Research

This research contained several limitations related to the sample and sampling method, the instruments chosen, the general limitations related to the use of surveys and data collection process.

Theoretical and Population Sample and Sampling Limitations

The defined theoretical and target populations, as well as the sampling techniques, created limitations for this study (Swanson & Holton, 2005). By selecting organizations with greater than 1,000 employees as the target population, the research results may not be generalizable to smaller organizations (Gliner et al., 2009). Selecting only U.S.-based business units also limits the generalizability of the results to non-U.S.-based business units, and the study did not take into account the cultural implications of U.S.-based business units within non-U.S. corporations (Gliner et al., 2009).

The variety of industries and types of organizations contained in the sample could be viewed as either enhancing or detracting from the generalizability of the findings (Swanson & Holton, 2005). Including multiple industries could indicate that the results are broadly generalizable across many industries (Swanson & Holton, 2005). The inclusion of 12 organizations from the construction industry provides an opportunity to delve more deeply into the results from this industry at a future time.

Each organization was responsible for the random selection of the 20 employees chosen to receive the Agility Survey (short-form), and although clear instructions were provided on what was or was not considered a random sampling method, the sampling methodology of these employees was not controlled (Swanson & Holton, 2005). For the Total Agility Score, a response of at least three employees was considered to be adequate, with an average number of respondents per business unit of 13.9 (Worley et al., 2014). For the MLQ-5X, prior research had indicated a minimum of three direct report respondents per leader (Avolio & Bass, 2004). For this study, 12 of the 126 participating business unit leaders had only one or two direct reports, eliminating the ability to collect data from three direct reports, which is a limitation of the study. Demographic information was not collected related to the tenure of the business unit leader in that position or the numbers of years each respondent had reported to that business unit leader, which is a limitation to the study in that leaders and followers with a short tenure in the position and/or relation may not have indicated accurate data.

Instrument Limitations

Surveys as measurement instruments provide insight into the perceptions and beliefs of the respondents (Tabachnick & Fidell, 2007). Yet, different people have different perceptions,

and the study of human behaviors is, as such, an inexact science (Gliner et al., 2009; Swanson & Holton, 2005).

The decision to utilize the MLQ-5X to measure leadership behaviors and attributes was based upon extensive use of the instrument and the reliability scores reported in prior research (Bass & Riggio, 2006; Franco & Matos, 2013; Gencer & Samur, 2016; Luo et al., 2016; Popli & Rizvi, 2016). Because the data for this study did not factor according to the assumed factor structure, one could challenge the validity of the instrument in this instance (Gliner et al., 2009; Swanson & Holton, 2005). The Cronbach's alpha scores and strong pattern matrix indicate that the factor structure reported for this study was acceptable (Morgan et al., 2013). The MLQ-5X also does not include items related to some leadership behaviors and attributes reflected in the conceptual frameworks of organization agility (Brown & Eisenhardt, 1998; Goldman et al., 1995; Holbeche, 2015; Meyer, 2015; Worley et al., 2014). These include leadership behaviors related to scanning the business environment and providing resources to test new products and services (Worley et al., 2014).

The conceptual framework of organization agility is complex and has been described by researchers with various elements and constructs (Brown & Eisenhardt, 1998; Goldman et al., 1995; Holbeche, 2015; Meyer, 2015; Worley et al., 2014). The Agility Survey (short-form) was chosen for this research because of its use to measure organization agility across multiple industries within the same study versus using alternative instruments that are more industry specific, such as the Sharifi and Zhang's (1999) instrument for agile manufacturing (Worley et al., 2014). Because the topic of organization agility is an immature field of study, much work remains to be done to adequately study and understand the conceptual framework of organization agility (Holbeche, 2015; Worley et al., 2014). This brings into question the score reliability of

data, although the reported Cronbach's alpha for the Agility Survey (short-form) of .96 indicated high score reliability.

A variety of instruments exist to measure both leadership and organization agility (Bass & Riggio, 2006; Sharifi & Zhang, 1999; Worley et al., 2014). The selection of the instruments of this study was based upon sound reasoning as to the applicability of these instruments to the context of this research, given the current state of leadership and organization theories and operationalization of these theories (Bass & Riggio, 2006; Meyer, 2015; Northouse, 2013; Worley et al., 2014). Had alternate instruments been selected for this study, a different set of outcomes may have been obtained.

Instruments such as the MLQ-5X and the Agility Survey (short-form) do not directly measure the target phenomena, leadership behaviors and attributes, and organization agility, but instead measure the perceptions of individuals related to the existence of these phenomena (Gliner et al., 2009). This limitation contributes to the challenge of research in the social sciences in measuring inexact perceptions related to, at times, difficult-to-describe behaviors and theoretical concepts (Gliner et al., 2009).

