2017

Information Technology Training to Promote Collaboration Among Multiple Generations

Gregg Foster
Walden University

Walden University

College of Management and Technology

This is to certify that the doctoral dissertation by

Gregg Foster

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Sunil Hazari, Committee Chairperson, Management Faculty
Dr. Bharat Thakkar, Committee Member, Management Faculty
Dr. Janice Spangenburg, University Reviewer, Management Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
2017

Abstract

Information Technology Training to Promote Collaboration Among Multiple Generations

by

Gregg Anthony Foster

MBA, University of Phoenix, 2009

BS, Virginia State University, 2006

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Management

Walden University

April 2017

Abstract

The decision to implement information technology (IT) initiatives to enhance collaboration among veterans, baby boomers, Generation X, Generation Y, and Fifth Generation employees continues to challenge organizational leaders. The purpose of this nonexperimental study was to identify how the implementation of information technology initiatives, coupled with the knowledge of learning styles, might enhance collaboration among generational cohort employees. The generational cohort theory, Maslow's hierarchy of needs theory, and the technology acceptance model were the theoretical frameworks used to develop an understanding of the relationships among the cohorts and the acceptance of technology to enhance collaboration. Data were collected from a survey of 335 respondents from the five generational cohorts who worked in small, medium, and large not-for-profit firms that used IT processes, in the Southeastern United States. Data analysis included Welch ANOVA with the Games-Howell post hoc test, Kruskal-Wallis test with Dunn's Bonferroni adjustment, and chi-square tests. Findings revealed no significant differences in learning style preferences among the cohorts, and no significant differences among factors influencing preferences for technology activity. Irrespective of generational cohorts, individuals displayed common degrees of comfort with IT training activities. Findings may be used by organizational leaders to implement technology training activities without focus on preferences for training among multigenerational employees. Findings may also be used to enhance collaboration by focusing on commonalities rather than differences among generational cohorts.

Information Technology Training to Promote Collaboration Among Multiple Generations

by

Gregg Anthony Foster

MBA, University of Phoenix, 2009

BS, Virginia State University, 2006

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Management

Specialization: Information Systems Management 2

Walden University

April 2017

Dedication

To my wife and mother whose support allowed me to finish this journey.

Acknowledgments

This journey would not be completed with the patient and supportive assistance of my committee chairperson, Dr. Sunil Hazari. His level of support was unceasing and positive throughout the entire dissertation process, and he kept me focused during the journey. I learned so much from you. Thank you to Dr. Bharat Thakkar, my committee member, for always providing clarity and answering my questions. My gratitude to Dr. Janice Spangenburg, my URR member, who reviewed my manuscript, provided comments, and guided me in the right direction. I also would like to acknowledge those members of the Walden faculty who were part of helping me to complete this journey.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction to the Study

Leaders of business organizations continue to struggle with internal and external challenges to maintain competitive advantage. Such challenges include the changes brought on by the speed and versatility in technology, the associated globalization, and the presence of up to five generations in the workplace. The challenging conditions require flexibility in the way organizations operate while maintaining a distinctive organizational culture. The use and expansion of the Internet continues to progress faster than many employees can acquire the necessary specialized technology knowledge and skills, resulting in a vacuum in expertise and failed collaboration among employees. Miller, Hodge, Brandt, and Schneider (2013) and Rathman (2011) posited that competition existed when multiple generations worked together within any organization, and the rivalry amplified the lack of collaboration among the up to five generations. Sørensen (2012) described collaboration as the exchange of individual experiences and perspectives to provide improved understanding of the environment. Cogin (2012) and Miller et al. (2013) proposed that the greatest volume of research related to generational cohorts focused on attitudes toward and the value of work because of the presumed similarities and differences among the cohorts.

