RELATIONSHIP BETWEEN THE FULL RANGE LEADERSHIP MODEL AND INFORMATION TECHNOLOGY TOOLS USAGE

by

Antonio White Landell

JELENA VUCETIC, PhD., Faculty Mentor and Chair

JENNIFER SCOTT, PhD., Faculty Committee member

PAUL C. COOK, PhD., Committee member

Susan Tally, EdD, Dean, School of Business and Technology

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Philosophy

Capella University

June 12, 2013

Abstract

Due to major technological and social changes, world dynamics have undergone tremendous leadership style and technology transitions. The transformation of information technology tools usage (ITTU) created a new paradigm confronting leaders that can provide the right change of vision to effectively motivate, inspire, and transform others to work at their maximum potential and embrace new changes that are effective for their organizations. The purpose of this quantitative correlational empirical study is to evaluate whether the full range leadership model (FRLM) leadership styles known as (a) transformational, (b) transactional, and (c) laissez-faire (Bass & Avolio, 2004) impact ITTU systems and what relationship, if any, exists between ITTU systems and leadership decision-making outcomes. Although ITTU systems have the potential to assist leaders in their decision-making processes, only a few leadership styles have leveraged this opportunity. This study investigates the relationship between the FRLM and ITTU as measured by the Multifactor Leadership Questionnaire (MLQ) (Avolio & Bass, 2004), the Technology Acceptance Module (TAM) (Davis, 1989), and was aggregated by the Multivariate and Correlation Analysis SPSS (Boslaugh, 2005; Norusis, 2008). The literature review preceding this study has established an historical correlation framework to illustrate the progression of technology and how it has fostered the decision-making process in various leadership styles. The survey incorporated demographic items, mainly government-affiliated leaders and technology users as participants. The results, findings, implications, and recommendations are addressed, which showed a strong correlational relationship adding to the body of knowledge that researchers, technology tools users, and senior leaders may implement or further evaluate in their decision-making process.

Dedication

I dedicate this research to God, the invisible hands that guided me and proudly say to Him, I give praise and the glory to the great things He has done. In loving memory of my beloved father, Cecil Earl Wilcott White (1935 - 2006), and my grandfather, Justin Landell (1907 – 2001). My grandmother, Doris Landell (1916 - 1978) and my guardian Dad, Egerton Maitland (1914 - 2012) who inspired and supported me in fulfilling my dreams. To all my children, Ricardo, Nicole, Antonio, Alena, Abraham, Aaron, Ariel, Allister, and Alexander who I continue to inspire, motivate, support and encourage excelling in whatever they desire to achieve. My Spouse, Oxana White, and other family members such as Mary Wilson Maitland, my adopted guardian mother (1918 - Present), my uncle, Stibbert James Thomas AKA, Uncle Jim, 1925 - Present, whose support were a constant source of love and inspiration. To my mentor and committee members whose encouragement and unflinching support tediously guided me and made this research possible. I also wish to dedicate my accomplishment to some of my closest friends and associates, such as Bevengie Bollozos-Cone, Mark Bryan, Clyde Clark (Billy), Linton Coke, Genell and Trevour Cummings, Clement Daley, Julie Ebanks, Isidore Emanuel, Lieutenant Colonel Joyce Griggs, Meshach Hamilton, Dr. Hollie Jones, Gerald Kelly, Colonel Cameron Leiker, Keith Palmer, Leslie Pendley, Janice Parsick Pfeiffer, Lisa Edouard, Melissa Small, Roxanne Moreno Tremblay, Dr. Cathi Wilson, Dr. Keith and Grissele Wiggins, my other leaders, peers, and associates. Finally, I want to personally thank everyone else who supported, nurtured, prayed, edited, and stood strong with me to stay the course and make my dissertation a reality success and my study an achievement.

Acknowledgments

I acknowledge the Lord for granting me wisdom, knowledge, understanding, initiative, love, sound body, and mind to pursue a philosophy of doctorate degree in the discipline of organizational management and information technology. I am blessed by God as I pursued this extraordinary challenge confronted with obstacles and delays. I acknowledge my spouse, all my children, family members, many friends, leaders, and associates for their many talents and dedication that inspired and motivated me to pursue this outrageous challenge. Thank you all for your enormous support.

I acknowledge and recognize my Mentor Dr. Jelena Vucetic who previously was my professor in several information technology courses and a committee member. I initially requested Dr. Vucetic to be my mentor but was declined by Capella staff. I was excited when Capella University subsequently approved Dr. Vucetic as my ultimate mentor. Dr. Vucetic's expertise and tremendous knowledge empowered me to achieve my goal. She is one of my favorite professors and friend. Thank you.

I acknowledge and recognize Dr. Jennifer Scott who was my previous mentor who led me through the most difficult stages, the completion of my proposal. Dr. Scott never forsakes me and volunteered to remain a committee member supporting me to the end with her tedious coaching, attention to details, and great encouragement. Thank you.

I acknowledge Dr. Paul C. Cook, whom I met at Fort Huachuca in 2008, while serving in the War on Terrorism. Dr. Cook's mentoring was unflinching and I am forever gracious and appreciative of his untiring support as a committee member and friend. He never faltered but stayed with me throughout to the end. Thank you. Finally, I want to acknowledge my Capella format editor Johannah Bomster, MFA. Thank you.

Table of Contents

List of Tables

CHAPTER 1. INTRODUCTION

Introduction to the Problem

For the past five decades, due to major technological and social changes, world dynamics have undergone tremendous leadership style and technology changes (Friedman, 2005; Bennett, 2009). The United States (U.S.) government and military continue to invest billions of dollars into technology tools usage to maintain a technological advantage on the battlefied; however, some strategic decision makers implement the wrong leadership style, lack the technological skills to solve problems, and deliver solutions. The transformation of information technology tools usage (ITTU) created a new paradigm confronting leaders; however, there exists a lack of acceptance by those of some leadership styles (Westlund, 2007; Bennett, 2009).

The leadership style the leaders use may affect the outcome on how well decisions are contemplated and made. Researchers have noted when leaders fail to use ITTU in their decision-making processes, they may not provide the right change of vision to effectively motivate, inspire, and transform others to work at their maximum potential and embrace new changes that are effective for their organizations (Bruhn, 2004; Burns, 2004; Brown-Boone, 2006; Bennett, 2009). Extensive empirical research studies reveal dynamic changes of leadership styles by some senior and subordinate leaders. These leaders use virtual reality information technology (IT) system tools in their decision-making process to provide immediate assessment of global development that are effective

in eliminating ambiguity in their communications (Tucker, 1970; Smith, 1982; Bass, 1985, 2008). The consequences of this transformation and the failure of some leaders to adapt and implement ITTU in their decision-making processes could result in the loss of productivity and cause more injuries or loss of life on the battlefield in a war environment (Avolio, Bass, Jung & Berson, 2003).

Leaders who possess and use the proper IT tools can direct and manage subordinates and equipment around the world from almost any location on the planet (Davis & Polonko, 2003). The transformational exploration of leadership resulted in the identification of the full range leadership model (FRLM) which is comprised of three leadership styles: (a) transformational, (b) transactional, and (c) passive avoidance or laissez-faire (Bass & Avolio, 2004). This research study evaluates the FRLM when used with information technology tools usage (ITTU) (Bass, Avolio, & Atwater, 1996; Bass 2008).

Leaders can be assessed based on how efficiently the balances among transformational, transactional, and passive avoidant leadership styles are shared and implemented (Bass, 2008). ITTU lies at the center of scientific and technological innovation which has provided new methods to work and create desirability in the physical world and virtual world of innovation (Li-Yueh, 2010). ITTU emergence over the past century has created a new phenomenon to revolutionize the world and permeate businesses, military, government organizations, and society (Friedman, 2005; Bennett, 2009).

Scholarly research to evaluate how leaders implement ITTU in their decision-making process is lacking in this discipline and little evidence was found on the

willingness or reluctance of leaders to apply ITTU in their decision-making process (Groves, 2005; Vigoda-Gadot, 2007). Substantial research has been conducted on the FRLM of the three different leadership styles; however, limited research has evaluated the relationship among these leadership styles as to whether government personnel leaders' decisions are affected by their implementation of ITTU (Sumner, Bock, & Giamartino, 2006; Bass, 2008; Bennett, 2009). Leaders who use information technology tools (ITT) systems effectively in their decision-making processes may have an advantage over other leaders who fail to effectively implement ITT systems models (Burns, 1978; Bass, 1985; Judge & Piccolo, 2004; Emery & Barker, 2007; Avey, Hughes, Norman, & Luthans, 2008; Bennett, 2009; Kearney & Gebert, 2009). The use of ITTU by leaders can achieve process benefit improvements in organizations through production and change by strategy, solution, and implementation (Kraynak, 2009). This research study used empirical investigation to evaluate the gaps that existed between leadership styles and ITTU and specifically synthesize if there was a significant relationship between ITTU and the three FRLM leadership styles that may significantly influence leaders' decision-making process outcomes.

Military and corporate leaders who make decisions without the use of ITTU could jeopardize the lives of their people. They could make their organization less effective to accomplish its mission. This study hopes to have bridge these gaps that existed and evaluate whether leaders who implement ITTU are more effective than those leaders who do not use ITTU in their decision- making process.

Background of the Study

The United States government and its military forces are technology-driven organizations with twenty-first century leaders from many diverse cultures and ethnicities. These government leaders can transform workers with unique talents to accomplish the military mission and government to defend the United States Constitution, foster global democracy, and curtail terrorism around the world (Bass & Avolio, 2004; Brown-Boone, 2006). Organizational leaders who subscribe to one style of leadership may show a strategic alignment with ITTU over those leaders who prohibit the use of ITTU and implement a different leadership style.

Leaders who use ITTU in their decision-making process may gain a competitive advantage that can substantially improve strategic planning and organizational decision-making (Bennett, 2009; Bass, 2008). Leaders are defined as those who guide, inform, inspire, motivate, and influence others to accomplish the mission (Bass, 2008). Leadership styles have been a topic of interest and have been studied for thousands of years dating to Biblical and historic times of Moses, the Pharaohs in Egypt, the rulers of Babylon, Greece, Medo-Persia (Iraq and Iran), and the Roman Empire.

Scientific research to differentiate leadership styles began only in the early twentieth century to include research data of present-day economic driven countries, such as Australia, China, England, France, Germany, India, Italy, New Zealand, Russia, Spain, and the United States (Burns, 1978; Bass, 1985; Avolio & Bass, 1988; Deluga, 1988; Bass, 1990; Bass, 2008; Yukl, 2002). Scholarly research conducted in the past six decades depicts leadership as one of the most studied and discussed subjects in educational institutions, organizations, government, and politics (Bass 2008, 1985; Bass,

Avolio, & Atwater, 1996; Burns, 2003). Past researchers have defined leadership styles to suit their individual perspective and phenomenon that best interest their culture and behaviors (Bass, 2008 & Yukl, 2002).

Leaders who fail to confront technological changes and adapt the right leadership styles may face difficult challenges that can jeopardize their organizations' effectiveness, which could lead to the detrimental loss of lives and valuable logistical assets resources (Brown-Boone, 2006; Bennett, 2009). Quantitative and qualitative analyses studies that were conducted by the Gallup Organization revealed that many organizations have implemented ineffective leadership styles and their transformation, as a result, have led to their organizational demise or failure (Fleming, 2000; Brown-Boone, 2006).

Some researchers in human resources who have concentrated on leadership styles dealt with behaviors and looked at tasks in association with people. Other researchers have studied emotional intelligence, traits, and contingencies; however, limited research was focused on the usage of technology tools and leadership styles decision-making processes (Fiedler, 1967; Blake & Mouton, 1978; Kirkpatrick & Locke, 1991; Goleman, Boyatzis, & McKee, 2002).

Statement of the Problem

The problem evaluated in this study was the perceived lack of acceptance of ITTU by leaders employing the FRLM (Bass, Avolio, & Atwater, 1996; Bass, 2008). This study also evaluated the relationships that exist between decision-making processes of the FRLM and ITTU. The connection between the FRLM and ITTU has the potential to expand knowledge of government personnel leaders and the disciplines of organizational

management and information technology, thus contributing to the body of knowledge. No previous study was found on this specific topic where information was provided or gathered from the literature reviews to solve the problem of decision-making with the usage of information technology tools.

Although leadership styles have been researched for the past six decades, (Avolio & Bass, 1988; Bass, 1985; Bass, 1990; Bass, 2008; Burns, 1978; Deluga 1988; Downton, 1973; Weber, 1947; Yukl, 2002), and ITTU has been available to leaders for the past four decades, (Bass, 2008; Bennett, 2009), limited empirical evidence exists to demonstrate the various styles of leaders who used ITTU in their decision–making processes (Bass & Avolio, 2004). ITTU has the potential to assist leaders in their decision-making processes; however, only a few leadership styles of leaders, such as transformational style leaders, have leveraged this opportunity (Brown-Boone, 2006). There is a lack of research that explores and investigates the factors that make some leaders more or less apt to employ ITTU in their decision-making process.

The lack of research and knowledge in this discipline has impacted perceived leadership styles and created a paradox (Bass, 2008; Bennett, 2009). Many researchers fail to focus on the issues confronting leadership styles in organizations where decisions are mediated using ITT systems (Bennett, 2009; Bass, 2008; Sumner, Bock, & Giamartino, 2006). Those leaders who can adapt to information technology research can change organizational structures that are relevant and positive to the decision-making process outcomes (Bass, 2008).

Purpose of the Study

The main purpose for this empirical study was to conduct an evaluation and synthesize if the FRLM and ITTU, specifically, leaders who embrace, inspire, and implement collective contributions in culturally diverse organizations such as the U.S. government and branches of the military. The study has evaluated the relationship between the various leaders' perceptions in their usage of ITT systems and what significant relationship, if any, might exist that could impact leadership styles decision-making outcomes. Some leaders are reluctant to use ITT systems to help solve their leadership problems, despite the belief of some researchers that the usage of these tools might provide greater enhancement to their effectiveness in their decision-making process (Boone-Brown, 2006; Bennett, 2009). No previous study was found on this specific topic, where this information was provided or gathered from the literature reviews that solve this specific problem.

Military or government leaders who make decisions without the use of ITTU may jeopardize the lives of their people and make their organization less effective to accomplish their missions. This researcher hopes to have bridged the gaps that existed and evaluated whether leaders who implement ITTU systems are to some extent more effective than those leaders who do not use ITTU systems in their decision-making process. This study will help leaders who implement ITTU evaluate their own leadership style competencies that can best improve their organizations' effectiveness.

Rationale

This study has filled a gap in the literature related to the FRLM of various leadership styles and their relationship to ITTU. No prior study was found where the FRLM leadership styles were investigated with ITTU. The researcher believes this study will add relevance to practitioners and academicians since it evaluated ITTU with the FRLM styles.

Understanding why some leaders possess one leadership style are more or less likely to make use of ITTU systems over another leadership style will benefit all leaders and their organizations. The lack of ITTU skills by leadership styles and failure of decision-makers to use ITTU systems might have contributed to the loss of lives on the battlefield and the spending of billions of dollars in the War on Terrorism (Westlund, 2007). The researcher hopes to have bridged the existing gaps and evaluates the relationship using quantitative methodology and empirical correlational analyses.

The results of this study have provided a unique perspective on the ways in which leaders can use technology tools systems to influence their perceived effectiveness and decisions. This research can directly benefit leaders who are affiliated with the government such as government civilians, contractors, military personnel, researchers, and others who use ITT systems in their decision-making processes. This study may also allow ITTU leaders to evaluate their perceptions of their leadership style best practices in order to determine whether their perceived leadership styles are influenced by ITTU systems and aid them in their decision-making process outcomes.

Research Questions and Hypotheses

The purpose of this quantitative correlational study was to evaluate whether the three FRLM leadership styles: (a) transformational, (b) transactional, and (c) laissez-faire, (independent variables), impact ITTU systems (dependent variable), and what relationship, if any, exists between ITTU and leadership decision-making outcomes (independent variable) (Bass & Avolio, 2004). Although many ITTU systems have the potential to assist leaders in their decision-making processes, only a few styles of leaders have leveraged these opportunity equipments (Brown-Boone, 2006). There is a lack of research that evaluates the leadership style factors concerning why some leaders are more or less apt to employ ITTU systems in their decision-making processes outcomes (Bass, 2008; Bennett, 2009).

The researcher has evaluated whether ITTU systems are different for each FRLM different leadership styles. Understanding why some leaders who possess one leadership style are more or less likely to use ITTU systems over some other leaders who lack ITTU skills may benefit all leaders in general and their organizations. Accordingly, the following two research questions and their accompanying hypotheses guided this study.

Research Question 1: Is there a difference between transformational, transactional, and laissez-faire leadership styles' ITTU?

$H1_o$: There are no statistically significant differences between transformational, transactional, and laissez-faire leadership styles' ITTU.

$H1_a$: There are statistically significant differences between transformational, transactional, and laissez-faire leadership styles' ITTU.

Research Question 2: What relationship, if any, exists between ITTU and leadership decision-making outcomes (e.g., extra effort, effectiveness, and satisfaction)?

H2o: There is no relationship between ITTU and leadership decision- making outcomes (e.g., extra effort, effectiveness, and satisfaction).

H2a: There is a statistically significant positive relationship between ITTU and leadership decision-making outcomes (e.g., extra effort, effectiveness, and satisfaction).

H2b: There is a statistically significant negative relationship between ITTU and leadership decision-making outcomes (e.g., extra effort, effectiveness, and satisfaction).

Significance of the Study

While a vast amount of literature exists on leadership styles, there is a lack of research concerning the relationship between leadership styles and ITTU; therefore the researcher has bridged the apparent gaps that existed and advanced knowledge in this discipline. Organizations, regardless of their size, will experience technological advances; therefore, their leaders must equip themselves with the right technology tools systems and precise leadership style to meet the challenges ahead (Westlund, 2007). This research study has provided a basis for leaders to evaluate which leadership styles are best administered with ITTU systems.

This study may be beneficial to those leaders in government, researchers, military, and other organizations who want to achieve a competitive advantage over their adversaries on the battlefield or rivals in their daily work activities. This study has made an original contribution to bridge the void on the existing base of literature on the FRLM styles and provides an insight into the factors that influence leaders toward or against the

use of ITTU systems in their decision-making process. Some leaders are unaware of the significant impact that different leadership styles can have on their decision-making perceptions, which may result in their inability to influence their followers.

This study provides some insight and understanding on the topic of whether one style of leadership can gain a competitive advantage by adopting ITTU systems and best practices over another style of leadership in planning and executing the missions and objectives.

Definition of Terms

The following terms used in this study are operationally defined to provide a common framework for understanding content and meaning regarding leadership styles and information technology tools usage (ITTU) systems.

Full range leadership model: A leadership model developed by Bass and Avolio through innovative way to describe the phenomena of three leadership's styles known as transformational, transactional, and laissez-faire or passive avoidant styles attributed to specific behavioral factors in the decision-making process (Bass & Avolio, 2004).

Gestalt: An organized whole that is perceived to be greater than the sum of its parts (Drotter & Noel, *2001).*

Information technology (IT): Any data, tools, systems generated or transported by an electronic device equipment through a retrieval medium, wired, wireless, storage media or radio wave frequency spectrum that will impact or influence another technology device equipment applying the techniques, tools, systems, and knowledge that enabled multi-party participation in both organizational and inter-organizational activities that uses sophisticated collection systems able to process, manage, retrieve, transmit, and

display electronic information (DeSanctis & Poole, 1994). This technology encompasses the usage of electronic mail, information display boards, Group Support Structure (GSS), communication devices, systems for management executives and customers that may include, smart phones, servers, and other sophisticated instruments that can emit, receive, intercept radio waves communications through various means and methods (Westlund, 2007; Bennett, 2009).

Information technology data: Usable information that is derived, processed, produced and generated between the sender(s) and recipient(s). This data may be transmitted through space frequencies, wired and wireless means or Internet Network technology systems and received in an understandable form in words, graphics, sound, or algorithm.

Information technology tools: Information technology tools are electronic devices such as computers, printers, servers, personal data assistants (PDAs), Ipads, smart phones, and other technology equipment used to process, store, transmit, and receive any form of IT Data for interpretation, dissemination, use, and storage (DeSanctis & Poole, 1994).

Laissez-Faire is a Passive-Avoidant Behavior: The last dimension leadership style developed by Bass and Avolio in the full range leadership model (FRLM). Laissez-Faire or passive avoidant leaders take a passive role and are less concern about accomplishment, desired results, rewards, mission goal path alignments, and achievements. Passive avoidant leadership style encompasses management-by-exception with the reluctance to actively engage a situation. This behavior represents the avoidance of leadership. Laissez-faire leaders are passive and avoid leading others. They intervene to correct mistakes and make decisions only when absolutely necessary (Avolio, Bass, Jung, & Berson, 2003; Avolio & Bass, 2004).

Leadership: Traits, behaviors, role relationships between followers that influence process used to motivate people to work together collaboratively in order to accomplish great things (Vroom & Jago, 2007).

Leadership Styles: Differentiate the full range leadership model (FRLM) three styles know as (a) transformational, (b) transactional, and (c) passive avoidance styles of leadership (Avolio & Bass, 2004).

Perceived ease-of-use (PEOU): The degree to which a user believes that using a particular system would be free from effort (Davis, 1989).

Perceived Full Range Leadership: A belief that is influenced by subordinate's motivation levels. A relationship exists between the FRLM styles' outcome factors and subordinate leaders' project success (Spinelli, 2006).

Perceived usefulness (PU): A degree to which a user believes that using a particular system would enhance his or her job performance (Davis, 1989).

Technological-leadership: A social influence process mediated by advanced information technology to produce a change in attitudes, feelings, thinking, behavior, and/or performance with individuals, groups, and/or organizations (Avolio, Kahai, & Dodge, 2001).

Technology Acceptance Model: An information system (IS) theory that models how users accept and use new technology by applying perceived usefulness (PU) and perceived easee-of-use (PEOU) to influence their decision-making process (Davis, 1989).

Transactional leadership: A style of leadership behavior that seeks to reward or discipline a worker based on the accomplishment of the worker's performance (Bass & Riggio, 2006).

Transformational leadership: A style of leadership behavior that transforms workers or followers to become leaders and increases their vision on the importance of company value to provide strong focus on team or organizational goals, thus rejecting their own self-interests and aggrandizement, by activating a higher-order needs in Maslow's (1954) hierarchy theory (Bass & Riggio, 2006). This style of leadership heightens consciousness within the organization and allows team members collectiveness in bonding for the good of the organization (Bass, 1997; Bryman, 2001).

Assumptions and Limitations

As with any research, this correlational empirical study was based on a number of assumptions and limitations. The researcher assumes that the target population was comprised of a diversified target population mixture of the FRLM styles applicable to the Multifactor Leadership Questionnaire (MLQ) leader form to accurately measure the FRLM styles constructs. The target population possessed the means and ability to use or not use information technology tools systems in their decision-making processes.

The researcher assumed that the data survey questionnaire was received mainly by authorized users of the U.S. government unclassified computer network system who were assigned to the National Capital Region (NCR), (Washington DC, Northern Virginia, Maryland, and surrounding areas). The researcher assumed that those individuals who inadvertently received the survey and did not meet the requirements of the target population for the study did not complete or submit their completed survey. The researcher did not introduce bias or researcher error into the survey and the research

was conducted in a controlled manner so that the results are credible with risks kept to a minimum.

The privacy, confidentiality, and data security was maintained and the research was conducted in an ethical manner. Further, the researcher assumed that respondents who completed the questionnaire did so honestly and answered all questions truthfully to the best of their knowledge, knowing that their answers will remain confidential and anonymous. The researcher also assumed that most recipients answered all questions in the survey and only submitted one completed survey to the researcher's survey website during the time frame.

The first limitation of this survey was that it had limited access to a specific selected targeted population. Survey participants and respondents were mainly personnel with access to the federal government unclassified computer network system who were assigned or working in the National Capitol Region (NCR) comprised of Washington DC, Northern Virginia, Maryland, and surrounding areas. The second limitation was that the survey requested that respondents' NCR members use a computer to take the survey although participants were informed by e-mail, by their leaders, and some were informed by flyers. Some e-mail could have been discarded by spam filters or some recipients may have inadvertently deleted the message or may not have received an e-mail copy or flyers inviting them to voluntarily participate if desired.