General Limitations

One assumption of the study was that organization agility is a desirable attribute of all organizations, when, in fact, some instances may exist when organization agility is not a desirable attribute of an organization (Dove, 1999; Sharifi & Zhang, 1999). Extraneous variables other than the leadership behaviors measured may have contributed to difference in the dependent variable, the Total Agility Score of the business unit, as measured by the Agility Survey (short-form; Morgan et al., 2013; Worley et al., 2014). The study was not experimental

in nature (Gliner et al., 2009) Additional factors, such as the culture of the organization, may have impacted the results of this study (Gliner et al., 2009; Worley et al., 2014).

Implications for Theory, Practice, and Research

This research study has implications for theory, practice, and future research. Each of these is discussed in turn.

Implications for Theory

This research study has implications for theory related to both leadership theory, a more mature field of knowledge, and organization agility, a less mature field of knowledge. What follows is a discussion of both the implications for leadership theory and the implications for organization theory.

Implications for leadership theory. The study of leadership, while a mature topic, continues to evolve and includes the study of several streams of theory and knowledge (Bass & Riggio, 2006; Burns, 1978; Northouse, 2013). Those studying organization agility mention many threads of leadership theory, including shared, values-based, distributed, transformational, and servant (Brown & Eisenhardt, 1998; Holbeche, 2015; Worley et al., 2015). Theory building within the leadership body of knowledge continues to progress through the cycles of conceptual development, application, confirmation and disconfirmation, and operationalization, as researchers are continually theorizing about (a) how to conceptualize and measure leadership behaviors and attributes; (b) how to utilize these behaviors and attributes to conceptualize and measure leadership styles such as transformational, servant, values-base, or responsible; and (c) how to determine through rigorous study the correlation between these leadership behaviors, attributes, and styles and the performance of the followers and organization related to these

leaders (Greenleaf, 1977; Howell & Avolio, 1993; Lyneham & Chermack, 2006; Northouse, 2013; O'Toole, 1996; Swanson & Chermack, 2013).

In the conceptualization phase of theory building, the output is a structured conceptual framework of the phenomena that is thought to represent the key elements of that phenomena (Lynham 2002; Swanson & Chermack, 2013). Leadership theorists have put forth several conceptualizations of modern leadership theory, including shared, transformational, values-based, servant, and responsible leadership (Bass & Riggio, 2006; Greenleaf, 1977; Lynham & Chermack, 2006; O'Toole, 1996). This dissertation research study contributes to the conceptualization of the theory of leadership by building upon existing conceptual models of organization agility and the elements of leadership contained within these models, and by providing an alternative, five-factor model of leadership with the described elements present (Bass & Riggio, 2004; Holbeche, 2015; Meyer, 2015; Swanson & Chermack, 2013). This aligns with the first four steps of Dubin's theory-building model that relate to conceptualizing theory and encompass the steps of (a) determining the elements or units of the theory, (b) describing the relationships and interactions between the elements or units of the theory, (c) defining the context or boundaries of the theory, and (c) describing the context within which the theory is expected to function (Dubin, 1978; Lynham, 2002; Swanson & Chermack, 2013). This dissertation research study addresses the first of these four steps.

During the operationalization phase of theory building, the elements or units defined during conceptualization are operationalized into observable and confirmable elements (Dubin, 1978; Swanson & Chermack, 2013). Later in this chapter in the implications for research, the researcher discusses the possible use of future research to develop an instrument to measure leadership theory within the context of agile organizations. A grounded theory approach would

be appropriate for future efforts related to building theory from data (Swanson & Chermack, 2013).

The confirming/disconfirming phase of theory building is focused upon assessing and contributing to theory building by examining the elements or units of conceptual theory to either confirm or disclaim existence within the defined context of theory (Dubin, 1978; Swanson & Chermack, 2013). This dissertation study sought to confirm the existence of the nine-element MLQ-5X theory of leadership, and instead generated a new conceptual framework of leadership theory that could be tested by future research (Bass & Riggio, 2004). An opportunity exists to further refine the proposed model of leadership factors via future research that will continue the process of theory building related to leadership (Bass & Riggio, 2004).

In summary, this study has the potential to inform leadership theory by providing an alternative conceptual model of leadership behaviors, attributes, and styles related to the five-factor model described by this data for the MLQ-5X (Bass & Riggio, 2006). Future research efforts could potentially replicate this conceptual model of leadership, furthering the theory of leadership by defining new elements. The factor structure and discussion of this study might also inform the development of a leadership measurement instrument that is more directly related to measuring leadership behaviors and attributes related to high levels of organization agility (Bass & Riggio, 2004; Holbeche, 2015; Worley et al., 2014).

