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A Study of Satisfaction With Online Learning in Workplace Training

M. Anita Jones
Walden University

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Walden University

College of Social and Behavioral Sciences

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Walden University
2016

Abstract

A Study of Satisfaction With Online Learning in Workplace Training

by

M. Anita Jones

MA, Purdue University, 1974

AB, Talladega College, 1972

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Public Policy and Administration

Walden University

March 2016

Abstract

The American workplace and American culture have rapidly transitioned to online learning and are now more dependent on technology. Yet, in spite of a multitude of studies that explored online learning, it has not been established whether managers are satisfied with application of technology to training. The purpose of this study was to examine receptiveness as expressed by satisfaction with effectiveness of online training among managers to determine if a relationship exists for age, position, and length of service. The research was based on theoretical foundations of Herzberg's theory of motivation and Herzberg's theory of job satisfaction. The goal of the study was to evaluate receptiveness as reflected by managers' level of satisfaction with the use of online learning in workforce training, and the presence of age, lengths of service, or position differences in satisfaction with online training. This quantitative study used nonexperimental stepwise multiple regression analysis, based on secondary data from the 2011 Senior Executive Service survey administered by the Office of Personnel Management of the United States government ($n = 4,954$). Results indicated that the number of employees managed was an influential factor in determining receptiveness, and supported age, length of service, and position differences in satisfaction with online training among managers. Results linked usage and effectiveness to satisfaction with effectiveness of online training. Based on the results, managers should add or increase online training to provide greater training capability and flexibility. The application may promote positive social change as these results could better equip managers in the public sector with greater training flexibility.

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Dedication

This is the day that the Lord has made let us rejoice and be glad in it (Psalm 118:24). I will bless the Lord at all times his praise shall continually be in my mouth (Psalm 34:1). I will love thee, O LORD, my strength (Psalm 18:1). The Lord is the strength of my life (Psalm 27:1). That strength has motivated, sustained and inspired me from the beginning to the end of this process. Without it I can accomplish nothing.

This dissertation is further dedicated to the love of my family. I thank my husband Raymond who challenged me to begin this journey and never wavered in his support. He encouraged me to persevere and supported me in every way possible. I appreciated the support of my daughters Elaina and Andrea who have seemed so proud of me for this undertaking and have helped in any way they could. I am sincerely grateful to my parents, Mr. and Mrs. Arthur Jones who among their many gifts to me gave me the gift of appreciation for lifelong learning and first started me on the magnificent journey of a lifetime.

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Chapter 1: Introduction to the Study

Introduction

In 1994, when computer technology and the Internet entered the American workplace as training enablers, Hanson examined the role of technology in workplace training and questioned whether technology would address the training needs of the diverse American workplace (Hanson, 1994). Further, Hanson predicted a greater use of technology for employee training, and evaluation. More than two decades later, Lewin (2012) reported that two prestigious universities, Harvard University and Massachusetts Institute of Technology (MIT), had introduced a collaborative effort to build an online learning platform for their universities (Lewin, 2012). These universities offered a suite of free courses through their new EDX program (Lewin, 2012). Subjects offered included technology courses that are beneficial to the workplace such as Circuits and Electronics, thus demonstrating that technological work-related training can be offered in an online platform, thereby providing conceptual support for online learning in workplace training.

American society has witnessed a technological evolution over the past two decades accompanied by economic change that had an impact on workplace training. Evidence of this change can also be found in our federal government workplace. The U.S. Office of Personnel Management (OPM) is the lead agency for policy making and execution for federal government employment and execution. OPM, also called “America’s workforce,” includes and services all federal government workers in the United States; it governs programs and policy for federal government human resources systems for federal employees, including recruitment, performance management, pay,

senior executive service, labor relations and employee development (U.S. Office of Personnel Management, 2015). OPM develops and implements training programs for federal agencies and employees. Furthermore, it develops and implements government policy affecting America's public service agencies and public service workers throughout the federal government. Training and employee skill development are listed among the top seven priorities of OPM. Information technology improvement is also a high priority. The federal government's emphasis on developing and maintaining a highly skilled workforce through programs such as USA Learning and its focus on improving technology in federal agencies is evidence of an evolving American workplace (U.S. Office of Personnel Management, 2015).

This study examined technology-based online learning as a viable training option today in the public sector workplace and questioned the level of public service workers' satisfaction with application of online learning to public sector workforce training. Even as American society becomes more technology-based, much workplace training continues to take place in classrooms or on the job site, which raises questions regarding workers' and managers' receptiveness to online training in the workplace. Therefore, it is necessary to determine the extent of managers' and nonmanagers' satisfaction with online learning in workplace training. It is important to determine managers' and nonmanagers' receptiveness to online training for technologically based online training to maintain a strategic position in the future, and serve as a catalyst for workplace revolution in challenging economic times.

Background of the Study

Economic downturns and constant turnover of workers are problems common to the American workforce (Eichner, 2010). The U.S. Bureau of Labor Statistics (2012) reported layoff actions involving over 131,000 Americans for the month of June 2012 alone. A cumulative total of over 767,000 layoffs were reported for the year 2012 by the Bureau. Economic conditions characterized by personnel layoffs and drastic fluctuations in the stock market led to changes in American business practices (Eichner, 2010). Davidson (2012) reported in a national newspaper that Federal Reserve Chairman, Ben Bernanke, predicted slow growth in the economy and stated that many unemployed had ceased looking for work.

Contracting portions of an organization's work to outside contractors for short periods is commonplace. Full-time workers are subject to frequent lay-offs and may require training and retraining as the impact of job loss forces them to move from job to job in an unstable economy (Sommers & Morisi, 2012). Organizations look to technology for solutions to workplace dilemmas imposed by economic conditions. A study of transfer of technology skills in a developing economy to strengthen entrepreneurship provided supporting evidence that organizations seek technological solutions to workplace problems (Kumar & Kelley, 2005).

Early research related to online learning, or a blended learning strategy that includes online learning primarily, focused on reviews of existing research to determine how to improve education and training through information technology (Alavi & Leidner, 2001). Later research examined factors influencing work-related learning and technology

(Sambrook, 2005). Numerous studies of online learning from the 1990s to the present called for more research on technology-enabled learning (Alavi, Marakas & Yoo, 2002; Sambrook, 2006; Arbaugh et al., 2009; Gupta & Bostrom, 2009).

Documentation of the operationalization of online learning includes the growth of online learning and technology-mediated learning studies and studies of organizational and learning practices (Alavi & Gallupe, 2003). Research in support of operationalization of online learning explored learning and technology as a solution to training and education problems and simultaneously examined differences between completely online learning, basic online learning, and extended online learning (Huett, Moller, Foshay, & Coleman, 2008; Palmer & Holt, 2009). Furthermore, supportive research regarding operationalization of online learning examined critical elements of online communication and proposed a community of inquiry (COI) model (Garrison et al., 2009). During that time period, examination of inconsistencies in technology-mediated learning research (Gupta & Bostrom, 2009) further advanced operationalization of online learning.

Review of the efficacy of online learning and blended learning strategies included some studies that questioned the suitability of a distance learning mode, and those that extended elearning to include training outcomes (Yellen, 2005; Santhanam, Sasidharan, & Webster, 2005). Researchers also studied the effectiveness of online learning in organizations and companies (Bollettino & Bruderlein, 2008). Development of a blended learning model to examine learning satisfaction and effectiveness (Wu et al., 2010) further reinforced the efficacy of online learning and blended learning.

Additionally, researchers began conducting comparative studies of traditional brick and mortar or face-to-face learning and online learning (Means, Toyama, Murphy, Bakia, & Jones, 2009). Comparison of online learning and traditional brick and mortar learning that did not include blended learning, found positive effects attributed to blended learning or online learning that included a classroom phase (Means et al., 2009). A meta-analysis of 51 studies of online and blended learning, conducted by the U.S. Department of Education, demonstrated that students performed better in online courses and blended courses than in traditional face-to-face courses (Means, Toyama, Murphy, Bakia, & Jones, 2009). Comparative studies of online and blended workplace training revealed that studies comparing online and classroom learning found no difference in performance (Arbaugh et al., 2009).

The operationalization of receptiveness to multimedia instruction implied that receptiveness is operationalized through existing and developing self-efficacy (Christoph, Schoenfeld & Tansky, 1998). Self-efficacy was defined as one's assessment of their performance in a given situation (Christoph, Schoenfeld & Tansky, 1998). Receptiveness was further operationalized in a study of receptiveness to advice, where Feng and MacGeorge (2006) argued that receptiveness affects one's evaluation of the outcome in a given situation. Receptive people like and feel good about a particular situation (Stetz, Bouchard, Wiederhold, Riva & Folen, 2009).

Researchers have examined the role of managers in supporting workplace learning, and the workplace as a site for learning (Beattie, 2006). The influence of trainers themselves on training outcomes (Towler & Dipboye, 2006) has also been

examined. A study questioned the organizational implications of the application of technology in public and private organizations (Sorenson et al., 2008). Another explored the relationship of managerial leadership, employee creativity, and employee learning (Gong, Huang, & Farh, 2009)

Workplace training research covers factors involved in workplace learning (Beckett & Hager, 2000), the impact of leadership style on employee learning; motives of managers and technology-mediated learning instructors (Wiredu, 2007); use of technology in the work setting (Spitler, 2005), and the effectiveness of technology-mediated learning on selected workplace organizations (Bolettino & Bruderlein, 2008; Sorenson et al., 2008). Studies of online learning and research into various aspects of workplace training have left a gap in research knowledge on satisfaction with online learning in workplace training from the perspective of employees or nonmanagers and managers, and specifically in the public sector workplace.

Studies have examined job satisfaction (Sharpe 2008) and measured student satisfaction, learning effectiveness, and faculty satisfaction (Artino, 2007; Larson & Chung-Hsien Sung, 2009). Although much is known about the application of online learning to workplace training very little is known about workers' and managers' receptiveness as reflected by satisfaction of nonmanagers and managers with online learning in public sector workplace training. The literature review reflects a gap in this area. Studies of online learning included studies of how technology enhances learning (Alavi & Leidner, 2001; Spitler, 2005; Huett, Moller, Foshay, & Coleman, 2008). More recent research studies of online learning primarily focused on differences between

online learning and residential or “brick and mortar” learning (Belanich et al., 2005; Steinbroon & Meredith, 2007; Bollettino & Bruderlein (2008); Diaz & Entanado, 2009; Means, Toyama, Murphy, Bakia, & Jones, 2009; Bidjerano, 2010). The literature review results indicated the need for more research on workplace learning, training and specifically in the area of nonmanagers’ and managers’ receptiveness or satisfaction with online learning in the public sector workplace.

This study was based on secondary data from a previous study conducted by a large public sector organization, the U.S. Office of Personnel Management (OPM), which represented 38 agencies (OPM, 2012). These public service organizations develop and implement public policy and provide public service employment in the business of government including, Homeland Security, Education, Energy, Environmental Protection, Housing and Urban Development, Justice, Labor, Interior, NASA, National Security, Transportation, Treasury, Veteran’s Affairs, and the other federal agencies.

Problem Statement

The training modality in the American workplace is rapidly transitioning to online learning (Sambrook, 2006) as the American society becomes more dependent on technology; however, it is not known whether managers and nonmanagers in public sector organizations actively involved in developing and executing public policy are satisfied with effectiveness of application of this technology to training. The literature review concluded that there is a need for research on managers’ and nonmanagers’ receptiveness to online learning as reflected by satisfaction with online workplace training. The research indicates that there are gaps in knowledge about how to define the

effectiveness of online learning (Means, Toyama, Murphy, Bakia, & Jones, 2009). A quantitative study that investigates whether public sector employees (nonmanagers) and managers in federal government agencies are satisfied with effectiveness of this rapidly evolving technology to training is needed to ensure that America's investment in this technological application to public sector training is prudent.

Purpose of the Study

The purpose of this quantitative study was to examine receptiveness to online learning as expressed by public sector managers' and nonmanagers' satisfaction with the effectiveness of online training by determining if a correlation exists for age, position, and length of service. This study analyzed these factors thought to be influential in determining receptiveness as reflected by satisfaction with effectiveness of online learning in public sector workplace training in the federal government. The study population was that used in an existing archival database of survey responses from employees of 38 agencies of the OPM. The population was drawn from data obtained from this secondary source, data from the OPM Senior Executive Service (SES) Survey results from fiscal year 2011.

Research Question

Online training in the workplace has followed the development of online learning that evolved over the past 20 years. This study's review of current literature on online learning and work-related learning and training revealed a gap in the literature regarding public sector employees' and managers' receptiveness to online training as measured by satisfaction with its effectiveness. A study of worker receptiveness to stress management

techniques linked receptiveness to a measure of satisfaction (Stetz, Bouchard, Wiederhold, Riva, & Folen, 2009). The following question guided the research:

Is there a difference in receptiveness as reflected by satisfaction with online training in the workplace in managers and nonmanager employees and are there age, length of service or position differences in satisfaction with online training between managers and nonmanager employees?

Hypotheses

The test hypotheses is identified with a number. The null hypotheses is identified with a number and the letter N. The hypotheses that were tested in this research were:

Hypothesis 1N. There is not a statistically significant difference in satisfaction between managers and nonmanagers when online workplace training is used

Hypothesis 1. In the population, there is a statistically significant difference in satisfaction between managers and nonmanagers when online learning in workplace training is used.

Hypothesis 2N. In the population, there is not a statistically significant difference in satisfaction with online workplace training related to age of the participant.

Hypothesis 2. There is a statistically significant difference in satisfaction with online workplace training based on the age of the participant.

Hypothesis 3N. In the population, there is not a statistically significant difference in satisfaction with online workplace training related to lengths of service.

Hypothesis 3. There is a statistically significant difference in satisfaction with online workplace training based on lengths of service.

Hypothesis 4N. In the population, there is not a statistically significant difference in satisfaction with online workplace training related to position.

Hypothesis 4. There is a statistically significant difference in satisfaction with online workplace training based on position.

Theoretical Base of the Study

Foundational theories that undergirded this study are from authors in the fields of education, human resources, and psychology. Learning theory based on the work of Bloom (1956) is important when applied to this study specifically regarding the learning aspects of workplace training. Maslow (1943) whose work made a major impact on human resources theory provided the focus for training theory important to this study's focus on training in the workplace. Psychological theory in this study revolves around the work of Herzberg (1974) who studied job satisfaction and Bandura (1989) who researched Social Cognitive Theory. Psychological theory (Herzberg, 1974; Bandura, 1989) in this research concerns human motivation in the workplace specifically as it includes training. The present study involves employee functioning in the federal government or public sector workplace. The theory of motivation (Herzberg, 1974; Bandura, 1989) established satisfaction as a primary influence manifested through achievement.