The next limitation was that some eligible recipients may not have received the survey questionnaire due to ITT systems problems such as undeliverable, not available due to travel or leave, or not having an established computer account, which may have limited the response rate. Potentially limiting the response rate could also be attributed

to various technology systems. Some ITT systems may have impeded recipient ability to review or partially respond to, complete and submit their survey electronically, thus creating the possibility of incorrect or incomplete survey submission responses. The survey measured objective facts and subjective status; therefore, incomplete surveys received would have been discarded to limit bias, random, and sampling errors (Fowler, 2009). No incomplete survey was received.

The highly subjective nature of perception was another limitation of the study. Each respondent conducted a self-report and his/her perception might not have been an accurate evaluation based on present life situations. The leadership experience in his or her past and present organization may have created a bias in the response.

Furthermore, the instrument used for this survey may not have captured personal biases, preferences, and other limiting factors unforeseeable at the time, which could also have impacted the results. Finally, it is important to recognize that this testing was limited to quantitative analysis in nature and no qualitative data was collected, although qualitative data if collected may have helped provided greater context for shaping the results.

Nature of the Study

This research study evaluated whether there might be a possible relationship between the FRLM and the ITTU. Testing on the independent variables, ITTU was conducted using the MLQ survey test measurement instrument and TAMs. The survey was distributed via the government unclassified Network and flyers providing a link to a specified SurveyMonkey website using the Internet, and was mainly available to

members having access to the government unclassified computer system or assigned, working, or residing in the NCR. The survey recipients' personnel were leaders or information technology tool users with many years' experience working for the government or in leadership positions with computer access.

Organization of the Remainder of the Study

Chapter 2 presents a literature review of the FRLM styles and ITTU. The FRLM dimensions and previous research on leadership styles are discussed with critical evaluations on usage of ITTU systems in the decision-making processes. Data, tools, and methods of deployments on how ITTU systems have contributed to change the world since the Industrial Revolution have been addressed.

Specific ITTU systems that have transformed leaders' thinking and enabled most nations the ability to infiltrate, penetrate, understand, and precisely predict what friendly countries or adversarial government bodies and special organizations are doing to defend their nation and protect their citizens are explored. The global conventional threat perceived by adversarial nations, regimes, terrorist groups, and organizations are also succinctly addressed.

Chapter 3 outlines the methodology and provides a detailed comprehensive research design description of the study with background, control, and survey instrument reliability and validity. In addition to the methodology selected, respondents were asked to answer demographic questions regarding age, education, gender, and work experience which were used only as control variables to help validate the survey target population (Barling, Weber, & Kelloway, 1996; Barling, Kelloway, & Frone, 2005; Chia-Chen,

2004; Westlund, 2007). Chapter 4 details the analysis and findings of the data collected. Chapter 5, the final chapter, offers a summary of the study, discussion of findings and results, limitations, impact of the research on instructional design, recommendations for future studies, and the conclusion.

CHAPTER 2. LITERATURE REVIEW

Introduction

This chapter evaluates the relationship that may exist between the decision-making processes of the full range leadership model (FRLM) styles and information technology tools usage (ITTU) systems. Information technology (IT) has revolutionized the world and drastically changed businesses, organizations, governments, and people; thus creating a need for effective leaders to make the right decisions (Bennett, 2009; Harari, 2002). This study provided new insight into the connections between the FRLM styles and ITTU.

The study offers the potential to expand knowledge of government leaders, military leaders, and the disciplines of organizational management and information technology, thus contributing to the body of knowledge. The objective of this quantitative correlational research study was to conduct an empirical correlational investigation concerning the FRLM that consists of transformational, transactional, and passive avoidant leadership styles (Bass & Avolio, 2004), and ITTU systems (Carr, 2003b). The study evaluated whether the FRLM styles decision-making process are impacted by the perceived effectiveness of ITTU systems. The literature review focused on the spectrum of the FRLM styles and the use of ITTU systems in relation to trends and theories of human resource management and the leadership pipeline phenomena. The study reviewed the implications and applications from many recognized researchers who have contributed immensely to this discipline's body of knowledge.

Information Technology Revolution

Technological changes and progress have been marked by the British Industrial Revolution from 1760-1850 with the cotton mill, steam engine, and iron manufacturing (Carr, 2003b). This period was regarded as the first industrial revolution of the technological age (Carr, 2003b, 2004a, 2006). The next industrial and technological revolution ran from 1890 – 1930s with the invention and expansion of electricity, the ship building industry, the combustion engine, chemical, and manufacturing companies (Bennett, 2009).

After the 1930s, the zeal for diverse leadership styles changed the world and led to the development of the airplane which offered a strategic warfare advantage over countries exerting their influence in the sky, sea, and land. The impetus of ITTU systems fostered the third industrial technological revolution at the beginning of the 1970s forward. Understanding the benefits and setbacks of ITTU systems may be indicative to comprehending the scope of this study as to why the phenomenon of ITTU systems effectiveness has been such a controversial topic in leadership styles decision-making as to its competitive advantage.

ITTU systems, in its short continued life existence, have developed large audiences of researchers, business managers, chief information officers (CIOs), CEOs, and curious consumers. Information technology tools (ITT) systems possess great importance to critical enablers who argue controversially of their competitive advantage. Many organizational leaders believe that ITTU can provide them with a competitive advantage over their rivals through improved systems and procedures that will increase productivity and services (Bennett, 2009; Prahalad & Hamel, 1990).

Many firms have invested blindly to acquire ITTU systems with the hopes of greatly improving their businesses revenues. The literature reveals that despite huge spending on ITTU systems; very few information technology projects are as successful as originally anticipated by most leaders (Bergeron & Raymond, 1992; Carr 2003b, 2004a, 2006; Cavusoglu, 2003; Kettinger & Grover, 1995; King, 2007). Researchers found that some ITTU systems have been detrimental to certain businesses and organizations and these ITTU systems are no longer used strategically as part of their larger organizational plan (Henderson & Venkatraman, 1999; Leininger, 1992).

Although ITTU systems are new paradigm phenomena, the research on ITTU systems and their applications is burgeoning (Bennett, 2009; Harari, 2002). For this particular study, the literature research started with John Eckert and John Mauchly who in 1946 invented the UNIVAC, one of the first computers. Subsequently in the early 1950s, IBM emerged and later in the1960s, the mainframe computer became popular which quickly led to the Personal Computer (PC) by the mid 1980s.

The network computers emerged in the 1990s which led to the computer enterprise network transformation systems that continues to evolve (Bennett, 2009; Harari, 2002). ITTU systems in record time, less than five decades, have revolutionized the world (Carr, 2003b). ITTU systems technologies continue to play a dominant role globally. Most of these ITTU systems and equipment are now combined into one mainframe system responsible for managing the work of hundreds of older computers and personnel.

The expansion of the computer paved the way for the proliferation of ITTU systems such that a single computer has easily replaced the typewriters, adding machines,

calculators, data storage units, and telecommunication systems occupying only a fraction of the space once required in an office setting. Such rapid changes have demanded new leadership vision. Many followers look to the transformational leadership style model as the panacea that most naturally aligns with the demands and possibilities to bridge the existing gaps or voids (Bass, 2008). Rapid advancements in ITTU systems emerge as innovators improved business processes and efficiency changes are implemented.

These changes as a result have created a natural alignment between ITTU systems and the various FRLM styles. The progressive phenomenon of ITTU systems changes regularly and many organizations are unable to keep pace with these rapid evolutional changes that are occurring daily. Most organizations that survive the ITTU systems intensive world transformation possess leaders whose strategic planning have improved their ITTU systems and have aligned them to remain competitive (Harari, 2002; Weston, 1993).

On the contrary, some companies have exhausted more than fifty percent of their revenues to procure ITTU systems that have not provided equal return to their companies' shareholders as promised (Weston, 1993). The challenges to stay competitive in the use of ITTU systems are measured both in its high initial cost and the need to upgrade often, as ITTU systems continue to improve or evolve. ITTU systems rapid evolution have created CEOs who continue to look for leaders and managers that will employ critical thinking and best practices to decrease their companies' ITTU systems spending and keep them competitive (Bass, 2008; Bennett, 2009; Weston, 1993). ITTU systems may only be useful if they are used strategically by the right leadership styles

and managed by leaders who can find positive solutions utilizing ITTU systems in their decision-making process to solve problems (Bass, 2008; Bennett, 2009; Weston, 1993).

Advantages of Using Information Technology Tools

The advantages to organizations that quickly procure and implement ITTU systems may achieve are identified by the following concepts: (a) early movers advantage, (b) new ways to outperform rivals and customized products, (c) spawn approaches to develop new businesses, (d) create change to organizational structures, and (e) allows companies the ability to capture, manipulate, and direct data quickly (Bennett, 2009; Bass, 2008).

Additional advantages to implementing ITTU systems are that such systems (a) transforms the value chain by generating data on products and information swiftly, (b) enhances faster coordination of activities globally and provide linkages within and outside the organization, (c) develops customer loyalty and increases franchise sales, (d) provides significant point of differentiation and flexibility, (e) enables business leaders to make more timely and better decisions, and (f) assists in hiring the best qualified personnel by scanning thousands of applicants' resumes, recruiting by the Internet (Bass, 2008; Bennett, 2009).

Other advantages noted are (a) automation of products, projects, and services; (b) opportunities for innovations and lower cost to buyers; (c) ability to accomplish large-scale financial planning; (d) identify new business industry planning and strategy changes; (e) help managers evaluate impacts and adapt quickly; (f) provide automation in many services such as ordering, billing, processing, data archiving, and retrieval; and (g)

provide links with rivals that can help in assessing the strengths and weaknesses of leaders (Bennett, 2009; Bass, 2008). The above list is by no means exhaustive as many other presumed competitive advantages could be developed and added as ITTU systems continue to provide substantial advantageous opportunities.

Adaptation of Technology to Leadership

The innovation of technology can create esprit de corps in the leadership style an organization portrays as to its participative leadership style and increased involvement of its members in the decision-making process. This process may foster openness in communication and collaboration between leaders and followers. Consistency between leadership styles and ITTU systems is important for synergistic cooperation with leaders who can develop the right mixture that can likely predict how successful or unsuccessful the implementation of new ITTU systems will be effective when administered in their organizations (Bass, 2008; Bennett, 2009).

The FRLM styles have rapidly gained notoriety, in particular, the transformational leadership style in its application as more leaders seem to identify with this visionary style and ideals (Jolson, Dubinsky, Yammarino & Comer, 1993; Bass (1985) examined executives at the corporate levels and opined that "Tangible inducements were less powerful than personal loyalties" (p. 618). Bryman (2001) called transformational leadership style the *new leadership* with related concepts such as charismatic, values-oriented, visionary, change oriented, and inspirational.

Transformational leadership style has the potential to move the leadership theory into new and exciting areas. Though transformational leadership style became vogue, it

is not a new concept. President Thomas Jefferson discussed this similar style of leadership in the pursuit of happiness, framing the United States Declaration of Independence. President Jefferson saw transformational leadership as a new vision for America and its leaders many years ago. The U.S. President Barack Obama ran his 2008 presidential campaign on the notion of change and often used transformational leadership styles to explain his new change approach that can move the U.S. forward and empower its citizens and immigrants to participate in the American dream.

The American dream is believed to enable families to work and own their homes, automobiles, and make life better for their posterity children, with each younger generation being able to advance their family to a higher socioeconomic level. This phenomenon can be accomplished by the concept of social stratification through the sources of status, class, and power (Weber, 1947). This thinking has intellectually stimulated others and therefore is considered a transformational leadership style to look for new ideas that have never been tried or tested prior. Transformational leaders can stimulate followers by rational, existential, empirical, and ideological ways (Quinn & Hall, 1983). *Rational* used in this sense means hard work and the use of logic and reason to solve problems. *Existential* emphasizes creativity that develops solutions to a common problem. *Empirical* promotes attention and uses data to generate an answer from the cluster of details. *Ideological* thinkers look for speedy solutions and display great intuition to curtail the complexity of data collection (Bass, 2008).

Applying ITTU systems with the proper leadership style may have substantial influence on many factors affecting the appropriation of new technology tools. Group members are more supportive of each other when they use a groupware system

formulated to enhance a coordinated interaction with the leaders to create participative rather than directive working relationship (Kahai, Sosik, & Avolio, 1997). ITTU systems capabilities and leadership styles performance skills can influence the effectiveness of subordinates' motivational levels, increase commitment, and job satisfaction.

Transformational leaders who participtate with their groups are more effective in accomplishing the mission than transactional or passive avoidant leaders who remain aloof or show no interest to motivate their followers (Bass, 2008; Avolio, 2004). Transformational leadership style is believed to promote successful adaptation to change (Bass, 2008; Kahai, Sosik, & Avolio, 1997; Gopal, Bostrom, & Chin, 1993).

Technology's Effect on Leadership

The effectiveness of ITTU systems on leadership styles depends primarily on how technology tools are implemented into the structural features that the group's business model systems driven by their appropriated organizational cultures. Individuals who possess basic ITTU systems knowledge can use a computer or other ITTU systems connected to the Internet to access information from almost anywhere in the world. Harari (2002) stated that "This information technology comes in a raw, unfiltered, unedited, uncensored form, more or less in real time" (p.46).

The Cold War between Russia and the U.S. ended in the late 1980s early 1990s, subsequently emerged a revolutionary explosion of ITTU systems that were fostered by the Internet, satellite dishes, fax machines, video teleconferencing. The Smartphones were first introduced in the early 2000s. Smartphones iPads and Android Galaxy were inroduced in 2010, two decades after the end of the Cold War. The advancment of ITTU

systems have provided decision-makers many tools to virtually plan, develop, and test a scenario under real time and global positioning system (GPS) technology terrain conditions with instant results. ITTU systems possess the capability of transending information, knowledge, data, economic gains, trade, and capital around the world at the speed of light (Harari, 2002).

Leaders are required to make decisions instantly on pivotal situations that could drastically affect the outcomes of their organizations' gain or possible survival (Bass, 2008; Bennett, 2009; Harari, 2002). Effective leaders who possess strategic vision, coordination, and communication skills can quickly assess changing situations and make decisions vital to success on the battlefield or foster success within their organization. Effective leaders should provide ITTU systems access to their followers so their followers can learn and apply the latest innovations for the good of their organizations.

Oftentimes, organizations procure state-of-the-art technology tools systems but gain little or minimal return due to the fact that their leaders may limit the usage of these tools to their subordinates at the detriment of their organization in order to enhance their authority and indispensability. Leaders who remain aloof withholding valuable ITTU systems from some of their employees may adversely impact the prosperity and success of their organization (Harari, 2002). ITTU systems can empower certain type of relationships to exist between networks systems where many different levels of collaboration may spontaneously emerge.

Entry to ITTU and knowledge innovation development can change what was once considered normal and abnormal behaviors by followers and leaders. ITTU systems may help achieve positive result in critical thinking applications; therefore, leaders and

subordinates, can accomplish their organization's mission, objectives, and goals by working together (Bennett, 2009; Harari, 2002). Leadership style systems can emerge with the implementation of innovative technology tools shaping into a more manageable cultural system. Reliable intregration and implementation of ITTU systems innovations can transform the leadership style system for the development of new technology tools (Bass, 2008; Bennett, 2009). Adapting new technology systems may ruin the social system and leave an unaddress leadership vacuum.

The transformational leadership style system that exists during ITTU's systems inception stages may influence ITTU's systems effectiveness on followers in the company. The literature provided limited evidence on this phenomenon, and marginal theoretical or empirical facts are known about ITTU systems' effectiveness impact of the FRLM styles. There are many gaps that exist relating to the effects and consequences of ITT systems effectiveness on the FRLM styles decision-making process outcomes (Dodge, Webb, & Christ, 1999). The research also provided limited insight on the importance of ITTU systems on leadership styles (Frazee, 2002; Rossett, 2002; Sankar, 2003).

Information Technology Gains and Defeats

ITTU systems are no longer only used for accounting, data management, and word processing as originally conceived. ITTU systems proliferate the industrial world and are used to transform the value chain, optimize control functions, and perform multiple activity usage both physical and technologically with ITTU systems' components (Bennett, 2009; Bass, 2008; Harari, 2002). ITTU systems support the

differentiation between physical and technology components to change organizations' structures, provide competitive market power advantage, and spawn new businesses.

Market forces seek ITTU systems solutions that comprise vested suppliers, competitors, products, employees, and liquidity of companies to acquire new technology that rest with their leaders' ability to strategize. ITTU systems have consumed large portions of revenue and often require large investments in sophisticated hardware and software equipments. ITTU systems have also become a centerpiece of organizational planning for many decision makers in meeting their organization's leadership challenges.

ITTU systems have penetrated most homes, institutions, and organizations in the U.S. and many developed countries that possess sophisticated computers and cellular Smartphone's tools. Some ITTU systems have emerged as equal necessities in their importance as electricity in the home and a vehicle for conveyance. The Internet offers electronic e-mail, total media web browsing, video conferencing, television viewing, and work from home devices, games, music, and more. All these efficient capabilities that were impossible three decades ago are now made possible by ITTU systems enhancement and increased speeds of sophisticated computer processors.

Most American consumers think of ITTU systems in their organizations or personal settings as life enhancements; however many countries including the United States of America use various ITTU systems capabilities to listen, see, hear, and monitor their adversaries, monitor some of their citizens, and defend themselves against alleged surprise attacks (Keefe, 2005). After the collapsed of the Union of the Soviet Socialist Republic (USSR) in 1991, the United States (U.S.) was recognized as the only superpower in the world; a status derived as a result of the U.S. advancement in ITTU

systems of sophisticated technology weapons and its dominant international ability to influence and defend itself, its allies, and project its great powers against other nations or states in the world to protect its interest. Some technological advancements in weapon systems include such weapon systems as the F-35 Striker Fighter Aircraft, smart laser guided bombs, missile interceptors, detection radar electronic systems equipped in tanks, artillery, space satellites, U.S. Nimitz class aircraft carriers, naval submarines, and many other classified equipments (Keefe, 2005).

"Superpower" was coined by William T. R. Fox in 1944 to describe the British Empire, the USA, and the USSR (Fox, 1944). A superpower may also be defined as a global hegemony country having the capacity and resources to destroy the world and able to project dominating power, global strategy, and spread influence around the world with the four components stature power of: Military, economic, political, and cultural (Miler, 2005).

Australia, Canada, New Zealand, the United Kingdom, and United States are commonly known in the intelligence world as *the five eyes sisters.* These nations use various devices of ITTU systems to conduct signals intelligence and eavesdropping across the entire globe (Keefe, 2005). They use ITTU systems to create networks that link and monitor the entire world through space satellites, ground radar, GPS, ocean wires, cables, radio frequencies, and some other classified means, that will not be addressed in this study. These ITTU systems have literally eliminated the unknown and are capable of gathering information from every existing nation, source, equipment, and groups around the world (Keefe, 2005). The U.S. Intelligence Community (IC) presently comprised of 16 agencies are able to enhance and alter the lives and ways of

other nations as they conduct business with sophisticated ITTU systems and fight modern cyber and conventional warfare conflicts such as Just Cause in Panama, Desert Storm, Noble Eagle, Enduring Freedom, in Iraq, fighting wars against dictators and alleged terrorism.

ITTU systems can allow countries to detect intruders, and positively identify a person by a follicle of hair, smell, eye retina, voice, strides, body odor, and other biometrics properties (Keefe, 2005). ITTU systems are ubiquitous and pervasive with capabilities where information can be loaded into computers or other ITTU systems devices and subsequently transmitted at lightning speed to the intended and sometimes unintended recipient in seconds to create strategic opportunities and advantages.

The United States Global Information Grid (GIG) is the largest carrier of information technology both at the classified and unclassified level operated by the Defense Information System Agency (DISA). The inception of United States Cyber Command in 2010, computer network organization, is the focal point for action and information on the operation and defense of the GIG (United States, DoD, 2010). The GIG system is a complicated ITTU system which effectively demonstrates how ITTU systems are used as the conduit for most telecommunication and Internet traffic exploration, allocation, and dissemination.

United States Cyber Command (USCC) mission directs and conducts continuous operations and defense of the GIG as a single enterprise to assure war-fighter freedom of action in and through cyberspace across the Department of Defense's full spectrum of operations (Cyber Command Website, 2010). The GIG is under attack by adversarial intruders attempting to pilfer both classified and unclassified information flowing through

its ITTU pipeline networks. Keefe (2005) in *The Echelon* captured the February 2003, former U.S. Secretary of State Colin Powell's briefing to the United Nations Security Council (UNSC) in New York, (February 5, 2003) reason to invade Iraq.

Powell's convincing evidence was based on collaborated signal intelligence of sophisticated ITTU systems. Information briefed by Powell was said to be irrefutable signal intelligence (SIGINT) which was declassified for the purpose of his briefing; however, the information Powell presented never materialized and was in fact deemed false as to Iraq possessing weapons of mass destruction (WMD). Powell's briefing to the United Nation Security Council (UNSC) members, promoted by the United States was the catalyst for the invasion and continued War on Terrorism (Keefe, 2005).

The United States reliance on ITTU systems led to an episode of considerable disappointment with ITTU systems providing false information to its leaders. Policy-makers and leaders propagandize the facts that they relied and based their decisions on the ITTU systems; therefore, it was concluded as a failure of intelligence, leadership, and technology. The United States and its allies searched for Osama Bin Laden for ten years but were not able to locate and kill him until May 2011. The United States and its allies searched for Osama Bin Laden and all his trained and financed terrorist groups since the 2001 attack on the U.S. World Trade Center and the Pentagon, the United States military headquarters concentration center of high-ranking military leaders.

Evaluating the literature on these reports suggested that although the United States possesses some of the greatest and most sophisticated ITTU systems in the world, it took the United States ten years to locate one of the most heinous killers such as Osama Bin Laden, who was considered to be a transformational leader. Osama Bin Laden was

able to convince many men and women to sacrifice their lives for the good of Al Qaida. Osama Bin Laden's fight against the United States had greatly contributed to the potential high deficit and demoralization of the present U.S. economy almost seventeen (17) trillion dollars in debt (Keefe, 2005).

The 9/11/2001 attack on the United States by Al Qaida contributed to the high debt faced by the United States was responsible for exhausting trillions of dollars on two wars. The Iraq and Afghanistan wars are bolstered with enhanced security forces around the world and the procurement of the newest and best ITTU systems for the United States government and its military forces.

Jane's Radar and Electronic Warfare Systems (2010) provided unclassified detailed reports in its comprehensive guide which addressed the entire spectrum of surveillance, identification, targeting, control, intelligence gathering and self-protection systems for land, sea, air, and space applications. A technical description of each entry system is contained in the status, specifications, format, and capabilities. Unfortunately, ITTU systems are no exceptions and with every good system, someone will find a way to corrupt that system. Therefore, the enjoyments of most ITTU systems are challenged by intruders working their hardest to infiltrate and use ITTU systems indiscriminately to their advantage.

ITTU systems computer devices are bombarded with scams, spams, data pilfering, phishing, and logic bombs (Bartol, Bates, Goertzel, & Winograd 2009). Hackers are destructive to both the systems and the technology, thus posing a significant security, hardware, and software threat to both government and organizations trying to maintain their competitive advantage over their adversaries and competitors. Worms,

viruses, phishing, and plagues that are unknown to its users can corrupt much software and destroy hardware which can offer competitive advantages to others and affect the reputations of sales and services (Tabb, 2006).

Tabb believed that Carr (2003a) was correct to postulate that technology does not provide a competitive edge. Tabb opined that companies can achieve a competitive advantage by protecting the security threats of their ITTU systems. Tabb also believed that they can achieve advantage in their decision-making process when they select, buy, integrate, maintain, and upgrade their ITT systems (Carr, 2003a; Bennett, 2009).