Implications for organization agility theory. Organization agility is an immature topic, and current research efforts are more focused upon the conceptualization element of theory building (Dubin, 1978; Holbeche, 2015; Lynham, 2002; Meyer, 2015; Worley et al., 2014). The theory of organization agility is a conceptual framework that requires additional efforts to define the boundaries and key terms of the conceptual framework (Dubin, 1978; Holbeche, 2015;

Lynham, 2002; Meyer, 2015; Swanson & Chermack, 2013; Worley et al., 2014). Several conceptual frameworks for organization agility exist, with limited empirical research to support the existence of these conceptual frameworks within organizations, and the elements and constructs of organization agility are just now being defined by researchers (Holbeche, 2015; Meyer, 2015; Nagel, 1992; Worley et al., 2014). The Agility Survey (short-form) is one attempt at operationalize the theory of organization agility by creating a measurement instrument to assess the presence of four elements, the four routines of strategizing, perceiving, testing, and implementing (Swanson & Chermack, 2013; Worley et al., 2014). As discussed in Chapter 2, additional instruments exist related to operationalizing the element of organization agility, and future research would contribute to the theory of organization ability by either confirming or disconfirming the presence of these elements in agile organizations (Sharifi & Zhang, 1999; Swanson & Chermack, 2013). These efforts are necessary to continue to refine the conceptual framework of organization agility, including the elements or units of theory and how these units can be most effectively measured (Swanson & Chermack, 2013).

In summary, this study adds to our understanding of the conceptual framework of organization agility by providing deeper insight into the behaviors and attributes of the leaders of highly agile business units and organizations via statistical analysis. While those researching organization agility realize the importance of leadership as a core organization capability, the research related to which leadership behaviors and attributes are correlated to high levels of organization agility are limited (Holbeche, 2015; Meyer, 2015; Worley et al., 2014). There is an opportunity to more fully develop the understanding of how leadership behaviors impact organization agility.

Implications for Practice

This research study has implications for practice related to both leadership and organization agility development within organizations. As described by pragmatist philosophy as it relates to the creation of knowledge, one approach to evaluating the value of research is to apply the knowledge gained to practice (Korte & Mercurio, 2017).

Implications for leadership practice. Leadership behaviors are critical to the achievement of organization agility (Brown & Eisenhardt, 1998; Holbeche, 2015; Meyer, 2015; Worley et al., 2014). Practitioners working with organizations to assist them in achieving organization agility are now armed with additional information as to the leadership behaviors and attributes necessary to develop high levels of organization agility. Specifically, practitioners working with leaders to achieve the behaviors related to organization agility should focus upon assessing and building skills and behaviors that are related to (a) exploratory efforts that encourage employees to think about doing business in new ways, (b) latitude behaviors that empower employees and give them the freedom to make decisions and resolve issues, (c) visionary efforts to optimistically define a future state of the organization that is grounded in a clear organization purpose and (d) reflective behaviors that encourage all team members to challenge assumptions and the status quo (Holbeche, 2015; Meyer, 2015; Worley et al., 2015). Practitioners working with leaders who are interested in building highly agile organization should discourage leaders from taking an entirely goal-focused approach to leadership, which creates overly prescriptive structures and processes that constrict innovation and new ways of thinking and encourage leadership behaviors that reduce fear of risk-taking and retribution for mistakes made (Holbeche, 2015; Meyer, 2015; Worley et al., 2015).

Implications for organization agility practice. The practice of building organizations with high levels of organization agility also benefits from the broad discussion of organization agility reflected in this research, including how it is measured and developed. The score reliability and validity reflected in this research contributes to the confirmation of the existence of organization agility as a phenomenon (Gliner et al., 2009). Working with organizations to develop the four agile routines – agile strategizing, agile perceiving, agile testing, and agile implementation – should result in higher levels of agility for that organization (Worley et al., 2014). This includes efforts to create broadly understood strategies that (a) differentiate the organization from competitors, (b) put in place consistent processes such as scenario planning to perceive changes in the business environment, (c) dedicate resources to testing new ways of doing business, and (d) develop a deep capability for implementing new strategies including the development of new skills (Holbeche, 2015; Meyer, 2015; Worley et al., 2014).

Implications for Future Research

This research study provides implications for future research related to the study of leadership, the study of organization agility, and the study of how leadership behaviors and attributes impact organization agility. The following is a general discussion of implications for future research, as well as a more detailed framework for potential research studies.

Studies on leadership. The development of leadership theory would benefit from additional research as to the specific leadership behaviors and attributes that are associated with high levels of organization agility. This includes efforts to replicate the results of this study to more clearly define the elements of leadership with either a strong positive or negative correlation to organization agility. Future research might include specific leadership interventions to determine if changes in leadership behaviors impact organization agility. Future

research might also support the development of leadership theory by clarifying the elements and constructs of leadership related to the leaders of highly agile organizations.