In this study, the foundational theory of job satisfaction (Herzberg, 1974) was applied to a study of policy in the operational workplace of federal government organizations actively engaged in developing and implementing public policy. Agencies

whose employees' responses make up the database for this study develop and execute the policy that governs our nation.

Nature of the Study

This quantitative survey investigated managers' and nonmanagers' degree of receptiveness to online learning as measured by satisfaction. Bandura (1989), Herzberg (1974), Bloom (1956), and Maslow (1943) comprised the theoretical foundation. An in-depth discussion is presented in Chapter 2. The Independent variables were age, position, and length of service.

The study population consisted of employees of the OPM who participated in the SES Executive Service Survey for Fiscal Year 2011, a survey instrument developed by the OPM. Participants in the OPM study volunteered and willingly responded to survey questions. I used SPSS Statistics 21 to conduct correlation and stepwise multiple regression among the independent and dependent variables. An in-depth discussion of the methodology is provided in Chapter 3.

Operational Definitions

This study of online learning in workplace training is a study of workplace training conducted online therefore it is necessary to define online learning, workplace and training for the purpose of this study. The terms *e-learning* and *technology-mediated learning* are used interchangeably in the literature and in this study here.

ELearning: Electronic learning is self-directed learning activity supported by information and communication technologies (Santhanam, Sasidharan & Webster, 2008).

Online Learning: Online learning is a type of distance education where instruction is located online (Parsad, Lewis, Westat & Tice, 2008). Furthermore, Parsad, Lewis, Westat and Tice (2008) defined distance education as an education process where student and instructor are in different locations. The terms online learning, distance education and distance learning are therefore closely related terms used in this study.

Receptiveness: Receptiveness is “a combinative construct that included usage and presumed effectiveness” (Poddar, Donthu, & Parvatiyar, 2013).

Satisfaction: “Every drive is related to the state of satisfaction or dissatisfaction of other drives” (Maslow, 1943). Maslow’s five basic needs that must be satisfied in their rank order of importance on the hierarchy were physiological, safety, love, esteem, and self-actualization needs. In “The Human Side of Enterprise” (McGregor, 1960), defined satisfaction in terms of meeting one of several needs. Those needs included physiological, safety, social, ego, and self-fulfillment needs. The need for self-actualization (Maslow) and the need for self-fulfillment (McGregor) most accurately capture the aspects of satisfaction for this study.

Technology Mediated Learning: The influence of technology on all learning scenarios. This term may include web-based or computer-based, asynchronous or synchronous, instructor led or self-paced, individual based or team based instruction (Gupta & Bostrom, 2009).

Training: Training is formal workplace learning (Beattie, 2006). Training therefore is learning that takes place in the workplace or under the auspices of the workplace. Training in this study will refer to formal workplace learning.

Workplace: Workplace in the present study is defined by the total scope of the US Office of Personnel Management and the government professions of the individuals who participated in the SES Survey for Fiscal Year 2011. By contrast, Beckett and Hager (2000) defined workplace based upon a study of 10 professionals. Workplace will be more fully described in Chapter 3.

Assumptions

There were four assumptions in this study:

- The participants were employed and functioned as either managers or nonmanagers.
- The study participants had experienced online training in their workplace.
- The survey instrument effectively measured the construct, *satisfaction*.
- Study participants answered the survey questions honestly.

Limitations

The study utilized an existing database of individuals employed by the OPM, worked in one of OPMs numerous organizations and participated in the SES Survey for Fiscal Year 2011.

Scope and Delimitations

The scope and delimitations of this study were as follows:

- Research participants in this study were employees of the OPM who voluntarily participated in the SES survey.

- All members of the OPM SES had an opportunity to participate in the study. The OPM SES Executive Service Survey for Fiscal Year 2011 had a 65% response rate (OPM, 2012, p.2).
- Responses to the OPM SES Survey for Fiscal Year 2011 were gathered for the purpose of obtaining statistical data for analysis by OPM.

Significance

Researchers continue to advocate additional study in the area of online technology-mediated learning and workplace training (Sambrook, 2005; Sambrook, 2006; Arbaugh et al., 2009). American society's increasing reliance on technology and the increasing role of technology in workforce training has significantly changed how the workforce does business and how it trains ((Luminita, 2010).

This study of online learning in workplace training has implications for positive changes in workforce training that may contribute to improvement in the economic stability of the workforce. The results of this study could improve management's ability to train and sustain a productive workforce. Study results potentially provide new information that makes a positive impact on management's ability to quickly and efficiently train and maintain long-term work force capability leading to positive change that strengthens business practices in the workplace.

Summary

Researchers began looking at technology based training and questioned its place in the workplace in the early 1990's. By the early 2000's researchers were studying how

technology enhanced learning. Numerous studies during this time period called for more research to expand knowledge in the area.

This study of online learning in the workplace included research into learning related to information technology, the various forms of technology-enabled learning, online communication, blended learning, comparative studies of online learning and brick and mortar learning that excluded blended learning, receptiveness and the role and influence of managers in supporting training in the workplace, and the suitability of online learning.

The theoretical framework for this quantitative study was Herzberg's (1974) theory of motivation undergirded by Bloom (1956) learning theory and Maslow (1943) human resource theory.

A knowledge gap exists in the area of receptiveness to online learning in managers and nonmanagers. This quantitative study used an existing database from a public sector workplace to examine whether managers and nonmanagers are satisfied with the use and effectiveness of online learning in workplace training. The intent of this study is to narrow the knowledge gap in this area. Chapter 2 provides a review of the literature on workplace learning and training methodology.

Chapter 2: Literature Review

Introduction

This literature review is a study of current issues in online learning related to workplace training. The study includes evaluation and assessment of literature affecting workplace training, training technology and training methodology. Research findings will address the advent of online learning and later, blended learning, which includes online learning and brick and mortar learning as significant factors influencing the current training environment.

Review of the literature in this chapter covers current research in online learning, blended learning and workplace training and provides a historical view of online learning, blended learning and workplace training over the past decade.

The literature search strategy covered multiple subject areas and terms related to workplace training, learning and technology. Terms researched included various combinations of key terms *blended learning*, *technology* and *training*, *distance learning*, *methodology* and *technology*, *training*, *workplace learning*, *elearning*, *training* and *technology*, *training* and *methodology*, *distance learning* and *workplace training*, *workplace* and *technology*, and *efficacy* and *online learning*.

A crosswalk of research is presented here in the fields of public policy and administration, education, business education, and psychology. Article selection was based upon research conducted over the past decade with particular focus on the years 2006 to present. The selected articles were reviewed for relevance to research questions, hypothesis, and methodology. Articles were analyzed, documented and synthesized. They

were sorted according to the previously stated categories. The results were then organized in a matrix and articles were electronically filed. Matrix headings included author, date and title, a very brief overview that included the research theory that formed the foundation of the article, research questions, and study methodology. The focus of analysis was described and a brief summary of results of the analysis was included. Current dissertations and current articles also were used to locate additional peer-reviewed articles. Dissertations and articles were evaluated using the key terms.

Background of Online Learning and Blended Learning Strategy

Early studies of online learning began around the mid-1990s. Research in technology-mediated learning prior to the year 2000 primarily focused on technology exclusive of other connections. More recent online learning research (Arbaugh, Godfrey, Johnson, Pollacj, Niendorf, & Wresch, 2009) suggested that research in online learning has not progressed as rapidly as needed by organizations. Hailed as early leaders in online learning research, Alavi and Leidner (2001) “used a framework that included technology, instructional strategies and psychological processes’ in their research on technology enhanced learning. Early evidence of technology-mediated learning (Alavi & Leidner, 2001) indicated that development of technology- mediated learning and training requires changing the environment and measuring the effectiveness of change on the environment or the organization. The focus of early studies was on comparing technology- and non-technology-mediated learning, as indicated by Alavi and Leidner (2001), who studied technology-enhanced learning. Most of these early studies called for additional research.

Research focused on both simple and complex online learning, has concluded that more research is needed. Alavi et al. (2002) examined and assessed learning efficacy in complex distributed learning environments. Learning outcomes of distributed learning in two distributed learning environments were examined. Their research used an executive development program in a large federal agency and concluded that complex distributed learning environments do not enhance learning. Alavi et al. advocated additional study of learning outcomes in such complex distributed learning environments.

Studies of distributed learning or online learning advocated the need for more research that contributes to the growth and development of online learning. In another study of complex distributed learning in an organizational setting, Alavi and Gallupe (2003) examined organizational practices, learning practices, teaching practices and approaches to technology mediated learning assessment. Alavi and Gallupe found that resource requirements in terms of time, training, effort and money for technology mediated learning support were generally underestimated. Alavi and Gallupe concluded that technology mediated learning was still in the growth and development stage which supported later reports that the field is still evolving (Arbaugh et al., 2009). Indications were that more studies including assessment of technology mediate learning programs and initiatives in organizational settings were needed and further study was encouraged.

Evidence presented at an elearning human resources development conference held in Vancouver, Canada, supported research involving a blended approach to work focused elearning which included computer based learning (Sambrook, 2006). The Vancouver conference compared to other HRD conference reports of that time frame in terms of

learning and cultural issues. The Vancouver HRD conference focused on elearning in government, education and health contexts provided evidence that conference topics supported elearning strategies in organizations, including design and implementation. Interestingly, Sambrook (2006) also noted a shift in the trainer's role to "catalyst for harvesting knowledge" versus "sage on the stage or guide on the side." (p.577) Therefore, the instructor became a facilitator in the organizational or work setting vice an instructor as in educational or other distributed learning or elearning environments, further distinguishing the role of trainer from that of instructor or educator.

In summary, early studies called for more research in support of online learning, particularly in business education (Alavi, & Leidner, 2001; Alavi, & Gallupe, 2003). Background studies including online and blended learning strategies indicated that the framework of online learning strategies included technology, instructional strategies and psychological processes and that most studies in this areas were comparisons of differences between technology and non-technology enabled learning (Alavi & Leidner, 2001). Supportive organizational change was required, yet effectiveness was not guaranteed and indeed must be measured for positive organizational impact (Alavi & Leidner, 2001). Research also demonstrated that complex online learning does not enhance learning (Alavi et al., 2002). However, support for a blended approach to training including online and classroom training emerged in organizations in government, health and education (Sambrook, 2006). Resource requirements and managerial support necessary to successfully implement online learning in organizational settings tended to

be underestimated, which threatened successful application of online learning or distance learning in workplace training (Alavi & Gallupe, 2003).

Operationalization of Online Learning

A literature review and meta-analysis of online learning conducted by members of the U.S. Department of Education (Means et al., 2009) that covered over 1000 empirical studies from 1996 through 2008 effectively investigated and documented the operationalization of online learning. The evolution of distance learning to include current knowledge of online learning and blended learning encompasses numerous concepts and terms. Terminology covered in this research includes technology- mediated learning (TML), distance learning, computer- based training, e-learning, and most recently, blended learning. A study of TML in 2003 found that TML was still in the growth and development stage and recommended additional study in this subject area to include assessment of TML programs and institutions (Alavi & Gallupe, 2003).

Online learning was defined within the scope of distance learning. Additionally, learning technology was characterized as including distance learning, distributed training, computer based training, web-based learning and advanced distributed learning (Belanich, Moses & Orvis, 2005). Belanich, Moses and Orvis proposed distance learning as a solution to “life-long learning,” and found that distance learning provided time and cost savings. Belanich, Moses and Orvis also found that students scored higher with distance learning compared to traditional instructional methods. Distance learning was called the “predecessor” to online learning and online learning was referred to as web-based extension of distance learning (Shea & Bidjerano, 2010).

Some researchers found the lack of a face-to-face component of on-line learning to be a negative factor. Kumar and Kelly (2005) examined social and cultural aspects of on-line learning and the construct of self-efficacy in their research on the potential for success in design of online technology skills transfer programs. Their findings supported the need for including face-to-face training as a component of successful on-line learning.

In contrast, the face-to face component came under scrutiny in a study of team building in the online environment. Stagers, Garcia, and Nagelhout, (2008) examined teaching team-building skills using two models of team building in the online environment and questioned whether face-to-face exercises can be modified for the online environment. Their findings advocated abandoning the traditional instructor centered face-to-face environment in favor of student centered instruction in the asynchronous online learning environment.

Researchers have delved into distinguishing types of online learning. Research involving “wholly” online learning (Palmer & Holt, 2009) distinguished between wholly online learning, basic online learning and extended online learning. Palmer and Holt (2009) surveyed over 5,000 students in 21 online courses in an Australian university and concluded that three factors were related to online learning satisfaction. Confidence in ability to communicate online, understanding performance requirements, and self-perception of one’s performance were the factors attributed to online learning satisfaction (Palmer & Holt, 2009).

Three or four factors were frequently identified as critical to online learning success. In contrast to Palmer and Holt (2009), Garrison, Anderson and Archer, (2009)

posited that the three critical elements of online educational communications (instruction or training) included social presence, cognitive presence, and teaching presence.

Garrison, Anderson and Archer's position was based upon the assumption that students worked independently in an asynchronous learning environment (p.5). Garrison, Anderson and Archer's research validated their "community of inquiry" concept with emphasis on the three critical factors, social presence, cognitive presence, and teaching presence.

Taking yet a different approach, Gupta and Bostrom (2009) also found evidence of a link involving three critical but different factors in online or technology mediated learning. Learning methods, individual aptitude, and learning outcomes were deemed most critical. Gupta and Bostrom proposed that effective learning is based on consistency of learning method or approach utilized regarding information technology, learning technique, and individual characteristics of the team impacted. Gupta and Bostrom's research focused on the relationship among constructs in technology mediated learning.

Not all researchers agree on the effectiveness of elearning as a transformational tool in education or the workplace. Using a different approach but a somewhat similar focus, Huett et al. (2008) examined technology as a transforming force in education and instructional design and questioned whether elearning and technology provided solutions to training and education problems. Huett et al. concluded there is no single theoretical base to instructional technology and design and called for more research in online learning and instructional design.