The Predator system is an unmanned aircraft with smart bombs used by the U.S. military and Central Intelligence Agency (CIA) as an ITT system to search, find, and destroy the enemy without risking human lives (Air Force Technology.com, 2011). The RQ-1 Predator system uses is a surveillance imagery synthetic aperture radar, video cameras and a forward-looking infrared radar (FLIR) that offers a long-endurance, medium-altitude automated drone aircraft surveillance and reconnaissance mission system that can distribute real-time to the battlefield Soldiers and the operational staff and decision-makers worldwide by satellite communication links. The MQ-1 model uses the AGM-114 Hellfire missiles weapon multi-role version for armed reconnaissance and interdiction against potential adversaries (Air Force Technology.com, 2011).

The U.S. government and private sector organizations have established spreadsheet data base to capture personal data. They have used data mining to look at large data bases, compare shopping patterns, and conduct inventory management of potential adversaries and customers respectively. These government and civilian organizations can interface their products with certain ITTU systems that will track their

logistical supplies through the use of Global Positioning Systems (GPS) or solicit potential clients through data bases, marketing strategies, and e-commerce interface networks (Bass, 2008; Bennett, 2009).

ITTU systems can be leveraged uniquely to gain a competitive advantage based on how the software is used (Tabb, 2006; Bass, 2008, Bennett, 2009). Organizations that use Microsoft programs such as Excel, Power Point, and Outlook, often leverage their inherent opportunities. United Parcel Service (UPS) has achieved a competitive advantage by developing a special tracking system to locate their customers' shipment. This illustrates that it is not the technology tools alone but the strategic use of ITTU systems in the decision-making process by the right leadership style that creates a competitive advantage.

Gaining Competitive Advantage Using Information Technology

ITTU systems are an undisputed great discovery that has added value to society. The debates as to ITTU systems' perceived effectiveness involve, to what extent ITTU systems have provided a competitive advantage. The literature underscores that how soon one company acquires ITTU systems over its rival in order to achieve a competitive advantage is disputable (Carr, 2003a; Demirhan, 2005).

ITTU systems may define how people organize their lives and how companies function. How companies produce, market, sell, and differentiate their products can determine if they will remain in business in the future (Harari, 2002). This evaluation may depend heavily on how companies employ, strategize, and utilize their ITTU systems. Most of the literature supports the notion that ITTU systems can be beneficial

to those leaders who apply best practices in their decision-making process and implemented strategy systems alignment capabilities (Glazer, 1993; Demirhan, 2005).

Organizations that seek competitive advantage from ITTU systems should first align their companies with their products or services. Companies must strategize and invest in tested ITTU systems that will have the greatest positive impact on their business to produce revenues, gain new customers, retain loyal customers, and expand to new market regions (Bass, 2008). Companies must look at the threats and impact of not just hackers, but unplanned disasters such as power outages, fires, earthquakes, hurricanes, and other unforeseen incidents, such as an oil spill in the ocean, refineries shutting down, stock mark crashes, and government inept ability to function that could derail or even terminate their business (Tabb, 2006).

Carr (2006) argued that ITTU systems have become homogenized and ubiquitous, thus neutralizing a competitive advantage to organizations and businesses. Rollins posited that ITTU systems can provide organizations and businesses strategic advantages. Both researchers reached a consensus that it is how organizations and businesses plan, acquire, and implement ITTU systems that provide them the competitive advantages over their rivals.

A McKinsey study in 1995 and 2000 confirmed that many companies who spend large amount of resources, totaling over $7.6 billion on ITTU systems, regrettably experienced little to no increase in revenues or productivity as a result of their investments (King, 2007). A subsequent study on ITTU systems spending conducted by McKinsey in France, Germany, and the United States revealed *no correlation* with ITTU systems investments and performance (Carr, 2004b). The literature suggested that the

competitive advantage once achieved continues to diminish for ITTU systems with new discoveries. Government personnel leaders and private sectors entrepreneurs should look for new opportunities to capitalize on their ITTU systems' investments. Government policy leaders should engage in a "second- curve thinking" which is a concept that lends the thinking of having an alternative plan or possible scenarios for what is most likely to happen after a victory or defeat from the "first-curve plan" (Bass 2008, p. 622). There was insufficient and inadequate second-curve thinking by the U.S. President George W. Bush's Administration about what would happen in Iraq after the initial success of its first-curve plan to bring down Saddam Hussein's regime (Bass, 2008; Woodward, 2004).

ITTU systems have led to the transformation of business practices and strategic applications that includes the evaluation of customers' affinity, employees' loyalty, distribution of products, and cost effectiveness. Buying hardware and software tools are usually the finite parts of information technology since most of the problems organizations and businesses encounter with ITTU systems are factored into its implementation, training, and acquiring knowledgeable workers to operate or monitor their systems (Gould, 2002).

A case study by BMW of North America showed that BMW used ITTU systems to gain a competitive advantage by monitoring its vehicles on the road and gathering detailed intelligence on problems, which led to better business decisions in the manufacturing of BMW's automobiles (BenTov, 2001). This study showed how ITTU systems were able to monitor their vehicles' performance and provided BMW with valuable data on how to enhance their automobiles.

Another study conducted in China showed that ITTU systems had significant influence on some organization's competitive advantage (Lai, Zhao, & Wang; 2006). China does not have a capitalistic free market such as the U.S.; therefore, further study would need to be conducted in the U.S. to replicate and validate the finding of the Chinese's study. The strength of the relationship does provide a point for consideration regardless of the market sector in which one is operating with ITTU systems.

American Airlines, Dell Computers, Wal-Mart, USAA Life Insurance Company, Federal Express Corporation, Inland Steel Company, Jet Blue Airlines, and many other companies experienced temporary competitive advantage benefits from using ITTU systems in their planning and implementation (Glazer, 1993). Government and private sector leaders have used ITTU systems to change the dynamics of their organization. ITTU systems can streamline success and provide a competitive advantage over their rivals.

ITTU systems on the value chain was explored by a research study conducted on helping managers prepare for changes in ITTU systems that focused on changes in the industry, strategies to overcome rivals, and how to develop new businesses with ITTUs systems (Porter & Millar; 1985, 2001). The results showed ITTU systems affected competition which linked the study to a 1985 study on how ITTU systems provided a competitive advantage. Neither study endorsed or contradicted Carr's (2004b) assertion that information technology does not provide a competitive advantage on its own; however, the study pointed out those ITTU systems may spawn new organizations and businesses. These new organizations and business may create demand of new products,

create value chain systems, exploit competitive scope, and render technology tools more feasible for companies to gain an advantage (Porter & Millar, 2001).

In another survey conducted by The MHM Census, 81% of managers reported that ITTU systems investment were successful to some degree. The study also reported that ITTU systems had minimal impact on storage, delivery, orders, and inventory (Drickhamer, 2006). Similarly, nineteen percent of the managers surveyed subsequently reported that no significant advantages were gained by their organizations using new ITTU systems (Drickhamer, 2006).

The literature was extensive on the challenges when old equipment impedes the acquisition of new ITTU systems. Products and services and in many instances, ITTU systems can become liability rather than an asset as these tools aged. Outdated technology tools can adversely prevent organizations and companies from merging or acquisitioning as they continue to deal with their large inventory and supply chains of limited use ITTU systems (Reddy, 2006). ITTU systems in this respect have created a paramount inflexibility in the dynamics of these environments.

Organizations that invested in early ITTU systems such as some banks that have purchased elaborative ITTU systems with the expectation of gaining a competitive advantage over their rivals have seldom boosted their profits (Reddy, 2006). ITTU systems are inevitable required cost of doing business that banks and businesses must implement without achieving sometimes any tangible benefits (Carr, 2006). ITTU systems spending have not paralleled its cost for most organizations that invested early and significantly into ITTU systems as these organizations did not achieve a marked significant competitive advantage over their rivals (Carr, 2003a).

Some companies that procrastinated in implementing ITTU systems often learned from the pitfalls committed by their pioneer investors. Some of these later investors ended up with better and lower cost ITTU systems (Carr, 2003b). These pioneering organizations who invested significant large sums of revenues only gained a minute, if any; advantage and many of their rival companies were often able to imitate their systems with better generic systems.

Bank of America, who moved swiftly into investing heavily into ITTU systems of the Electronic Recording Machine Accounting computer (better known as ERMA – an ITTU system that automated the bank's bookkeeping and accounting system) gained a competitive advantage (Bass, 2008; Carr 2004a). Federal Express (Fed Ex), a corporation that provides global transportation delivery of packages, implemented the tracking system at a significantly high cost. Bank of America and Fed Ex only had a competitive advantage briefly over their rivals as subsequently; United Parcel Service (UPS) quickly developed a friendlier ITTU system, spending less than eight percent of its revenue to acquire compared to FedEx spending twenty percent of its revenue (Alghalith, 2007). UPS showed that delay in implementing ITTU systems can create an advantage. UPS adopted FedEx ITTU system with updated technology refinement and saved millions of dollars with a better devised ITTU system (Alghalith, 2007).

Perspectives magazine representatives conducted an interview with several senior vice presidents, financial strategists, bank managers, and leaders of other organizations. They credited business intelligence derived from ITTU systems with having the key strategy to transform data into actionable intelligence that could be used to better understand the relationship between customers and organizations (Kendler, 2006).

ITTU systems have differentiated organizational successes by generating a scalable, smart, transparent, customer-driven business intelligence solution plan that has responded to customers' transactions. This business intelligence solution plan also has provided an infrastructure for first movers and banking institutions, thus providing a competitive advantage. The process used an ITTU system that took a holistic view of customers' data, gathered and translated such data tools into buying patterns and predictive modeling, which enabled their leaders' decision-making process to make sound financial and leadership decisions (Kendler, 2006). Carr's (2004a) book, *In Praise of Wall,* described how ITTU systems allowed organizations to compete on multiple competitive priorities. Carr analyzed Coase's essay, "The Nature of the Firm", which discussed how information technology shared multiple competitive priorities which can lead to the detriment of the organization. Carr (2004a) stated that:

> Seamless collaboration among businesses, one that will bring enormous gains in efficiency and flexibility, indeed, the experts counsel should look for opportunities to tear down the *walls* around their organizations, merging their companies into great, amorphous *enterprise networks* or *business webs* (p.10).

ITTU can lead some organizations to unite and compete in specialty areas known as the module board process; however, this phenomenon may only exist in a Utopian world. Although this concept would be ideal, researchers and philosophers agree that companies seldom cooperate as they are in business to capture the largest market share

(Carr, 2004b). Carr (2004a) asserted that "Companies will always need the walls they have so carefully erected over the years to protect their advantages" (p. 10).

As ITTU systems transform, the playing field of companies to outsource and network their business interest may expand. While outsourcing may be profitable to some organizations, it is pivotal that each organization protect its proprietary control or distinctive use of information to guarantee that their organization will not become commoditized. According to Carr (2004b), ITTU systems "will never conquer cutthroat competition" (p 10). In contrast to Carr's viewpoint, Tapscott (2001) opined technology should be unified under a single delivery system with customers' value dictating the process (Tapscott, 2001).

This form of thinking would eliminate outsourcing as no permanent firm would exist. Coase contested this thinking and summarized that this concept would eliminate the need for organizations to exist as competition and greed would no longer be viable incentives (Carr, 2007). Organizations competing on competitive priorities must delineate what are best for their organization to outsource or network, and what products or services should be retained with centralized control by the organization.

Microsoft's co-owner, Bill Gates supported the concept to envision the Internet as *a universal middleman* as new technology tools continue to emerge (Carr, 2004b). The fact that most businesses strive on a competitive nature, it is difficult to conceive that one organization that has the ability to conquer a rival or parallel organization will acquiesce in good spirit knowing that failure to act could eventually lead to its own demise. Multiple competitive priorities can help many organizations maintain their competitive advantage if managed, monitored, and controlled.

Some companies have sold the exact product under many recognizable name brands at different prices and are successful keeping consumers happy. Many consumers are not aware that RCA, GE, and Pro Scan television parts marketed and owned by Thomson Consumer Electronics, a French owned company, are basically the same televisions built with similar component parts. The American name brands are kept for consumers' recognition. Outsourcing in the information technology arena can be productive for some organizations but the core value of the organization should be retained or the company could easily become a commoditized component-based business (Carr, 2004b).

The Cathode Ray Picture Tube, which is at its max life expectancy and about to be extinct, was only produced by a few companies for many years in the television industry. Many name brand companies purchased their picture tubes from other competitive television companies to include in their own name brand televisions and both companies profited well. Similar practice is now being merchandized with the Liquid Crystal Display (LCD), Light Emitting Diode (LED), Plasma, DLP and Projection Screen television systems (Wiley, 2011).

The strategic value risk to outsource decisions should be analyzed and evaluated often. If outsourcing will create more revenue for the company but the risk of putting that proprietary technology into the hands of another organization could be detrimental, it may be more feasible and wise for the company to incorporate the outsourcing company under one leadership umbrella. These organizations could also develop franchises such as Taco Bell, Kentucky Fried Chicken, and Pepsi Cola, where everyone wins by jointly organizing (Carr, 2004a).

Most organizations understand that ITTU systems are an area in the organization that requires spending to keep up with new emerging innovative technology. The decision to acquire ITTU systems that are appropriate and advantageous is pivotal to the company's survival. Such decisions often fall to the leadership of the organization. Daunting decisions by the leadership style should be based on what similar technology tools are being used by their rivals and assessing the overall competitive advantages that are measured, assessed, and analyzed.

A competitive advantage is derived from the organization's transformational leaders best practice use of ITTU systems that will effectively impact their growth, development, and performance, to strategically overcome their rivals (Marchand, 2005). Transactional, transformational, and passive avoidant leaders must strategically align projects, information, and people as a mixture to fit their organizational objectives and goals. A significant majority of information technology researchers concluded that for the past 40 years, the debate of whether ITTU systems created a competitive advantage have climaxed to a period of adolescence and some researchers opined that ITTU systems are no longer the transformational panacea (Carr, 2004b; Marchand, 2005).

Hyong (2005) argued that the long-term competitive advantage lies in knowledge, not in ITTU systems. The attributed knowledge systems are comprised of four strategic components: People, ITTU, systems, and processes, thereby not discarding ITTU as a key system (Marchand, 2005). Effective leaders of their organizations must understand that no competitive advantage can be sustained forever and after short periods, the products or services will be imitated by rivals.

Strategic alignment and competitive advantage must be regarded as a process of continuous leveraging, change, and differentiation (Henderson, 1999). Leaders who possess superior technical and leadership skills are able to take advantage of ITTU systems best practices in their strategic decision-making process to lead subordinates. Leaders of their organizations should be cognizant to weigh their best interests.

These leaders should remember that all companies are in competition to seize larger shares of the industry's profit for themselves. It is in the organization's best interest to use ITTU systems infrastructure to align, develop, and promote strong relationships with other providers. This should be done with a positive incentive on building their economic and strategic interest (Carr, 2004b).

Leadership Characteristics That Establish Competitive Advantage

The purpose of leadership characteristic that establish competitive advantage is to evaluate the full range leadership model styles in promoting effective decision-making process using information technology tools. Competitive advantage is any method businesses or organizations employ to elevate their products or services above their competitors. ITTU systems can provide competitive advantages if its application aligns with and supports the organizations' decision leadership strategy (Bass, 2008; Gould, 2002).

The emergence of new technology has created economic gains that led heightened interest to scrutinize leadership behaviors in this new century (Frazee, 2002; Rossett, 2002; Sankar, 2003). This leadership connects with ITTU systems' ability to transform organizations and create multiple sophisticated challenges to hire skilled employees who

can develop and implement revolutionary change initiatives (Buckingham & Clifton, 2001; Fleming, 2000). Integrity within leadership is a necessary prerequisite to effectiveness no matter what leadership style is in place.

The managerial implications associated with dishonest leaders everywhere have resulted in higher levels of disengagement to retain their talented employees which can affect productivity and dismal revenue losses to organizations (Ammeter & Dukeick, 2002; Dionne & Jaussi, 2004; Flade, 2003). Competitive advantages can be established in a setting where the leaders continually reinvent organizations in the twenty first century and implement reduction in cost and new strategies of outsourcing and reorganizing company resources, services, and market processes in order to gain and maintain a competitive advantage. This may create a diverse workforce, in turn, that could cause morale issues which can lead to reduced productivity and decision-making issues where actively disengaged workers lost of productivity have cost the U.S. economy over $350 billion per year (Crabtree, 2004; Conchie, 2004; Wolman & Miller-Steiger, 2004). This pitfall may be avoided if organizational leaders identify a model leadership style that aligns with their managerial style as well as the needs of the organization.

The Full Range Leadership Model

The full range leadership model (FRLM) is comprised of three leadership styles: (a) transformational, (b) transactional, and (c) passive avoidance or laissez-faire (Bass & Avolio, 2004). This study evaluated the FRLM and its effectiveness when used with information technology tools usage (ITTU) (Bass et al., 1996; Bass, 2008). The focus

will be to synthesize the proposition whether perceived effectiveness of ITTU systems, when employed, may significantly impact the FRLM styles outcome (Bass & Avolio, 2004).

The earliest connection between transactional and transformational leadership began with Max Weber (1947) who focused on charismatic leaders. Subsequently, Sir MacGregor Burns (1978) coined the terms transformational and transactional leadership styles based on Weber's writings. Weber (1947) advocated developing charismatic leaders who could transform others and argued that transformational leaders could change the old bureaucratic hierarchy, princely traditions, and cultures of leadership through charisma and moral values.

Burns (1978) believed that transactional leaders portray many bureaucratic tendencies while transformational leaders are the heroic charismatic panacea in possession of qualities for change. Transactional leaders have a tendency to be task or *transaction* focused and transformational leaders are visionary, looking at the final and total aspect of the mission. Transformational leaders are associated with the support of team-building and inspiring subordinates. Transformational leaders possess management skills to delegate, solve problems, and communicate with peers, subordinates, and superiors and they can easily adapt to changing conditions (Salopek, 2004).

Transformational leaders display strong strategic relationship building and impact team effectiveness (Chia-Chen, 2004). They have high leadership competencies in their areas of expertise with outstanding interpersonal relationship skills in dealing with others (Neuhauser, 2007). Transformational leadership style behavior predicted many outcomes

that reflected leader effectiveness and are strongly related to outcome measure in superiors and subordinates (Judge & Piccolo. 2004).

Burns (1978) described transactional leadership style as those leaders who are willing to make contact with others for the purpose of shared values and function in a negotiated bargaining framework. Transactional leaders focus on self interest of promotion and attain satisfaction based on contractual obligations with clear objectives of controlling results (Bass, 1997; Li-Yueh, 2010). Burns (1978) compared transformational leadership styles to those leaders possessing moral values and beliefs with some mutual stimulation that could change other leaders and followers.

Based on the extensive literature studied, between transactional and transformational leadership styles, these phenomena are sometimes complementary and at other times contrasting or controversial in the analysis (Bass & Avolio, 2004). Researchers who studied both leadership styles often described them initially as opposites. Some researchers suggest that a leader could demonstrate both styles while others argued that transformational leadership styles may be an extension of transactional leadership styles (Bass, 1985; Burns, 1978).

A significant portion of the literature on the FRLM is attributed to the works of Bernard Bass and James MacGregor Burns who have extensively broadened and explored the intricacies of these phenomena (Bass, 2008, 1978; Bass & Avolio, 2004; Burns, 2004, 1978). Researchers and philosophers, past and contemporary, are at odds in differentiating clearly the full implementation of one method over the other. Some researchers found support for a positive relationship between both styles but stronger effectiveness with transformational leaders (Berson & Linton, 2005; Spinelli, 2006).

Transactional leadership styles were depicted by Weber (1947) as *Monocratic*, which impregnate lifestyles with more workers who demand their benefit up front before any productive results. The *Monocratic* method demonstrates that commitment and loyalty are based on the highest bidder for their services. There is a definite distinction between transformational and transactional leadership styles. Transformational leadership style creates new ideas, change followers into leaders, and adapt easily to flexible changing situations (Bass, 2008). Transformational leaders usually are proactive, inspiring, raise their followers' interest and promote extraordinary goal achievements (Antonakis, Avolio, & Sivasubramaniam, 2003). Transformational leaders are best summarized as visionaries, charismatic, possessing strong intellectual stimulation, showing great inspiration, displaying confidence in dealing with others, and can appeal to followers' ideals and interests to do more than is normally expected of them (Bennett, 2009; Johannsen, 2004).

Between 1985 and 1995, many researchers came to the conclusion that perhaps another style of leaders exist that are neither transactional nor transformational. This style of leader was coined as laissez-faire, passive avoidant or non-transactional. For this study, laissez-faire and passive avoidant terms are used interchangeably throughout.

A key factor of passive avoidant leadership style is Management–by–Exception (passive) which allows those leaders to view performance and act only if the outcome is less than what is expected. This style of leaders waits until a problem actually occurs or is brought to the leaders' attention before they will act. Laissez-faire attitude is where the leaders avoid their leadership authority and responsibilities and are reluctant to enforce rules, policies, and orders (Bennett, 2009; Geyer & Steyrer, 1998). There is

overwhelming evidence supporting transformational leadership style as being more charismatic and effective in providing significant influence on team effectiveness linked with ITTU (Wang, Law, & Hackett, 2005; Thite; 2000).

Overview of Transformational Leadership

Early researchers developed many great theories of leadership on the premise that the situation plays a vital role to determine the leaders effectiveness. Transfomational leaders who adapt to ITTU systems research may change organizational structures that are relevant to the decision-making process which can provide a unique style of management that inspire subordinates to think of new initiatives. Transformational leadership style exists in theory from the years of Plato and Zenophon and is actually a form of charismatic leadership (Bennett, 2009).

Downton is believed to be the first to use the phrase "Transformational leadership" (Bennett, 2009; Downton, 1973; House, 1977; Burns, 1978; Bass & Avolio, 2004). The theories of Weber (1947) and Burns (1978) invigorated Bass (1990) who stated:

> Leadership has been conceived as the focus of group process, as a matter of personality, as a matter of inducing compliance, as a form of persuasion, as a power relation, as an instrument to achieve goals, as an effort of interaction, as a differentiated role, as initiation of structure, and as many combinations of these definitions (p.11).

Bass' (1985) writings on leadership and performance beyond expectation criticized transactional leadership style and argued that it has limited ability to manage quality improvement, increase quantity, and maximize performance (Kuhnert, 1987).

Bass (1985) further critiqued Burns (1978) for restricting transactional leadership to a bargain approach. Bass (1990) again argued that Burns (1978) was too constrained to limit transformational leadership style to shared values of morality. Burns may not have understood the continuum between transactional and transformational leadership style and outlined only a single approach definition (Bass, 1985; Boje, 2001).

Transformational leadership style addresses leaders' behaviors, processes, moods, and influences across a broad spectrum. It explains how these leaders think, motivate, inspire, lead, and cultivate others to think beyond themselves in order to achieve more satisfaction from their performance and productivity (Bass, 2008; Bennett, 2009). Transformational leaders usually inherit a clear vision of commitment linked with utmost trust, integrity, and loyalty to achieve maximized performance and they take keen interest to support their followers (Bass, 2008; Howell & Avolio, 1993). Transformational leadership factors include idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration which provides the venue for trust and loyalty to pursue certain selfless goals.

Transformational leaders have been identified for centuries with some being eulogized such as Jesus Christ, Buddha, and others being condemned such as Attila the Hun, Adolf Hitler, and Genghis Khan (Johannsen, 2004). Transformational leaders strive to establish dominance by justifying precisely the distinctions that lie between both methodologies and rests heavily on the premise that transformational leaders possess

oratorical charisma to articulate end values with their followers' willingness to accept instructions and adhere. Transformational leadership style can result in motivation and personality such as Maslow's (1954, 1970) theory of self actualization for both leaders and followers.

The underlying process suggests that some form of behavioral modeling is needed to support transformational leadership style full implementation. A paradigm pitfall noted from the literature on transformational leadership style is that this leadership style may lack clarity and may have a high probability for exploitation. Transformational leaders often yield enormous influence and some of these leaders are noted to abuse their charismatic powers suppressing others for their own selfish aggrandizement (Bass, 1997).