Potential research projects on leadership. Follow-up research studies related to leadership theory and the relationship of leadership and organization agility might include the following:

1. *A qualitative study of leadership behaviors and attributes related to organization agility*. This study would involve researching the leaders of the business units with the highest Total Agility Scores measured in this research study with an interview methodology to develop a more detailed taxonomy of the leadership behaviors and attributes of these leaders. The research question guiding this research would be: "Are there specific, consistent behaviors and attributes of the leaders of the business units that scored in the top quartile on the Total Agility Score in this study?" The method for this research would be to (a) identify the business units that scored in the top quartile for the Total Agility Score (n = 32), (b) develop an interview guide based upon the leadership behaviors and attributes identified in this study and additional research, (c) review the interview guide with two to three organization agility researchers to gather input, (d) contact the leaders of these business units to solicit participation in a 1-hour interview, (e) conduct a pilot interview to assess the effectiveness of the interview guide, (f) conduct 10 to 15 additional business unit leader interviews, (g) determine the taxonomy present related to leadership behaviors and attributes that are common among this group of leaders of highly agile business units, and (h) publish the results. This research study would contribute to the conceptualization phase of theory building for both the conceptual framework of

leadership and the conceptual framework of organization agility theory (Lynham, 2002).

2. *A quantitative replication of the MLQ-5X.* This study would involve an attempted replication of the five factors present in the data for this study to replicate score reliability and validity. The research question guiding this research would be: "Is there consistent score validity for the MLQ-5X five-factor model exhibited in this research?" The method for this research would be to (a) solicit a random sampling of business unit leaders leading U.S.-based business units within organizations with greater than 1,000 employees to participate in the study; (b) supplement this sample via convenience sampling, with a goal of recruiting 126 business unit leaders (n = 126); (c) administer the MLQ-5X to the director reports of these business unit leaders, with a goal of recruiting greater than 700 (n = 700); (d) utilize confirmatory factor analysis to determine the goodness of fit of the five-factor model present in the data of the current research study; (e) as necessary, utilize exploratory factor analysis to determine alternative factor models present for this follow-up study; and (f) publish the results. This research study would contribute to the operationalization phase of theory building for the conceptual framework of leadership theory (Lynham, 2002).
3. *The development of an agility-specific leadership behavior measurement instrument.* A multitude of leadership assessment instruments were reviewed for this research study. There does not appear to be a leadership behavior instrument related to the leadership behaviors and attributes that positively impact organization agility. An opportunity may exist to more thoroughly research existing leadership behavior and attribute measurement instruments to create a consolidated instrument that measures

the leadership behaviors and attributes supported by research that positively contribute to organization agility. The guiding question for this research would be: "Are there specific leadership behaviors and attributes that have been shown by research to positively contribute to organization agility, and if so, what are the instrument elements necessary to measure these behaviors and attributes?" The method for this research would be to (a) conduct a literature review of leadership instruments and identified leadership behaviors and attributes that have a proven positive correlation to organization agility; (b) develop a pilot leadership assessment instrument to test for the measurement of the leadership behaviors and attributes that correlate to higher levels of organization agility; (c) replicate this dissertation research study, measuring both the leadership behaviors and attributes of the leaders of organizations or business units and the Total Agility Score of these organizations or business units to determine score validity and reliability for the instrument; and (d) publish the results. This research study would contribute to the operationalization phase of theory building for both the conceptual framework of leadership and the conceptual framework of organization agility theory (Lynham, 2002).

Studies on organization agility. More research is necessary to support the score reliability and validity of data collected utilizing the Agility Survey (short-form) as a tool to measure the agility of business units and organizations. This would include further research into the variables that impact agility beyond leadership behaviors and attributes, including organization size, structure, and culture. The conceptual framework of organization theory is complex, with many elements proposed by alternative researchers. Continuing to research the conceptual framework of organization agility to define the elements and constructs of this theory

is critical to gaining a deeper understanding of what organization agility is and how to develop it within an organization.

Potential research projects on organization agility. Follow-up research studies related to organization agility might include the following:

1. *A qualitative study of organization agility elements and constructions.* This study would involve studying the leaders of the business units with the highest Total Agility Scores measured in this dissertation research study, with an interview methodology, to develop a more detailed taxonomy of the elements and constructs present in these business units. The research question guiding this research would be: "Are there specific elements and constructs present in the business units that scored in the top quartile on the Total Agility Score in this study?" The method for this research would be to (a) identify the business units that scored in the top quartile for the Total Agility Score (n = 32), (b) develop an interview guide based upon the elements and constructs of organization agility identified in the research literature, (c) review the interview guide with two to three organization agility researchers to gather input, (d) contact the leaders of these business units to solicit participation in a 1-hour interview, (e) conduct a pilot interview to assess the effectiveness of the interview guide, (f) conduct 10 to 15 additional business unit leader interviews, (g) determine the taxonomy present related to organization elements and constructs that are common among this group of leaders of highly agile business units, and (h) publish the results. This research study would contribute to the conceptualization phase of theory building for the conceptual framework of organization agility theory (Lynham, 2002).