Online learning has been examined as an integral part of elearning. Luminita (2009) provided a description of online learning through the elearning platform, defined elearner user roles, and also provided a system and a detailed model for implementation and management of distance education. Additionally, Luminita concluded that distance education provided numerous advantages for instructors and students. Distance education advantages included ease of access, fewer errors and greater administrative advantages. More recently, Luminita, (2010) defined computer application of distance learning in four categories, computer assisted instruction, computer managed instruction, computer mediated instruction, and computer based multimedia. Steps for planning quality distance learning included analysis, design, development, implementation, and evaluation. The same five steps are shared with the Instructional Systems Design process, a process utilized by educators and trainers to design training and classroom instruction (Salisbury, 2008). Effective organizations learn to integrate learning and work (Salisbury, 2008).

Research results supported the integration of learning and work. Papachristos et al. (2010) indicated that “online collaborative learning extends beyond the classroom” and therefore supported flexibility and individualized learning. Papachristos’ case study of teaching a technological model examined whether on-line asynchronous training can be designed to support flexibility and individualization. This research on the use of web-based education resulted in a proposed model for delivery of distance education that provided for flexibility to individualize learning thereby providing support for integration of learning and work in a training setting.

Successful technology integration in the workplace also depends on the presence of training and support. Venable (2010) researched technology integration and support needs. Venable's study of technology integration supported a blended approach to learning involving technology integration, and counselor support and concluded that the presence of training, and support were the factors most important to successful technology integration.

In retrospect, the operationalization of online learning in organizations from the mid 2000's to present resulted in numerous concepts and terms to characterize the practice and various findings or results. Related terms and concepts emerged including technology mediated learning (TML), distance learning, computer based learning, elearning, blended learning, web-based learning, advanced distributed learning, computer assisted instruction, computer managed instruction, computer mediated instruction and computer based multimedia (Alavi & Gallupe, 2003; Belanich, Moses & Orvis, 2005; and Luminita, 2010)

Researchers generally agreed that three or four elements were critical to successful online learning. However, researchers differed in conclusions on the specific elements critical to successful online communications, instruction or training. Elements found to be critical to online success by the various authors included confidence; understanding and self-perception; social presence, cognitive presence, and teaching presence; learning methods, aptitude and learning outcomes; training and support (Palmer & Holt, 2009; Garrison, Anderson & Archer, 2009; Gupta & Bostrom, 2009; Venable, 2010).

Conclusions related to the operationalization of online learning reflected that higher scores resulted with online learning (Belanich, Moses & Orvis, 2005). Also the

requirement for a face-to-face component to support online learning and a need to move to student centered instruction were supported by the literature (Kumar & Kelly, 2005; Stagers, Garcia & Nagelhout, 2008). Online learning was also found to support flexibility and individualization of learning thus online learning extended learning beyond the classroom for possible support of organizational training (Papachristos et al., 2010). In contrast to the findings above, Huett, Moller, Foshay and Coleman (2008) found that no single theoretical base for instructional technology and design existed and called for more study in the area.

Studies on Efficacy of Online Learning and Blended Learning strategies

A blended learning approach gained support among online learning and distance learning researchers. Blended learning includes a combination of face- to-face instruction and online learning and has evolved from current research in distance learning (Yellen, 2005; Means et al., 2009).

Blended learning answered the call for a face-to-face component of online learning. Yellen (2005) emphasized the importance of a blended approach over use of distributed learning alone or classroom training alone. Examination of individual involvement in the learning process indicated that technology users do not receive adequate training therefore distributed learning should be an alternate learning method rather than the primary method of instruction and further questioned whether the distance learning mode of training is more suitable for learning systems and software (Yellen, 2005). Yellen concluded that distance learning is an alternative method of training that works best as blended learning that includes a classroom training component. Yellen

advocated use of a blended learning approach to training combined classroom training with distributed learning methodology.

Support for online learning emerged from an extensive government study of online learning. A report from the U.S. Department of Education (Means et al., 2009) examined online learning research and identified one thousand empirical studies of online learning for application of meta-analysis. The results of this report also strongly supported a blended learning application. Research findings indicated that differences between online and face-to-face instruction were larger in courses that included blended learning. Positive results were attributed to blended learning based primarily upon the greater amount of instructional time involved in blended learning, a method which frequently includes online learning and another medium of delivering instructional content.

Researchers have examined online learning, elearning and distance learning from a number of different viewpoints. Examination of how to define, evaluate, and promote elearning success from an information systems perspective concluded that successful elearning is based on online readiness (Holsapple & Lee-Post, 2006). Academic preparedness, technical competence, lifestyle aptitude and learning preference for elearning were cited as the characteristics of online readiness by Holsapple and Lee-Post (2006) who surveyed 369 traditional and 39 online undergraduate students. Successful and effective online learning was attributed to online readiness.

Examination of distance learning programs in the workplace on a global scale has provided less conclusive results. Bollettino and Bruderlein (2008) examined distance

learning literature on effectiveness of distance learning programs among humanitarian organizations. Bollettino and Bruderlein interviewed officials from 12 organizations that utilized distance learning in training. Their study included 2,000 professionals from 146 countries and 20 organizations in the pilot study. They found that performance of online students was more consistent (within one standard deviation) than in class students. Bollettino and Bruderlein recommended additional study to document the effectiveness of distance learning programs and training benefits to national and international organizations and to determine benefits to education and training.

Analysis of the impact of mobile technology on organizational effectiveness and efficiency found there was no simple, single consequence of information technology introduction to organizations. Sorenson et al. (2008) analyzed case studies on information technology and questioned organizational implications of mobile information technology across public and private sector organizations. Sorenson et al. found that the impact of information technology on the organization is based on setting, management, and organization strategy. Assimilation of information technology and collaboration among employees who hold managerial and nonmanagerial positions and the human dimension of interacting with information technology were key factors in effectiveness of mobile information technology.

Analysis of the effectiveness of online learning led to the introduction of various models and constructs. Shea and Bidjerano (2010) demonstrated a strong relationship between self-efficacy and the Community of Inquiry (COI) construct, which included teacher presence and social presence. Shea and Bidjerano recommended expanding the

COI model to include learner presence to better explain and understand the benefits of online instruction. Furthermore, Shea and Bidjerano called for additional research in the area of online learner self-efficacy.

Another model examined computer self-efficacy and learner performance expectations. Wu et al. (2010) developed the Blended Learning System (BELS) model for learning satisfaction and effectiveness. The BELS research model advocated that computer self-efficacy, system functionality, content feature and interaction influence performance expectations. Interaction also influences the learning climate. The learning climate and performance expectations affect learning satisfaction. Wu et al. found that their blended learning model enhanced performance learning, provided functionality and flexibility and facilitated student interaction.

Blended learning has also been found to enhance work-related learning. Sambrook (2005) researched factors influencing work related learning and how work related learning is encouraged, supported, and facilitated. The author advocated blended learning as a supporting factor of elearning. Sambrook (2006) explored elearning strategies, design, and implementation with elearning in government, education, and health contexts as the focus and found evidence that supported a blended approach to elearning which included computer based learning as a medium of instruction.

Collectively, studies on the efficacy of online learning and blended learning strategies showed that distance or online learning works best as part of a blended learning strategy that includes more than one medium such as online and classroom learning. Another finding was that technology users need more training (Yellen, 2005; Means et al.,

2009). A Blended Learning Model (BELS) proposed by Wu et al. (2010) was found to enhance performance learning while providing flexibility. Researchers called for additional research in the areas of online learning, self-efficacy, and effectiveness of online and distance learning programs in organizational training programs (Bollettino & Broderlein, 2008; Shea & Bidjerano, 2010). However, successful elearning or online learning was attributed to a number of factors in various combinations including greater instructional time, academic preparedness, technical competence, lifestyle aptitude, learning preference, teacher presence, social presence, learning presence, and organizational strategy as combined factors (Means et al., 2009; Holsapple & Lee-Post, 2006; Sorensen et al., 2008; Shea & Bidjerano, 2010).

Current research conclusions in the efficacy of online and blended learning strongly support the viability of this study of satisfaction with online learning in workplace training. This study of satisfaction with Online learning in workplace training responds to the call for additional research in the area of online learning self-efficacy in accordance with the community of inquiry construct. (Shea & Bidjerano, 2010). The proposed study also aligns with research under the construct of the efficacy of online and blended learning.

Studies Comparing Traditional (Brick and Mortar) Face to Face Learning with Online Learning

Face-to-face interactions including “on the ground intervention” such as is prevalent in the classroom or at the worksite, were found to be instrumental to successful implementation of online learning in certain cultures (Kumar & Kelley, 2005). While this

study demonstrated support for the face-to-face component of blended learning paired with online learning many studies have compared traditional classroom or face-to-face learning with online learning.

An overview of Army research on distance learning placed it in historical context, then framed the application for Army training culture while comparing traditional classroom learning to online learning. Belanich et al. (2005) examined how to increase Soldier satisfaction with distance learning and specifically online training in support of distance learning as a lifelong learning tool and found that realistic online training increased retention and relieved instructor workload. Distance learning online training supported collaboration and interaction and provided time and cost savings (p.5). Students were shown to score higher on distance learning online training compared to traditional instructional methods (p. 6).

Specific training strategies were found to work better according to the specific environment. Steinbronn and Merideth (2007) analyzed instructional strategies used in face-to-face instruction or resident, brick and mortar instruction. They also examined “perceived usefulness” of instructional methods for online and classroom environments. Steinbronn and Merideth concluded that certain strategies work better in a particular environment. The lecture method was favored in the face-to-face environment while interactive methods utilizing student to student and student to instructor interaction were favored in the online environment.

No differences were found in instructional functions interaction processes in a comparison of online and face-to-face instruction. Diaz and Entonado (2009)

hypothesized that satisfaction and efficacy in interaction processes is greater in face to face training programs as compared to the online training programs. Diaz and Entonado proposed to improve instructional roles and methods for teachers focused on online and face-to-face learning; however, they concluded that no difference existed in instructional functions when comparing online and face-to-face instruction.

Various researchers have studied learning differences in effectiveness between online and face-to face instruction. Learning differences between online and face-to-face instruction were larger in courses that included blended learning in a literature review of research from 1996 to 2008 (Means et al., 2009). Over 1000 empirical studies of online learning were evaluated in support of these findings. Research on use of distance learning in humanitarian organizations found that performance of online students was more consistent, within one standard deviation, than in-class students (Bollettino & Bruderlein, 2008).

A face-to-face component has been deemed critical to the success of online learning, thereby providing support for a blended approach to learning that includes an online component (Kumar & Kelly, 2005). However, some have questioned whether certain aspects of training are appropriate for the online environment (Staggers, Garcia, & Nagelhout, 2008). Online learning has grown significantly in the past 10 years. Comparisons of online and distance education and face-to-face instruction have consistently found no difference in learning outcome (Shea & Bidjerano, 2010).

Larson and Chung-Hsien (2009) argued that it has already been established via current research that there is no difference between face-to-face and online learning and

inferred that blended learning must also be tested and compared for no difference. The authors referred to the website <http://www.nosignificant difference.org> for further evidence on their position. Larson and Chung-Hsien (2009) compared three methods of instruction used in an introductory Information Systems Management course, face-to-face, blended, and online for student satisfaction, learning effectiveness and faculty satisfaction. The researchers concluded that there is no significant difference among delivery of instruction as face-to-face, blended or online instruction, and furthermore that people “adapt to the medium” of instruction used.

Research results comparing traditional (brick and mortar) face to face learning with online learning found that face-to-face interactions were important to successful implementation of online learning and found that learning differences were larger in courses that included distance or online learning. Students also scored higher when an online or distance learning component was included (Belanich et al., 2005; Kumar & Kelley, 2005; Means et al. 2009). Additional results (Belanich et al., 2005; Steinbronn & Merideth, 2007) indicated that

- Realistic training increased retention
- Collaboration, and interaction were supported
- Cost savings were achieved
- Interactive, student to student, and student to instructor methods work best in the online environment

Study results largely supported that there is no difference in learning outcomes given different instructional modes in comparison of online and face to face instruction Diaz &

Entonado, 2009; Larson & Chung-Hsien, 2009; www.nosignificantdifference.org).

However, an alternative view questioned whether face-to-face exercises can be modified to fit the online environment. Yet others demonstrated greater learning gains in the online environment than in the face to face instructional environment (Staggers, Garcia & Naglehout, 2008; Means et al., 2009).

Literature on Workplace Training (Early to Current Studies)

Review of the state of workplace learning during the early phases of elearning implementation found five factors described by Beckett and Hager (2000) as practical processes that supported workplace learning and resulted in the ability of employees to make determinations based on their background and understanding of workplace practices in a particular organizational environment. The five factors, contingent, practical, process, particular affective and social domains supported workplace learning and resulted in the ability of employees to make judgments in the workplace (Beckett & Hager, 2000).

Examination of the relationship of individual learning to organizational learning and organizational transformation began almost two decades ago. In a study of the relationship between training and development strategies and learning climate driven by the organization and individually led learning, McDougall and Beattie (1998) found that one reflection of organizational change is evidenced in the organization's investment in new technology and another is development of training and development strategy. This infers that training and development strategy is important to an organization's progress and that introduction of new technology such as online learning or elearning; distance

learning or technology mediated learning, work together to achieve organizational change. Therefore, change in the workplace is directly related to an organization's investment in technology. However, one might argue that this is the Hawthorn effect (Shafritz et al., 2005) which advocates that production increased because of attention from management rather than solely because of the introduction of new technology.

The learning culture must be supported by senior levels of management and sustained by investment of organizational resources to encourage and support work related computer based learning (Sambrook, 2005). Sambrook and Roberts (2005) considered organizational learning and entrepreneurship at the various hierarchical levels and questioned what form of learning occurred in groups. They argued that learning must occur not only at the strategic organizational level but also at the team and individual levels to accomplish internal organizational change. In research on factors influencing work related learning including organizational information, and communications technology, Sambrook (2005) found that employee learning, involving computer based learning enhances organizational learning. However, creating the learning culture in the organization is contingent upon the involvement of senior management and their commitment to providing their employees training technology, and resources such as are necessary to support computer based learning or elearning. Blended learning was also cited as a positive factor enhancing employee learning.

Organizational culture and organizational values are critical factors in managing and facilitating knowledge practices in the organization (Alavi, Kayworth & Leidner, 2005). Although culture can be an impediment to elearning or online learning,

organizational culture accelerates by positive emphasis from senior leadership and the required resources can establish a successful environment for elearning, online learning or distance learning that builds skills and knowledge which benefits the organization. Cultural exchange, senior leader support of learning and of technology based learning, organizational culture and organizational values strongly influence workplace technology based learning thus affecting organizational change.