Historical reports and case studies documented Hitler, Mussolini, Stalin, and Nehru as transformational leaders who abused their trust and moral values (Homrig, 2001). Burns (1978) dismissed these amoral tyrants as genuine transformational leaders. The literature inferred these men were leaders with bad convictions and immoral factors of trust and integrity. Some answers to these dilemmas are for the leaders to set high ethical standards and transparent display of impeccable integrity and moral values (Bass, 2008). Transformational leaders with this dilemma could be a great topic for future studies as to how this phenomenon can be exploited by unscrupulous leaders since transformational leaders' key abilities are to motivate their followers to initiate and accomplish unforeseen and insurmountable challenging tasks. Their strong commitment of values, moral ethics, and follower influence remains their highest contribution to the methodology and their organizations who believe that there exists a distinct difference of leadership styles to this phenomenon (Bass, Waldman, & Avolio, 1986; Bass, 2008).

Good leadership is the key element to the implementation of successful change in any organization and the effectiveness of leaders is assessed based on how efficient changes are implemented among the FRLM styles. Transformational leaders, rather than transactional or passive avoidant leaders, are usually the type of leaders who enact the changes that are needed in modern organizations (Bennett, 2009; Friedman, 2005).

Transformational leaders who incorporate ITTU systems in their decision-making process may create change while transactional and passive avoidant leaders often only respond slowly to change. The optimal leadership to balance behaviors and functions in complex combinations can be customized for a particular situation. The literature shows that leaders in some management teams collectively develop and enhance behavioral strengths and weaknesses in a holistic manner. This process may lead to an increase in overall effectiveness and performance by their members (Schermerhorn, Hunt, Osborn, & Uhl-Bien, 2003).

Overview of Transactional Leadership

Transactional leadership style lies on the opposite spectrum of transformational leadership style. It is the more historical form of leadership style that motivates subordinates by appealing to their personal desires as noted by Bass (Bennett, 2009). Bass (2008) stated "Up to the late 1970s, leadership theory and empirical work were concentrated almost exclusively on the equivalent of transactional leadership" (p.618).

The transactional leadership style paradigm personifies a different methodology. This paradigm supports a tangible set of values that are highly dependent on rewards, compensation, consequences, motivation, self interest, praise, and mutual benefits for all.

Transactional leadership reward and punishment are based on established productivity goals and expected performance levels (Bass, 2008; Bass & Avolio, 2004; Bennett, 2009). It is exchange processes that are ingrained on the fulfillment of contractual obligations with measured controlling outcomes (Antonakis, Avolio, & Sivasubramaniam, 2003).

Transactional leadership styles condone superiors and subordinates working in a reciprocal exchange system with some form of derived value. In transactional leadership style, the leaders and the followers have defined relationship objectives, goals, and expectations (Bennett, 2009; Yukl, 2002). Leaders are influential to their followers as long as the followers and the leaders expectations are being met (Kellerman, 1984). This process is described as a value outcome win situation where the impact rests with the high or low quality relationship that is exercised between each element.

Transactional style leadership is used commonly by organizations to accomplish their mission and includes the transactional leadership factors of contingent rewards and active management by exception (Burns, 1978; Bass, 1985). The influence by promises and commitments are less common and relate only to respect and trust in the value system. This is a process of bonding leaders to their followers as modal values with mutual rewards (Burns, 1978).

Transactional leaders are grouped in categories of hierarchy. At the lower levels, the leaders rely on their control of tangible rewards and at a higher category they have fewer tangible rewards (Kuhnert, 1987). Burns (1978) contended that transformational and transactional leadership styles are opposite; however, Bass (1985) denounced this theory and declared that both leadership styles can converge and co-exist.

According to Bass (1985), transformational leadership method is more dominant and most effective of the two paradigms. The literature on these two methodologies seems to take an elastic approach. Some researchers tend to initially join both methods together and subsequently separated them while some other researchers create a conceptualized mark definition but most researchers acknowledge there is a complementary relationship (Downton, 1973; Burns, 1978; Bass & Avolio 1990).

Transactional leadership style with greater rewards and intensity for leaders and followers can be strengthened by transformational leadership style. This mixed methodology triangle approach can provide a new vision in the leadership style arena. These methodologies can contribute to an opportunity for human resource managers to recruit and select leaders for the government who have the ability to bring forth a vision that can provide competitive advantages to their organizations (Bass, 2008; Bennett, 2009).

Overview of Laissez Faire Leadership

Between 1985 and 1995, some researchers came to the conclusion that perhaps another style of leaders exist that are neither transactional nor transformational. This type of leadership style was coined laissez-faire, passive avoidant or non-transactional. The first key factor of passive avoidant leadership style is passive management –by – exception (MBE). Laissez faire leaders view performance and act only if the outcome is less than favorable to what is expected. These leaders wait until a problem occurs or is brought to their attention, before they may act only sufficiently to resolve that specific problem (Crofts, 2002; Reinhardt, 2004; Singh, 2000). The other key factor of laissez-faire, is a *hands off* attitude approach where their leaders may avoid responsibilities and

are often reluctant to enforce rules, policies, regulations, and obfuscate their leadership authority and responsibility (Bennett, 2009; Geyer & Steyrer, 1998).

The Human Resource Management Aspect of the Leadership Styles and Effectiveness of Information Technology

The human resource management aspect of the leadership styles and information technology (IT) methodologies is supported in the literature as to how human resource management personality variables are linked (Bass, 1985). This constructive personality theory deals with growth and individual experience connected to interpersonal and intrapersonal knowledge (Kegan, 1982). The exploration of leadership habits discusses creative leadership situations where human resource management plays a pivotal role to accomplish the goals and objectives of the organization by leadership interactions (Covey, 1989).

Human resource management may be linked between a subject and object personality. This structure is formed to determine how one sees the world that often cannot be easily changed (Kegan, 1982). It is a phenomenon that may be illustrated by the comparison of two containers, one tall and narrow and the other short and wide with both containing the same amount of liquid. The developmental stages were tested with a four-year old child who emphatically declared that the taller and narrower container had more liquid (Piaget, 1954). This type of perception creates an organizing trend that transcends into the subject structure and subsequently organizes the process to change the perceptions of the object structure, which can be correlated to adult learning, leadership styles, and comprehension abilities (Piaget, 1954).

There exist stages of development for leaders where transactional leadership style coincides with transformational leadership style with values and a significant amount of parity emerging to form a complementary connection. A delicate bridge exists that portrays transactional style leaders not able to maintain strong beliefs and ingrained never to change behavior in their thinking (Bass, 1985). In this study, transformational leadership style factors are linked to organizations associated with information technology knowledge power which plays a role to form complementary styles of leadership.

An exploratory study on the significance of human resource leadership styles conducted by Bass (1985) concluded that an adversarial atmosphere exists among leaders and followers in many organizations. The adversarial climate may be mitigated when leaders recognize the emotional factors and are able to neutralize the situation if they show appreciation, display confidence, and demonstrate consideration (Kays, 1993). These factors can be attributed to a mixture of transformational and transactional leadership styles merging in a complementary structure that can ultimately support employees' satisfaction (Bass, 2008).

Human resource professionals are cognizant of the influence each leadership style can have on workers. They may be able to make the appropriate adjustments between leadership styles and followers' behaviors to resolve unattainable situations. The literature provides a variety of measuring instrument tools to aid in such match-making and among them is the Multifactor Leadership Questionnaire (MLQ) to evaluate the independent and dependent variable outcomes.

Multifactor Leadership Questionnaire (MLQ)

Bass and Avolio (1989) developed the Multifactor Leadership Questionnaire (MLQ) to measure transactional, transformational, and passive avoidant leadership style behaviors with the use of a six-factor model subscales (Kuckartz, 2003). For transformational leadership, the subscales are Idealized Influence, Inspirational Motivation, Intellectual Stimulation and Individualized Consideration. For transactional leadership, the subscales are Contingent Reward and Management by Exception (active), and for passive avoidant leadership; the subscales are Management by Exception (passive) and Laissez-Faire (Bass & Avolio, 2004).

The MLQ has been applied in a variety of settings and is an established predictor of leadership behaviors for the FRLM (Bass, 2008; Bass & Avolio, 2004; Bennett, 2009). The MLQ factors were used in a study of 117 employees to measure the dynamics between leaders and followers under the constraints of transactional, transformational, and passive avoidant styles. Prior to the study, the researchers predicted and believed that transactional leadership would have a higher impact on employees' satisfaction than those of transformational leadership.

The employees were associated more closely to the effectiveness of transactional leaders than those of transformational leaders (Bennett, 2009; Deluga, 1988). Astoundingly, the findings revealed that transformational style leadership employees showed greater influences. More productivity and interactions by transformational than those of transactional leadership style employees illustrated how human resource management and effective leadership can coincide to maximize productivity and foster greater working relationships (Yates, 1985).

Intellectual stimulation has been shown to help transformational leaders mold employees to confront past problems with new ideas and attitudes. Transformational leadership studies that comprise the literature base have not been successfully documented. A definitive process as to what happens when some leaders fail to meet the required developmental levels of the impact he or she may have on their followers is undetermined and requires further consideration and exploration. The work environment and the types of leaders and followers that comprise IT can create different human resource management challenges to propel organizations in different directions. Organizational culture can play a significant role with the inclusion of demographics, ethnicity, personalities, and values of the leadership pipeline (Bennett, 2009).

Technology Acceptance Model

The Technology Acceptance Model (TAM) was developed as an information system (IS) instrument to help explain computer usage, user motivations, perceptions, and technology innovation concepts (Davis, 1989). TAM uses the beliefs of perceived utilities and perceived ease of application to determine how users behavior adopt to new technology and consider a positive or negative orientation behavior influence by (a) perceived ease of adoption, (b) apprehensiveness, (c) perceived utilities of technology, (d) extrinsic motivation, and (e) enjoyment intrinsic motivation (Kwon & Chidambaram, 2000). TAM is an adaptation of the Theory of Reasoned Action (TRA) used as a technology measure instrument to predict an individual's intention to use an information system where perceived usefulness (PU) is impacted by perceived ease of use (PEOU) to determine acceptance (Venkatesh & Bala, 2008).

The Leadership Pipeline

The leadership pipeline is the *gestalt* to leadership. Leaders and managers at all levels should develop their subordinates and be responsible for their actions, thus displaying outstanding leadership skills and proficiencies (Drotter & Noel, 2001). *Gestalt* is defined as an organized whole that is perceived to be greater than the sum of its parts (Drotter & Noel, 2001). The leadership pipeline supports the core model principles that cannot be achieved by stages of a mastery linear method. The pipeline method uses critical transition points that must be managed in the process to keep the system flowing (Adler, 2001). Effective leadership is paramount as the pipeline flow is energized to propel the lines and prevent process from running dry, which may derail the objectives of the organization's goal.

The leadership pipeline requires high levels of effective leadership skills in all phases and demands accountability. Effective leadership is depicted by the flexibility in the routes traversed by the system. This process should be staffed by talented leaders with experience who have been tested at each level. Testing is done effectively before one can advance to the next level of promotion, transition, and leadership responsibility (Avolio et al., 2001).

The pipeline model compared the human resource management leadership styles approach that was used by General Electric in the development of its leaders implemented by Walt Mahler in the 1970s (Kehoe, 2001). Later, the leadership pipeline method was implemented by Chase Manhattan Banks, CIGNA, Citicorp, and subsequently taught by the Kellogg and Harvard Business School's (Kehoe, 2001). The pipeline model relies upon a system to build upon itself the leadership development that

coincides with management responsibilities, thus successful performance at the mid-level is a prerequisite to advance to top-executive levels and further up the ladder of management.

The premise of the arrangement is that it tests leadership demands on new skill levels as one progress by the management followers and mid-level leaders (Avolio et al., 2001). Effective leaders should develop leadership skills that involve values, time allocations, and conceptualization of the overall ratings. Progressive effective leaders should tender less time to inspect, look for operational and financial gains, and train new recruits.

Leaders are trained in the pipeline methodology process to ensure that no impetuous decisions will be made to the detriment of their organizations (Kehoe, 2001). The Leadership Pipeline model systems may be achieved through proper planning and identification of mediocre performance by coaching and differentiated evaluation of leadership at various levels along the continuum. The selection of the right leader in the decision-making process is assessed by their performance, competent skills, experience, and confidence (Kehoe, 2001).

The pipeline model system correlates in many ways with the Full range leadership model (FRLM). The pipeline is essentially a developmental system that can align with different leadership styles to provide progressive responsibilities and reward effective leaders as they develop experience and demonstrate proficiency (Bennett, 2009; Kehoe, 2001). The pipeline uses a value system, a reward system, a selfless system, and a self-actualization system, to assess leadership developmental stages that some researchers fail to address or explore in leadership styles evaluation (Avolio et al., 2001).

The differences in the levels of leadership and the various responsibilities defined in this research validate the importance of how the human pipeline methodology can impact the fundamental distinction among the three distinct leadership styles of the FRLM. The human resource pipeline can directly influence transactional, transformational, and passive avoidant leadership styles and information technology tools usage (ITTU), which can apply the cutting edge to leadership styles to justify how government leaders, executives, and military leaders can develop their subordinate leaders. Recruitment is best accomplished when organizational leaders prepare subordinates for these responsibilities in higher plateau positions (Bass, 2008; Bennett, 2009).

Leadership In Group Support System Setting

A study by Fjermestad and Hiltz (1999) showed that more than seventy percent of information technology studies failed to use leadership GSS facilitators. The lack of effective leadership is a key consideration factor in group behaviors. A survey of 213 group leaders study revealed that 94% of these group leaders have ignored information technology literature with their styles and modes of communication and some organizations confounded the presence of facilitators participation (Fjermestad & Hiltz, 1999).

Leadership should be performed by an impartial facilitator not affiliated with the organization (Gopal, Bostrom, & Chin, 1993). Some researchers agree opined that leadership dynamics have fulfilled group mission but the process can change the dynamics of the participation process. Hiltz, Johnson, & Turoff, 1991) opined that

leadership that are elected to a group can improve decision-making process outcome. The study highlighted a solution where group members and effective leadership could potentially eliminate the need for assigned leadership (Hiltz, Johnson, & Turoff Hiltz, 1991).

Summary

This review of the literature has provided the basis for conducting this research. The preceding research study has discussed the literature's significance to the FRLM styles and the effectiveness of ITTU systems, encapsulating succinctly the body of knowledge. Some leaders may be reluctant to use ITTU systems to help solve their leadership decision-making problems; therefore, this study evaluated whether leaders who adopted ITTU systems gained a competitive advantage in their decision-making process over leaders who avoided the use of ITTU systems. ITTU systems have drastically changed the world economy. Studies by researchers and underscored by this research study have revealed that leaders who implemented ITTU systems may be able to accomplish the mission no matter the task.

This research study also depicted many leaders using leadership styles who made decisions that lacked the ITTU systems skills or failed to include ITTU systems in their decision-making process (Bass, 2008). Technological-leadership is built on how the socio information systems are developed with less independence existing between both social and technical systems but maintain a reciprocal dependency on each other (Trist, 1950, 1993).

Leadership styles are imbedded in social and technological changes that empower subordinates to transform themselves and become more productive to their organizations

(Orlikowski, 1992; Orlikowski, Yates, Okamura, & Fujimoto, 1995; Weick, 1990). The rapid evolution of technology in the past four decades has created a mass quantity of ITTU systems which, if used by leaders, may allow them to develop and implement the right decision at the pivotal time (Reardon & Rowe, 2000). Implementing the right leadership style is the key to successful change in any organization.

Transformational leaders' styles, rather than transactional or passive avoidant leaders' style is usually the effective style of leaders who with the use of ITTU systems can enact the changes that are needed in modern organizations (Friedman, 2005). Transformational leaders who incorporate ITTU systems can make change happen. These leaders often possess the vision, charisma, and intellect to create change.

Transactional leaders and passive avoidant leaders tend to respond slowly to change; thus, transformational leaders provide a unique effective style of leadership and management that inspires subordinates to think of new initiatives as they develop new markets to win the trust of their stakeholders (Chen, 2005; Rahim, 1989). Transformational leaders are considered to be the principal performers, conductors, commanders, and decision makers. They can aggressively implement the use of ITTU systems in their decision-making process to achieve a positive outcome.

Transformational decision-makers who use ITTU systems may contribute more to the improvement of their organizations' effectiveness (Bass, 2008). They can analyze and evaluate ITTU systems, plan, manage, and encourage their followers to think out of the box with the use of ITTU systems. Transformational leaders may be able to maximize productivity and develop others to achieve their highest potential (Bennett, 2009).

Transactional leaders are imbedded in motivating others by appealing to their individual desire. These leaders concentrate more and are driven on doing things right rather than by accomplishing the right things, a quality indicative of transformational leaders (Bennett, 2009). Passive avoidant leadership style takes a *hands-off* approach and only intervenes when crises occur (Avolio & Bass, 2004).

The next chaper of this research study is on methodology and will provide a detailed discussion of the survey instruments that were used in this study to evaluate this study. Chapter 3 discussed the research methodology that was used in the design, instrumentation, measurements, data collection, data analysis, validity, reliability, and ethical considerations. Chapter 3 also contained the purpose of each method, paradigm, and the target population. The research questions, hypotheses, design measuring instruments, content validity and reliability factors of the MLQ and TAM, survey instruments are presented.

CHAPTER 3. METHODOLOGY

Introduction

This chapter presents the research methodology, design, instrumentation, measures, data collection, data analysis, validity, reliability, and ethical considerations used in this research study. It discussed the use of each method and paradigm considered and identified the target population that was used to conduct the survey. It also discussed the research questions, hypotheses, design of the measuring instrument, content validity and reliability of the measures employed.

This empirical study evaluated the full range leadership model (FRLM) and information technology tools usage (ITTU). It is focused on leaders who embrace, inspire, and implement collective contributions in culturally diverse organizations such as the U.S. government and branches of the military. The study evaluated the relationship among various leaders' leadership styles and perceptions regarding their usage of information technology tools (ITT) and what significant relationship, if any, might exist between information technology tool usage (ITTU) and leadership decision-making processed outcomes.

Some leaders are reluctant to use ITTU systems to help solve their leadership decision-making problems, despite the belief that the usage of these tools might provide greater enhancement to their effectiveness in their decision-making process (Bennett, 2009; Boone-Brown, 2006). This study evaluates the extent to which the FRLM leadership styles (the independent variables) impacts ITTU (the dependent variable) and what significant relationship, if any, might exist between ITTU (the dependent variable)

and specific leadership decision-making outcomes (the independent variables). The study focused on leaders who embrace the three dimensions of the FRLM styles that inspire and implement collective contributions in culturally diverse organizations such as the U.S. government and the military. Three leadership styles decision-making outcomes were examined including extra effort, effectiveness, and satisfaction.

The problem evaluated in this study was the perceived lack of acceptance of information technology tools usage by leaders employing the FRLM (Bass et al.,, 1996; Bass, 2008) and the relationship that may exist between decision-making processes of the FRLM and ITTU (Bennett, 2009). The connection between the FRLM and ITTU has the potential to expand knowledge of government leaders, military leader personnel, the disciplines of organizational management, and information technology, thus contributing to the body of knowledge.

This researcher conducted an empirical correlational quantitative investigation to evaluate the relationship that might exist between the decision-making processes of the FRLM and ITTU systems. The researcher explored selected government ITTU systems organizational and leaders comprised of a target population of approximately 1600, mainly government personnel, who were workers and managers in positions of decision-making for their organization. The study is not unique to this target population but can be applicable to any large company or organization whose leaders have access and a requirement to use ITTU systems in their decision-making process. This study can help leaders evaluate their own leadership style competencies and implement ITTU systems that can improve their organizations' effectiveness.

Research Questions and Hypotheses

The purpose of this quantitative correlational empirical study was to evaluate whether the full range leadership model (FRLM) leadership styles known as: (a) transformational, (b) transactional, and (c) laissez-faire impact information technology tools usage (ITTU) systems and what relationship, if any, exists between ITTU systems and leadership decision-making outcomes (Bass & Avolio, 2004; Brown-Boone, 2006). Although ITTU systems have the potential to assist leaders in their decision-making processes, only a few leadership styles have leveraged this opportunity. There is a lack of research that has examined, investigated, and evaluated the factors that make some leaders more or less apt to employ ITTU systems in their decision-making processes as to whether ITTU impacts leadership decision-making processes outcomes (Bass, 2008 & Bennett 2009).

Understanding why one leadership style is more or less likely to make use of ITTU systems over another leadership style may benefit leaders and their organizations who have access to ITTU systems. The following two research questions and their accompanying hypotheses have guided this study.

Research Question 1: Is there a difference between transformational, transactional, and laissez-faire leadership styles' ITTU?

$H1_o$: There are no statistically significant differences between transformational, transactional, and laissez-faire leadership styles' ITTU.

$H1_a$: There are statistically significant differences between transformational, transactional, and laissez-faire leadership styles' ITTU.

Research Question 2: What relationship, if any, exists between ITTU and leadership decision-making outcomes (e.g., extra effort, effectiveness, and satisfaction)?

H2o: There is no relationship between information technology tools usage (ITTU) and leadership decision-making outcomes (e.g., extra effort, effectiveness, and satisfaction).

H2a: There is a statistically significant positive relationship between ITTU and leadership decision-making outcomes (e.g., extra effort, effectiveness, and satisfaction).

H2b: There is a statistically significant negative relationship between ITTU and leadership decision-making outcomes (e.g., extra effort, effectiveness, and satisfaction).

Research Design

Methodology is essential with the concern of logics on inquiries and in particular with investigating the potentialities and limitations of certain particular techniques and procedures. Quantitative paradigm positivism research design is the dominant preferred research methodology that has contributed immensely to ITTU systems studies and the body of knowledge (Vessey, Ramesh, & Glass, 2002). This researcher employed a quantitative non-experimental, correlative research design to address the research questions and the relationship between the independent and dependent variables.

This study addresses facts gathered using a web-based survey, hosted by SurveyMonkey to collect quantitative data from the selected target population. The researcher used a developed theory that leads to the hypothesis and statistical testing with the analysis (Swanson & Holton, 2005). No previous study was found on this specific topic where this information was provided or gathered from the literature reviews that

solved this problem. The research questions were evaluated and synthesized by scrutinizing the concepts, constructs, hypotheses, reliability, and validity of the sources (Swanson & Holton, 2005).

In research design methodology, the term *quantitative* is often used to describe the assessment method being implemented to determine the outcome. Quantitative research is explained for the reader to gain a better understanding (Creswell, 2007; Swanson & Holton, 2005). For the sake of clarity and brevity, the term *quantitative* will be referred to as QN for the remainder of this chapter and study.

QN research methodology has been widely used for many years. QN is universally accepted as reliable and valid by the majority of scholarly researchers as the preferred standard for conducting academic research (Warfield, 2010; Swanson & Holton, 2005). QN analysis has a strong reputation for defining an epistemological methodology by assessing the facts. This is done by using correlational, statistical, and repeatability of data with the expectation of justifying QN reliability. QN is used in many fields, to include biology, mathematics, physics, sociology, management, and other social science specializations (Robson, 2002; Warfield, 2010; Swanson & Holton, 2005).

The QN paradigm uses a formal standardized score or number approach measurement that can usually be analyzed by several types of statistical methods. QN methodology is concerned with numbers that are often collected by survey questionnaires, controlled interviews, experiments, and other measurement conditions which embodies the scientific approach when conducting scholarly research (Creswell, 2003; Robson, 2002). The research setting and research strategy determine the research design.

The research design usually incorporates the research strategy, setting, participants, and operational variables that are dependent or independent, with all meeting the function of statistical validity (Kerlinger, 1986; Runkel & McGrath, 1972; Stone, 1978; Campbell, 1959, 1966; Cook & Campbell, 1976, 1979; Cook, Campbell, & Peracchio, 1990). The researcher can select the factors that may impact the outcome and influence the overall reliability and validity of the survey. QN design methodology research, when properly conducted, will answer the interrogatives of who, what, when, where, why and how to provide sound scientific fundamental measurements with the use of empirical mathematical data.

These scientific methods might include (a) theories and hypotheses, (b) instruments and methods of measurement, (c) experimental control and management of variables, (d) empirical data gathering, (e) analysis of data and modeling, and (f) evaluation of the final data (Creswell, 1995, 2009; Warfield, 2010; Swanson & Holton, 2005).