Although researchers emphasized the differences among the cohorts, especially with age diversity that might result in conflicts in the workplace, concrete proposals for fostering collaboration among the generations were sparse (Cogin, 2012). Areas of focus were on research in technology adoption and the unified theory of acceptance and use of technology (UTAUT) (Brown, Dennis, & Venkatesh, 2010) to determine user behavior

and collaboration in technology among employees. The implementation of information technology tools and initiatives compounded the organizational challenges (Ahmad, Amer, Qutaifan, & Alhilali, 2013). Leaders and managers should implement appropriate changes to overcome the issues that might face each organization. Maiden (2012) and Papa (2013) noted that IT implementation within organizations was extensively researched concerning change management, systems implementation, software system integration, project management, and risk management. Since the turn of the century, as organizations faced competitive challenges, managers and leaders had to find new approaches to maintain competitive advantage.

One trend that evolved was the use of teams, virtual or physical, to improve productivity, but this approach required collaboration among employees (Anantatmula & Shrivastav, 2012). The introduction of the concept of teamwork resulted in members of a group working on projects and the need for individuals capable of managing projects as well as the individuals who make up the teams. Tsaturyan and Müller (2015) pointed out that the organization's structure, power, and politics influenced project management offices (PMOs). Ghilic-Micu, Stoica, and Uscatu (2014) encouraged leaders to find ways to simplify the manner in which projects were executed, be willing to embrace change, and suggested that the implementation of cloud computing might enhance the process. Klingebiel and Rammer (2014) agreed that although many approaches to project management might be available, leaders should recognize the unique nature of each organization and create projects that would be exclusive to the organization.

A gap in the literature exists regarding social and cultural dynamics and the generational approaches to IT within organizations. As IT processes advance daily, organizations should find new ways to remain solvent to maintain competitive advantage through the maintenance and introduction of IT initiatives and tools. Organizational leaders are facing the presence of up to five generations of employees, and leaders must develop ways to enable the generations to work together to meet the objectives of the business. The relationship between IT initiatives, tools, and customer satisfaction might result in improved organizational practices within the business environment. Chapter 1 includes an introduction to the study, background of the problem, need for the study, presentation of the study, statement of the problem, nature of study, objectives of the study, purpose of the study, significance of the study, definition of terms used in the study, and organization of the study. In addition, the chapter provides information on the research questions, null and alternative hypotheses, independent and dependent variables, research method and design, theoretical framework, scope of the study, assumptions, limitations, delimitations, and social change implications.

Background of the Problem

Leaders and managers of organizations recognize that up to five generations exist in the workplace. Although the conversations continue regarding the presence of the cohorts, there is minimal research addressing IT training or concrete steps aimed at managing the cohorts to achieve collaboration (Deyoe & Fox, 2011). Leaders often ignore the pressing issue because many of the administrators display inadequate training to work with the groups, and often lack the skills to manage the conflicts that might arise

among the generational cohorts. The absence of guidance from the leaders often resulted in minimal collaboration among the cohorts and possible antagonistic work environments with negative consequences for the organization (Brown, 2012). Rather than managers and leaders initiating training programs to enhance collaboration, employees functioned with the IT skills they possessed, to the detriment of productivity, within the organizations. Leaders could focus on using IT training in programs such as Adobe Creative Cloud, Cloud Computing, and SharePoint 2013 to foster collaboration while accommodating the learning styles of the cohorts within each organization.

The Adobe Creative Cloud is an inexpensive computer software program that leaders and employees use for editing, displaying work in progress, and providing links to other applications such as Photoshop CC and Adobe Illustrator CC (Grotta & Grotta, 2012; Prasad, Green, & Heales, 2014). Cloud Computing are IT platforms that allow for greater flexibility with how individuals send and receive information and with how data are stored. The platforms have the potential to increase collaboration among workers in an organization. Choudhary and Vithayathil (2013) posited, "Cloud Computing is a disruptive technology" (p. 67) because it changed the prior IT best practices. Companies continue to identify ways to stay relevant about the Cloud Computing platforms, and so many organizational leaders are deciding when and how to adopt the computing architecture. The arguments for and against the adoption of the platforms are discussed in detail in Chapter 2.