The transfer of technology skills and the potential for success in design of online technology skills transfer programs is highly dependent upon the social face-to-face factor. Spittler (2005) found that social interaction has a significant role in technology learning in the workplace with respect to how employees learn to use and become proficient in utilization of technology in their work setting. Online experimentation, reading books and manuals on online training, and use of online help were enhanced by social interactions with master online training technology users resulting in successful transfer of technology skills. Studies of elearning from a social perspective enhance the case for a blended approach to distance or online learning that includes a face-to-face component vice a singular online approach.

Examination of the impact of mobile technology on organizational effectiveness and efficiency also supported the ability of information technology to undergird collaboration in remote professional environments (Sorenson et al.2008). Information Technology increased organizational flexibility by strengthening remote organizational connections, collaborative ability and managerial control. Information Technology showed organizational transformational capability (Sorenson et al., 2008). Similarly, a

white paper focused on results of a think tank, which proposed that current trends in learning included an increase in types of training modalities, an increase in mobile learning and asserted that social and informal learning is on the rise due to the transformational capability of information technology (Expertus, 2010).

According to Beattie (2006), research into the behaviors used by managers to enable employee learning, defined training as formal workplace learning. Beattie asserted that the workplace was a formal site for learning and argued that line managers play a critical role in organizational and individual learning. Beattie questioned what line managers do to facilitate or inhibit learning, and what motivates managers to develop staff members. Moreover, Beattie examined the influences of individual and organizational factors, and outlined an organizational framework for supporting learning. Beattie found that a hierarchy of managerial behaviors facilitates workplace learning beginning with “managerial caring, in-grooming, being professional, advising and assessing, thinking, empowering, developing, and challenging employees.”

When researchers examined the “effects of trainer reputation and trainees’ need for cognition on training outcomes” they found that the influence of trainers on course outcomes could be modified by employees’ high need for learning (Towler & Dipboye, 2006). Examination of the relationship between prior learning experience, satisfaction, task value, perceived learning and intent to enroll in future online learning revealed that online learning results are consistent with those found in classrooms (Artino, 2007). Further inquiry into the relationship between satisfaction, perceived learning and future enrollment intentions, task value, self-efficacy, and prior online learning experience

concluded that findings regarding online learning in military environments are consistent with those found in classrooms (Artino, 2007). This finding supports consistent application of online learning results from the classroom to the workplace. Online learning satisfaction was found to be related to the individual's prior online learning experience, perceived value of the task being performed, perceived learning and self-efficacy. Self-efficacy was related to satisfaction and perceived learning (Artino, 2007).

Inquiry into how information technology (IT) enabled and enhanced organizational learning found several factors that influenced organizational learning. Kane and Alavi (2007) examined existing case study data for support of organizational learning. Three types of IT data were examined and each was found to have a distinct impact on exploration and exploitation in organizational learning. Tools, environment, and the individual each contributed to determining the outcome of information technology enabled learning. Researchers have investigated learning orientation for its role in organizational learning. Gong, Huang and Farh (2009) investigated learning orientation in their study of employee creativity and job performance. Gong, Huang and Farh found that employee creativity was related to supervisor's ratings of job performance.

One framework promoted for organizations to manage learning in the workplace was the "Collaborative Cognition Model" (Salisbury, 2008). Salisbury argued that effective organizations learn to integrate learning and work and advocated extension of the "Collaborative Cognition Model" for dissemination of knowledge within organizations for integration at the individual, team and organizational levels.

In review, examination of early literature, and current literature focused on workplace training revealed that organizational change is supported and achieved by the organizations' willingness to invest in training and development of personnel, and investment in new technology (McDougall & Beattie, 1998; Sambrook, 2005). The workplace was defined as a formal place for learning facilitated by workplace managers critical to organizational and individual worker's learning (Beattie, 2006; Towler & Dipboye, 2006). Research demonstrated a link between organizations' development of technology skills and social interaction among workers such as by including a master technologist in the organization (Spitler, 2005). Support from senior level management was demonstrated to be vital to development and sustainment of a learning culture within the organization (Sambrook, 2005). Computer aided learning and online learning were included in these implications. Organizational culture and organizational values that created and sustained the successful online or elearning environment within the organization required positive support and emphasis from senior management (Alavi, Kayworth & Leidner, 2005). Effective organizations integrated learning and work (Salisbury, 2008). Factors such as individual's self-efficacy, perceived task value, tools, environment, contingent, practical, process, particular and affective social domains were shown to impact workplace learning (Beckett & Hager, 2000; Artino, 2007; Kane & Alavi, 2007).

Online and Blended Workplace Training

Early Studies of online learning began around the mid-1990s. Research in technology mediated learning prior to the year 2000 primarily focused on technology

(Arbaugh et al., 2009). Review of comparative studies of online and classroom learning resulted in “no difference” in performance between online and classroom learning (p.74). Arbaugh et al. noted a ‘higher perception of learning’ with blended learning (p.81) and called for more research in online learning, particularly in business education.

Furthermore, Arbaugh et al. indicated that the literature on the subject suggested research in online learning has not progressed as rapidly as needed by organizations. Just prior to that time, Sambrook (2006) the editor of Human Resource Development International Journal examined and reported on an elearning HRD related conference held in Vancouver, Canada and compared the Vancouver conference to three recent HRD conference reports in terms of learning and cultural issues. The Vancouver HRD conference focus was elearning in the workplace in government, education and health contexts. Evidence presented supported a blended approach to elearning in the workplace which includes computer based learning. Sambrook also noted a shift in the trainer’s role to “catalyst for harvesting knowledge” vice “sage on the stage or guide on the side”, a concept consistent with online learning in the workplace.

Similarly, Kim, Bonk, and Oh (2008) conducted an international study of online workplace learning that included a review of online learning literature from 2002 through 2006. Their study examined the status of blended learning in the workplace and questioned future growth, quality of learning, the impact of emerging technology, and relevant instructional strategy. Kim et al. concluded that blended learning is a popular mode of delivery in the workplace and predicted a rise in the use of collaborative approaches to learning and blended learning.

The National Center for Education Statistics examined U. S. degree-granting institutions offering distance education courses during 2006-2007 (Parsad et al., 2008). The study questioned types of distance education courses offered, number and type of total distance education courses, technology used to teach distance education courses, and contributing factors in distance education. Parsad et al., found that two thirds of 2 and 4 year colleges offered online courses or distance learning courses, over 2 million enrollments. Thirty five percent of them offered blended learning while twenty six percent offered other distance learning. Thirty two percent of two and four year colleges offered totally online courses while twenty nine percent offered totally online degree programs.

As learning is applied to workplace training positive results have been demonstrated with online and blended learning (Sambrook, 2005). Expertus (2010) listed “on demand learning” such as with online learning and blended learning, as first among the “best” best practices in providing accurate content when and where needed to enhance training programs.

Online and blended learning in workplace training grew from an initial focus solely on technology to include elearning in business education. Online or elearning branched out to a present day focus that includes government, education and health care as well as other fields (Sambrook, 2006; Kim et al., 2008; Arbaugh et al., 2009). Arbaugh et al. (2009) recognized Maryam Alavi, Dorothy Leidner, and Sirkka Jarvenpaa as early leaders in research on online business education that promoted and extended their research of online business education as value added to organizations. Leidner and Jarvenpaa (1995)

developed a framework” that matched technology to learning theory” (Arbaugh et al., 2009). Alavi and Leidner were further credited for their utilization of a research framework that included technology, instructional strategies and psychological processes (Arbaugh et al., 2009). Furthermore, Alavi and Leidner (2001) examined how technology enhanced learning, and compared technology mediated learning with non-technology mediated learning, then called for changing the training environment to accommodate technology mediated training and measuring training effectiveness. Technology based learning has grown rapidly to include numerous workplace disciplines, and enjoys international popularity in the form of blended learning (Kim et al., 2008). The popularity of blended learning is also supported by the field of education where more than one third of US colleges and universities offer blended learning courses (Parsad et al., 2008). Students accustomed to the blended learning mode will someday enter the workforce prepared to be guided as active participants in collaborative training undergirded by a shift in the trainer’s role from an instructor or “sage on the stage” to training facilitator or “guide on the side” (Sambrook, 2006).

Summary of Research in Other Themes or Findings in Online Learning, Receptiveness and Satisfaction

Research and articles on other variables or themes in online learning included various topics such as the study of culture and online learning (Alavi & Gallupe, 2003; Kumar & Kelley, 2005), the study of social implications related to online learning (Spitler, 2005; Santhanam, Sasidharan & Webster, 2005), and the study of individual differences in online learning (Gupta & Bostrom, 2009). Factors such as culture, values,

resources, social interaction and individual differences were demonstrated in the literature to impact successful technology based learning such as online learning. Culture was found to act as either an enabler or a deterrent depending upon the circumstances (Alavi & Gallupe, 2003; Alavi et al., 2005; Kumar & Kelley, 2005; Leidner & Kayworth, 2006) and therefore, must be considered as a factor affecting satisfaction with online learning. Possible implications are that satisfaction with online learning might be influenced by one's culture, availability of resources or social interactions. Also, values held by local supervisors were shown to be oppressive or motivating forces that enhanced or deterred online training (Wiredu, 2007). However, there is evidence that peer interactions in the workplace setting and the availability of resources helped to build information technology skills (Sambrook, 2005; Spittler, 2005). Individual differences and the ability to self-regulate were also shown to impact training outcomes (Santhanam, Sasidharan & Webster, 2005; Gupta & Bostrom, 2009) and therefore may be associated with affecting training outcomes in online learning in workplace training.

Research on receptiveness includes a study of military personnel and receptiveness to stress management techniques (Stetz, Bouchard, Wierderhold, Riva & Folen, 2009); self-efficacy as a factor in receptiveness (Christoph, Schoenfeld & Tansky, 1998); and receptiveness to advice (Feng & MacGeorge, 2006). Christoph, Schoenfeld and Tansky argued that receptiveness to training is related to positive self-efficacy. They measured receptiveness to multimedia instruction using a survey instrument that focused on reaction to multimedia and prior exposure to multimedia or developed self-efficacy, and existing self-efficacy. They found greater receptiveness or perception of

effectiveness in those with higher self-efficacy. The implications are that receptiveness is operationalized through existing and developing self-efficacy. Feng and MacGeorge (2006) argued that receptiveness affects the evaluation and the outcome in a situation. They studied receptiveness to advice and found a positive relationship between expertise and receptiveness. Receptiveness has also been linked to one's personal perception (Stetz, Bouchard, Wierderhold, Riva & Folen, 2009). In a study of military personnel and receptiveness to stress management techniques, receptiveness was determined using questions such as "Which did you like best?" and "How did you feel?" These questions can be interpreted as asking whether the stress management technique met the need to reduce stress. Meeting of a physiological need falls well within the definition of satisfaction, according to McGregor (1960) thus linking receptiveness and satisfaction.

Factors that influence learner satisfaction with distance education were studied by Bray, Aoki, and Dlugosh (2008) who examined satisfaction with online learning in Japanese university students. They asserted that the right mix of distance learning, classroom training, and online training is influenced by the individual's culture. Bray, Aoki, and Dlugosh found that factors that influence learner satisfaction with distance learning were personal perseverance, computer competence, instructor interaction, and lack of need for social interaction during the learning experience.

Studies of technology mediated learning, elearning, and distance learning examined the impact of culture on various dimensions of online learning. Research into organizational practices and learning practices emphasized requirements for cultural change and management's support of required resources in success of technology

mediated learning programs. Researchers found that organizational culture was the biggest impediment to technology mediated learning change, and knowledge management within organizations is greatly influenced by organizational culture (Alavi & Gallupe, 2003, Alavi et al. 2005).

Research has shown that culture impacts the transfer of technology skill. Kumar and Kelley (2005) demonstrated that culture influences transfer of technology skills in certain cultures. Kumar and Kelley operationalized “Hofstede’s dimensions of culture” which characterized culture as “(1) individualism-collectivism (2) masculinity-femininity (3) power distance (4) uncertainty avoidance and (5) long term orientation”. Specific social practices involving work place culture could determine the amount of independence the individual has in building or demonstrating technological skills. The workplace culture could potentially favor dependence on managers vice peers, or vice versa for transfer of technology skills. Similarly, workplace culture could potentially reward men while systematically discouraging women or the reverse, as examples for further study according to Kumar and Kelley, using “Hofstede’s dimensions of culture”. Leidner and Kayworth (2006) examined the relationship of culture to information technology in a study of culture on several different levels and developed taxonomy of cultural values. Leidner and Kayworth’s exploration of the concept of culture and values and the impact of information technology on the organizational level found that values are important to information technology skill development in the organization. Sambrook (2005) researched factors influencing work related learning including organizational, information and communications technology. Implications were that employee learning

provides positive impact on organizations. Creating a learning culture in the organization requires involvement of senior management, investment in resources, increasing employee motivation and increasing availability of training technology. User friendliness was found to be important to elearning. Blended learning and virtual support of elearning were also important to the learning culture.

Elearning and training were also examined from the social perspective.

Santhanam, Sasidharan and Webster, (2005) used Social Cognitive Theory to examine elearning training and self-regulating instructional strategies. They found that students taught self-regulatory strategy and directed to self-regulate showed enhanced learning. Positive feedback about self-regulation produced enhanced learning in elearning and training. Spitler (2005) asserted that social interaction, experimentation, reading books, manuals, and online help were contributing factors instrumental to building information technology skills. Spitler examined workplace challenges but focused specifically on how learners learn to use technology in their work setting, and questioned whether factors besides training contribute to building information technology skills.

Motives of workplace supervisors regarding distance learning have also been studied. Wiredu (2007) investigated contradictions among motives of distributed learning instructors, and workplace supervisors and found that some distributed workplace learning challenges include multiple sources of instruction, instructor and student separation; contradictions among instructors, and constraints upon learners by local supervisors. Furthermore, Wiredu found that learning outcomes were influenced by contradictions among distributed learning instructors and local supervisors.

An alternative approach taken by Gupta and Bostrom (2009) used construction of a theoretical conceptual model to examine the relationship of various learning constructs in technology mediated learning. Gupta and Bostrom emphasized the importance of consistency of method and approach. Gupta and Bostrom's research emphasizing a theoretical conceptual model found evidence of a link between individual differences, learning methods and learning outcomes.