QN research design can also provide certain strengths such as (a) offers accurate numerical information; (b) provides test and validation from theories to explain the how and why phenomena, (c) very useful for studying large amounts of data, (d) can adapt to most statistical software allowing rapid data analysis, and (e) provides flexibility to the researcher to manipulate many variables and allow credible cause and effect relationships to be established (Creswell, 2009; Warfield, 2010; Swanson & Holton, 2005).

QN research design can further provide (a) quick method to gather controllable data from the source, (b) high credibility and reliability, (c) tests that can be easily replicated on many different target sources or populations, (d) results that are usually

independent of the researcher, and finally (e) hypotheses constructed that can be tested with sample data prior to the full survey data collection (Creswell, 2009; Swanson & Holton, 2005; Warfield, 2010).

The preceding list is not all inclusive of the strengths afforded by the QN research design method. These listed advantages offer perspicacity to the many benefits a researcher can achieve by selecting and implementing the QN methodology. The strengths of using QN research design methods are manifested in the fact that the QN paradigm usually produces quantifiable, reliable and replicable data results with the ability to handle large amounts of data, low pragmatic origin of cost, strong data proof, multiple measurement abilities, and generalizability to various target populations.

The weaknesses of using QN discovered from the literature are that the test results of QN paradigm often undermine the human behavior and do not relate the events of a particular setting. QN only uses selected variables that often ignore other possibilities. Researchers often have the tendency to select variables in a controlled setting and particular time; therefore, an initial study may not capture the complete picture.

QN data has been proven to be more effective and efficient in testing hypotheses; however, using QN methodology alone can create a void in the research process due to the lack of contextual details. QN research offers strengths in classifying features, designing the study before collecting data, and determining what the expectations are before initiating the study. This can be done by pre-testing of hypotheses, questionnaire surveys, and construction of statistical models to quickly assess the outcome.

Target Population

The study attempts to identify each leader's leadership style, ITTU, and leadership decision-making outcomes to assess performance and productivity. The researcher believes this study may close or narrow the existing gap where some leaders fail to implement ITTU systems in their decision-making process. Knowledge and the availability of ITTU systems tools can greatly enhance productivity, capabilities, and maintain the U.S. technological edge as the only superpower in the world (Blum, 2006).

ITTU systems users and leaders were the main participants for this proposed research study. The target population was approximately 1600 leaders who use ITTU systems and who work for the United States (U.S.) government and military in the National Capital Region (NCR). The target population voluntary participants who accessed a government, unclassified computer network system, Non-Sensitive Internet Protocol Router Network (U.S. DoD, NIPRNET, 2010), were directed via e-mail to SurveyMonkey to complete the survey via Internet using a specific unique URL address. The survey was opened for 60 days and one reminder was sent after the 20th day. The anticipated sample should include 10% of the target population. If less than 10% of the 1600 have responded, the survey would remain opened for an additional 30 days.

The scholarly justification for using this population was based on the lack of any prior research on the Department of Defense leaders and ITTU systems users. These leaders employ large quantity ITTU systems with the ability and access to implement ITTU systems in their daily decision-making process. Many of these leaders are also responsible for the acquisitions of these technology tools systems.

ITTU systems can aid in the defense of the United States and its allies. These government leaders and ITTU systems users' were mainly United States military, government civilians and contractor personnel of all ranks and education. The participants potentially mainly comprised of military personnel up to the ranks of Four-Star General Officers, Senior Executive Service Leaders, permanently employed civilians, and contractors who work exclusively for the United States government. All described leaders had an equal chance to obtain and voluntarily complete and submit the survey questionnaire.

These potential respondents consisted of a diverse demographic range of adults who mainly possess high educational college degrees, strong leadership qualities, and some technical background ITT systems skills. The confidentiality of each respondent's data has been secured and safeguarded by the researcher. The researcher has assured in both a letter sent to the ITT systems leadership for permission to use the network and stated in the cover page and consent form that accompany the survey questionnaire, promise to conduct the survey in an ethical manner complying with all rules of the IRB, policies, and procedures.

The survey cover letter and permission request letter were provided in the researcher's proposal and subsequently received Institutional Review Board (IRB) approval. These letters informed potential respondents about the purpose of the study and assured everyone concerned that participation was completely voluntary but encouraged. The researcher has protected the confidentiality of all data collected and no specific personal identifying information was collected by the researcher that can link a participant to his or her survey questionnaire.

The survey was focused on a specific population of leaders and ITTU systems personnel from diverse regions in the U.S. and possibly other nations that now work for the government in the NCR. The possibility is high that most respondents of the target population are U.S. citizens. The targeted population participants have ITT systems knowledge and leadership experience. Many potential participants had many years of civilian or prior military service experience in leadership and technology decision-making positions.

The researcher did not examine the effects of demographic characteristics such as age, gender, and educational level as part of the research hypotheses; however, the survey gathered this information from participants so that the survey could describe accurately the demographic characteristics and comply with IRB rules. As part of the preliminary data analysis, the researcher determined that there were differences in leadership styles, leadership decision-making outcomes, and ITTU based on age, gender, and educational level.

Instrumentation and Measures

For research question 1, transactional, transformational, and passive avoidant leadership styles are the independent variables and ITTU is the dependent variable. For research question 2, ITTU is the dependent variable and perceived leadership effectiveness is the independent variable.

Several measures were used to assess the variables for this study. Each is described below.

The MLQ: Leadership styles. The MLQ 45-items questionnaire used a five-point Likert-type scale rating where 0 = *Not at all*, 1 = *Once in a while*, 2 = *Sometimes*, 3 = *Fairly often*, and 4 = *Frequently if not always*. The MLQ (Avolio & Bass, 2004), which measures the full range leadership model, was used to measure specific leadership styles including (a) transformational (b)transactional and (c) passive avoidance or laissez-faire.

The MLQ was developed first by Bass (1985) from an open-ended behavioral survey statement to reflect transactional or transformational leadership behaviors (Bass & Riggio, 2006). For transformational leadership style, the subscales used from the MLQ were Idealized Influence, Inspirational Motivation, Intellectual Stimulation, and Individualized Consideration. For transactional leadership style, the subscales used from the MLQ were Contingent Reward and Management by Exception (active). For passive avoidant leadership style, the subscales used from the MLQ will be Management by Exception (passive) and Laissez-Faire. The MLQ Leader Form was used in this study, given that the leader was the unit of analysis.

Measure of leadership decision-making outcomes. The MLQ also measures leadership decision-making outcomes. More specifically, the MLQ measures leadership decision-making outcomes using 3 subscales that assess extra effort, effectiveness, and satisfaction. Extra effort refers to (a) get others to do more than they expected to do, (b) heighten others' desire to succeed, and (c) increase others' willingness to try harder. Effectiveness refers to (a) am effective in meeting others; job-related needs, (b) am effective in representing their group to higher authority (c) am effective in meeting organizational requirements, and (c) Led a group that is effective. Satisfaction refers to (a) use methods of leadership that are satisfying and (b) work with others in a satisfactory

way (Bass & Avolio, 1995). The MLQ Leader Form was used in this study to measure leadership decision-making outcomes, given that the leader was the unit of analysis.

Measures of ITTU: The Technology Acceptance Model (TAM) survey instrument was used to measure ITTU. The TAM survey instrument developed by Davis (1989) has produced reliable, valid data that developed accurate predictions of user acceptance and has been used and validated by researchers conducting empirical quantitative studies (Brown, Massey, Montoya-Weiss, & Burkman, 2002). The TAM survey uses six questions for each PU and PEOU variable. Research has shown that PU is a stronger predictor of acceptance than PEOU and a more cohesive evaluation of the technology is achieve when each study is independently measured and scrutinized(Davis, 1989). A five-point Likert-type scale ranging from 1= *Strongly disagree*, 2 = *Disagree*, 3 = *Undecided,* 4 = *Agree*, and 5 = *Strongly agree* was used to measure ITTU.

Demographic questionnaire: The demographic questions are control variable information on age, gender, level of education, and work experience. The demographic data was used as control variables to satisfy the Institutional Review Board (IRB) and validate that the survey is not in violation of any prohibited rules, regulations, procedures of the respondents and the researcher.

Data Collection

Surveys based on their versatility are primarily used by researchers for data collection because they (a) do not require visual observations (b) can economically expand the size of the sample and (c) provide coverage geographically (Westlund, 2007). The Likert-type scale was used to evaluate the leadership elements that comprised the

independent and the dependent variables in order to synthesize to what extent a significant relationship existed between ITTU systems users and the perception of leadership behavioral styles and outcomes (Bass & Avolio, 2004). Transformational leadership uses five behavioral factors known as idealized attributes (IA), idealized behaviors (IB), inspirational motivation (IM), intellectual stimulation (IS), and individualized consideration (IC). Transactional leadership uses two behavioral factors known as contingent reward (CR) and management-by-exception (active) (MBEA) and Passive Avoidant leadership uses two behavioral factors known as management-by-exception (passive) (MBEP) and laissez-faire (LF) with extra effort, effectiveness, and satisfaction for leadership decision-making outcomes (Brown-Boone, 2006).

The dependent variable was ITTU which incorporated the four intervening demographic control variables of age, gender, level of education, and years of service experience for IRB evaluation requirement purposes. Participating leaders completed an online survey via SurveyMonkey that includes a cover letter with instructions and the questionnaire. The cover letter stated the purpose of the study and assured each participant that the survey was voluntary.

The survey request was a general e-mail sent to the target population, government personnel employees in the NCR having access to the government unclassified website U.S. Department of Defense (DoD) NIPERNET, soliciting them to voluntarily participate. The total population size was approximately 1600 potential participants. The e-mail contained a link using a unique URL that took the potential respondent to SurveyMonkey to complete the survey. The survey was opened for 60 days and one reminder was sent after the 20th day. Anticipated participants were 20% of the target

population ($N = 320$). 270 participants equaling 17%, exceeding the minimum, 10% ($N = 160$), of the 1600 target population responded to the survey.

A power analysis was conducted to determine the number of participants needed in this study (Cohen, 1988). G* Power 3.0 [TM], a statistical power analysis program, was used to conduct apriority power analysis for the hypothesis that tested this study. The researcher used Multiple Linear Regression (MLR) to delimitate the possibility of a statistical major difference among transformational, transactional, and passive avoidant leadership styles' (the dependent variable). The α for this MLR was set at .05. To achieve power of .80 and a medium effect size ($f = .25$), a total sample size of 159 was required to detect the critical F-value ($F(2,156) = 3.05$). A MLR model was used to determine if there was a statistically significant relationship between leadership decision-making outcomes (e.g., extra effort, effectiveness, satisfaction) and ITTU (the dependent variable). To achieve power of at least .80 and a medium effect size ($f^2 = .15$), a total sample size of at least 77 would be required to detect a significant model ($F(3, 73) = 2.73$). Based on the power analysis, the researcher attempted to recruit a minimum of 159 participants.

Respondents were asked not to provide any personal identifying information other than age, gender, level of education, and work experience. Respondents who showed interest in taking the survey were directed by a unique link to the survey, which was hosted via SurveyMonkey, an independent commercial website, where they completed a consent form and then completed and submitted the survey. The researcher downloaded the survey data from SurveyMonkey into an Excel spreadsheet and imported the data into

SPSS (Boslaugh, 2005 & Nuerosis, 1991). The researcher protected the confidentiality of all data collected and secured and safeguarded the survey reported data.

Data Analysis

Data analysis was conducted in three phases: Data Description; Data Structuring, and Hypothesis Testing. Phase 1 Data Description: Sought to describe the sample characteristics by using measures of central tendencies (arithmetic mean, median, or mode) and measures of variability (variance, range). The demographic control variables were used to offer alternative hypothesis to explain significant differences found in the dependent variables. However, no significant differences were found among gender, age categories, or educational levels. Significant differences were found in ITTU (the dependent variable) by transformational, transactional, and passive avoidant leadership styles which were attributed to their leadership decision-making process outcomes.

Phase 2 Data Structuring: Examined the independent variables for multi-co-linearity and general statistical associations. In this phase of the data analysis, if multi-co-linearity was found among the independent variables (measured on an interval scale) one variable was removed from further analysis or the linear effects of the multi-co-linear independent variable was removed statistically from the test of hypothesis. If general statistical associations were found among the (nominal or ordinal scales) independent variables, then the hypothesis testing accounted for a two factor model.

Phase 3 Hypothesis Testing: This phase tested the study research questions formulated as hypotheses. Analysis of Variance (one factor) was used to test the first set of hypotheses.

$H1_o$: There are no differences between information technology tools usage (ITTU) and leadership styles according to the full range leadership model (FRLM).

$H1_a$: There are significant differences between information technology tools usage (ITTU) and leadership styles according to the Full range leadership model FRLM).

Statistical, hypothesis: Where μ is the average ITTU score for each group

H_o: $\mu_{transform} = \mu_{transact} = \mu_{laissez}$

H_a: $\mu_{transform} \neq \mu_{transact} \neq \mu_{laissez}$

Multiple linear regressions were used to test the second set of hypotheses.

H2o: There exists no linear relationship in leadership styles between information technology tools usage systems and perceived effectiveness of the FRLM.

H2a: There exists a positive linear relationship in leadership styles between information technology tools usage systems and perceived effectiveness of the FRLM.

H2b: There exists a negative linear relationship in leadership styles between information technology tools usage systems and perceived effectiveness of the FRLM.

Statistical hypothesis: the correlation between ITTU systems and Perceived Effectiveness is zero (0), $r = 0$.

Responses to the data survey were gathered by electronic means using SurveyMonkey (ISP). The researcher is the only one having total access to the data collected. The electronic means of gathering this type of information has been less invasive and proven reliable. Electronic and Internet-based surveys are easy to conduct, less invasive, and is a cost effective way to conduct survey using information technology tool systems (Bass & Avolio, 2004; Bass, 2008; Brown-Boone, 2006).

The collected data from SurveyMonkey was aggregated and exported into SPSS (Boslaugh, 2005 & Nuerosis, 1991), a statistical data analysis program, where

comprehensive data analysis was performed. A correlational QN analysis was used to measure the statistical relationship. Data analysis was performed using multiple linear regression models. In addition, the mean, median, and dispersion for continuous or ordinal scales with variables, frequency, and percentages were calculated for all variables.

Validity and Reliability

Validity is a characteristic of measurement used by researchers to measure differences found in a measurement tool. Validity can reflect the true differences among respondents drawn from the target population (Cooper & Schindler, 2006). *Reliability* is the stability on how a particular item is measured (Robson; 2002; Westlund, 2007). The researcher selected the MLQ test instrument that holds a strong *validity* and *reliability* record with respect to the FRLM styles, with a range from .46 to .68 *validity* and *reliability* factor (Avolio & Bass, 2004).

The FRLM MLQ instrument is well developed, established and has been validated by several previous comprehensive meta-analyses research findings (Bennett, 2009; Brown-Boone, 2006; Avolio &Yammarino, 2003). The nine-factor structure of the MLQ has been supported by many recognized researchers (Antonakis, Avolio, & Sivasubramaniam, 2003; Avolio & Bass, 2004; Bass & Riggio, 2006; Westlund, 2007).

The Technology Acceptance Model (TAM) or Unified Theory of Acceptance and Use of Technology (UTAUT) survey is an information technology instrument that models how users can test and accept the use of new technology influence by two factors, notably: Perceived usefulness (PU) and Perceived ease-of-use (PEOU) (Davis, 1989;

Venkatesh & Bala, 2008). TAM was developed by Fred Davis and Richard Bagozzi, and it replaced many theories of reasoned action (TRA) measures with the PU and PEOU technology acceptance measures that provides strong behavioral elements and assumes that the intention to act by someone is without limitation and many constraints may exist limiting the freedom to act (Bagozzi & Warshaw, 1992; Bagozzi, 2007).

Hundreds of researchers have used and replicated the TAM questionnaire to provide reliable empirical evidence on the relationships believed to exist between PU and PEOU (Davis, 1989; Hendrickson, Massey & Cronan, 1993; Venkatesh & Davis, 2000; Venkatesh & Bala, 2008). High reliability and predictive validity have been confirmed using the TAM instrument (Venkatesh & Davis, 2000). The TAM was used for applied research regardless of any specific technology and can be applied to population, analyses and technology methods (Lee, Kozar, & Larson, 2003); King & He, 2006; Schepers & Wetzels, 2007).

Although TAM has been widely accepted and used by many researchers, it is not without criticism by others who believe TAM lacks questionable heuristic value, limited explanatory and predictive power, and practical value. Some researchers opined that TAM may create an illusion of progress with its adaptation to changing information technology environment (Benbasat & Barki, 2007; Chuttur, 2009). Some researchers also believe TAM focuses too much on individual users of information technology and not enough on information systems development or implementation (Bagozzi, 2007).

Ethical Considerations

The researcher has safeguarded access to the data collected and will protect the anonymity and confidentiality of each respondent. All participants completed the survey voluntarily and were informed prior of the purpose of the study and promised that any personal information inadvertently disclosed would be appropriately discarded immediately. Each questionnaire was submitted to a controlled website using SurveyMonkey where the researcher used the aggregated data analysis of the survey to complete this study.

The researcher received authorization from the Institutional Review Board (IRB), Capella University prior to the collection of any research data. A letter was prepared and addressed to a leader in the chain of command, IT Director, requesting permission to use the government unclassified computer system to solicit participants and direct respondents to the designated SurveyMonkey site to complete the survey. A letter granting approval from the Director of the Network was received by the researcher. Each respondent's completion of the survey instrument served as voluntary consent to participate in this study.

The researcher has successfully completed the CITI course and the CITI online modules in the protection of human research subjects. The researcher is familiar with the rules, regulations, and requirements of the Institutional Review Board (IRB). Respondents were not placed at risk while participating in this study. Demographic questions data on age, education, gender, and work experience of each respondent was collected to ensure survey validity and IRB requirements were adhered.

No respondent was placed at risk participating in this study. All data collected are securely stored for a period of seven years or as set forth in the laws and IRB rules governing the protection of research collected data.

CHAPTER 4. RESULTS

Introduction Survey Data and Analysis

This chapter provides a thorough analysis of the data collected from the returned survey questionnaires of the target population. The purpose of this quantitative correlational empirical study was to evaluate whether the full range leadership model (FRLM) leadership styles impact information technology tools usage (ITTU) systems and what relationship, if any, exists between ITTU systems and leadership decision-making outcomes (Bass & Avolio, 2004; Brown-Boone, 2006). Although ITTU systems have the potential to assist leaders in their decision-making processes, only a few leadership styles have leveraged this opportunity.

There is a lack of research that has examined, investigated, and evaluated the factors that make some leaders more or less apt to employ ITTU systems in their decision-making processes as to whether ITTU impacts leadership decision-making outcomes (Bass, 2008; Bennett, 2009). The researcher presents correlations and tables to depict and explain why the null hypotheses are rejected and how the data was collected and analyzed. Based on the response rate, the researcher has determined that the percentage was adequate for reaching a meaningful conclusion.

Data Analysis Results

Data analysis was conducted in SPSS (Boslaugh, 2005 & Neurosis, 1991). The process for data analysis included descriptive statistics which included describing the sample characteristics by using measures of central tendencies and measures of variability (variance, range). The variables were also examined for normality and multi-

collinearity prior to analysis. Next, the hypotheses were tested. Multiple linear regression (MLR) models were used to test the hypotheses.

Participants Results

Two hundred and seventy participants completed the survey. There were no missing data and all cases were included in the analysis. Participants' demographic characteristics are summarized in Table 1. The largest number of participants were between the ages of 45 to 54 (41%, *n* = 111) followed by ages 35 to 44 (30%, *n* = 80). More than half of the sample was male (58%, *n* = 157). The majority were in their fourth year in school (95%, *n* = 257) and reported having a Bachelor's degree (65%, n = 176). Over 50% reported 10 to 15 years of experience (54%, *n* = 146). The majority indicated they had taken a class that was totally online (97%, *n* = 262). When asked "How many hours a week do you use the Internet/Web?" the responses ranged from 6 to 80 hours; the mean was 62.78 (*SD* = 10.74).

Table 1. ***Participant Demographic Characteristics***

Characteristic	*N*	*%*
Age		
18 to 24	17	6.0
25 to 34	26	10.0
35 to 44	80	30.0
45 to 54	111	41.0
55 to 64	27	10.0
65 to 74	9	3.0
Total	270	100.0
Gender		
Female	113	42.0
Male	157	58.0
Year in school		
First year	1	.5
Second year	1	.5
Third year	4	1.0
Fourth year	257	95.0
Other (please specify)	7	3.0
Total	270	100.0
Highest degree or level of school you have completed		
Associate's degree or less	7	3.0
Bachelor's degree	176	65.0
Master's degree	85	31.5
Doctorate's degree	2	.5
Total	270	100.0
Years of experience in IT or leadership		
1 to 5 years	23	9.0
6 to 10 years	82	30.0
10 to 15 years	146	54.0

20 or more years	19	7.0
Total	270	100.0
Have you ever taken a class that was totally online?		
Yes	262	97.0
No	8	3.0
Total	270	100.0

Descriptive Statistics for the Variables

Table 2 includes the descriptive statistics for the study variables. The scores for the five transformational leadership factors ranged from 0-4. Individual consideration had the highest mean score (M = 3.14, SD = .72). Intellectual influence (behavior) had the lowest mean scores (M = 2.42, SD = .50). The scores for the two transactional leadership factors ranged from 0-4. Contingent reward had the highest mean score (M = 3.16, SD = .68). Manage-by-exception (Active) had the lowest mean score (M = .56, SD = .81). The scores for the two laissez-faire leadership factors ranged from 0-4 for Manage-by-exception (passive) and 0 to 3 for laissez-faire leadership. Manage-by-exception (passive) had the lowest mean score (M = .45, SD = .70). Laissez-faire leadership had the highest mean score (M = 1.02, SD = .52). The leadership outcome scores ranged from 0 to 3; the mean for extra effort was 3.22 (SD = .79); the mean for effectiveness was 3.22 (SD = .72), and the mean for satisfaction was 3.22 (SD = .76).

The descriptive statistics for the ITTU factors are also presented in Table 2. The scores for perceived ease of use ranged from 1.92 to 6.54 and the mean was 5.98 (SD = .56). The perceived usefulness scores ranged from 3.40 to 5.00 and the mean was 4.67 (SD = .35).

Table 2. ***Descriptive Statistics for the Leadership and ITTU Variables (N=270)***

Variable	Min	Max	Mean	Std. Deviation
Transformational Leadership				
Idealized Influence (Attributed)	.00	4.00	3.06	.70
Idealized Influence (Behavior)	.00	4.00	2.42	.50
Inspirational Motivation	.25	4.00	3.11	.70
Intellectual Stimulation	.25	4.00	2.45	.53
Individual Consideration	.00	4.00	3.14	.72
Transactional Leadership				
Contingent Reward	.25	4.00	3.16	.68
Manage-by-Exception (Active)	.00	4.00	.56	.81
Laissez-Faire Leadership				
Manage-by-Exception (Passive)	.00	4.00	.45	.70
Laissez-faire Leadership	.00	3.00	1.02	.52
Leadership Outcomes				
Extra Effort	.00	4.00	3.22	.79
Effectiveness	.00	4.00	3.22	.72
Satisfaction	.00	4.00	3.22	.76
ITTU				
Perceived Ease of Use	1.92	6.54	5.98	.56
Perceived Usefulness	3.40	5.00	4.67	.35

Preliminary Screening Procedures

Initial examination of the data revealed that there was no missing data. The distributions were assessed for normality via their skewness and kurtosis values.

According to Kline (2005), skew indices (e.g., skew statistic/SE) above three indicate non-normality. Kurtosis indices (e.g., kurtosis statistic/SE) between 10 and 20 also indicate non-normality (Kline, 2005).

As shown in Table 3, only Idealized Influence (Behavior), Intellectual Stimulation, Laissez-faire Leadership and Perceived Usefulness were distributed normally. Thus, the other variables were transformed using a square root transformation for negative moderate skewness; Manage-by-Exception (Active) and Manage-by-Exception (Passive) were transformed using a square root transformation for positive moderate skewness (Tabachnick & Fidell, 2010).