Management personnel continue to engage in discussions about the collaboration platform SharePoint that integrates with other Microsoft Office products, including its

use in management to enhance collaboration within organizations (Skok, Clarke, & Krishnappa, 2013). Since the inception of the platform in 2007, many modifications resulted in SharePoint 2013 that presented organizations with additional capabilities. At the Microsoft Conference in 2012, the presenters suggested that SharePoint 2013 would be the platform of choice to enhance collaboration among all members of any organization (Chin, 2012). Although the program and platforms are numerous, I focused on those areas identified above in my study because individuals lacked basic knowledge and skills in those areas, which could impede workflow, performance, and collaboration. The program and platforms contain subsets that allow organizations to choose the areas tailored to specific training needs and learning styles of the cohorts within each organization.

Much of the literature related to learning styles is associated with the field of education. Although the research connecting learning styles to business and industry is evolving, this concept continues to be an area of growing research in continuing education as well as business and industry. Muse (2015) argued that there was no conclusive data that supported the idea that there was a relationship between learning styles and specific generations but rather that the differences related to learning style preferences of the groups. The consensus among researchers indicated a connection between learning styles and the individual employee (Batra & Vohra, 2016). Purwanti, Rizky, and Handriyanto (2013) posited that within the telecommunication and information industry, the focus was on how the organization might maintain sustainability without consideration for the importance of the human resources within the

organization. With a change that focuses on the unique learning styles of the employees, the leadership might improve the employee's work output as well as the environment of the workplace. Al-Asfour and Lettau (2014) cautioned that it was imperative for organizations to find ways to bring the cohorts together or else negative consequences that affect progress and sustainability might confront those companies. Lyons and Kuron (2014) supported that idea and warned against stereotyping of cohorts. Lyons and Kuron proposed that if the leadership developed an awareness of the peculiarities of the generational cohorts, then the organizations might realize increased trust, productivity, innovation, creativity, and sustainability.

There are many possible factors contributing to this problem, such as the negative perception regarding the resistance among older workers with adapting to new technology (Meier, Ben, & Schuppan, 2013). A review of the literature indicated that conflicts among the generations or resistance to IT among older generations was due to how others perceived the generations rather than to any actual differences (Meier et al., 2013). That view contrasted with the opinion that younger workers might be more comfortable with adjusting to new technology. Nevertheless, the speed of change in technology might have a negative impact on all workers irrespective of generational cohort (Sanaei, Javernick-Will, & Chinowsky, 2013). My review of the literature revealed ideas and suggestions for enhancing collaboration among the cohorts, including transfer of knowledge, team building, mentoring, new systems of communication, diversity training, and configuring the workplace environment.

However, there was a noticeable lack of suggestions for implementing information technology (IT) training among the cohorts (Bennett, Pitt, & Price, 2012; Srinivasan, 2012). Based on the research conducted by Deyoe and Fox (2011), there was no conclusive evidence that the organizations under investigation had any strategies in place to reduce conflicts among the cohorts. Deyoe and Fox identified three techniques that leaders could implement to enhance collaboration: "provide improving communication among employees, provide clear job expectations for employees, and future employees through communication with colleges, [and] allow employees to share job expertise with others; including transfer of knowledge, team building, mentoring, new systems of communication" (p. 10).

There was no indication that the leadership of the organizations had considered IT training for employees in large, medium, and small business organizations. Al-Asfour and Lettau (2014) suggested that training in IT processes and knowledge for all cohorts would be one way to develop collaboration among stakeholders within the organization. Although there was no mention of fostering collaboration among the cohorts, the public-sector leaders in the state of Tennessee addressed the issue of the knowledge drain as people retired. The group implemented the Next Generation IT initiative to provide present and future cohorts with IT training (Heaton, 2013). Other states were hesitant to undertake such initiatives because leaders discovered that as the public-sector employees received the training, they took better paying jobs in the private sector (Heaton, 2013). One solution might be for organizations to ensure that information exchange and knowledge transfer between each generation becomes a function of the information

systems within the specific organization. To illustrate that acceleration, "a generation is considered as 30 years" (Kapoor & Solomon, 2011, p. 308), but this might not be the same classification for all generational groups.