Theoretical Foundation

This study crosswalks several disciplines including public policy and administration, psychology, and education; therefore theories affecting this research into satisfaction with online learning in workplace training include human resources theory, psychological theory, and learning theory. The subject matter of this study integrates the three disciplines. Human resources theory in the current study involves employee functioning in a workplace such as is common to the field of public policy and administration. Psychological theory which supports this research concerns human motivation common to all fields, and learning theory in this study relates specifically to the learning aspects of workplace training.

Human Resource Theory

Maslow (1943) whose theory of Human Motivation included satisfaction, advocated a hierarchy of five basic needs that must be satisfied in every individual in rank order of importance. Maslow (1943) argued that "every drive is related to the state of satisfaction or dissatisfaction of other drives (p. 167)". Maslow's five basic needs that must be satisfied in their rank order of importance on the hierarchy were physiological,

safety, love, esteem, and self-actualization needs. The scope of this study of satisfaction with online learning in workplace training falls within Maslow's need for esteem that was described as including a need for a "high evaluation" of oneself and also "the desire for strength, for achievement, for adequacy, and for confidence" (p.171). Satisfaction of the need for esteem led to self-confidence according to Maslow. In some cases Maslow indicated that satisfaction of the need for esteem could be greater than satisfaction of the need for love even though the need for love is ranked greater on the hierarchy of needs. Maslow's theory of Human motivation can be considered Human Resource Theory as it supports human resources in the workplace and also Psychological Theory as is a prominent theory in the field of psychology.

Psychological Theory

Psychological theory was critical to this study of satisfaction because satisfaction is an individual matter based upon individual's cognitive and affective experiences which can be reflected in their behavior. Bandura (1989), a psychologist at Stanford University studied the influence and impact of personal factors involving how one thinks about matters during any interaction or situation. Bandura's Social Cognitive Theory (1989a, p. 1175; 1989b, p. 1; 1997) advocated "a model of emergent interactive agency" wherein three primary factors interacted to motivate one to take action. Those factors were (1) behavior, (2) cognitive, affective and other personal factors, and (3) environmental events (1989 a., p. 1175). Bandura's Social Cognitive Theory focused on how the individual thinks, their tendencies to self-reflect, and their ability to self-regulate. Bandura's theory was based on a model of "reciprocal causation" (Bandura, 1989b; 1997). Under the

concept of Social Cognitive Theory, Bandura defined self-efficacy as “peoples’ beliefs about their capabilities to exercise control over events that affect their lives” (1989a, p. 1175; 1997). Bandura stated “self-efficacy beliefs usually affect cognitive functioning through the joint influence of motivational and information-processing operations” (1989a, p. 1176). Specific implications of Bandura’s Social Cognitive Theory (1989a, p. 1175; 1989b, p. 1; 1997) for application to this study of online learning in workplace training are that as one considers oneself more capable of performing a task in online learning; one is more likely to engage in online learning activity to support performance of the task or more likely to engage in development of personal skills that enable accomplishment of online learning tasks. Bandura asserted that a high sense of self efficacy led to skillful execution of tasks, goal attainment, perseverance, and success as well as “positive well-being” (Bandura, 1989a). People tend to select activities and situations that they believe they can handle (self-efficacy) and avoid those they are uncomfortable with or incapable of handling according to Bandura. Within the scope of this present study, this concept relates to whether workers are inclined to engage in online learning because they feel capable of performing well in the online environment. It also relates to whether managers are inclined to support online learning because they are comfortable with or capable of handling the learning outcome leading to skillful execution of training.

Another psychologist, Herzberg (1974) examined theories of motivation that influenced the level of satisfaction in the workplace environment. Herzberg’s theory of motivation (Berman, Bowman, West & Van Wart, 2006) was a twofold theory of

intrinsic and extrinsic factors leading to satisfaction or dissatisfaction in the workplace. Intrinsic factors involved “job content factors” such as “challenging work, responsibility, achievement and the like that led to satisfaction on the job (Berman et al., 2006, p. 163). Herzberg (1974) presented six profiles of job satisfaction and dissatisfaction and described the factors involved in each profile. Job satisfaction, according to Herzberg (1974) was based upon motivational factors such as “achievement, recognition for achievement, interesting work, increased responsibility, growth and advancement. Job dissatisfaction was based on job context factors and was therefore referred to as “hygiene”. Factors referred to job environmental conditions “company policy and administration practices, supervision, interpersonal relationships”. Extrinsic factors were “job context factors” such as “policies, supervision and working conditions’ that led to work dissatisfaction when absent according to Herzberg. Sharp (2008) used Herzberg’s theory of motivation to examine job satisfaction among psychiatric registered nurses. Sharp (2008) found that ability utilization and achievement are related to job satisfaction which supported Herzberg’s theory that intrinsic factors led to job satisfaction. As it regards this study of online learning in workplace training, the expectation is that ability utilization and achievement are also related to satisfaction with training in the online environment.

Learning Theory

Learning theory as it concerns this study of online learning in workplace training is well documented within the scope of the cognitive domain of Bloom’s Taxonomy. Bloom (1956, p.1) developed and promoted an orderly description of educational

objectives by classification; thereby advocating “classifying the goals of the educational process (p.4)” and the educational intent of the curriculum. Once classified, objectives could be measured or tested. Bloom’s hierarchical classification of objectives was characterized by three domains, the cognitive, affective, and psychomotor domain (p.7).

The cognitive domain of the taxonomy included six major areas of learning presented in hierarchical format. Each learning level in the hierarchy was built upon the previous level while increasing in complexity. Listed in hierarchical format from the lowest to highest, they were:

- Knowledge-acquired information: The baseline learning level (p. 62)
- Comprehension: Second level of learning; involves communication, understanding, and interpretation (p.89)
- Application : Mid-level learning built upon knowledge and comprehension resulting in use (p. 120)
- Analysis : More advanced level of learning involved breakdown of subjects into its components (p. 144)
- Synthesis and evaluation : The highest learning level included all previous levels and resulted in restructuring learning into a new and possibly different whole element (p. 162)

Bloom’s (1956) taxonomy continues to influence current approaches to learning and training. Du (2011) asserted that learning activities based on lower levels of Bloom’s Taxonomy taught via online learning prior to and after classroom instruction enhance

classroom learning and student performance. As evidenced by Du (2011), Bloom's taxonomy has been used for over five decades as a standard measure of learning.

This present study of Satisfaction with Online Learning in Workplace Training falls within Bloom's hierarchy beginning at the Application level and extending through the Synthesis and Evaluation levels of learning as outlined in Bloom's hierarchy. Challenging work, responsibility, and achievement (Berman et al., 2006, p. 163) in accordance with Herzberg's (1974) theory of motivation applied to job satisfaction is therefore, undergirded by the employee's application, analysis, synthesis, and evaluation of information on the job. Therefore, the lower level of satisfaction on the job with online learning in the workplace is placed at the application level while online learning tasks based on objectives that require synthesis and evaluation would place at the top level on Bloom's hierarchy.

Measures of Satisfaction a Pivotal Concern

Studies of satisfaction related to online learning in the workplace are numerous and use various instruments of measure. A study of job satisfaction (Sharpe, 2008) used the Minnesota Satisfaction Questionnaire short form (Weiss, Dawis, & England, 1967) to measure job satisfaction and motivation. Ability utilization, compensation, co-workers (relationships) and achievement were independent variables in that study. In comparison, a study of online learning satisfaction (Shea and Bidjerano, 2008) utilized the Community of Inquiry (COI) survey instrument and included age and student registration status as variables. Shea and Bidjerano (2010) surveyed 3165 students in online and blended learning

courses to measure relationships among teaching presence, cognitive presence, social presence and self-efficacy.

Operationalization of Receptiveness and Satisfaction

Numerous studies throughout the literature effectively operationalize receptiveness. A search of the literature using the words receptiveness and satisfaction resulted in over three thousand studies that focus on some aspect of receptiveness and link receptiveness to satisfaction. Subjects are quite diverse and include consumer satisfaction, online education, marketing, medical treatment and retailing practices such as trade promotions. A study of trade promotions (Poddar, Donthu, & Parvatiyar, 2013) involved surveying and interviewing senior level executives, managers and buyers on satisfaction with trade promotions. Study results linked vendor receptiveness to satisfaction with promotions and satisfaction with the relationships with vendors. Patient receptiveness to medical students presence during treatment was linked to satisfaction with treatment in a study in the Pakistan Journal of Medical Sciences (Khan, Jaiwaid, & Hafeez, 2013).

Receptiveness and satisfaction were defined as agreement in this study. A study of patient satisfaction with community therapy conducted in Brazil linked patient satisfaction to receptiveness (de Andrade, de Oliveira Ferreira Filha, de Toledo Vianna, Silva, & do Céu Clara Costa, 2012). A study more closely related to the subject of this research (Satisfaction with online learning in workplace training) found that receptiveness was ranked among secondary factors contributing to satisfaction of online students with online faculty performance (Schubert-Irastorza & Fabry, 2011). That study involved over 3,000 graduate students at an online university, National University in California.

Review of the literature on operationalization of receptiveness and satisfaction indicates a definite link between satisfaction and receptiveness. Although one might infer the reverse is also true, further study is required to provide evidence that lack of satisfaction leads to lack of receptiveness.

Method

This study of satisfaction with online learning in workplace training proposes to show a correlation between receptiveness to online learning and the variables age, position and length of service. This study employs an existing database from the OPM and uses the results for further analysis and study. OPM utilized the survey method of data collection in a study of respondents who were employees from multiple agencies within that federal government entity. The survey method is popular due to its versatility and successful employment in a multitude of studies, and it is viewed as useful by researchers (Ryan et al., 2014). The dependent variable used in this study of satisfaction with effectiveness of online learning in workplace training is receptiveness as expressed by satisfaction and by extension, agreement. The independent variables are age, position and lengths of service.

This study of Satisfaction with Online Learning in Workplace Training is consistent with research results in the literature calling for additional research in online learning self-efficacy in accordance with the COI construct. (Shea & Bidjerano, 2010). This study also aligns with research under the construct of the efficacy of online and blended learning. Chapter 3 discusses methodology in more detail.

Summary

Online learning, blended learning, training technology, computer based training, web-based training and training methodology are concepts that unfolded in the study of the evolution of online learning in workplace training, dating back to the mid 1900's. The earliest studies of technology mediated or technology enabled learning advocated simple distance learning formats (Alavi et al., 2002) and called for more research in the area. Early studies of distance learning, including online learning also focused on demonstrating no difference between traditional classroom instruction and forms of distance learning or training (Belanich, Moses & Orvis, 2005). Technology, instructional strategies and psychological processes requiring managerial support and reinforcement through organizational change defined the framework of online learning. Blended learning, a combination of online learning and classroom training emerged as the strongest application yet for successful training (Sambrook, 2006; Means et al., 2009; Kumar and Kelley, 2005). Classroom instruction in the training environment experienced a shift from emphasis on "sage on the stage" or lecture type instruction to "guide on the side" or facilitation type instruction (Sambrook, 2006) as online training became more student centered instruction. Technology instruction and elearning in business education were the earliest focus of online learning and training via online learning. (Sambrook, 2006; Kim et al., 2008; Arbaugh et al., 2009). Later government, education and healthcare employed online learning as a training modality.

Various studies demonstrated that factors such as managerial support, culture, social interactions, values, availability of resources and individual differences can influence the

outcome of technology based learning such as online learning and training via online learning in the work environment. Organizational culture can enable or impede success and acceptance of online learning in the workplace (Alavi & Gallupe, 2003; Alavi et al., 2005; Wiredu, 2007). However, peer-to-peer interaction can have a positive effect (Sambrook, 2005).

Human resource theory, psychological theory and educational theory are the theoretical underpinnings of this study. The human resource theory of human motivation espoused by Maslow (1943) and further explored by Herzberg's (1973) theory of motivation established satisfaction as a primary influence central to the need for self-esteem as manifested through achievement. Bandura's (1989a; 1989b) social cognitive theory reflected in the field of psychology demonstrated that cognitive and affective experiences influence how one thinks about interactions and further influences behavior and functioning. One might therefore expect that an employee who thinks himself capable based upon experience and achievement is more likely to engage in online learning with the expectation of a successful outcome. Bloom's (1956) educational learning theory provided a taxonomy of learning objectives ordered in hierarchical form. Examination of Bloom's principles in the context of the current study places this study within the synthesis and evaluation levels of the hierarchy, which is the most advanced level of structured learning. Prior to this study it was not known whether managers and nonmanagers are receptive to online learning, to what extent they are satisfied and how that correlates by age, lengths of service and position. This study addresses that gap in knowledge.

Chapter 3 presents the research method and provides in depth discussion of the research design, research methodology, the setting, and presents the research question, the research hypotheses and describes the data collection process.

Chapter 3: Research Method

Introduction

This quantitative study of satisfaction with online learning in workplace training examined receptiveness as expressed by satisfaction with effectiveness of online training in public sector managers and nonmanagers by determining if a correlation existed for age, length of service and position. Age was a variable that emerged from previous studies of online learning (Arbaugh et al., 2010).

Research Design and Rationale

Jang (2011), who conducted a meta-analysis of research self-efficacy, studied the relationship of research self-efficacy to other research constructs. Jang examined 145 studies for factors that influence research performance based on Bandura's theory of self-efficacy (Bandura, (1989a). Motivated by a need for stronger research, Jang focused on changes in technology and institutional requirements as well as a need for quality research. Jang's meta-analysis of 14 studies included an examination of seven constructs and their relationship to research self-efficacy; which he defined as confidence in research skills and the ability to conduct research. Additionally, Jang developed a conceptual model of research self-efficacy including "research disposition" and "research support." Research disposition included research interest and experience. Research support included mentoring, training and education.

This study establishes the relationship between technology-based online learning as a viable training option and the level of receptiveness, as expressed by satisfaction

with application of online learning to workforce training. Control variables that have emerged in the study of online learning in management included “Age, Gender, GPA, participants prior experience, major area of study, skill levels and time effects” (Arbaugh, Desai, Rau & Sridhar, 2010, p.46). The dependent variable in this study was receptiveness, expressed as satisfaction with online learning. The independent variables were participant age as a covariate, length of service, and position. Position was categorized as the percentage of current work considered by survey respondents to be leadership/managerial.

The research was a quantitative, nonexperimental, stepwise, multiple regression analysis . This study used an existing database that had used a survey instrument to gather data. The existing data were originally gathered by a large government organization (OPM) for the purpose of obtaining information regarding survey participants’ attitudes towards issues relevant to their employment in the Senior Executive Service of the OPM.