Table 3. ***Skewness and Kurtosis Statistics for the Major Study Variables before Transformation (N= 270)***

Variables	Kurtosis	Skewness
Idealized Influence (Attributed)	4.21	-1.67
Idealized Influence (Behavior)	3.87	-.84
Inspirational Motivation	4.78	-1.92
Intellectual Stimulation	2.98	-.84
Individual Consideration	5.11	-1.98
Contingent Reward	5.78	-2.09
Manage-by-Exception (Active	3.07	1.80
Manage-by-Exception (Passive)	4.07	1.93
Laissez-faire Leadership	2.40	.84
Extra Effort	3.56	-1.75
Effectiveness	4.17	-1.81
Satisfaction	3.51	-1.62
Perceived Ease of Use	19.40	-3.40
Perceived Usefulness	-.09	-.93

Note. *SE* for skewness statistic was .24. *SE* for kurtosis statistic was .29.

Table 4 shows the skewness and kurtosis values for the transformed variables. As the skewness index of the transformed variables fell below three or dropped considerably, the transformed variables were used in subsequent statistical procedures.

Table 4. A Skewness and Kutosis Statistics for the Skewed Study Variables after Transformation (N=270)

Transformed Variables	Kurtosis	Skewness
Idealized Influence (Attributed)	1.00	-.21
Inspirational Motivation	1.21	.14
Individual Consideration	1.01	.07
Contingent Reward	1.38	.23
Manage-by-Exception (Active	-.73	.45
Manage-by-Exception (Passive)	-.62	.41
Extra Effort	-.248	.06
Effectiveness	.16	-.03
Satisfaction	-.57	-.08
Perceived Ease of Use	1.77	.41

Note. *SE* for skewness statistic was .14. *SE* for kurtosis statistic was .29.

Instrument Reliabilities

The findings in Table 5 reveal that the measures of transformational, transactional, laissez-faire, leadership outcomes and ITTU were reliable. According to Nunnally and Bernstein (1994), a scale has acceptable internal consistency if Cronbach's alpha is .70 or higher. All the measures had acceptable alphas and were reliable.

Table 5. Cronbach's Alpha for the MLQ and ITTU (N=270)

Variables	Item *N*	Alpha
Transformational Leadership		
Idealized Influence (Attributed)	4	.79
Idealized Influence (Behavior)	4	.72
Inspirational Motivation	4	.82
.Intellectual Stimulation	4	.79
Individual Consideration	4	.85
Transactional Leadership		
Contingent Reward	4	.79
Manage-by-Exception (Active)	4	.84
Laissez-faire Leadership		
Manage-by-Exception (Passive)	4	.78
Laissez-faire Leadership	4	.72
Leadership Outcomes		
Extra Effort	3	.87
Effectiveness	4	.88
Satisfaction	2	.80
ITTU		
Perceived Ease of Use	13	.92
Perceived Usefulness	5	.85

Bivariate Analyses

Pearson correlations were used to examine the Bivariate relationships between the leadership styles and ITTU (see Table 6). Perceived ease of use was significantly and positively correlated with the following leadership styles: Idealized Influence (Attributed) ($r = .26$, $p < .01$), Inspirational Motivation ($r = .28$, $p < .01$), Individual Consideration (r

= .26, $p < .01$), Contingent Reward ($r = .27$, $p < .01$), Manage-by-Exception (Active) ($r = .28$, $p < .01$), Manage-by-Exception (Passive) ($r = .31$, $p < .01$), and Laissez-faire Leadership ($r = .34$, $p < .01$. An increase in perceived ease of use was associated with an increase in these leadership characteristics. Perceived ease of use was significantly and negatively correlated with Intellectual Stimulation ($r = -.16$, $p < .01$). An increase in perceived ease of use was associated with a decrease in leadership outcomes. While statistically significant, these correlations were small.

Perceived usefulness was significantly and negatively correlated with the following leadership styles: Idealized Influence (Attributed) ($r = -.13$, $p < .05$), Inspirational Motivation ($r = -.12$, $p < .05$), Manage-by-Exception (Active) ($r = -.15$, $p < .01$), Manage-by-Exception (Passive) ($r = -.17$, $p < .01$), Laissez-faire Leadership ($r = -.24$, $p < .01$), and Perceived Ease of Use ($r = -.37$, $p < .01$). An increase in perceived ease of use was associated with a decrease in these leadership characteristics. While statistically significant, these correlations were small.

Table 6. Correlations Between Transformational, Transactional, and Laissez-Faire Leadership and ITTU (N=270)

		1	2	3	4	5	6	7	8	9	10	11
1. Idealized Influence (Attributed)	*r*	1										
	p											
2. Idealized Influence (Behavior)	*r*	-.51**	1									
	p	.00										
3. Inspirational Motivat	*r*	.73**	-.56**	1								
	p	.00	.00									
4. Intellectual Stim	*r*	-.50**	.62**	-.62**	1							
	p	.00	.00	.00								
5. Individual Consider	*r*	.70**	-.53**	.75**	-.57**	1						
	p	.00	.00	.00	.00							
6. Contingent Rew	*r*	.70**	-.57**	.68**	-.57**	.68**	1					
	p	.00	.00	.00	.00	.00						
7. Manage-by-Except (Active)	*r*	.49**	-.09	.48**	-.23**	.52**	.51**	1				
	p	.00	.13	.00	.00	.00	.00					
8. Manage-by-Except (Passive)	*r*	.49**	-.14*	.48**	-.26**	.46**	.43**	.73**	1			
	p	.00	.017	.00	.00	.00	.00	.00				
9. Laissez-faire Leadership	*r*	.31**	-.035	.31**	-.16**	.30**	.24**	.47**	.53**	1		
	p	.00	.563	.00	.00	.00	.00	.00	.00			
10. Perceived Ease of Use	*r*	.26**	-.10	.28**	-.16*	.26**	.27**	.28**	.31**	.34**	1	
	p	.00	.09	.00	.00	.00	.00	.00	.00	.00		
11. Perceived Usefulness	*r*	-.13*	-.05	-.12*	.06	-.02	-.065	-.15**	-.17**	-.24**	-.37**	1
	p	.02	.38	.04	.29	.70	.28	.00	.00	.00	.00	

Note. * indicates the correlation is significant at the .05 level (2-tailed); ** indicates the correlation is significant at the .01 level (2-tailed).

Pearson correlations were used to examine the Bivariate relationships between the leadership styles and ITTU (see Table 7). Perceived ease of use was significantly and

positively correlated with the following leadership outcomes: Extra Effort ($r = .27$, $p < .01$), Effectiveness ($r = .29$, $p < .01$), and Satisfaction ($r = .24$, $p < .01$). An increase in perceived ease of use was associated with an increase in leadership outcomes. While statistically significant, these correlations were small.

Perceived usefulness was significantly and negatively correlated with the following leadership outcomes: Extra Effort ($r = -.14$, $p < .01$) and Effectiveness ($r = -.13$, $p < .05$). An increase in perceived usefulness was associated with a decrease in leadership outcomes. While statistically significant, these correlations were small. Perceived usefulness was not correlated with Satisfaction ($r = -.09$, $p > .05$).

Table 7. Correlations between Leadership Outcomes and ITTU (N=270)

		Extra Effort	Effectiveness	Satisfaction	Perceived Ease of Use	Perceived Usefulness
Extra Effort (T)	*r*	1				
Effectiveness (T)	*r*	.81**	1			
	p	.00				
Satisfaction (T)	*r*	.72**	.72**	1		
	p	.00	.00			
Perceived Ease of Use (T)	*r*	.27**	.29**	.24**	1	
	p	.00	.00	.00		
Perceived Usefulness	*r*	-.14*	-.13*	-.09	-.37**	1
	p	.01	.02	.10	.00	

Note. * indicates the correlation is significant at the .05 level (2-tailed); ** indicates the correlation is significant at the .01 level (2-tailed).

Main Analysis

A forced entry multiple linear regression (MLR) model procedure was used to test the two hypotheses. The assumption of multivariate normality was assessed via a normal probability plot. According to Norusis (1991), when the points are clustered towards the line, multivariate normality can be assumed. As the points were clustered towards the line in the normal probability plot, the assumption of multivariate normality was fulfilled. The assumptions of linearity and homoscedasticity were assessed via a plot of the standardized residuals by the standardized predicted values; when the plot results in a random scatter (and not a funnel-shaped or u-shaped pattern), then both assumptions are fulfilled (Norusis, 1991). Since the plot resulted in a random scatter, these assumptions were fulfilled.

Research Question 1 and Hypotheses

Research Question 1 was is there a difference between transformational, transactional, and laissez-faire leadership styles' information technology tools usage (ITTU)? The corresponding hypotheses are as follows:

$H1_o$: There is statistically significant relationship between transformational, transactional, and laissez-faire leadership styles' information technology tools usage (ITTU).

$H1_a$: There is no statistically significant relationship between transformational, transactional, and laissez-faire leadership styles' information technology tools usage (ITTU).

To test the null hypotheses, two separate MLR models were assessed.

The relationship between transformational, transactional, and laissez-faire leadership styles and Perceived Ease of Use. The first MLR model assessed the degree to which transformational, transactional, and laissez-faire leadership styles were associated with the Perceived Ease of Use dimension of ITTU. Per Aiken and West (1991) and Cohen, Aiken, and West (2004), the Tolerance and Variance Inflation Factor (VIF) values indicated that multi-collinearity was not an issue given that the Tolerance values were above .10 and the Variance Inflation Factor (VIF) values were less than 10 (see Table XX). Thus, there were no correlational results violating this assumption; therefore, the presence of multi-collinearity was not assumed for this model.

The model as a whole was statistically ($F(9, 260) = 5.97$, $p = .00$) significant and accounted for 17% of the variance in Perceived Ease of Use ($R^2 = .17$). The test of the regression model indicated that only Laissez-faire leadership ($B = 0.15$, $p < .05$) was

significantly and positively associated with Perceived Ease of Use. Based on the regression coefficients in Table 8, with all other variables being constant, when Laissez-faire leadership increases by one unit, Perceived Ease of Use increases by 1.5%. None of the other variables in the model were associated with Perceived Ease of Use.

Table 8. Regression Coefficients for the Relationship between the Leadership Dimensions and Perceived Ease of Use (The Dependent Variable)

Model	*B*	Std. Error	*β*	*t*	*p*	Tolerance	VIF
Transformational Leadership							
Idealized Influence (Attributed) (T)	-.00	.08	-.00	-.03	.96	.35	2.80
Idealized Influence (Behavior)	.04	.05	.06	.75	.45	.45	2.21
Inspirational Motivation (T)	.10	.09	.11	1.07	.28	.29	3.34
Intellectual Stimulation	.00	.05	.01	.13	.88	.48	2.07
Individual Consideration (T)	.01	.08	.01	.19	.84	.33	3.02
Transactional Leadership							
Contingent Reward (T)	.13	.09	.13	1.46	.14	.35	2.83
Manage-by-Exception (Active) (T)	-.00	.05	-.00	-.05	.95	.36	2.75
Laissez-Faire Leadership							
Manage-by-Exception (Passive) (T)	.05	.06	.08	.88	.37	.39	2.52
Laissez-Faire Leadership	.15	.04	.23	3.46	.01	.68	1.45

Note. (T) indicates the variable was transformed to address skewness.

The relationship between transformational, transactional, and laissez-faire

leadership styles and Perceived Usefulness. The second model assessed the degree to which transformational, transactional, and laissez-faire leadership styles were associated with the Perceived Usefulness dimension of ITTU. Per Aiken and West (1991) and Cohen, Aiken, and West (2004), the Tolerance and VIF values indicated that multi-collinearity was not an issue given that Tolerance values were above .10 and the Variance Inflation Factor (VIF) values were less than 10 (see Table 9). Thus, there were no correlational results violating this assumption; therefore, the presence of multi-collinearity was not assumed for this model.

The model as a whole was statistically ($F(9, 260) = 3.18$, $p = .00$) significant and accounted for 9% of the variance in Perceived Usefulness ($R^2 = .09$). The test of the regression model indicated that Laissez-faire leadership ($B = -0.12$, $p < .01$) was significantly and negatively associated with Perceived Usefulness. Based on the regression coefficients in Table XX, with all other variables being constant, when Laissez-faire leadership increases by one unit, Perceived Usefulness decreases by 1.2%. In addition, Individual Consideration ($B = 0.22$, $p < .01$), which is a dimension of transformational leadership, was significantly and positively associated with Perceived Usefulness. With all other variables being constant, when Individual Consideration leadership increases by one unit, Perceived Usefulness decreases by 2.2%. None of the other variables in the model were associated with Perceived Usefulness.

Table 9. ***Regression Coefficients for the Relationship between the Leadership Dimensions and Perceived Usefulness (The Dependent Variable)***

Model	*B*	Std. Error	*β*	*t*	*p*	Tolerance	VIF
Transformational Leadership							
Idealized Influence (Attributed) (T)	-.14	.09	-.15	-1.56	.11	.35	2.80
Idealized Influence (Behavior)	-.10	.06	-.14	-1.63	.10	.45	2.21
Inspirational Motivation (T)	-.13	.10	-.13	-1.28	.20	.29	3.34
Intellectual Stimulation	.06	.05	.09	1.12	.26	.48	2.07
Individual Consideration (T)	.22	.09	.24	2.38	.01	.33	3.02
Transactional Leadership							
Contingent Reward (T)	.01	.09	.01	.18	.85	.35	2.83
Manage-by-Exception (Active) (T)	-.02	.06	-.04	-.42	.67	.36	2.75
Laissez-Faire Leadership							
Manage-by-Exception (Passive) (T)	-.01	.06	-.01	-.18	.85	.39	2.52
Laissez-Faire Leadership	-.12	.04	-.18	-2.65	.01	.68	1.45

Note. (T) indicates the variable was transformed to address skewness.

Given the findings that (a) Laissez-faire leadership was significantly and positively associated with Perceived Ease of Use, (b) that Laissez-faire leadership was significantly and negatively associated with Perceived Usefulness, and (c) Individual Consideration was significantly and positively associated with Perceived Usefulness, the

null hypothesis shows there was no statistically significant connection among transformational, transactional, and passive avoidant styles of leadership and ITTU was rejected.

Research Question 2 and Hypotheses

Research Question 2 is what relationship, if any, exists between information technology tool usage (ITTU) and leadership decision-making outcomes (e.g., extra effort, effectiveness, and satisfaction). The hypotheses were as follows:

H2o: There is no relationship between information technology tools usage (ITTU) and leadership decision-making outcomes (e.g., extra effort, effectiveness, and satisfaction).

H2a: There is a statistically significant positive relationship between information technology tools usage (ITTU) and leadership decision-making outcomes (e.g., extra effort, effectiveness, and satisfaction).

H2b: There is a statistically significant negative relationship between information technology tools usage (ITTU) and leadership decision-making outcomes (e.g., extra effort, effectiveness, and satisfaction).

For research question 2, ITTU was the dependent variable and the leadership outcomes were the independent variable. Two separate MLR models were assessed, one for Perceived Ease of Use and the other for Perceived Usefulness.

The relationship between the leadership outcomes and Perceived Ease of Use. The second model assessed the degree to which transformational, transactional, and laissez-faire leadership styles were associated with Perceived Ease of Use. Per Aiken and West (1991) and Cohen, Aiken, and West (2004), the Tolerance and VIF values indicated

that multi-collinearity was not an issue given that Tolerance values were above .10 and the Variance Inflation Factor (VIF) values were less than 10 (see Table 10). Thus, there were no correlational results violating this assumption; therefore, the presence of multi-collinearity was not assumed for this model.

The model as a whole was statistically ($F(3, 266) = 9.11$, $p = .00$) significant and accounted for 9% of the variance in Perceived Ease of Use ($R^2 = .09$). While the model as a whole was statistically significant, none of the regression coefficients were statistically significant. However, Effectiveness ($B = 0.15$, $p = .06$) approached statistical significance suggesting a trend of a positive relationship between Effectiveness and Perceived Ease of Use. None of the other variables in the model were marginally associated with Perceived Ease of Use.

Table 10. ***Regression Coefficients for the Relationship between the Leadership Dimensions and Perceived Ease of Use (The Dependent Variable)***

Model	*B*	Std. Error	*β*	*t*	*p*	Tolerance	VIF
Extra Effort (T)	.06	.08	.08	.77	.43	.29	3.35
Effectiveness (T)	.15	.08	.19	1.83	.06	.30	3.31
Satisfaction (T)	.03	.06	.04	.53	.59	.42	2.35

Note. (T) indicates the variable was transformed to address skewness.

The relationship between the leadership outcomes and Perceived Usefulness. The second model assessed the degree to which transformational, transactional, and laissez-faire leadership styles were associated with the Perceived Usefulness dimension of ITTU. Per Aiken and West (1991) and Cohen, Aiken, and West (2004), the Tolerance and VIF values indicated that multi-collinearity was not an issue given that Tolerance values were above .10 and the Variance Inflation Factor (VIF) values were less than 10 (see Table 11). Thus, there were no correlational results violating this assumption; therefore, the presence of multi-collinearity was not assumed for this model.

The model as a whole was not statistically significant ($F(3, 266) = 2.08$, $p = .00$) and accounted for only 2% of the variance in Perceived Usefulness ($R^2 = .02$). None of the variables in the model were associated with Perceived Usefulness.

Table 11. ***Regression Coefficients for the Relationship between the Leadership Dimensions and Perceived Usefulness (The Dependent Variable)***

Model	*B*	Std. Error	*β*	*t*	*p*	Tolerance	VIF
Extra Effort (T)	.06	.07	.08	.77	.43	.29	3.35
Effectiveness (T)	.15	.08	.19	1.83	.06	.30	3.31
Satisfaction (T)	.03	.06	.04	.53	.59	.42	2.35

Note. (T) Indicates the variable was transformed to address skewness.

Given the findings that Leadership Extra Effort, Effectiveness, and Satisfaction were not associated with Perceived Ease of Use or Perceived Usefulness, the null hypothesis that there is no relationship between information technology tools usage (ITTU) and leadership decision-making outcomes (e.g., extra effort, effectiveness, and satisfaction) was accepted.

Summary Conclusion

Multiple Linear Regression **(**MLR) was used to test the hypotheses associated with Research Question 1. The results indicated that Laissez-faire leadership ($B = 0.15$, $p < .05$) was significantly and positively associated with Perceived Ease of Use, (b) Laissez-faire leadership was significantly and negatively associated with Perceived Usefulness, and (c) Individual Consideration was significantly and positively associated with Perceived Usefulness. There was no statistically significant relationship among transformational, transactional, and laissez-faire leadership styles' information technology tools usage so the null hypothesis was rejected.

MLR was also used to test the hypotheses associated with Research Question 2. The results indicated that leadership Extra Effort, Effectiveness, and Satisfaction were not associated with Perceived Ease of Use or Perceived Usefulness, the null hypothesis that there is no relationship between information technology tools usage (ITTU) and leadership decision-making outcomes (e.g., extra effort, effectiveness, and satisfaction) was accepted. Based on the preceding findings, the researcher evaluated the various results or outcomes to ascertain the implications and offers recommendations for future research in the next final chapter.

CHAPTER 5. DISCUSSION, IMPLICATIONS, RECOMMENDATIONS

Introduction

This final chapter provides a discussion, implications, limitations, and recommendations for future research and provides a quantitative (QN) methodology conclusion drawn from the evaluation of the data gathered from the target population that may be replicated by other researchers, organizations, government, and military agencies. The problems evaluated in this study are the perceived lack of acceptance of information technology tools usage (ITTU) by leaders employing the full range leadership model (FRLM) (Bass et al., 1996; Bass, 2008) and the relationship that may exist between decision-making processes of the FRLM and ITTU.

The purpose of this quantitative correlational research study was to conduct an empirical evaluation concerning the FRLM and ITTU, specifically, leaders who embrace, inspire, and implement collective contributions in culturally diverse organizations such as the United States Government and branches of the military. The researcher evaluated the relationship between the various leaders' perceptions in their usage of information technology tools systems and what significant relationship, if any, might have existed that could be an essential requisite to affect leadership styles and actionable outcomes. No previous research was found on this specific topic, Relationship Between The Full Range Leadership Model and Information Technology Tools Usage.

Discussion Summary of Study

The leadership pipeline is the *gestalt* to leadership which demands accountability and high levels of effective leadership skills in all phases. Leaders and managers at all levels should develop their subordinates and be responsible for their actions, thus displaying outstanding leadership skills and proficiencies (Drotter & Noel, 2001). The pipeline model system correlates in many ways with the full range leadership model (FRLM). The pipeline is essentially a developmental system that can align with different leadership styles to provide progressive responsibilities and reward effective leaders as they develop experience and demonstrate proficiency (Bennett, 2009; Kehoe, 2001).

Transactional leadership style often lies on the opposite spectrum of transformational leadership style. It is the more historical form of leadership style that motivates subordinates by appealing to their personal desires as noted by Bass (Bennett, 2009). The transactional leadership style paradigm personifies a different methodology which supports a tangible set of values that are highly dependent on rewards, compensation, consequences, motivation, self interest, praise, and mutual benefits for all. Reward and punishment are based on established productivity goals and expected performance levels (Bass, 2008; Bass & Avolio, 2004; Bennett, 2009).

Transformational leaders are known to demonstrate courage by groups and promote the ability of group members within their group by (a) *individualized consideration* that denotes how a leader can encourages and inspires participation from all group member, and (b) *inspirational motivation* denotes how a leader displays espirit de corps within the group members' amased talents to complete an objective with all identified members working for the best interest of the organization (Sosik et al., 1998).

Transformational leadership styles encourage, inspire, and motivate team member to work as a unit and help each member realize the necessity of changing their valued desires for the good of fulfilling the group's goals. Confidence can be instilled by transformational leader among group members and show empathy to promote encouragement with a deeper appreciation of understanding objectives and needs towards them.

This perception of benevolence is fostered by peer contribution, which emerges due to the transformational leaders' charismatic oratorical abilities to inspire, motivate, comment, and emphasize the importance of taking collective action through the promotion of intellectual stimulation. Transformational leaders can develop strong sentiments and personality by inspirational motivation through meaningful presentation that challenges their team members and others to emulate.

Between 1985 and 1995, some researchers came to the conclusion that perhaps another style of leaders exist that are neither transactional nor transformational. This type of leadership style was coined laissez-faire, passive avoidant, or non-transactional. The first key factor of passive avoidant leadership style is passive management –by – exception (MBE). Laissez faire leaders view performance and act only if the outcome is less than favorable to what is expected. These leaders wait until a problem occurs or is brought to their attention, before they may act and only sufficiently to resolve that specific problem (Crofts, 2002; Reinhardt, 2004; Singh, 2000). The other key factor of laissez-faire, is a *hands off* attitude approach where their leaders may avoid responsibilities and are often reluctant to enforce rules, policies, regulations, and dodges their leadership authority and responsibility (Bennett, 2009; Geyer & Steyrer, 1998).

Discussion of Findings

The researcher's objective was to evaluate and synthesize why one leadership style is more or less likely to make use of ITTU systems over another leadership style and how some leaders and their organizations who implemented information technology tools usage (ITTU) systems may benefit. The purpose was to conduct an empirical evaluation concerning the FRLM and ITTU and evaluated the relationship between the various leaders' perceptions in their usage of ITT systems and what significant relationship, if any, might exist that might be a requirement to influence leadership styles and behavioral outcomes. The study was focused on leaders who embraced, inspired, and implemented collective contributions in culturally diverse organizations such as the U.S. government and branches of the military. The researcher also evaluated the relationship among the various leaders' leadership styles and perceptions regarding their usage of information technology tools (ITT) and what significant relationship, if any, might exist between ITTU and leadership decision-making results.

This research incorporated the MLQ survey, the Technology Acceptance Model (TAM) survey, and used a QN methodology analyses with the Multiple Linear Regression (MLR) model and Multivirate SPSS to empirically evaluate the targetted population survey responses. The MLQ has been applied in a variety of settings and is an established predictor of leadership behaviors for the FRLM (Bass, 2008; Bass & Avolio, 2004; Bennett, 2009). Bass and Avolio (1989) developed the Multifactor Leadership Questionnaire (MLQ) to measure transactional, transformational, and passive avoidant leadership style behaviors with the use of a six-factor model subscales (Kuckartz, 2003).