2. *A qualitative research study of the relationship between culture and organization agility.* Throughout the literature reviewed for this dissertation research study, the topic of culture was commonly discussed in relation to organization agility. Evidence might exist that the leadership behaviors and attributes that support organization agility are related to building a culture that, in turn, supports organization agility. The research questions guiding this research would be: "Is culture a mediating theory between leadership behaviors and attributes and organization agility?" And, "Is it possible to identify the cultural elements and constructs of highly agile organizations and how the behaviors and attributes of the leaders of these organization contribute to these cultural elements? The method of these research would be to (a) conduct a literature review of culture theory, leadership theory, and organization agility theory to determine the possible relationship between these three streams of knowledge; (b) develop a conceptual framework that would potentially explain the relationship between these three streams of knowledge; and (c) publish the results and solicit critique and feedback. This research study would contribute to the conceptualization phase of theory building for the conceptual framework of organization agility theory (Lynham, 2002).

Conclusion

This research study contributes to the body of knowledge of organization agility by studying the relationship between leadership behaviors and attributes and the organization agility in U.S.-based business units of organizations with greater than 1,000 employees. Based upon a broad assumption that organization agility is a desired capacity for an organization, one might apply these learnings to influence the selection, training and development, and retention of

leaders who exhibit the behaviors and attributes that support organization agility (Dove, 1999; Holbeche, 2015; Worley et al., 2014).

The leadership elements found to have a positive correlation to organization agility include: (a) exploratory behaviors that support a culture of discovering new ways to solve problems and conduct business, (b) latitude behaviors that provide employees with a high degree of freedom and responsibility in achieving work results and resolving issues, (c) visionary behaviors that create a clear organization purpose and mission that define the "why" of the organization's existence, and (d) reflective behaviors that cause leaders to challenge their own assumptions and create mechanisms for the organization to do so as well (see Table 29).

Table 29

The Leadership Behavior Categories That Predict Higher Organization Agility

Behavior Category	Description of Leadership Behaviors
Exploratory	Behaviors that support a culture of discovering new ways to solve problems and conduct business
Latitude	Behaviors that provide employees with a high degree of freedom and responsibility in achieving work results and resolving issues
Visionary	Behaviors that create a clear organization purpose and mission that define the "why" of the organization's existence
Reflective	Behaviors that cause leaders to challenge their own assumptions and create mechanisms for the organization to do so as well

These elements of leadership behaviors and their positive correlation to high levels of organization agility are supported by existing research related to organization agility reviewed for this study (Brown & Eisenhardt, 1998; Holbeche, 2015; Meyer, 2015; Worley et al., 2014). The negative correlation between the leadership element of power and structure, including the

leadership behaviors of clearly assigning tasks and keeping track of mistakes, was also supported by existing research related to organization agility reviewed for this study (Brown & Eisenhardt, 1998; Holbeche, 2015; Meyer, 2015; Worley et al., 2014).

By defining these leadership elements and the positive and negative correlations that exist between these elements and the agility of a business unit, theorists, practitioners, and the leaders of organizations may gain greater insight into the behaviors and attributes that should be cultivated in leaders to achieve organization agility. This critical organization capability is crucial to the long-term financial success of an organization (Dove, 1999; Goldman et al., 1995; Holbeche, 2015; Worley et al., 2014).

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APPENDIX A: IRB-APPROVED PARTICIPATION SOLICITATION E-MAIL

Dear Participant,

I am a Doctoral Candidate at Colorado State University who is conducting research in an effort to advance the performance of U.S. corporations. I am recruiting CEOs at U.S. companies with greater than 1000 employees, and RSA List Services Corporation has provided me your email address as a qualifying company. I appreciate you taking the time to read this e-mail to determine if participating in a research study of organization agility and leadership might be of interest.

Organization agility, defined as the ability to swiftly and successful change in reaction to changes in the external business environment, is critical in today's environment of fast-paced change. My research study, entitled "Do Leadership Traits and Behaviors Predict Organization Agility?" may significantly advance the body of knowledge on agility as well as an understanding of the agility of your corporation. This research will provide direct information on how to develop leaders with the capacity to grow the agility of an organization.

Your organization's participation in this research is voluntary. If you decide to participate in the study, you may withdraw your consent and stop participation at any time without penalty.

We will be surveying leaders of business units within your organization and employees of these business units. Participants in this research will complete one survey that will take about 15 minutes.