Need for the Study

The need for this study resulted from prior studies in which researchers recognized the emerging concern of the lack of collaboration among the up to five generational cohorts that continued to snowball and was affecting the social and financial fiber of organizations (Ferri-Reed, 2014; Mullan, 2008; Rathman, 2011). My study addressed how information technology (IT) training might enhance collaboration among employees of the generational cohorts in an organization. Other research studies alluded to the need for diversity training as well as knowledge training and transfer without referring to collaboration (Kapoor & Solomon, 2011; Srinivasan, 2012). With the rapid advances in and use of IT in all areas of organizations, there was no discussion of the need for IT training to enhance collaboration among the generational cohorts. The downturn and slow improvement in the economy that persisted for more than 5 years resulted in members of the older cohorts who should be retiring having to continue to work beyond normal age of retirement (Eliasa, Smith, & Barneya, 2012). Many of those employees of the older generations have only the basic IT knowledge and skills and often might display resistance to learning IT initiatives when they perceive that there are not many years left before retirement (Lazazzara, Karpinska, & Henkens, 2012). There continues to be denial, but the argument existed that some employers were not willing to provide IT training for employees over the age of 50 because, as the recession continued,

those employees would have been the first to lose jobs (Tacchino, 2013). However, that lack of IT training for employees might lead to a breakdown in communication among the groups and might eventually lead to decline in productivity within any organization.

Kapoor and Solomon (2011) cautioned that organizational leaders should make changes to ensure a positive work environment that is conducive to productivity for all members of the organization and includes all ages. Appropriate IT training could be the initial line of defense to minimize the lack of collaboration among the generational cohorts. Although that proposal might exist, Williams van Rooij (2012) pointed out that no specific suggestions in the literature existed regarding how designers should develop training that focused on ages of employees. Eliasa et al. (2012) discovered that there was a link between how employees responded to changes in technology, the ages of employees, motivation, and whether they were satisfied with their jobs. If such a link exists, then developing the appropriate training techniques should be useful to enhance collaboration among the cohorts. In this quantitative nonexperimental study, I examined the optimal IT approach that included the preferences of the cohorts to information technology initiatives to enhance collaboration among generational cohorts in organizations. The findings of this study could be used to develop IT training programs that incorporate Adobe Creative Cloud, Cloud Computing, and SharePoint 2013 that might be geared toward a more collaborative and productive work environment in organizations.

Problem Statement

The research problem was the failure of organizational leaders to recognize and address the lack of collaboration among the up to five generations that might coexist in any organization. That specific problem was how to improve collaboration through the implementation of information technology (IT) initiatives coupled with the knowledge of learning styles among the cohorts. It is imperative that organizational leaders realize that the speed of technological change makes collaboration among cohorts separated by 10 or 20 years a difficult undertaking (Cekada, 2012). The discussions in the literature review suggested that the lack of collaboration among the generational cohorts influenced the productivity and competitive advantage of organizations in negative ways (Rathman, 2011; Sørensen, 2012; Srinivasan, 2012). The economy of the United States continues to be knowledge based, and most leaders and managers fail to grasp that the technologies connected to knowledge affect the lives of workers. The business problem was if leaders do not address the collaboration problem, then any organization could face negative issues related to lack of communication, frustration among cohorts, turmoil within the work environment, and the inability of organization to maintain sustainability (Cogin, 2012). Findings of this study enhanced the body of knowledge needed to address the lack of collaboration among the up to five generational cohorts in organization as leaders implement IT initiatives and integrate such actions with the unique learning styles of employees. Once the leaders recognize the issues with collaboration among the cohorts, the introduction of new technological tools and training could align the capabilities of employees with the daily functioning and efficiency of the organization.