The research questions and responses were selected from the OPM) database for this study to determine if a relationship existed between online learning receptiveness expressed as satisfaction and position as a manager or a nonmanager, age, and lengths of service. Quantitative design is the best fit for the research question because it allows the generation of “numeric descriptive” data (McNabb, 2008).

Correlation and linear regression are measures of association that examine the relationship between two variables. Multiple regression analysis measures the relationship between a dependent variable and several independent variables (Norusis, 2008). Multiple regression analysis measured the difference among survey participants

on the designated variables. Multiple regression analysis also explains relationships among variables. Analysis in this study was conducted to determine if differences exist for the dependent variable receptiveness as expressed by satisfaction with online learning and independent variables age, length of service and position. IBM SPSS Statistics 21 was used to determine the correlation among dependent and independent variables and the conduct of stepwise multiple regression analysis further examined the relationships. Additionally, stepwise multiple regression analysis was employed to determine which variable added the most to the regression equation.

Methodology

A study of research design including quantitative and qualitative approaches to research questioned when a method of analysis is good and sought to determine a reasonable standard of analysis (Gerring, 2011). This author observed a shift from the traditional analysis methods to methods of research that emphasized research design rather than analysis, and argued for six criteria for research design. Those criteria were theoretical fit, cumulation, the treatment, the outcome, the sample, and practical constraints'. These findings led the researcher to advocate that the "best possible" methodology requires best results in each of the six criteria. Therefore the focus shifted to changes in research methods and the need for firm fundamental standards of research design that fully explore all of the possibilities that the data offers.

Research conducted in the same timeframe (Nelder, 2011) advocated maintaining basic quantitative methods and rigorous standards leading to sound research, and focused on changes in the world of advertising and marketing advanced by changes in

technology. The study argued the importance of quantitative methods as “rigorous”, “grounding”, and “strategic” for application to consumer marketing research.

Conversely, research conducted a year prior (Warfield, 2010) examined research methodologies in the field of Information Systems and Information Technology and found that mixed methods research combining the best of quantitative and qualitative research most appropriately addresses the issues of the information systems and information technology community. The author (Warfield, 2010) a staunch advocate of “good” dependable research, described five steps of quantitative methods of research as “(1) formulating the research question (2) selecting the study participants (3) selecting methods to answer questions (4) selecting statistical analysis tools and, (5) interpreting results”. Although this study referred to quantitative methodology as the “foundation of modern science”, it advocated mixed methods based upon extensive review of the literature that compared quantitative, qualitative and mixed methods as offering the best of both methods, quantitative and qualitative.

Based upon the research of Gerring (2011) and Nelder (2011) who argued that maintaining basic quantitative methods and rigorous standards yields sound research and using Bandura’s social cognitive theory of self-efficacy (Bandura, 1989a, 1989b), quantitative methodology was used in the present study to assess satisfaction of employees who are managers and nonmanagers in the public sector workplace with online learning in workplace training. The “rigorous, grounding and strategic” (Nelder, 2011) qualities of quantitative research are the best fit for this study that involves an assessment of receptiveness to the application of online learning technology in the public

sector, to workplace training. The quantitative research design was chosen for this study to emphasize the fundamental standards of rigorous, grounding research (Nelder, 2011) while fully exploring the possibilities of the data and employing steps identified for achieving dependable research results (Warfield, 2010).

The target population for the present study of receptiveness as reflected by satisfaction of nonmanagers and managers with online learning in workplace training consisted of employees of agencies within the OPM, the nation's major public sector employer, who elected to participate in the OPM's SES Survey administered from August to September 2011 via e-mail (OPM, 2012). All members of the OPM Senior Executive Service (SES), including career, non-career and limited term employees were encouraged to participate in the online survey. The OPM survey instrument consisted of a set of 80 questions.

Setting and Sample

A total of 7,677 Senior Executive Service (SES) members were invited to participate in the 2011 OPM SES Survey. 4,954 SES members or 65% of the total OPM SES population participated in the survey. 38 OPM agencies were represented by the survey respondents. Most of the participants were between ages 50 and 59 and had served six years or less in the SES. Fifty three percent of survey respondents reported in the survey that their work is leadership or managerial (OPM, 2012, p.13). The 80 question survey was provided to respondents via e-mail and administered through an online link to the survey instrument provided by the OPM.

Instrumentation and Materials

The Office of Personnel Management initially developed the Senior Executive Survey instrument for administration to their SES personnel in 2008. In 2011, they revised the survey to include additional questions for administration to Senior Executive Service personnel in 2011. Two questions referring to online learning were among the questions added to the 2011 survey instrument. The 80 question survey included questions on executive development, executive performance management and pay, recruitment and appointment, demographics (age, length of service, position), and mobility. The survey is located at the OPM website at <http://www.opm.gov/surveys/results/index.asp>. I obtained permission to use the 2011 OPM SES survey results database and codebook for this study through e-mail contact.

The inclusion of two questions referring to online learning in the 2011 OPM SES Survey (Question 24k and 25k), and questions on demographics made this survey and the resultant database uniquely well suited for use in this study of receptiveness as reflected by satisfaction of managers and nonmanagers with online learning in workplace training. The OPM (2012) reported that the following question ranked among the “least favorable responses” with a 37.1% survey rating of “percent very effective or most effective”.

Q.25k How effective was [taking online training course] for your continued development? (This question was only answered by those who answered “yes” to question 24k (Since becoming a member of SES have you taken an online course?) (p.6).

Response to Question 25k became the dependent variable in the study to represent receptiveness as reflected by satisfaction with online learning in workplace training.

Response to Questions 3 and 78 became the index for the independent variable length of service in this current study.

Q.3 How long have you been a member of SES?

Q.78 How long have you been with the Federal government (excluding military service)?

Response to Question 79 became the independent variable age in this current study.

Q.79 What is your age?

Response to Questions 75 and 77c reflects position as manager or nonmanager and became the index for the independent variable position in this current study.

Q.75 How many employees do you manage?

Q.77c What percentage of your current work do you consider to be of leadership/managerial in nature?

The research questions and hypotheses for this study of receptiveness as reflected by satisfaction of managers and nonmanagers with online learning in workplace training are:

Research Question

Is there a difference in receptiveness as reflected by satisfaction with online training in the workplace in managers and nonmanager employees and are there age, length of service or position differences in satisfaction with online training between managers and nonmanager employees?

Research Hypotheses

The test hypotheses is identified with a number. The null hypotheses is identified with a number and the letter N. The hypotheses that were tested in this research were:

Hypothesis 1N. There is not a statistically significant difference in satisfaction between managers and nonmanagers when online workplace training is used.

Hypothesis 1. In the population, there is a statistically significant difference in satisfaction between managers and nonmanagers when online learning in workplace training is used.

Hypothesis 2N. In the population, there is not a statistically significant difference in satisfaction with online workplace training related to age of the participant.

Hypothesis 2. There is a statistically significant difference in satisfaction with online workplace training based on the age of the participant.

Hypothesis 3N. In the population, there is not a statistically significant difference in satisfaction with online workplace training related to lengths of service.

Hypothesis 3. There is a statistically significant difference in satisfaction with online workplace training based on lengths of service.

Hypothesis 4N. In the population, there is not a statistically significant difference in satisfaction with online workplace training related to position.

Hypothesis 4. There is a statistically significant difference in satisfaction with online workplace training based on position.

Data Collection and Analysis

This study used non-experimental multiple regression analysis to make inferences on the general U.S. workplace population of managers and nonmanagers based upon data retrieved from the 2011 Office of Personnel Management Senior Executive Service Survey database. The step-wise multiple regression analysis method “adds and removes variables” until the best variable is selected that “passes the significant at 5% criterion” then checks all remaining variables “using the greater than 10% criterion” (Elzamly & Hussin, 2014). This study used Pearson correlation, r , and lambda coefficient, λ , to determine whether relationships exist between the dependent and independent variables. The study employed the multiple regression equation (Knoke et al., 2002) as follows,

$$Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

where:

Y = receptiveness to online learning expressed as satisfaction

a = constant or intercept

$\beta_1, \beta_2, \beta_3$ = expected outcomes (effect of independent variables X_1, X_2, X_3 on dependent variable Y)

X_1 = age

X_2 = length of service

X_3 = position

e = error

Therefore, this study applied the multiple regression equation to infer that

$$Y = a + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + e$$

If $Y \leq a + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + e$, then demographic characteristics age, length of service and position factors affect receptiveness to online learning expressed as satisfaction. However if analysis shows that $Y \geq a + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + e$, no relationship would be established.

Ethical Scholarship

All necessary steps were taken to ensure this research meets the ethical requirements of the Walden University Institutional Review Board (IRB). Walden University Institutional Review Board approved the proposal for this research on June 10, 2015 (IRB approval number, 06-12-15-0043454). This research is based solely on public records for data collection. There was no recruitment or participation of live subjects. This study utilized completely anonymous secondary data only; therefore, minimal risk is anticipated in this research. Although I am a civilian employee of the Department of Army, an OPM agency no direct or indirect contact was made with the Department of Army or any of its entities for participation, data collection or assistance.

Summary

The research design for this study was a quantitative non-experimental multiple-regression analysis that used existing data. Quantitative design was used because it generates numeric descriptive data and is based on rigorous standards. This study analyzed data from the 2011 OPM SES database. Survey questions that supported this study and the corresponding response data was extracted from the OPM database.

Multiple regression analysis was used to measure differences among the responses from the database and explain relationships among independent variables age, length of service and position. The OPM database used in this study represented responses from 65% of the total OPM SES population from 38 OPM agencies. Chapter 4 explains study results to include details of data analysis and findings.

Chapter 4: Research Findings

Introduction

This study about the effectiveness of online learning in workplace training questioned whether there are differences in satisfaction with effectiveness of online training among managers and nonmanagers. Another goal was to determine if relationships exist for age, position, lengths of service, and satisfaction with effectiveness of online learning in the workplace, and which factors contribute most to satisfaction with the effectiveness of this technological solution to training.

This chapter presents research results. The chapter begins by reviewing data analysis procedures. A discussion of research findings and results follows the analysis section. The final section presents a summary of the study with research findings.

Data Analysis

Secondary data forms the basis of this study. The study database was obtained from the (OPM). The database is composed of survey results from the 2011 study of the SES. In 2011, OPM surveyed all career, non-career, and limited term members of the federal government's Senior Executive Service, 7,677 employees. The total population of 7,677 employees had an opportunity to participate in the OPM 2011 survey. OPM 2011 database survey results reflect the responses of the 4,954 SES members who elected to participate in the survey conducted via e-mail. The database sample size was 4,954 employees, a 65% response rate. OPM reported (OPM, 2012) that 52% of respondents were between the ages of 50-59. Sixty four percent of respondents had been employed by the federal government over 20 years. Fifty-four percent had served in the SES for less

than six years. Over half (53%) of participants in OPM's study reported they considered their work to be primarily leadership or managerial work and most (67%) managed at least one employee.

Secondary data is the foundation and was the sole source of data for this research. Five questions and responses were selected from among the 90-question Likert-type scale survey used in the 2011 OPM study involving personnel in federal government senior executive positions who were managers and nonmanagers. Stepwise multiple regression analysis was employed to analyze responses to those five questions for use in the present study of online learning in workplace training. The stepwise multiple regression was conducted to determine whether, position based upon the number of employees managed and the percentage of work rated leadership or managerial, age, and length of service including service in the Senior Executive Service (SES), and service in the Federal Government—excluding military service—are necessary to predict satisfaction with effectiveness of online learning or online training in the workplace and which predictors or independent variables most significantly contribute to the dependent variable—satisfaction with effectiveness of online learning or online training in the workplace.

This study involved absolutely no contact of any kind with participants in the 2011 OPM SES study. Demographic characteristics of participants were published in the United States Office of Personnel Management, Senior Executive Service Survey Results for Fiscal Year 2011 and are available to the public (OPM, 2012).

The question that guided this study of online learning in workplace training is:

- Is there a difference in receptiveness as reflected by satisfaction with online training in the workplace in managers and nonmanager employees and are there age, length of service or position differences in satisfaction with online training between managers and nonmanager employees?

This study regressed satisfaction with online learning (in workplace training) on age, length of service and position. The Dependent variable, Y was Satisfaction with effectiveness of online learning. The Independent variables in this study were:

X1 Length of Service in SES

X2 Length of Service in Federal Government

X3 Age

X4 Number of employees managed

X5 Percentage of leadership/managerial work

The Stepwise regression analysis produced five models. The test statistic for each regression test, alpha .05, resulted in a confidence level of 95% for each regression test.

Results and research findings of the Stepwise regression analysis follow.

Research Results and Findings

The research questions that guided the study were expressed and tested in Hypothesis 1, 2, 3 and 4.

Hypothesis 1

This study found that the number of employees managed was an influential factor in determining satisfaction with effectiveness of online learning in the workplace, as measured by a Likert scale in the 2011 OPM SES survey based study.

Hypothesis 1 supports the central research question, Is there a difference in receptiveness as reflected by satisfaction with effectiveness of online learning in the workplace in managers and nonmanagers? Hypothesis 1 also explains the link between receptiveness and satisfaction.

The null hypothesis is the hypothesis of no difference or no relationship, the null hypothesis, Hypothesis 1N. There is not a statistically significant difference in satisfaction between managers and nonmanagers when online workplace training is used. The Alternative Hypothesis presents the proposition, that there is a significant difference in satisfaction with effectiveness of online learning in workplace training between managers and nonmanagers. The Alternative Hypothesis 1 is: There is a difference in satisfaction with online learning in workplace training between managers and nonmanagers.

The significance or Sig in the Coefficients table (Table1) is expressed as the p value (calculated probability). When the p value or significance level is less than .05, reject the null hypothesis of no difference for number of employees managed.

The SPSS model produced a positive coefficient for the number of employees managed, indicating a positive relationship between X and Y for number of employees managed. A one unit increase in the number of employees managed (X4) in the model,

predicts that satisfaction with the effectiveness of online learning will increase by .098 units holding all other independent variables constant. The coefficient is significant if a high t value, above 1 is associated with the independent variable. The t value of 5.777 is sufficiently high.

Independent variable X4 represents the number of employees managed.