For transformational leadership, the subscales are Idealized Influence, Inspirational Motivation, Intellectual Stimulation and Individualized Consideration. For transactional leadership, the subscales are Contingent Reward and Management by Exception (active), and for passive avoidant leadership; the subscales are Management by Exception (passive) and Laissez-Faire (Bass & Avolio, 2004).

The Technology Acceptance Model (TAM) was developed in 1989 by Davis as an information system (IS) instrument to help explain computer usage, user motivations, perceptions, and technology innovation concepts (Davis, 1989). TAM is an adaptation of the Theory of Reasoned Action (TRA) used as a technology measure instrument to predict an individual's intention to use an information system where perceived usefulness (PU) is impacted by perceived ease of use (PEOU) to determine acceptance (Venkatesh & Davis, 2000).

Data analysis was conducted in SPSS. The process for data analysis included descriptive statistics which included describing the sample characteristics by using measures of central tendencies and measures of variability (variance, range). The variables were also examined for normality and multi-collinearity prior to the analysis. Next, the hypotheses were tested and multiple linear regression (MLR) models were used to test the hypotheses. The following two research questions and their accompanying hypotheses guided this study.

Research Question 1: Is there a difference between transformational, transactional, and laissez-faire leadership styles' ITTU? The testing and analyses confirmed that there is a difference between transformational, transactional, and laissez-faire leadership styles' ITTU. Transformational leadership was significantly and

positively associated with Perceived Usefulness. The test of the regression model indicated that Laissez-faire leadership (B = -0.12, p < .01) was significantly and negatively associated with Perceived Usefulness. With all other variables being constant, when Individual Consideration leadership increases by one unit, Perceived Usefulness decreases by 2.2%.

$H1_o$: There are no statistically significant differences between transformational, transactional, and laissez-faire leadership styles' ITTU. There is no significant relationship among transformational, transactional, and laissez-faire leadership styles therefore; the null hypothesis of ITTU was rejected.

$H1_a$: There are statistically significant differences between transformational, transactional, and laissez-faire leadership styles' ITTU. The regression model test indicated that Laissez-faire leadership (B = -0.12, p < .01) was significantly and negatively associated with Perceived Usefulness.

Research Question 2: What relationship, if any, exists between ITTU and leadership decision-making outcomes (e.g., extra effort, effectiveness, and satisfaction)? ITTU was the dependent variable and the leadership outcomes were the independent variable. Two separate MLR models were assessed, one for Perceived Ease of Use and the other for Perceived Usefulness. Based on the quantitative analyses conducted, the results showed that Leadership implement with Extra Effort, Effectiveness, and Satisfaction are related to Perceived Ease of Use or Perceived Usefulness. There was no relationship between ITTU and leadership decision-making outcomes of extra effort, effectiveness, and satisfaction so the null hypothesis was accepted.

H2o: There is no relationship between ITTU and leadership decision-making outcomes (e.g., extra effort, effectiveness, and satisfaction).

H2a: There is a statistically significant positive relationship between ITTU and leadership decision-making outcomes (e.g., extra effort, effectiveness, and satisfaction). Effectiveness ($B = 0.15$, $p = .06$) approached statistical significance suggesting a trend of a positive relationship between Effectiveness and Perceived Ease of Use. None of the other variables in the model were marginally associated with Perceived Ease of Use.

H2b: There is a statistically significant negative relationship between ITTU and leadership decision-making outcomes (e.g., extra effort, effectiveness, and satisfaction). The findings suggested that Leadership Extra Effort, Effectiveness, and Satisfaction were not associated with Perceived Ease of Use or Perceived Usefulness; therefore there is no relationship between ITTU and leadership decision-making outcomes (e.g., extra effort, effectiveness, and satisfaction) so the null hypothesis was accepted.

The assumptions of linearity and homoscedasticity were assessed via a plot of the standardized residuals by the standardized predicted values; when the plot results in a random scatter (and not a funnel-shaped or u-shaped pattern), then both assumptions are fulfilled (Norusis, 1991). These assumptions were fulfilled based on the random scatter.

Multiple Linear Regression (MLR) was used to test the hypotheses associated with Research Question 1. The results indicated that laissez-faire leadership ($B = 0.15$, $p < .05$) was significantly and positively associated with Perceived Ease of Use, (b) laissez-faire leadership was significantly and negatively associated with Perceived Usefulness, and (c) Individual Consideration was significantly and positively associated with Perceived Usefulness. There is no statistically significant relationship between

transformational, transactional, and laissez-faire leadership styles' information technology tools usage (ITTU); therefore, the null hypothesis was rejected.

MLR was also used to test the hypotheses associated with Research Question 2. The results indicated that leadership Extra Effort, Effectiveness, and Satisfaction were not associated with Perceived Ease of Use or Perceived Usefulness, the null hypothesis was accepted and showed that there is no relationship between information technology tools usage (ITTU) and leadership decision-making outcomes (e.g., extra effort, effectiveness, and satisfaction). Based on the preceding findings, the researcher has provided some implications, limitations, and offers recommendations for future research.

Implications and Limitations

The research literature review concluded that some leaders are reluctant to use information technology tools systems to help solve their leadership problems, despite the belief that the usage of these tools might provide greater enhancement to their effectiveness in their decision-making process (Bennett, 2009; Boone-Brown, 2006). The survey instruments quantitatively measured a specified target population, the relationship between the FLRM styles, and information technology tools usage; therefore, it is possible that some degree of subjectivity might be inherent in the data collected and variances unknown to the researcher in the survey population could have skewed the results.

The continued innovation and development of technological-transformational leadership styles and technology proliferation richness has open gates for ITTU systems potential effectiveness on the appropriation of these new technology tools. The work

environment and the types of leaders and followers that comprise IT can create different human resource management challenges to propel organizations in different directions. Organizational culture can play a significant role with the inclusion of demographics, ethnicity, personalities, and values of the leadership pipeline (Bennett, 2009).

One limitation was that the survey participants were from a targeted population and they were also informed that their participation was voluntary and anonymous; however, the scores could have been skewed if participants believed their responses might be electronically pilfered. Another limitation is transformational leadership studies that comprise the literature base, have not been successfully documented and a definitive process as to what happens when some leaders fail to meet the required developmental levels could impact the effects he or she may have on their followers is undetermined which may require further consideration and exploration. A mixed methodology approach may provide a new vision in the leadership style and ITTU arena.

Recommendations for Future Research

This study can be replicated in other government or business organization and the demographics data gathered such as gender, age, experience, and education differences might impact leadership styles with the application of ITTU. This was a quantitative study so developing a qualitative or mixed method study for a similar type organization may provide additional discovery and further contribute to the body of knowledge.

The researcher acknowledged the recommendations of Dr. Cook, a committee member, that ITTU and leadership may impact results in the contracting and battlespace world of the U.S. government; therefore, a future study may further contribute to the

body of knowledge and this discipline by replicating an applied study to the Congressional population of the U.S. government, since appropriations are tied to Congress and their understanding of ITTU may affect their leaders' budgeting decision-making process in funding Department of Defense (DoD) elements and operations.

Future study could foster transformational research attempts in the intelligence field where analysts may apply ITTU to intelligence daily reports showing the shifts in tribal relationship within many U.S. territories and foreign areas of interest war fronts operations. Such areas may include Africa, the Middle East, and other sensitive regions where the U.S. continues to experience evolving alliances of tribal associations. A future study could determine indicators of possible future attacks that may be addressed by tangible assets. Influences of emerging leaders in war factions are critical to the cultural understandings that are being applied to the battlefield Common Operating Picture (COP). As the COP cultural innovative overlays are developed and refined by trained and experienced intelligence analysts, ITTU and leadership can be integrated into the decision-making processes in assessing potential threats, solving multiple crises, implementing critical thinking, and providing best practices tested virtual reality solutions.

The conclusion suggests that some form of behavioral modeling is needed to support transformational leadership style full implementation. A paradigm pitfall noted from the literature on transformational leadership style is that this leadership style may lack clarity and may have a high probability for exploitation. Transformational leaders often yield enormous influence and some of these leaders are noted to abuse their charismatic powers suppressing others for their own selfish aggrandizement (Bass, 1997).

Historical reports and case studies documented Hitler, Mussolini, Stalin, and Nehru as transformational leaders who abused their trust and moral values (Homrig, 2001). Burns (1978) dismissed these amoral tyrants as genuine transformational leaders; however, these leaders sadly had bad convictions and immoral factors of trust and integrity. Some answers to these dilemmas are for leaders to set high ethical standards and transparent display of impeccable integrity and moral values (Bass, 1998, 1990, 2008).

Transformational leaders with these dilemmas could be a great topic for future studies as to how this phenomenon can be exploited by unscrupulous leaders, since transformational leaders' key abilities are to motivate and inspire their followers to initiate and accomplish unforeseen and insurmountable challenging tasks. Transformational leaders' strong commitment of values, moral ethics, and follower influence remains their highest contribution to the methodology and their organizations who believe that there exists a distinct difference of leadership styles with this phenomenon (Bass, Waldman, and Avolio, 1986; Bass 1990, 2008).

Conclusion

There exist stages of development for leaders where transactional leadership style coincides with transformational leadership style with values and a significant amount of parity emerges to form a complementary connection. Transformational leaders, rather than transactional or passive avoidant leaders, are usually the type of leaders who enact the changes that are needed in modern organizations (Bennett, 2009; Friedman, 2005).

Transactional leadership style with greater rewards and intensity for leaders and followers can be strengthened by transformational leadership style.

Transformational leadership style factors are linked to organizations associated with information technology knowledge power which plays a role to form complementary styles of leadership. The work environment and the types of leaders and followers who comprise IT can create different human resource management challenges to propel organizations in different directions. Implementing the right leadership style and resources are the key to successful change in any organization. Intellectual stimulation has been shown to help transformational leaders mold employees to confront past problems with new ideas and attitudes.

Transformational leaders' style, rather than transactional or passive avoidant leaders' style is usually the effective style of leaders who with the use of ITTU systems can enact the changes that are needed in modern organizations (Friedman, 2005). Transformational leaders who incorporate ITTU systems can make change happen. Transformational leaders are considered to be the principal performers, conductors, commanders, and decision makers. They can aggressively implement the use of ITTU systems in their decision-making process to achieve a positive outcome. These leaders often possess the vision, charisma, and intellect to create change.

On the contrary, transactional leaders and passive avoidant leaders tend to respond slowly to change; thus, transformational leaders provide a unique effective style of leadership and management that inspires subordinates leaders to think of new initiatives as they develop new markets to win the trust of their stakeholders (Chen, 2005; Rahim, 1989). Transactional leaders are imbedded in motivating others by appealing to

their individual desire. These leaders concentrate more and are driven by doing things right rather than by accomplishing the right things, a quality indicative of transformational leaders (Bennett, 2009).

Finally, passive avoidant leadership style takes a *hands-off* approach and only intervenes when crises occur (Avolio & Bass, 2004). This research on technology and leadership supports prior studies by Bass (2008) and Deluga (1988). Bass (2008) opined that transformational leaders have more satisfied inspired followers who can positively impact information technology organizations and effectively foster stronger mutual relationship outcomes.

REFERENCES

Adler, S. (2001). *The Leadership Pipeline*: *How to Build the Leadership Powered company*. Review of. *Personnel Psychology, 54*(4), 1009-1012.

Aiken, L. S., & West, S.G. (1991). Multiple regression: Testing and interpreting *interactions*. Newbury Park, CA: Sage.

Air Force Technology.com (2011). *Strategic defense Intelligence.* The Global Military Aircraft Market 2011-2021. Retrieved January 10, 2012. http://www.airforce-technology.com/projects/fla/.

Alghalith, N. (2007). *FedEx: leveraging IT for a Competitive Advantage* The Business Review, Cambridge, 8(1), 296-304.

Ammeter, A., & Dukeick, J. (2002). Leadership, team building, and team characteristics in high performance project teams. Engineering Management Journal, 14(4), 3-11. Retrieved June 16, 2011, from EBSCOhost Research Databases.

Antonakis, J., Avolio, B. J., & Sivasubramaniam, N. (2003). Context and leadership: An examination of the nine-factor full range leadership theory using the multifactor leadership questionnaire. Leadership quarterly, 14 (2), 261-295.

Avey, J., Hughes, L., Norman, S., & Luthans, K. (2008). Using positivity, Transformational leadership and empowerment to combat employee negativity. Leadership & Organization Development Journal, 29: 110-126.

Avolio, B. J., & Bass, B. M. (1988). Transformational leadership, charisma, and beyond. In J.G. Hunt, B. R. Baliga, H. P. Dachler,& C. A. Schriesheim (eds.), Emerging Leadership Vistas. Lexington, MA D. C. Heath

Avolio, B. J., & Bass, B. M. (2004). Multifactor leadership questionnaire: Manual and sampler set (3rd ed.). Palo Alto, CA: Mind Garden.

Avolio, B. J., Bass, B. M., Jung, D. I., & Berson, Y. (2003). Predicting unit performance by assessing transformational and transactional leadership. *Journal of Applied Psychology*, *88*(2), 207-218. Retrieved November 15, 2010, from Pro Quest Academic Research Library Database.

Avolio, B. J. , Jung, D. I., Murry, W., Sivasubramaniam, N., & Garger, J. (2003). *Assessing shared leadership: development of a team multifactor leareship questionnaire*, In C.L. Pearce, & J. A. Conger (Eds.), *Shared leadership: Reframing the hows and whys of leadership*. (pp. 143-172). Thousand Oaks: Sage Publications, Inc.

Avolio, B. J., & Yammarino, F. J. (2003). *Transformational and charismatic leadership: The road ahead*, Oxford: Elsevier Press.

Avolio, B. J. (1999). Full leadership development: Building the vital forces in organizations. Thousand Oaks, CA: Sage.

Avolio, B. J., Kahai, S., & Dodge, G. E. (2001). E-Leadership: *Implication for theory, research and practice. The Leadership Quarterly*. Vol 11(4) 2000 pgs. 615-668. Center for Leadership Studies and School of Management, Binghamton University, Binghamton, NY.

Avolio, B. J. (1997). *The great leadership migration to a full range leadership development system*. In Kellogg Leadership Studies Project, Transformational Leadership Working Papers, the James MacGregor Burns Academy of Leadership.

Bagozzi, R. P. (2007). "The legacy of the technology acceptance model and a proposal for a paradigm shift." Jourrnal of the Association for Information Systems 8(4): 244-254.

Bagozzi, R. P., Warshaw, P. R. (1992). "Development and test of a theory of technological learning and usage." (http://hum.sagepub.com/cgi/content/abstract/45/7/659, Human Relations 45(7); 660-686.

Barling, J., Kelloway, E.K., & Frone, M.R. (2005). Handbook of Work Stress. Sage Publication, Inc. Thousand Oaks, CA

Barling, J., Weber, T., & Kelloway, E.K. (1996). Effects of transformational leadership training on attitudinal and financial outcomes: A field experiment. Journal of Applied Psychology, 81, 827-832.

Bartol, N., Bates, B. J., Goertzel, K. M., & Winograd, T. (2009). Measuring cyber security and information assurance. State-of-the-Art report (SOAR). Defense Technical Information Center (DTIC), and the Director, Defense Research and Engineering (DDR&E).

Bass, B. M. (1985). *Leadership and performance beyond expectations*. New York: Free Press.

Bass, B.M. (1990). *Bass and Stogdill's handbook of leadership: theory, research, and managerial applications*. New York: Free Press.

Bass, B. M. (1997). ”Does the Transactional/Transformational Leadership Paradigm Transcend Organizational and National Boundaries?” *American Psychologist*, Vol. 52(2), p. 130-139

Bass, B. M. (1998). Transformational leadership: Industrial, military and educational impact. Hillsdale, NJ: Lawrence Erlbaum Associates.

Bass, B. M. (2008). The Bass handbook of l*eadership, Theory, research, & applications New York: Free Press. 4th ed.*

Bass, B.M. & Avolio, B. (1989). *Manual for the multifactor leadership questionnaire*. Palo Alto, CA: Consulting Psychological Press.

Bass, B.M. & Avolio, B. (1990). *Transformational leadership development: Manual for the multifactor leadership questionnaire*. Palo Alto, CA: Consulting Psychological Press.

Bass, B. M., & Avolio, B. J. (1994). Improving organizational effectiveness through transformational leadership. Thousand Oaks, CA: Sage.

Bass, B. M., & Avolio, B. J. (2004). Improving organizational effectiveness through transformational leadership. Thousand Oaks, CA: Sage.

Bass, B., Avolio, B., & Atwater, L. (1996). *The transformational and transactional leadership of men and women*. Applied psychology: An international review, 45(1), 5-34.

Bass, B. M., & Riggio, R.E. (2006). Transformational leadership (2nd ed.). Mahwah, NJ: Erlbaum

Bass, B. M., Waldman, D., & Avolio, B. J. (1986). *Transformational leadership and the falling dominoes effect* (Tech. Rep. No. 86-99). Binghamton: State University of New York, School of Management.

Bassie, L. J., & Van Buren, M. (1997). Training industry trends. Training and Development Journal, Spring, 44-59.

Benbasat, I., & Barki, H. (2007). “Quo vadis, TAM:’ (http://iris.nyit.edu/-kkhoo/Spring 2008/Topics/TAM/000Ben TAMarticle.pdf). Journal of the Association of Information Systems 8(4): 211-218/).

Bennett, T.M. (2009). The relationshp between the subordinate’s perception of the leadership style of IT managers and the subordinate’s perceptions of IT manager’s ability to inspire extra effort, to be effective, and to enhance satisfaction with

management in an information technology environment. Dissertation. The H. Wayne Huizenga School of Business and Entrepreneurship, Nova Southeastern University.

BenTov, S. (2001, Jul). Using IT for competitive advantage: A case study, Information Strategy, 17(4), 24-28.

Bergeron, F., & Raymond, L. (1992). Planning of information systems to gain a competitive edge. Journal of Small Business Management. Vol. 30(1).

Bernick, C. (2002). When your culture needs a makeover. In Harvard Business Review on Change (pp. 125-142). Boston, MA: *Harvard Business School Press*.

Berson, Y., & Linton, J.D. (2005). An examination of the relationship between leadership style, quality, and employee satisfaction in R&D versus administrative environnements. R&D Management, 35 (1), 51-60

Billett, S. (2001). *Learning in the workplace : Strategies for effective practice*. New South Wales: Allen & Unwin.

Blake, R., & Mouton, S. (1978). *The new managerial grid*. Houston, TX: Gulf Publishing.

Blum, W. (2006). Rogue state: A guide to the world's Only Superpower, 3rd ed. Zed Books Ltd, Common Courage Press, U.S.

Boje, D.M. (2001). *Tamara Manifesto*. Tamara, Journal of Critical Postmodern Organization Science. Vol. 1(1): 15-24.

Boslaugh, S. (2005). An intermediate guide to SPSS programming: Using syntax for data Management. Sage Publication, Inc. Thousand Oaks, CA.

Brown-Boone, V.L. (2006). Technology workers' perceptions of transformational leadership and the workers' behavioral outcomes: An empirical investigation. Dissertation. University of Phoenix. Arizona.

Brown, S. A., Massey, A. P., Montoya-Weiss, M. M., & Burkman, J.R. (2002). Do I really have to? User acceptance of mandated technology. European Journal of Information Systems. 11(4): 283-295.

Brown, V. (2005). Analysis of IT Worker Retention in the DOZ Corporation. Unpublished manuscript.

Bruhn, J. G. (2004, April-June). Leaders who create change and those who manage it: How leaders limit success. *The Health Care manager*, 23(2), 132-140. Retrieved June 16, 2011, from EBSCO host Research Databases.

Bryman, A. (2001). *Social Research Methods*, Oxford, Oxford University Press

Buckingham, M., & Clifton, D. O. (2001). *Now, discover your strengths*. New York: The Free Press.

Burns, J. M. (1978). Leadership. New York: Harper & Row.

Burns, J. M. (2003). Transforming leadership: a new pursuit of happiness. New York: Atlantic Monthly Press.

Burns, J. M. (2004). *Transforming leadership*, Grove Press, New York.

Campbell, D.T., & Stanley, J.C. (1966). Experimental and quasi-experimental designs for research. Chicago: Rand McNally.

Campbell, D. T., & Fiske, D. W. (1959). *Convergent and discriminating validity by the multi-trait multi-method matrix*, Psychological Bulletin, vol. 56, 81–105.

Carr, N. (2003a). IT doesn't matter. *Harvard Business Review*, 81-49.

Carr, N. (2003b). IT does so mater! Computerworld; Vol. 37(27).

Carr, N. (2004a). *In Praise of Walls*. MIT Sloan Management Review. Vol. 45 (3).

Carr. N. (2004b). Burned by IT. Industrial Engineer; Vol. 36(8), p.28.

Carr, N. (2006). *The Banker*. London: Bank technology, Information technology, Competitive advantage, Strategic management international.

Cavusoglu, H. (2003). The economics of information technology investments. The University of Texas at Dallas. Pro Quest.

Chen, Tsang-Yao (Polo) (2005). A grounded theory for research synthesis of selected distance education literature. PhD. dissertation, Ohio University, United States – Ohio.

Chia-Chen, W. (2004). Gain-scheduled - optimal control for boiler-turbine dynamics with actuator saturation. Journal of process control. Elsevier. Vol 14 (3). pp. 263-277.

Chuttur, M.Y. (2009). Overview of the Technolago Acceptance Model: Origins, developments and Future Directions (http:..sprouts.aisnet.org/0-37, Indiana University, USA Sprouts: Working Papers on Information Systems.

Cohen, J.C., Aiken, L. S., & West, S. G. (2004). *Regression analysis for the behavioral sciences.* Newbury Park, CA: Sage.

Conchie, B. (2004). The seven demands of leadership: What separates great leaders from all the rest? *The Gallup Management Journal*, Retrieved March 15, 2011 from http://gmj.gallup/com.

Cook, T., & Campbell, D. (1976). The design and conduct of quasi-experiments and true experiments in field settings. In M. D. Dunnette (ed.), Handbook of Industrial and organizational psychology. 223-326. Chicago, IL: Rand McNally.

Cook, T., & Campbell, D. (1979). Quasi-experimentation: Design and analysis issues for field settings. Boston: Houghton Mifflin.

Cook, T., Campbell, D., & Peracchio, L. (1990). Quasi Experimentation, In M.D. Dunnette and L. M. Hough (ed.), Handbook of Industrial and organizational psychology, 2nd ed., 1491-1576. Palo Alto, CAL Consulting Psychologist Press.

Cooper, C. R., & Schindler, P. S. (2006). *Business research methods. New York: Mc*Graw-Hill Irwin.

Cooper, C. R., & Schindler, P. S. (2008). *Business research methods* (10 ed.). Boston: McGraw-Hill.

Covey, S. (1989). The seven habits of highly effective people. New York: Simon & Schuster.

Crabtree, S. (2004, June). Getting personal in the workplace: are negative relationships squelching productivity in your company? *The Gallup Management Journal*: Retrieved March 15, 2010, from http: //gmj.gallup.com/content/default.asp.

Creswell, L.W. (1995). *Research Design: Qualitative and Quantitative Approaches*, Thousand Oaks, CA, Sage

Creswell, L.W. (2003). Research design: *Qualitative, quantitative, and mixed methods approaches* (2nd ed.). Thousand Oaks, CA: Sage Publications.

Creswell, J. W. (2007). *Qualitative Inquiry &Research Design: Choosing among five approaches* (2nd ed.). Thousand Oaks, CA: Sage

Creswell, L.W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*, 3rd ed. Thousand Oaks, CA, Sage

Crofts, P. (2002). It's all in the mind. *People Management*, 8 (22). Retrieved January 18, 2004, from http://www.humanresources.co.nz/articles.

Cyber Command Website, 2010). *The global information grid* (GIG). Retrieved September 2012, http://www.defense.gov/releases/release.aspx?releaseid=13551.

Davis, D. D., & Polonko, K. A. (2003). Distributed work in the virtual office: A network study of telework and work outcomes. Paper, Society for Industrial and Organizational Psychology, Orlando, FL.