Objectives of the Study

The objectives of this quantitative study were twofold. First, I investigated the perceived reasons for the lack of collaboration that might exist among the up to five generational cohorts in organizations. Some agreement was present among researchers as to the definition, similarities, and differences among generational cohorts (Lester, Standifer, Schultz, & Windsor, 2012; Miller et al., 2013; Parry & Urwin, 201; Rathman, 2011). Although individuals perceived some of the similarities and differences of the cohorts (Lester et al., 2012; Mullan, 2008; Rathman, 2011), there was a need for further research because of controversies regarding ongoing issues and the reasons for the prevailing lack of collaboration among the cohorts.

Second, with the focus on knowledge management, as put forward by Batra and Vohra, 2016; Chennamaneni, Teng, and Raja, (2012); and Swift (2012), I attempted to determine whether the implementation of IT training for all employees, irrespective of cohort, would be the key to changing a noncollaborative atmosphere within organizations. Gursoy, Geng-Qing Chi, and Karadag (2013) argued that many areas related to how knowledge was shared within the organization would become challenging issues unless organizational leaders addressed the lack of collaboration among the cohorts. In this study, I investigated whether generational cohorts displayed learning preferences and the impact of those preferences on IT training.

Purpose of the Study

The purpose of this study was to address the gap identified in the review of the literature regarding collaboration among generational cohorts through a quantitative,

nonexperimental approach. The study involved generational learning styles and preferences for organizational technology-training initiatives that might affect collaboration among generational cohort employees. The investigation was based on theories related to motivation, diversity, and management. The study was conducted to determine whether a relationship existed between and among the up to five generational cohort employees (independent variable [IV]), their learning styles (dependent variable [DV]), preferences for technology learning activities (DV), and collaboration among generational cohort employees (DV). All of the variables were considered and measured in the statistical analysis to accept or reject the hypotheses and answer the research questions. Stakeholders of small, medium, and large organizations where up to five generations of workers worked were the sample population.

It is critical that organizations recognize the need for older generational workers and not conclude that it would be easier to hire younger IT specialists who might exhibit greater adaptability (Lyons & Kuron, 2014; Sanaei et al., 2013). The findings from this study could assist business leaders with developing strategies to foster collaboration through IT training among generational cohorts. Findings could add to the information that exists about the ways management in organizations interact with the up to five cohorts as leaders implement new technology processes. The results may assist the leaders of organizations with making decisions about future employees and the retention of valuable human resources.

Research Questions and Hypotheses

Research Questions

Research Question (RQ) 1: To what degree do learning style preferences vary by generational cohort employees in for-profit firms in a large metropolitan city in the Southeastern United States?

RQ 2: To what degree do the various preferences of generational cohort employees for technology training activities such as Adobe Creative Cloud, Cloud Computing, and SharePoint 2013 impact attitudes toward information technology use in for-profit firms in a large metropolitan city in the Southeastern United States?

RQ 3: How will the implementation of IT initiatives affect collaboration among generational cohort employees during organizational training in for-profit firms in a large metropolitan city in the Southeastern United States?

Null Hypotheses ($\mu1 = \mu2...= \mu k$, $\alpha = 0.05$)

H_O1: There is no significant difference between various learning style preferences of the up to five generational cohort employees in for-profit firms in a large metropolitan city in the Southeastern United States.

H_O2: There is no significant difference between the various preferences of the up to five generational cohort employees for technology training activities such as Adobe Creative Cloud, Cloud Computing, and SharePoint 2013 in for-profit firms in a large metropolitan city in the Southeastern United States.

H_O3: There is no significant difference between collaboration and organizational training initiatives of the up to five generational cohorts in for-profit firms in a large metropolitan city in the Southeastern United States.

Alternative Hypotheses ($\mu1 \neq \mu2\ldots\neq \mu k$, $\alpha = 0.05$)

H_A1: There is a significant difference between various learning style preferences of the up to five generational cohort employees in for-profit firms in a large metropolitan city in the Southeastern United States.