In order for us to contact these individuals, we are asking participating companies to provide the following information:

- A list of 5 to 20 business units within your company comprised of 30 or more employees directly related to the execution of products and services for your customers
- Demographic information for the leader of that business unit including name, phone number, e-mail, gender, age and number of years in that position
- The names and e-mail addresses of the direct reports of that business unit leader
- The names and e-mail addresses of all individuals within that business unit

The time commitment of someone to provide this information, likely in your HR department, is approximately two-to-four hours.

Each of the direct reports of each business unit leader will be asked via e-mail to complete the MLQ-5X survey, a questionnaire of approximately 20 questions regarding the transformational leadership behaviors of that business unit leader. All data collected will be confidential and will not be reported back to your organization.

All employees of each business unit will be asked via e-mail to complete the Agility Survey, a questionnaire of approximately 20 questions regarding the agile routines of that business unit. All data collected will be confidential and the aggregate agility score for the company will be provided to you.

When we report and share the data with others, we will combine the data from all participants. We will keep your data confidential; your organization name and data will be kept separately and in a password protected file with only a "participating company number" associated with your data, not a company name. This data will only be accessible to the research team.

The direct benefit to you will be information regarding the agility of your company. The possible benefit to society and corporations will be access to information on what leadership traits and behaviors to develop to achieve greater organization agility.

It is not possible to identify all potential risks in research procedures, but the researcher(s) have taken reasonable safeguards to minimize any known and potential (but unknown) risks.

To indicate your willingness to participate in this research and to commit your organization's participation, please reply to this e-mail, and I will provide more information about the study. I am also happy to spend time on the phone answering any questions you might have, and I can be reached at gretchengagel@gmail.com or 303-564-4164.

If you have any questions about your rights as a volunteer in this research, contact the CSU IRB at: RICRO_IRB@mail.colostate.edu; 970-491-1553.

Again, we appreciate your time and consideration of this request for assistance.

Take care,

Gretchen Gagel – Co-Principal Investigator and Doctoral Student, Colorado State University, School of Education.

Thomas Chermack, Ph.D. – Professor and Co-Principal Investigator, Colorado State University, School of Education; Thomas.chermack@colostate.edu .

APPENDIX B: THE MLQ MULTIFACTOR LEADERSHIP QUESTIONNAIRE (MLQ-5X)

This questionnaire is used to describe the leadership style of the business unit leader. Business unit leaders and their director reports are asked via electronic survey to read the thirty-six descriptive statements listed, and Judge how frequently each statement fits the business unit leader using the following rating scale:

1) Not at all, 2) Once in a while, 3) Sometimes, 4) Fairly often, 5) Frequently, if not always

1. The person I am rating provides me with assistance in exchange for my efforts.

2. The person I am rating re-examines critical assumptions to question whether they are appropriate.

3. The person I am rating fails to interfere until problems become serious.

4. The person I am rating focuses attention on irregularities, mistakes, exceptions, and deviations from standards.

5. The person I am rating avoids getting involved when important issues arise.

6. The person I am rating talks about their most important values.

7. The person I am rating is absent when needed.

8. The person I am rating seeks differing perspectives when solving problems.

9. The person I am rating talks optimistically about the future.

10. The person I am rating instills pride in me for being associated with him/her.

11. The person I am rating discusses in specific terms who is responsible for achieving performance targets.

12. The person I am rating waits for things to go wrong before taking action.

13. The person I am rating talks enthusiastically about what needs to be accomplished.

14. The person I am rating specifies the importance of having a strong sense of purpose.

15. The person I am rating spends time teaching and coaching.

16. The person I am rating makes clear what one can expect to receive when performance goals are achieved.

17. The person I am rating shows that he/she is a firm believer in "If it ain't broke, don't fix it."

18. The person I am rating goes beyond self-interest for the good of the group.

19. The person I am rating treats me as an individual rather than just as a member of a group.

20. The person I am rating demonstrates that problems must become chronic before taking action.

21. The person I am rating acts in ways that builds my respect.

22. The person I am rating concentrates his/her full attention on dealing with mistakes, complaints, and failures.

23. The person I am rating considers the moral and ethical consequences of decisions.

24. The person I am rating keeps track of all mistakes.

25. The person I am rating displays a sense of power and confidence.

26. The person I am rating articulates a compelling vision of the future.

27. The person I am rating directs my attention toward failures to meet standards.

28. The person I am rating avoids making decisions.

29. The person I am rating considers me as having different needs, abilities, and aspirations from others.

30. The person I am rating gets me to look at problems from many different angles.

31. The person I am rating helps me to develop my strengths.

32. The person I am rating suggests new ways of looking at how to complete assignments.

33. The person I am rating delays responding to urgent questions.

34. The person I am rating emphasizes the importance of having a collective sense of mission.

35. The person I am rating expresses satisfaction when I meet expectations.

36. The person I am rating expresses confidence that goals will be achieved.

APPENDIX C: AGILITY SURVEY (SHORT-FORM)

Employees of the business unit are asked via electronic survey to answer each of the 19 questions as it related to their business unit using the following rating scales: 1) Disagree, 2) Disagree, 3) Neutral, 4) Agree, and 5) Strongly Agree.