Davis, F. D. (1989). "Perceived usefulness, perceived ease of use, and user acceptance of information technology", MIS Quarterly 13(3): 319-340

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). "User acceptance of computer technology: A comparison of two theoretical models", Management Science 35: 982-1003

Deluga, R. J. (1988). *Relationship of transformational and transactional leadership employee influencing strategies*. *Group & Organization Studies (1986-1998), 13*(4), 456.

Demirhan, D. (2005). *Factors affecting investment in IT: A critical review*, JITTA: Journal of Information technology Theory and Application, 6(4), 1-13.

DeSanctis, G., & Poole, M. S. (1994). Capturing the complexity in advanced technology use: Adaptive Structuration Theory. Organization Science, 5, 121-147.

Dionne, S. D., & Jaussi, K. S. (2004, Winter). Unconventional leader behavior, subordinate satisfaction, effort and perception of leader effectiveness. *Journal of Leadership & Organizational Studies,* Flint, 10(3), 15-27, Retrieved February 15, 2010, from ProQuest Academic Research Library Database.

Dodge, G. E., Webb, H. W., & Christ, R. E. (1999). The impact of information technology on battle command: Lessons from management science and business. U.S. Army Research Institute of the Behavioral Sciences Technical Report 1091.

Downton, R.J. (1973). *Rebel leadership: Commitment and charisma in a revolutionary process.* New York: Free Press.

Drickhamer, D. (2006). IT to the rescue. Material handling management, 61(8), 40-41.

Drotter, C. R., & Noel, J.L. *(2001). The Leadership Pipeline: How to Build the Leadership-Powered Company. San Francisco: Jossey-Bass.*

Duffy, M. K., & Ferrier, W. J. (2003, June). Birds of a feather…..? How supervisor-subordinate dissimilarity moderates the influence of supervisor behaviors on workplace attitudes. *Group & Organization Management*, 28(2), 217. Retrieved February 15, 2010, from ProQuest Academic Research Library Database.

Emery, C. R. & Barker, K. J. (2007). Effect of commitment, job involvement and teams on customer satisfaction and profit, Team Performance Management, Vol. 13 Iss: 3/4, pp.90 – 101.

Fiedler, F. (1967). *A theory of leadership effectiveness*. New York: McGraw-Hill.

Fjermestad, J., & Hiltz, S. R. (1999). An assessment of group support systems experimental research: Methodology and results. Journal of Management Information Systems, 15, 7-149.

Flade, P. (2003). Great Britain's workforce lacks inspiration. The Gallup Management Journal. Retrieved on December 28, 2010, from http://gallup.com/content/default.

Fleming, J. H. (Ed.). (2000). Linkage analysis (Special issue) *The Gallup Management Journal.* Retrieved April 2010, from the Gallup Organization Database.

Fowler. Jr., F. (2009). *Survey research methods*. 4th ed. Center for survey research, University of Massachusetts, Boston. SAGE Publication, Inc.

Fox, W. T. R. (1944). Superpowers: The United States, Britain, and the Soviet union, their responsibility for peace. New York: Harcourt, Brace & Co.

Frazee, R. (2002). Technology adoption: Bring along the latecomers. In A. Rossett (Ed.), *The ASTD e-learning handbook: Best practices, strategies, and case studies from an emerging field*, (pp. 263-277). New York: McGraw-Hill.

Friedman, T. (2005). The world is flat: A brief history of the twenty-first century. New York: Farrar, Straus and Giroux.

Geyer, A. L. J., & Steyrer, J. M. (1998). Transformational leadership and objective performance in banks. *Applied Psychology: An International Review,* 47, 397-420.

Glazer, R. (1993). *Measuring the value of information: The information-intensive organization*. IBM System Journal: 32, 1; ABI/INFORM Global.

Goleman, D., Boyatzis, R., & McKee, A. (2002). *The new leaders*. Boston: Harvard Business School Press.

Gopal, A., Bostrom, R., & Chin, W. (1993). Applying adaptive structuration theory to

investigate the process of group support system use. Journal of Management Information Systems, 9, 45–69.

Gould, A. (2002, Oct). *The IT edge*. Nation's Restaurant News, 36(43). T3.

Groves, K. S. (2005). Linking leader skills, followers attitudes, and contextual variable via an integrated model of charismatic leadership. Journal of Management, 31(2), 255-277.

Harari, O. (2002). The leadershp secrtes of Colin Powell, McGraw Hill, New York .

Hemphill, T. A. (2004). Global outsourcing: Effective functional strategy or deficient corporate governance? *Corporate Governance*, 4(4), 62-70. Retrieved February 15, 2010, from ProQuest Academic Research Library Database.

Hendrickson, A. R., Massey, P. D., & Cronan, T. P. (1993). "On the test-retest reliability of perceived usefulness and perceived ease of use scales", MIS Quarterly 17:227-230

Henderson, J. C., & Venkatraman, H. (1999). Strategic alignment: Leveraging information technology for transforming organizations.

Hiltz, S. R., Johnson, K., & Turoff, M. (1991). Group decision support: The effects of human leaders and statistical feedback in computerized conferences. Journal of Management Information Systems, 8, 81-108.

Hiltz, S. R., Turoff, M., & Johnson, K. (1989). Experiment in group decision-making, disinhibition, de-individuation and group process in pen name and real name computer conferences. Decision Support Systems, 5, 217-232.

Homrig, M. A. (2001). *Transformational Leadership*. Management and leadership department. United States Air Force Academy.

House, R. J. (1977). A 1976 theory of charismatic leadership. In J. G. Hunt & L. L. Larson (eds.)., Leadership: The cutting edge (pp. 189-207). Carbondale: Southern Illinois University Press.

House, R. J. & Aditya, R. W. (1997). The social science study of leadership: Quo Vadis? Journal of Management, 23, 409-473.

Howell, J. M., & Avolio, B. J. (1993). Transformational leadership, transactional leadership, locus of control, and support for innovation: Key predictors of consolidated-business-unit performance. Journal of applied Psychology, 78(6), 891-902

Howell, J. P., Dorfman, P. W., & Kerr, S. (1986). Moderator variables in leadership research. Academy of Management Review, 11, 88-102.

Hyong, Y. (2005). The end of information technology. Public manager, 33(3),55-57.

Jarvenpaa, S., Knoll, K., & Leidner, D. (1998). Is anybody out there? Antecedents of trust in global virtual teams. Journal of Management Information Syst, 14, 29-64.

Johannsen, M. (2004). A short guide to transformational leadership development. Management systems Inc.

Jolson, M. A., Dubinsky, A. J., Yammarino, F. j., & Comer, L. B. (1993). Transforming the salesforce with leadership. Sloan Management Review, 34(3), 95.

Jones, G., & George, J. (1998). The experience and evolution of trust: Implications for cooperation and teamwork. Academy of Management Review, 23, 531-546.

Judge, T. A., & Piccolo, R. F. (2004). Transformational and transactional leadership: A meta-analytic test of their relative validity. Journal of Applied Psychology, 89(5), 755-768.

Kahai, S. S., Sosik, J. J., & Avolio, B. J. (1997). Effects of leadership style and problem structure on work group process and outcomes in an electronic meeting system environment. Personnel Psychology, 50, 121-146.

Kays, D.E. (1993). An investigation of transformational and transactional leadership styles in personal social service organizations. Doctoral Dissertation. Faculty of Social Work. Wilfred Laurier University.

Kearney, E., & Gebert, D. (2009). Managing diversity and enhancing team outcomes: The promise of transformational leadership. Jacobs Center on Lifelong Learning and Institutional Development, University Bremen, GE.

Keefe, P. R. (2005). Chatter, Dispatches from the secret world of global eavesdropping. Random House, Inc., New York.

Kegan, R. (1982). *The evolving self: Problem and process in human development*. Cambridge, MA: Harvard University Press.

Kehoe, K. J. (2001). *The Leadership Pipeline: How to Build the Leadership-Powered Company*. *The Academy of Management Executive, 15*(2), 135-136.

Kellerman, B. (1984). Leadership: Multidisciplinary perspectives. Englewood Cliffs, NJ: Prentice-Hall.

Kendler, P.B. (2006). Perspectives: *Bank Systems & Technology*, Vol. 43(1), pg.44.

Kerlinger, F. (1986). Foundations of behavioral research, (3rd ed.) New York: Holt, Rinehart, and Winston

Kettinger, W., & Grover, V. (1995, winter). *Do strategic systems really pay off?* Information Systems Management, 12(1), 35.

King, W. R. (2007). *IT strategy and innovation. The "IT Deniers" versus a Portfolio of IT roles*. Information Systems Management, 24(2), 197-199.

King, W. R., He, J. (2006). "A mea-analysis of the technology acceptance model" Information & Management 43(6), 740-755.

Kirkpatrick, S., & Locke, E. (1991, Mar). *Leadership traits do matter*. Academy of Management executive, 44-60.

Klein, H., & Hirschheim, R. (1983). Issues and approaches to appraising technological change in the office: A consequentialist perspective. Office, Technology, and People, 2, 15-42.

Kline, R.B. (2005), Principles and Practice of Structural Equation Modeling (2nd Edition ed.). New York: The Guilford Press.

Kramer, R. M., Brewer, M. B., & Hanna, B. A. (1996). Collective trust and collective action: The decision to trust as a social decision. In R. M. Kramer & T. R. Tyler (Eds.), Trust in organizations: Frontiers of theory and research (pp. 357-389). Thousand Oaks, CA: Sage Publications.

Kraynak, P. (2009). Strategic planning: Finding your true IT transformation, IEEE Computer Society, Info 724.

Kuckartz, R. (2003). *Transformational and transactional leadership in human service organizations: A descriptive analysis*. M.S.W. dissertation, The University of Regina (Canada), Canada.

Kuhnert, K. W., & Lewis, P. (1987). *Transactional and Transformational Leadership: A Constructive/Developmental Analysis*. *Academy of Management. The Academy of Management Review, 12*(4), 648.

Kwon, H.S., & Chidambaram, L. (2000). A test of the technology acceptance model. The case of cellular telephone adoption. University of Hawaii.

Lai, F., Zhao, X., & Wang, Q. (2006). The impact of information technology and the competitive advantage of logistics firms in China. Industrial management + Data

Systems, 106 (9), 1249-1271.

Lea, M., & Spears, R. (1991). Computer-mediated communication, de-individuation and group decision-making. International Journal of Man-Machine Studies, 34, 283-301.

Lea, M., & Spears, R. (1992). Paralanguage and social perception in computer-mediated communication. Journal of Organizational Computing, 2, 321-341.

Lee, Y., Kozar, K. A., & Larson, K. R. (2003). The Technology acceptance model: Past, Present, and future. *Communications of the Association for Information Systems, 12,* 50, 752-780.

Leininger, K. E. (1992). *Open systems slam the door on the days of competitive advantage by IT alone*. New York: Vol. 5 (1) p.47.

Li-Yueh, A. (2010). The effects of leadership styles on knowledge-based customer relationship management implementation. MingDao University. Internatinal Journaal of Management and Marketing Research. Vol 3(1), p. 1-18.

Lipnack, J., & Stamps, J. (1997). Virtual teams: Reaching across space, time, and organizations with technology. New York: John Wiley & Sons.

Marchand, D. A. (2005). *Reaping the Business Value of IT*. Business and Economic Review, 51(4), 21-24.

Maslow, A. H. (1954). Motivation and personality. New York: Harper & Rowe.

Maslow, A. (1970). Motivation and personality (2nd ed.). New York: Harper and Rowe.

Mayer, R., Davis, J., & Schoorman, F. (1995). An itegrative model of organizational trust. Academy of Management Review, 20, 709-734.

McKnight, D. H., Cummings, L. L., & Chervany, N. L. (1998). Initial trust formation in new organizational relationships. Academy of Management Review, 23, 473-490.

Melymuka, K. (1997). Virtual realities. Computerworld, (April 28), 70-72.

Miller, A. L. (2005). A Superpower? No time soon. The Hoover Digest. *The Hoover Institttion quarterly*. Hoover Institttuion Stanford University, Artilce 7833.

Mohrman, S. A., Cohen, S. G., & Mohrman, A. M. (1995). Designing team-based organizations: New forms of knowledge work. San Francisco, CA: Jossey-Bass.

Neuhauser, C. (2007). *Project management, Women, Leadership, Managerial skills*

Studies, Behavior. Project Management Journal. Sylva: Vol. 38. Oss. 1' [g/ 21. 11 pgs, ISSN: 87569728.

Norusis, M. (1991). The *SPSS guide to data analysis for SPSS/PC+*. New Jersey: Prentice Hall.

Norusis, M. (2008). The *SPSS 16.0 guide to data analysis for SPSS/PC+ 2d ed.* New Jersey: Prentice Hall.

Orlikowski, W. J. (1992). The duality of technology: Rethinking the concept of technology in organizations. Organization Science, 3, 398-427.

Orlikowski, W. J. (1996). Improvising organizational transformation over time: A situation change perspective. Information Systems Research, 7, 63-92.

Orlikowski, W. J., Yates, J., Okamura, K., & Fujimoto, M. (1995). Shaping electronic communication: The meta-structuring of technology in the context in use. Organization Science, 6, 423-444.

Piaget, J. (1954). *The construction of reality in the child*. New York: Basic Books (First published in 1939).

Porter, M.E., & Millar, V. E. (1985). How information gives you competitive advantage. Harvard Business Review. Harvard Business School Publishing. Boulder, Co.

Porter, M.E., & Millar, V. E. (2001). The information revolution is transforming the nature of competition. Harvard Business Review. Harvard Business School Publishing. Boulder, Co.

Prahalad, C.K., Hamel, G. (1990). *The core competence of the corporation*, Harvard Business Review. Vol. 68 (3) 79-92.

Quinn, R. E., & Hall, R. H. (1983). Environments, orgaizations and policy makers: Toward an integrative framework. Beverly Hills, CA: Sage

Rahim, M. A. (1989). Relationships of leader power to compliace and satisfaction with supervison: Evidence from a national sample of managers. *Journal of Management,* 15, 545-556.

Reardon, K. K., & Rowe, A. J., (2000). The leader style inventory: A test of assessing leadership strengths. In B. Kellerman & L. R. Matusak (eds.), *Cutting Edge Leadership*. College Park, MD: University of Maryland, Center for the Advanced Study of Leadership.

Reddy, R. (2006). Robotics and intelligent systems in support of society. Carnegie

Mellon University. Intelligent Systems Vol. 21(3).

Reinhardt, A. C. (2004, January). Discourse on the transformational leader Meta narrative or finding the right person for the job. ANS. 27(1), 21-32. Retrieved February 15, 2010, from ProQuest Academic Research Library Database. P59

Robson, C. (2002). Real world research (2nd ed.). Malden, MA: Blackwell.

Rossett, A. (2002). The ASTD e-learning handbook: Best practices, strategies and case studies for an emerging field. New York: McGraw-Hill.

Runkel, P., & McGrath, J. (1972). *Research on human behavior: A systematic*

Sankar, Y. (2003, Spring). Character not charisma is the critical measures of leadership. *Journal of Leadership and Organizational Studies*, 9, 45. Retrieved February 16, 2010, from ProQuest Academic Research Library Database.

Salopek, J. (2004). *Social intelligence*. T&D, 58(9), 17-19.

Schepers, J., & Wetzels, M. (2007). A meta-analysis of the Technology Acceptance Model: Investigating subjective norm and moderation effects. *Information & Management*, 44, 1, January, (2007), 90-103.

Schermerhorn, J. R., Jr., Hunt, J. G., Osborn, R. N., & Uhl-Bien, M. (2003). Organizational behavior (8th ed.) University of Phoenix, Custom Edition. New York: Wiley

Singh, J. (2000, April). Performance productivity and quality of frontline employees in service organizatins. *Journal of Marketing*, 64(2), 1-32. Retrieved February 8, 2009, from EBSCOhost Research Database.

Smith, B. J. (1982). An initial test of a theory of charismatic leadership based on the responses of subordinates. Doctoral dissertation, University of Toronto, Ontario.

Sosik, J. J., Avolio, B. J., & Kahai, S. S. (1997). Effects of leadership style and anonymity and group potency and effectiveness in a group decision support system environment. Journal of Applied Psychology, 82, 89-103.

Sosik, J. J., Avolio, B. J., & Kahai, S. S. (1998). Inspiring group creativity: Comparing anonymous and identified electronic brainstorming. Small Group Research, 29, 3-31.

Sosik, J. J., Avolio, B. J., Kahai, S. S., & Jung, D. I. (1998). Computer-supported work group potency and effectiveness: The role of transformational leadership,

anonymity and task interdependence. Computers in Human Behavior, 14, 491-511. [In Table 6]

Sosik, J. J., Kahai, S. S., & Avolio, B. J. (1998). Transformational leadership and dimensions of creativity: Motivating idea generation in computer-mediated groups. Creativity Research Journal, 11, 111-121.

Spinelli, R. (2006). The Applicability of Bass's Model of Transformational, Transactional, and Laissez-Faire Leadership in the Hospital Administrative Environment. *Hospital Topics*, *84*(2), 11-18. Retrieved March 9, 2010, from Academic Search Premier Database.

Sproull, L., & Kiesler, S. (1986). Reducing social context cues: Electronic mail in organizational communications. Management Science, 32, 1492-1512.

Stone, E. F. (1978). *Research methods in organizational behavior*. Glenview, IL: Scott Foresman.

Sumner, M., Bock, D., & Giamartino, G. (2006). Exploring the linkage between the characteristic of IT project leaders and project success. *Information Systems Management,* 23(4), 43-49.

Swanson, R. A., & Holton, E. F. III. (Eds.) (2005). Research in organizations Foundations and methods of inquiry. San Francisco: Berrett-Koehler.

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

Tabb, L. (2006). *Who said technology isn't important?* Wall Street & Technology, 24(10), 54.

Tapscott, D. (2001). Rethinking strategy in a networked world (or why Michael Porter is Wrong about the Internet), Strategy + Business, Issue 24, Third Quarter: 1-8, http://www.strategy-business.com/ or http://www.dontapscott.com/Strategy Business.pdf (Review April 10, 2013).

Thite, M. (2000). Leadership styles in information technology projects. *International Journal of Project Management*, 18(4), 235-241.

Townsend, A., DeMarie, S., & Hendrickson, A. (1998). Virtual teams: Technology and the workplace of the future. Academy of Management Executive, 12, 17-29.

Trist, E. L. (1950). The concept of culture as a psycho-social process. Proceedings, Anthropolitical Section, British Association for the Advancement of Science.

Trist, E. L. (1993). A socio-technical critique of scientific management. In E. Trist & H. Murray (Eds.), The social engagement of social science: A Tavistock anthology (pp. 580-598). Philadelphia, PA: University of Pennsylvania Press.

Tucker, R. C. (1970). The theory of charismatic leadership. In D. A. Rustow (ed.), *Philosophers and kings: Studies n leadership*. New York: Braziller.

Tyre, M. J., & Orlikowski, W. J. (1994). Windows of opportunity: Temporal patterns of technological adoption in organizations. Organization Science, 5, 98-118.

U.S. Department of Defense (2010). Non-secured unclassified Internet network computer system. US DoD Cyber Command Website, 2010

Vandenbosch, B., & Ginzberg, M. J. (1997). Lotus notes and collaboration: Plus ca change. Journal of Management Information Systems, 13, 65-81.

Venkatesh, V., Davis, F. D. (2000). "A theoretical extension of the technology acceptance model; Four longitudinal field studies", Management Science 46(2): 186-204.

Venkatesh, V., Bala, H. (2008). "Technology Acceptance Models and a Research Agenda on Interventions", Decision Sciences 39(2): 273-315.

Vessey, I., Ramesh, V., & Glass, R. L. (2002). Research in information systems: An empirical study of diversity in the discipline and its journals, Journal of Management Information Systems, 19, 129-174.

Vigoda-Gadot, E. (2007). Leadership style, organizational politics, and employees' performance: An empirical examination of two competing models, Personnel Review, Vol. 36 Iss: 5, pp.661 – 683

Vroom, V.H. (1973). A new look at managerial decision making. Organizational Dynamics, 1(4), 66-80.

Vroom, V. H., & Jago, A. G. (2007). The role of the situation in leadership. American Psychologist. Yale University & University of Missouri-Columbia.

Wang, H., Law, K. S., & Hackett, R. D. (2005). Leader-member exchange as a mediator of the relationship between transformational leadership and followers' performance and organizational citizenship behavior. *Academy of Management Journal*, 48, 420-432.

Warfield, D. (2010). Is/It research: A research methodologies review. Journal of theoretical and applied information technoolgy. Centennial Convergence, Inc. U.S.A.

Weber, M. (1947). *Theory and social and economic organization* (T. Parsons & A. M. Henderson, Trans.). New York: Oxford University Press.

Weick, K. F. (1990). Technology as equivoque: Sense making in new techniques. In P. S. Goodman, L. S. Sproull, & Associates (Eds.) Technology and organizations (pp. 1-44). San Francisco, CA: Jossey-Bass.

Westlund, S.G. (2007). Retaining talent: Assessing relationships among project leadership styles, software developer job satisfaction and turnover intentions. Dissertation. Capella University, Minnesota.

Weston, F.C. Jr. (1993). *Weighing 'soft' and 'hard' benefits of information technology,* Manufacturing systems; Vol. 11 (7).

Wiley, R. (2011). LCD TV vs plasma. *Consumer Electronic Avisory Group* (CEAG). Unbiased professional TV reviews recommendations and articles. 2011 LCD TV Buying Guide.

Wolman, S., & Miller-Steiger, D. (2004, July). All Eyes on Ohio: How workplace engagement affects employees; outlook on life and the economy in this key "battleground" state. The Gallup Management Journal. Retrieved January 25, 2009, from http://gmj.gallup.com/content/default.asp?ci=12295. P47 p59

Woodard, B. (2004). Plan of attack: The definitive account of the decision to invade Iraq. Simon & Schuster. Thorndike Press.

Yates, J., Orlikowski, W. J., & Okamura, K. (1999). Explicit and implicit structuring of genres in electronic communication: Reinforcement and change of social interaction. Organization Science, 10, 83-103.

Yates, D. (1985). *The politics of management*. San Francisco: Jossey-Bass.

Yukl, G. A. (2002). *Leadership in organizations.* Englewood Cliffs, NJ: Prentice-Hall.

APPENDIX A. STATEMENT OF ORIGINAL WORK

Academic Honesty Policy

Capella University's Academic Honesty Policy (3.01.01) holds learners accountable for the integrity of work they submit, which includes but is not limited to discussion postings, assignments, comprehensive exams, and the dissertation or capstone project.

Established in the Policy are the expectations for original work, rationale for the policy, definition of terms that pertain to academic honesty and original work, and disciplinary consequences of academic dishonesty. Also stated in the Policy is the expectation that learners will follow APA rules for citing another person's ideas or works.

The following standards for original work and definition of *plagiarism* are discussed in the Policy:

> Learners are expected to be the sole authors of their work and to acknowledge the authorship of others' work through proper citation and reference. Use of another person's ideas, including another learner's, without proper reference or citation constitutes plagiarism and academic dishonesty and is prohibited conduct. (p. 1)
>
> Plagiarism is one example of academic dishonesty. Plagiarism is presenting someone else's ideas or work as your own. Plagiarism also includes copying verbatim or rephrasing ideas without properly acknowledging the source by author, date, and publication medium. (p. 2)

Capella University's Research Misconduct Policy (3.03.06) holds learners accountable for research integrity. What constitutes research misconduct is discussed in the Policy:

> Research misconduct includes but is not limited to falsification, fabrication, plagiarism, misappropriation, or other practices that seriously deviate from those that are commonly accepted within the academic community for proposing, conducting, or reviewing research, or in reporting research results. (p. 1)

Learners failing to abide by these policies are subject to consequences, including but not limited to dismissal or revocation of the degree.

Statement of Original Work and Signature

I have read, understood, and abided by Capella University's Academic Honesty Policy (3.01.01) and Research Misconduct Policy (3.03.06), including the Policy Statements, Rationale, and Definitions.

I attest that this dissertation or capstone project is my own work. Where I have used the ideas or words of others, I have paraphrased, summarized, or used direct quotes following the guidelines set forth in the APA *Publication Manual*.

Learner name and date	Antonio White Landell, June 12, 2013
Mentor name and school	Dr. Jelena Vucetic, Capella University Faculty