H_A2: There is a significant difference between the various preferences of the up to five generational cohort employees for technology training activities such as Adobe Creative Cloud, Cloud Computing, and SharePoint 2013 in for-profit firms in a large metropolitan city in the Southeastern United States.

H_A3: There is a significant difference between collaboration and organizational training initiatives of the up to five generational cohort employees in for-profit firms in a large metropolitan city in the Southeastern United States.

Variables in the Study

The study may contribute to the existing body of knowledge regarding collaboration among generational cohorts to close an existing gap in the literature. Trochim (2006) and Vaitkevicius and Kazokiene (2013) proposed that in conducting quantitative research, the researcher tries to generalize or make predictions about the topic under investigation to draw conclusions about the relationships between the variables. In this study, I sought to determine whether (a) learning style preferences varied by generational cohort; (b) preferences of generational cohort employees for

technology training activities such as Adobe Creative Cloud, Cloud Computing, and SharePoint 2013 influenced attitudes toward information technology; and (c) implementation of information technology initiatives affected collaboration among generational cohort employees during organizational training.

The study included a quantitative survey design focused on the operational variables in each research question to collect the necessary data for analysis. Field (2014) suggested that the researcher should attempt to explain how the dependent variable changed under the influence of the independent variable. For RQ 1, the dependent variable was learning style preferences, and the independent variable was generations of up to five generational cohort employees. For RQ 2, the dependent variable was preferences for technology training activities such as Adobe Creative Cloud, Cloud Computing, and SharePoint 2013, and the independent variable was generations of up to five generational cohort employees. For RQ 3, the dependent variable was collaboration and organizational training initiatives of generational cohorts, and the independent variable was generations of up to five generational cohort employees.

The dependent variable outcomes (learning style preferences) for RQ 1 were measured using items in Part 1 of the survey (learning styles questionnaire) based on Honey and Mumford (1982) that was often used to measure learning styles in the field of business (Culpin, Eichenberg, Hayward, & Abraham, 2014; Michie & Zumitzavan, 2012). For RQ 2, the dependent variable outcomes (preferences for technology training activities such as Adobe Creative Cloud, Cloud Computing, and SharePoint 2013) were measured using the items that I developed in Part 2 of the survey (technology learning

activity preferences). For RQ 3, the dependent variable outcomes (collaboration and organizational training initiatives of generational cohort employees) were measured using items from Part 3 of the survey (predicting collaboration technology use: integrating technology adoption and collaboration research survey) that was developed by Brown et al. (2010). The independent variable was the same for the three research questions (generations of up to five generational cohort employees). That variable was measured using the three items in Part 4 of the survey (demographic information).

Theoretical Framework

The theoretical framework involved theories grounded in motivation, diversity, and management. The emphasis was on the generational cohorts and collaboration to develop an understanding of the importance of positive working relationship among the various cohorts within any given organization. The discussion of the framework focuses on Maslow's hierarchy of needs theory and the technology acceptance model (TAM) with references to the theory of collaboration and the unified theory of acceptance and use of technology (UTAUT). The challenge for managers is to become conversant with the unique features of the human resources, which continue to change, in each unique organization. Managers cannot focus on one theory to provide the answers; instead, managers must assimilate research theories to understand organizational behavior. The motivational theories include the findings of Maslow and McGregor. The field of management credited the best application for understanding human behavior and the importance of motivation in the process among individuals in the workplace to the findings of Maslow (2000). Those findings evolved into the management motivational

theories including the expectancy theory (Hayyat Malik, 2012). Although there was a

wide spectrum of ideas involved with the findings of the theories, the common thread

was understanding how individuals worked toward realizing their personal and

professional goals within knowledge-based organizations.