Question
1. This business unit has a unifying purpose or mission other than profitability and growth.
2. This business unit develops strategies with flexibility in mind.
3. This business unit has a culture that embraces change as normal.
4. This business unit has core values that reflect a change-ready business unit.
5. This business unit spends a lot of time thinking about the future.
6. This business unit puts as many employees as possible in contact with the external environment, especially with customers.
7. This business unit shares financial and business strategy information with all employees.
8. This business unit allows information to flow freely from the outside to units and groups where it is most valuable.
9. This business unit has formal mechanisms to connect senior management with people at all levels of the business unit.
10. Traditionally, this business unit encourages innovation.
11. This business unit is capable of shifting its structure quickly to address new opportunities.
12. This business unit has enough budget "slack" so that people can develop new products or better ways of working together.
13. This business unit has flexible budgets that respond to the marketplace.
14. This business unit regularly reviews learnings from change efforts.
15. This business unit considers the ability to change a strength of the business unit.
16. This business unit has a well-developed change capability.
17. This business unit rewards performance rather than seniority.
18. This business unit pays for skills and knowledge that contribute to performance.
19. This business unit encourages managers to develop the leadership skills of their direct reports.

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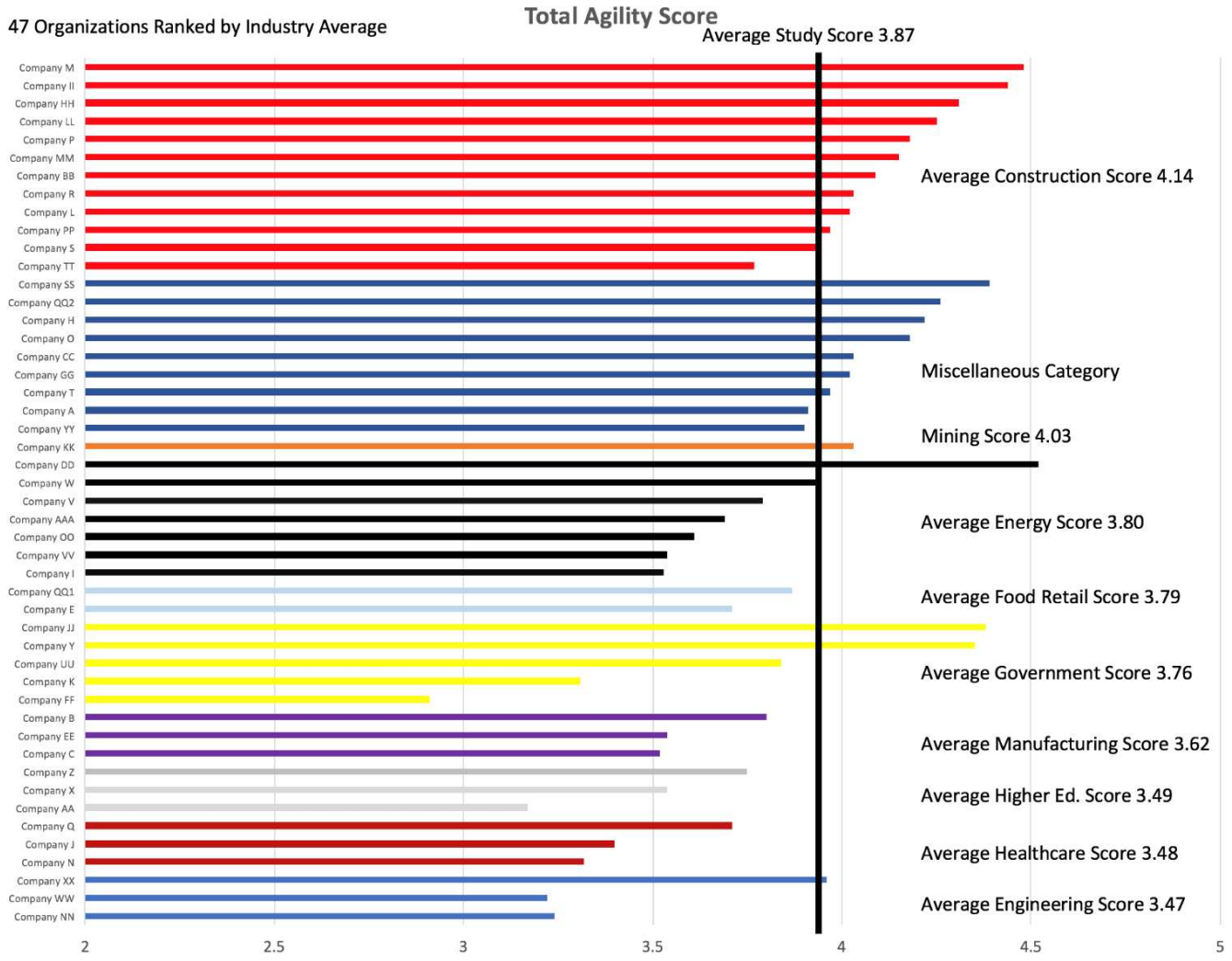
APPENDIX D: TOTAL AGILITY SCORE BY ORGANIZATION AND INDUSTRY