According to the Coefficient table (Table 1), the p value for Independent variable X4, .000, is less than .05 therefore reject the null hypothesis of no difference for number of employees managed. The results therefore fail to support the null hypothesis of no difference in satisfaction with effectiveness of online learning in workplace training between managers and non-managers based on number of employees managed. Therefore, the number of employees managed was influential in determining satisfaction with effectiveness of online learning in workplace training as represented by the 2011 OPM Likert scale survey of SES personnel database of responses. The results of this study showed a significant positive relationship between X and Y for number of employees managed.

Table 1

Coefficients for Independent Variable Number of Employees Managed

Model 1	Unstandardized coefficients		Standardized coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.834	.042		67.598	.000
Number of employees managed	.098	.017	.100	5.777	.000

Hypothesis 2

This study found that age was an influential factor in determining satisfaction with effectiveness of online learning in the workplace, as measured with a Likert scale in the 2011 OPM SES survey based study.

Hypothesis 2 supports the second part of the research question, Are there age, length of service or position differences in satisfaction with effectiveness of online training among managers? Hypothesis 2 explains the link between receptiveness and satisfaction. The focus of Hypothesis 2 is the independent variable Age.

The Null Hypothesis 2N is: In the population, there is not a statistically significant difference in satisfaction with online workplace training related to age of the participant.

The significance or Sig in the Coefficients table (Table 2) is expressed as the p-value (calculated probability). When the p value or significance level is less than .05, reject the null hypothesis of no difference for age. Independent variable X3 represents Age. Based upon the coefficient table shown in Model 3 (Table 2), for a one unit increase in independent variable age, the dependent variable, satisfaction with the effectiveness of online learning will increase by .093 holding other independent variables constant. Therefore, one might predict that for an additional year of age, satisfaction with the effectiveness of online learning would increase, holding position (based on number of employees managed and percentage of work that is leadership/management) fixed. The coefficient is significant if a high t value, above 1 is associated with the independent

variable. The t value of 3.578 is sufficiently high. Findings supported the alternative hypothesis that there is a difference in satisfaction with effectiveness of online learning in workplace training between managers and nonmanagers for the variable age in the subject population. According to the Coefficient table (Table 2), the p value for independent variable X3, Age .000 is less than .05 therefore reject the null hypothesis that there is no difference for independent variable Age. The results fail to support the null hypothesis for the independent variable Age. Therefore, age was determined to be an influential factor in determining satisfaction with effectiveness of online learning in workplace training as measured by the OPM 2011 Likert scale survey of SES personnel database of responses. The results showed a significant positive relationship between X and Y for age.

Table 2

Coefficients for Three of the Five Independent Variables

Model 3	Unstandardized coefficients		Standardized coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.350	.103		22.720	.000
Number of employees managed	.083	.018	.084	4.710	.000
Percentage of work Leadership/managerial	.053	.014	.067	3.776	.000
Age	.093	.026	.062	3.578	.000

Hypothesis 3

Length of service was an influential factor in determining satisfaction with effectiveness of online learning in the workplace, as measured by a Likert scale in the 2011 OPM SES survey based study.

Hypothesis 3 supports the second part of the research question, Are there age, length of service or position differences in satisfaction with online training among managers?

Additionally, hypothesis 3 contributes to the explanation of the link between receptiveness and satisfaction. Length of service is the focus of Hypothesis 3.

The Null Hypothesis 3N is: In the population, there is not a statistically significant difference in satisfaction with online workplace training related to lengths of service.

The index for Length of Service included X1, Length of Service in SES and X2, Length of service in Federal government (excluding military). The significance or Sig in the Coefficients table (Table 3) is expressed as the p value (calculated probability). When the p value or significance level is less than .05, reject the null hypothesis of no difference for independent variable length of service. According to the Coefficients table (Table 3) the p value for independent variable X1, Length of Service in SES, .000 is less than .05 therefore reject the null hypothesis of no difference for independent variable, Length of Service in SES. Additionally, the Coefficients table (Table 3) reflects the p value of independent variable X2, Length of Service in Federal Government (excluding military) .000 is less than .05 therefore also reject the null hypothesis of no difference for

independent variable Length of Service in Federal Government (excluding military). The results fail to support the null hypothesis of no difference for length of service (Length of Service SES and Length of Service in Federal Government). Therefore, length of service was influential in determining satisfaction with effectiveness of online learning in workplace training as measured by the OPM 2011 Likert scale survey of SES personnel database of responses. The results showed a significant positive relationship between X and Y for Length of Service in Federal Government (excluding military). However, the results showed a significant negative relationship between X and Y for Length of Service in SES.

The model (Table 3) produced a negative coefficient for Length of Service, SES. The model predicts that for a 1-unit increase in Length of Service in SES, the dependent variable, satisfaction with effectiveness of online learning in workplace training will decrease by $-.070$. Adversely, the coefficient sign for Length of Service in federal government (excluding military) is positive, indicating that for a 1-unit increase in Length of Service in the Federal government, satisfaction with the effectiveness of online learning would increase by $.072$ holding all other independent variables (age, position) constant. The coefficient is significant if a high t score, above 1 is associated with the independent variable. The t value of 3.948 is sufficiently high. Based upon the results, one might predict that for every year of Federal government service (excluding military service) satisfaction with effectiveness of online learning in workplace training would increase, however, for every year of service in the SES, satisfaction with the effectiveness of online learning in workplace training would decrease. Findings, support the alternate

hypothesis that there are length of service differences in satisfaction with effectiveness of online learning in workplace training. Length of services, differences in satisfaction are further defined by length of service, SES and length of service in federal government (excluding military service).

Table 3

Coefficients for all Five Independent Variables

Model 5	Unstandardized coefficients		Standardized coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.112	.128		16.498	.000
Number of employees managed	.082	.018	.083	4.654	.000
Percentage of work Leadership/managerial	.051	.014	.064	3.628	.000
Age	.126	.028	.084	4.432	.000
Length of Service in SES	-.070	.017	-.084	-4.166	.000
Length of Service in Federal Government (excluding military service)	.072	.018	.074	3.948	.000

Hypothesis 4

Position was an influential factor in determining satisfaction with online learning in workplace training, as measured by a Likert scale in the 2011 OPM SES survey-based study.

Hypothesis 4 supports the second part of the research question, Are there age, length of service or position differences in satisfaction with effectiveness of online training among managers? Hypothesis 4 also adds to the explanation of the link between receptiveness and satisfaction. The focus of Hypothesis 4 is position. The position index is composed of number of employees managed and percent of work Leadership/managerial.

The Null Hypothesis 4N is: In the population, there is not a statistically significant difference in satisfaction with online workplace training related to position.

Independent Variable X4, Number of employees managed and X5 Percentage of work Leadership/managerial, together, are the Index for position (leadership/managerial). This model regressed satisfaction with the effectiveness of online learning, on position. When the value or significance level is less than .05 reject the null hypothesis of no difference for position. Regression analysis results as reflected in the Coefficients Table (Table 4) indicate the p value for X4, number of employees managed position is .000, which is less than .05. Additionally, regression analysis results for the p value for X5 Percentage of work Leadership/managerial, position is .000, which is less than .05. Therefore, reject the null hypothesis of no difference for

(leadership/managerial) position. Results fail to support the null hypothesis. The results of Stepwise multiple regression analysis for this model fail to support the null hypothesis for both independent variables that compose the index for position, number of employees managed and percentage of work leadership/managerial. Therefore, position was an influential factor in determining satisfaction with effectiveness of online learning in workplace training as measured by a Likert scale in the 2011 OPM SES survey based study. Results showed a significant positive relationship between X and Y for position. The model produced positive coefficients for position indicating a positive relationship for X4 and Y and a positive relationship for X5 and Y. Based on the model (Table 4), one could predict that for a 1-unit increase in independent variable X4, number of employees managed, the dependent variable, satisfaction with the effectiveness of online learning in workplace training increased by .082. furthermore, for a 1-unit increase in independent variable X5, percentage of work leadership/managerial, satisfaction with effectiveness on online learning in workplace training increased by .054. The coefficient is significant if a high t value above 1 is associated with the independent variable. The t value of 4.639 for X4, number of employees managed is sufficiently high. Likewise, the t value of 3.793 for X5, percent of work leadership/managerial is sufficiently high.

Table 4

Coefficients for two Independent Variables

Model 2	Unstandardized coefficients		Standardized coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.629	.068		38.498	.000
Number of employees managed	.082	.018	.083	4.639	.000
Percentage of work Leadership/managerial	.054	.014	.068	3.793	3.793

Additional evidence provided in support of Question 3, links receptiveness and satisfaction. Receptiveness was defined in Chapter 1 of this study as a combinative construct that included usage and presumed effectiveness (Poddar, Donthu, & Parvatiyar, 2013). Whereas, satisfaction was defined as relating to satisfaction or dissatisfaction of other drives (Maslow, 1943) and in terms of meeting social needs. The model in this research regressed satisfaction with effectiveness of online learning in workplace training on five independent variables for age, position and length of service and demonstrated a

positive relationship or link to receptiveness, perceived effectiveness and the independent variables.

Analysis of the dependent and independent variables conducted using Stepwise Regression produced a Model Summary that included five different regression models. The stepwise regression model summary, illustrated in Table 5 below shows the five different regression models. The Adjusted R Square for each model shows the percentage of total variability explained by the independent variables. Model 5 with the largest Adjusted R Square, .024 reflects the best test model and also includes the dependent variable regressed on all independent variables for the study.

Model 5 (Table 5), with the largest Adjusted R Square of 0.24 includes all five independent variables and accounts for the most change in the dependent variable, satisfaction with online training as reflected by the perception of effectiveness of online training for continued development, therefore Model 5 is the strongest model. Results of the Multiple Regression Analysis presented here demonstrated that each of the five independent variables, (X1, X2, X3, X4, and X5) is related to the dependent variable (Y) and contributes to explaining the positive link between receptiveness and satisfaction with effectiveness of online learning in workplace training. All five of the independent variables together contribute to explaining the link between receptiveness and satisfaction with effectiveness of online learning in workplace training.

Table 5

Model Summary

Model5	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.100 ^a	.010	.010	1.099	.010	33.376	1
2	.119 ^b	.014	.014	1.097	.004	14.384	1
3	.134 ^c	.018	.017	1.095	.004	12.805	1
4	.144 ^d	.021	.020	1.093	.003	8.917	1
5	.159 ^e	.025	.024	1.091	.005	15.590	1

Note: Dependent Variable: Satisfaction with online training effectiveness taken an online training course

The F values reflected in the ANOVA table (Table 6) below for the five models are significant for all models (.000, .000, .000, .000 and .000). Therefore, Model 5 which includes all of the independent variables is determined to be most relevant for describing the results of this study and addressing the link between receptiveness and satisfaction.

Table 6

Analysis of Variance for the Models

Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	40.304	1	40.304	33.376	.000 ^b
	Residual	3994.669	3308	1.208		
	Total	4034.973	3309			
2	Regression	57.604	2	28.802	23.948	.000 ^c
	Residual	3977.369	3307	1.203		
	Total	4034.973	3309			
3	Regression	72.950	3	24.317	20.291	.000 ^d
	Residual	3962.023	3306	1.198		
	Total	4034.973	3309			
4	Regression	83.612	4	20.903	17.484	.000 ^e
	Residual	3951.362	3305	1.196		
	Total	4034.973	3309			
5	Regression	102.169	5	20.434	17.167	.000 ^f
	Residual	3932.805	3304	1.190		
	Total	4034.973	3309			

The single strongest predictor (independent variable) in this study of satisfaction with effectiveness of online training is Age as presented by the Coefficients table of Model 5 (Table 7). which includes all five variables. Additionally, the Coefficients table reflects a negative relationship for Length of Service in SES indicating that as Length of Service in SES increased, satisfaction with online training in the workplace decreased. The Coefficients table (Table 7) below provides the analysis results as evidence of these relationships. The Coefficients table (Table 7) reflects that all independent variable predictors for Age, Length of Service and Position in this study are less than .05; therefore all are significant contributors to the regression equation. The implications for this study are that all five all independent variable predictors for Age, Lengths of Service and Position in this study, (Number of employees managed, Percentage of work Leadership/managerial, Age , Length of Service in SES and Length of Service in Federal Government (excluding military service) are influential in determining Satisfaction with effectiveness of online learning in workplace training and Satisfaction with effectiveness of online learning in workplace training has a positive relationship to receptivity to online learning.

Table 7

Coefficients for the Five Independent Variables

Model 5	Unstandardized coefficients		Standardized coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.112	.128		16.498	.000
Number of employees managed	.082	.018	.083	4.654	.000
Percentage of work Leadership/managerial	.051	.014	.064	3.628	.000
Age	.126	.028	.084	4.432	.000
Length of Service in SES	-.070	.017	-.084	-4.166	.000
Length of Service in Federal Government (excluding military service)	.072	.018	.074	3.948	.000

Note: Dependent Variable Satisfaction with online training effectiveness, taken an online training course

The regression equation is $Y = a + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + e$

$$Y = 2.112 + .126X_1 - .070X_2 + .072X_3 + .082X_4 + .051X_5 + e$$

Summary

Research questions in this study of perceptions of effectiveness of on online learning in workplace training questioned whether there are differences in receptiveness as reflected by satisfaction with effectiveness of online training in the workplace. The study also questioned whether there are age, length of service or position differences in satisfaction with online training between managers and nonmanagers. Additionally, this study questioned the link between receptiveness and satisfaction with online learning in online training. Study results indicated that as Length of Service in Federal government increases satisfaction with effectiveness of online learning also increases. Furthermore, as age increases satisfaction with effectiveness of online learning increases. Similarly, as number of employees increases satisfaction with effectiveness of online learning also increases. Likewise, as percentage of leadership/managerial work increases satisfaction with effectiveness of online learning also increases. However, satisfaction with online learning decreases as Length of Service in the SES increases, according to results of this study. Stepwise Regression analysis was used to regress satisfaction with online learning in workplace training on five independent variables representing age, length of service and position. Independent variables were based on responses to five questions from the 2011 Likert scale survey of Senior Executive Service personnel in the OPM. That survey of the total population, 7,677 employees yielded a 65% response rate of participation

resulting in 4,954 participants. A total of 3,310 participant responses formed the sample size for the present study.