APPENDIX E: FIVE-FACTOR MLQ-5X ELEMENTS

No.	Question	Nine-Element MLQ-5X	Three Construct	Code	Factor
26	Articulates a compelling vision of the future	Inspirational Motivation	Transformational	IM3	1
30	Gets me to look at problems from many different angles	Intellectual Stimulation	Transformational	IS3	1
32	Suggests new ways of looking at how to complete assignments	Intellectual Stimulation	Transformational	IS4	1
12	Waits for things to go wrong before taking actions	Management-by-Exception (Passive)	Passive Avoidance	MBEP2	1
17	Shows that he/she is a firm believer in "If it isn't broke, don't fix it"	Management-by-Exception (Passive)	Passive Avoidance	MBEP3	1
20	Demonstrates that problems must be chronic before taking action	Management-by-Exception (Passive)	Passive Avoidance	MBEP4	1
14	Specifies the importance of having a strong sense of purpose	Idealized Influence (Behavior)	Transformational	IB2	2
9	Talks optimistically about the future	Inspirational Motivation	Transformational	IM1	2
2	Re-examines critical assumptions to question whether they are appropriate	Intellectual Stimulation	Transformational	IS1	2
8	Seeks differing perspectives when solving problems	Intellectual Stimulation	Transformational	IS2	2
4	Focuses attention on irregularities, mistakes, exceptions, and deviations from standards	Management-by-Exception (Active)	Transactional	MBEA1	2
22	Concentrates his/her full attention when dealing with mistakes, complaints and failures	Management-by-Exception (Active)	Transactional	MBEA2	2
7	Is absent when needed	Laissez-Faire	Passive Avoidance	LF2	2
33	Delays responding to urgent questions	Laissez-Faire	Passive Avoidance	LF4	2

21	Acts in ways that builds my respect	Idealized Influence (Attributed)	Transformational	IA3	3
6	Talks about their most important values and beliefs	Idealized Influence (Behavior)	Transformational	IB1	3
36	Expresses confidence that goals will be achieved	Inspirational Motivation	Transformational	IM4	3
31	Helps me develop my strengths	Individualized Consideration	Transformational	IC4	3
27	Directs my attention toward failures to meet standards	Management-by-Exception (Active)	Transactional	MBEA4	3
34	Emphasizes the importance of having a collective sense of mission	Idealized Influence (Behavior)	Transformational	IB4	4
19	Treats me as an individual rather than just as a member of a group	Individualized Consideration	Transformational	IC2	4
29	Considers me as having different needs, abilities, aspirations from others	Individualized Consideration	Transformational	IC3	4
1	Provides me with assistance in exchange for my efforts	Contingent Reward	Transactional	CR1	4
16	Makes clear what one can expect to receive when performance goals are achieved	Contingent Reward	Transactional	CR3	4
3	Fails to interfere until problems become serious	Management-by-Exception (Passive)	Passive Avoidance	MBEP1	4
25	Displays a sense of power and confidence	Idealized Influence (Attributed)	Transformational	IA4	5
11	Discusses in specific terms who is responsible for achieving performance targets	Contingent Reward	Transactional	CR2	5
35	Expresses satisfaction when I meet expectations	Contingent Reward	Transactional	CR4	5
24	Keeps track of all mistakes	Management-by-Exception (Active)	Transactional	MBEA3	5
10	Instills pride in others for being associated with him/her	Idealized Influence (Attributed)	Transformational	IA1	
18	Goes beyond self-interest for the good of the group	Idealized Influence (Attributed)	Transformational	IA2	
23	Considers the moral and ethical consequences of decisions	Idealized Influence (Behavior)	Transformational	IB3	

13	Talks enthusiastically about what needs to be accomplished	Inspirational Motivation	Transformational	IM2
15	Spends time teaching and coaching	Individualized Consideration	Transformational	IC1
5	Avoids getting involved when important issues arise	Laissez-faire	Passive Avoidance	LF1
28	Avoids making mistakes	Laissez-faire	Passive Avoidance	LF3