There were four hypothesis in this study. Hypothesis 1 supported the central research question, which focused on receptiveness as reflected by satisfaction with online learning in workplace training. Findings did not support the null hypothesis of no difference for number of employees managed. Evidence indicated that the number of employees managed was an influential factor in determining satisfaction with online learning in workplace training. Hypothesis 2 supported the second part of the research question and supported the link between receptiveness and satisfaction. Hypothesis 2 questioned age differences in satisfaction with online learning in workplace training and further researched the link to receptivity to online training. Results did not support the Null hypothesis of no difference for age as a contributing factor. Hypothesis 3 supported the second part of the research question and supported a link between receptiveness and satisfaction with online learning. Hypothesis 3 analyzed length of service for differences in satisfaction with online learning in workplace training and the possibility of a link to receptivity. Findings for Hypothesis 3 produced mixed results for length of service. A negative relationship was revealed for length of service in SES; however, a positive relationship resulted for length of service in federal government (excluding federal service). Hypothesis 4 supported part 2 of the research question that questioned position differences as contributing factors to satisfaction with online learning and receptivity. Research findings did not support the Null hypothesis of no difference for position.

Analysis provided evidence to support the alternate hypothesis that position was a contributing factor to satisfaction and receptivity to online learning in the workplace.

Study results provided evidence to explain the link between receptivity and satisfaction with online learning in workplace training. Stepwise multiple regression analysis produced five models. The strongest model indicated a link between the five independent variables representing age, position and length of service to satisfaction with effectiveness of online learning in workplace training. Implications for this study are that all five independent variable predictors for age, length of service and position in this study, (number of employees managed, percentage of work leadership/managerial, age, length of Service in SES and length of service in Federal Government (excluding military service)) are influential in determining Satisfaction with effectiveness of online learning in workplace training and Satisfaction with effectiveness of online learning in workplace training has a positive relationship to receptivity to online learning.

Statistically, however, the results of the best stepwise regression model (model 5) in the study accounts for approximately 26% of the variance; therefore, approximately 74% of the variance is unaccounted for by the model. Indications are that there are other contributing factors influential to satisfaction with effectiveness of online learning that are not defined in this study and firmly sets the stage for further study in the area of factors contributing to satisfaction with effectiveness of online learning in workplace training and specifically among federal government senior managers.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

This study examined a relative new phenomenon that has evolved within the past 20 years, online learning in training in the workplace. The purpose of this study was twofold: (a) to identify and examine factors thought to be influential to determining receptiveness as reflected by satisfaction with effectiveness of online learning in the workplace and (b) to identify and examine differences between managers and nonmanagers to determine if correlations existed for age, position, and length of service. Receptiveness would provide evidence of online learning as a viable training option. This chapter is composed of five sections, overview and discussion, interpretation of findings, recommendations for action and further study, implications for social change, and conclusion.

Overview and Discussion

This study used a quantitative design based on data obtained from a secondary source, archival data from the OPM Senior Executive Service Survey results from fiscal year 2011. The data included the results for 4,954 respondents. This correlational study examined the strength of relationships between the dependent variable—satisfaction with effectiveness of online learning in this population of SES personnel—and the independent variables: age, position, and length of service. This study was conducted to add to the body of knowledge on technological solutions to workplace issues, changing business practices in the public sector, changes in training practices, and online learning in the public sector workplace.

The findings failed to support the null hypothesis of no difference for age, position, and length of service regarding satisfaction with effectiveness of online learning in workplace training. The results indicated that as length of service in Federal government increases, satisfaction with effectiveness of online learning also increases. Furthermore, as age increases, so too does satisfaction with effectiveness of online learning; as the number of employees increases, so too does satisfaction with effectiveness of online learning, and as percentage of leadership/managerial work increases, so too does satisfaction with effectiveness of online learning. However, satisfaction with online learning decreases as length of service in the SES increases. Yet the small amount of variance observed in these variables implies that other unidentified factors account for more of the variance than the independent variables analyzed in this study and suggests the need for additional research.

Interpretation of Findings

This study of satisfaction with effectiveness of online learning addressed three research questions. The first question focused on management's receptiveness to online learning. Earlier research showed that management's support is critical to successful online learning (Alavi & Gallupe, 2003). Supportive organizational change and resource support from management are required for the successful online learning culture (Alavi & Leidner, 2011), although effectiveness is not guaranteed. Senior leadership's support has a positive effect on technology-based learning in the organization (Alavi, Kayworth & Leidner, 2005). Since managerial behaviors are known to enable workplace learning

(Beattie, 2006), managerial receptiveness to online learning should factor into satisfaction with effectiveness of online learning in the workplace.

The research question asked, “Is there a difference in receptiveness as reflected by satisfaction with online training in the workplace in managers and nonmanagers?”

Hypothesis 1 supported the research question by examining whether there was a difference or no difference in receptiveness as reflected by satisfaction with effectiveness of online learning between managers and nonmanagers. Findings indicated that the number of employees managed was an influential factor in determining receptiveness as reflected by satisfaction with effectiveness of online learning. The results of this study infer that management’s receptiveness to this technology-enhanced solution, online learning is influenced by the number of employees managed such that as the number of employees managed increased, receptiveness as reflected by satisfaction with online learning increased. This finding aligns with the findings of Belanich et al. (2005) who examined online learning in military training culture and found time and cost savings increased satisfaction with online learning as a lifelong training tool that increased Soldier retention and relieved workload. Therefore, increase in manager’s responsibility such as increased workload, increased number of employees or the need to save time and costs led to increased satisfaction with effectiveness of online learning.

The second part of the research question examined age, lengths of service, and position differences in satisfaction with online training between managers and nonmanagers. Hypothesis 2, Hypothesis 3, and Hypothesis 4 supported the second part of the research question. Hypothesis 2 focused on age, while Hypothesis 3 focused on

lengths of service and Hypothesis 4 examined the independent variable position. Findings indicated that as the age of the manager increased, so did satisfaction with effectiveness of online learning. Likewise, for position, based upon the number of employees managed and the percentage of work that was leadership or managerial, position was found to be influential in satisfaction with effectiveness of online learning in the workplace. As leadership and managerial responsibilities increased and as the number of employees managed increased, so did satisfaction with effectiveness of online learning in workplace training. Findings for lengths of service produced somewhat different results. As lengths of federal service increased, so did satisfaction with online learning; however, as length of senior executive service increased, satisfaction with online learning decreases. We know from the original OPM study (OPM, 2012) that 54% of respondents had fewer than 6 years of experience in SES. Perhaps this finding for senior executives is a reflection of their focus on the broader spectrum of concerns of the agency and having more distance from personal responsibility for the day-to-day training of individual employees; although this is speculation and requires further study for corroboration. However, taken together these findings align with those of Arbaugh (2010) who asserted that background and experience that one brings to the online experience and technology usage is much more important to the outcome than the technology itself. Artino (2007) who also related satisfaction with online learning to prior experience echoed this reference to the manager's background or experience as important factors influencing satisfaction with online learning. Theoretically, the findings of the current study are in concert with earlier research by Herzberg (1974) whose two-factor theory attributed increased responsibility,

advancement and achievement to satisfaction. Therefore, findings in this study with regard to the second part of the research question provided support for the concept of age, lengths of service, and position differences in satisfaction with online training between managers and nonmanagers.

The research question was supported by Hypotheses 2, 3 and 4 that examined whether there are age differences, lengths of service differences and position differences in satisfaction with effectiveness of online workplace training. The research question also analyzed the link between receptiveness and satisfaction. Chapter 1 of this study defined receptiveness and satisfaction for this research study. Chapter 1 alluded to receptiveness as “a combinative construct that included usage and presumed effectiveness” (Poddar, Donthu & Parvatiyar, 2013). Receptiveness was operationalized through one’s self-efficacy, their assessment of their performance in a particular situation (Christoph, Schoenfeld, & Tansky, 1998). The researcher described satisfaction in accordance with the constructs of Maslow (1943) and McGregor (1960). Maslow defined five needs that contributed to satisfaction or dissatisfaction. Among Maslow’s five basic needs leading to satisfaction or dissatisfaction, the needs for esteem and self-actualization aligned with this study. Similarly, McGregor (1960) defined satisfaction in terms of multiple needs. McGregor’s need for self-fulfillment captured the essence of satisfaction as reflected in this study. Previous studies demonstrated that numerous factors contribute to satisfaction with online learning (Palmer & Holt, 2009), and the success of online learning (Garrison, Anderson, & Archer, 2009); (Gupta & Bostrom, 2009).

Findings from this research demonstrated a positive relationship between 4 of 5 independent variables for age, lengths of service and position. Research results in this study indicated that as age increased, so did satisfaction with effectiveness of online training. As one of the two components of lengths of service, length of service in the federal government increased, satisfaction with online training increased, and as the two components for the index for position (number of employees managed and percentage of work leadership/managerial) increased, likewise satisfaction with online training increased. Findings not only link usage and effectiveness, the components of receptiveness to satisfaction with effectiveness of online training, but also support satisfaction with online training as a multifaceted construct influenced by age, lengths of service and position among other factors that are subject to further study.

Recommendations for Action and Further Research

38 federal government agencies in the Office of Personnel Management participated in a 2011 survey of Senior Executive Personnel. Responses to survey questions on online training from that original database were utilized in this study. The results of this study can be applied by trainers in each of the 38 OPM agencies that participated in the 2011 survey of executive personnel. Results of this study indicated that older more experienced managers, and managers with increased workload are receptive to and satisfied with use of online learning in the workplace to relieve the training workload. It is therefore recommended that managers add online training or increase the use of online training, to provide greater training capability and flexibility in training the federal government workforce. It is further recommended, that survey results be applied

to government workers in all 50 states in the United States by adding online learning to workplace training or increasing the presence of online learning to expand training capability and enhance training flexibility in the public sector workplace.

This study and others cited herein have shown that multiple factors influence satisfaction with online learning. Specifically, this study found that multiple factors influenced receptiveness as indicated by satisfaction with online learning in training in the workplace. Further study into factors affecting online workplace training is recommended to provide clarification regarding why increase in length of service in the senior executive service of United States government tends to result in decrease in satisfaction with online learning, although most SES participants had less than 6 years of service in SES. This author speculated that the cause could possibly be attributed to the senior executive's lack of participation in the day-to-day training of employees and being far removed from the actual responsibility of the training process; however, further study is required for confirmation.

Further study is also recommended to add to the results of this study, which accounts for slightly over 26% of the variance in this equation that examined the responses of a database of senior executives in the OPM. Additional study could address the question of what factors make up the remaining 74% of the variance in satisfaction with online learning.

Another area worthy of further study is receptiveness in workers who fall below the management levels represented by the SES, to online training as expressed by satisfaction with online learning. Research focused in this area would complement the

present study results and add to the body of knowledge on receptiveness as reflected by satisfaction with effectiveness of online learning in the workplace.

To facilitate dissemination of study results, a copy of the study results will be provided to the OPM, FEVS Team. The FEVS Team collected the data for the original study and is positioned to disseminate the research results to managers who would benefit within the numerous government organizations that participated in their original study.

Implications for Social Change

This study began by taking note of current economic conditions that have changed business practices in this country. Business practices have changed from a time when many Americans could count on spending their entire careers working for one employer while gradually climbing the ladder of success, to the current scenario wherein employees must by necessity move from job to job because of lay-offs and reductions in force. Lay-offs and reductions in the workforce that result in employee movement also lead to agencies' requirement to constantly engage in training new employees. This study's findings provide evidence of managers' receptiveness to online training, a technological solution to decrease the workload of constant training and provide increased training capability. Results indicate that older, more experienced managers with more responsibility are receptive to and satisfied with the use of online learning in workplace training. Application of results of this study will better equip managers in making training decisions by shortening training time and increasing the number of employees trained, thus providing more flexibility to training the workforce in times of

economic turbulence and increasing training capability; thereby impacting social change in the workplace.

Conclusion

This study researched the relationship between receptiveness as reflected by satisfaction with online learning effectiveness in a population of federal government managers and nonmanagers with the potentially influential factors, age, position, and lengths of service as senior government officials and within the federal government. Hypotheses tested examined whether there was a difference in satisfaction with online learning effectiveness between managers and nonmanagers. The hypotheses tested further examined the relationship between age and satisfaction with effectiveness of online training, lengths of service and satisfaction with online training effectiveness and between position and satisfaction with online learning effectiveness.

Chapter 1 of this study firmly positioned online learning as a phenomenon that entered the workplace roughly two decades ago shortly after the advent of computer technology in the workplace in this country, indicating that this is still a relatively new field of study. Review of the efficacy of online learning strategies and review of the operationalization of receptiveness to online learning were explored and presented. This study answered the call for additional research to contribute to knowledge in the area of defining effectiveness of online learning. Further, this study addressed questions regarding whether there is a difference in receptiveness as reflected by satisfaction with online learning effectiveness in managers and nonmanagers and whether there are age, lengths of service, or position differences in satisfaction with effectiveness of online

learning between senior level managers and nonmanagers in the federal workplace. In Chapter 2, a plethora of literature presented in support of research into online learning in the fields of public policy and administration, business education, and education and psychology reiterated the need for more research in this area. Prior research studies presented extensive lists of factors contributing to the success of online learning. Additionally, the link between receptiveness and expertise and satisfaction was established. Chapter 3 proposed the quantitative method study design as the best method for this study that employed analysis of secondary data from an existing federal government database.

Study results analyzed and presented in Chapter 4 revealed that all independent variables in this study, age, position, and lengths of service were influential in determining satisfaction with effectiveness of online learning in training in the workplace and reflected a positive relationship between receptivity to online learning and satisfaction with effectiveness of online learning in the workplace. Study results account for 26% of the variance. Since study results account for a somewhat low level of variance, this study is positioned with previous studies indicating that there are a number of factors contributing to the success of online learning (Holsapple & Lee-Post, 2006; Sorensen et al., 2008; Garrison, Anderson & Archer, 2009; Gupta & Bostrom, 2009; Means et al., 2009; Palmer & Holt, 2009; Venable, 2010; Shea & Bidjerano, 2010). A great deal still remains to be known about contributing factors to satisfaction with effectiveness of online learning in the workplace.

This study examined questions regarding managers' receptiveness to online training in the workplace as expressed by satisfaction with online learning. Four of five independent variables for age, lengths of service and position demonstrated a positive relationship to satisfaction with effectiveness of online learning in workplace training. As each of the four independent variables for age, lengths of service and position increased, satisfaction with effectiveness of online learning also increased. Results of this study help solidify the role of technology based online learning as a viable training option in workplace training by adding to the body of knowledge reflecting managers receptiveness as reflected by satisfaction with online learning as a solution to managing the training workload of managers. Results of this study added conceptual support for online learning as a positive catalyst positioned to support workplace training in challenging economic times.

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