Maslow (2000) and McGregor (1960) proposed that the leader and followers have

specific goals (most of those are challenging) and the leader provides the support and

guidance to ensure that the followers meet the stated goals. Researchers viewed the

technique as a corrective approach that enables the followers to operate at their full

potential, develop a sense of empowerment, work to satisfy higher-order needs, and

recognize that their opinions are valued within the organization (Breevaart, Bakker,

Demerouti, Sleebos, & Maduro, 2014). Most often, to achieve needs there is an

accompanying adjustment in the individual and the organization. Whenever

organizational change occurs, there might be chaos involved, and managers should

anticipate the ensuing events. At the same time, it is important to remember that

employees are unique in their ways of thinking. Managers should find the unique

characteristics of workers and capitalize on them. In the process, managers could

encourage employees to maximize their strengths so that those qualities might transfer

into performance for the benefit of the individuals and the organization.

People change, the rules of business change, and technology changes, but within

that climate of change organizational leaders use various tactics to embrace those changes

and to develop clearer understanding of how information technology facilitates positive

changes. Brown et al. (2010) noted that the technology acceptance model (TAM) was

most often used to predict adoption and use of technologies by individuals. The combination of TAM and its extension to the unified theory of acceptance and use of technology (UTAUT) became the baseline for investigating collaboration technology since the 1970s. Brown et al. posited that the optimal success in technology use would come from the appropriate choice of technology and the guidance to make effective use of collaborative tools. My review of the literature indicated that there was no consensus on a general theory of collaboration (GTC) (see Chung, Chen, & Lin, 2016) or the generational cohort theory because as Shacklock and Brunetto (2012) posited, each cohort demonstrates specific values and needs.

Nonetheless, the research community supports the premise of collaboration as a process of sharing knowledge and skills among members of an organization (Chung et al., 2016). The UTAUT model incorporates several former models including the widely used technology acceptance model (TAM) with additional emphasis on predicting user behavior (Brown et al., 2010). The new UTAUT model incorporates "four key predictors for intention to use technology: performance expectancy, effort expectancy, social influence, and facilitating conditions" (Brown et al., 2010, p. 13). Researchers in the field of business, education, and health care in the United States and other areas of the world used the UTAUT model in its present format or modified in some way to conduct investigations (Slade, Williams, & Dwivedi, 2014).). One critique of the model by Brown et al. (2010) is the missing focus on how information system (IS) managers might implement new types of systems in the workplace.

The decision by organizational leaders to implement new technologies within organizations can be a complex and daunting process because of the human elements at the center of the ventures. Both the UTAUT (extension of TAM) and GTC address human behaviors that continue to change. The UTAUT model affords a baseline that might allow managers to determine how the employees might accept new technologies within any organization. Although the UTAUT model focuses on the acceptance of IT by users, there is no specific distinction regarding acceptance among the up to five generational cohorts within any given organization. The premises of the GCT developed by Strauss and Howe (1997) provide information to managers about the cohorts that might enable the development of collaborative training within organizations. Discussions continue regarding whether the individual's intention to use technology is connected to the person's attitude and is a subjective decision, or whether the individual's intention is influenced by any prior association with technology (Barnard, Bradley, Hodgson, & Lloyd, 2013; Bennett et al., 2012; Korpelainen & Kira, 2013). Without an understanding of the premises of the GCT, a training program might be counterproductive to the intent of enhancing collaboration among the employees in the organization. To achieve success when implementing IT processes in organizations, managers have to implement IT training initiatives that incorporate the premises of the UTAUT model in combination with the learning styles of employees, as put forward in the GCT. The theories related to the study are discussed further in Chapter 2.

Nature of the Study

The study included a quantitative nonexperimental design to collect and analyze

data concerning how collaboration might be enhanced among the multiple generations

that coexist within an organization. Venkatesh, Brown, and Bala, (2013) pointed out that

in conducting quantitative research, the researcher collects numerical data for analysis

using mathematical techniques. Vaitkevicius and Kazokiene (2013) supported that

position and put forward that researchers who use the quantitative approach focus on

incorporating the scientific method to collect numerical data and analyze information to

draw appropriate conclusions. Allwood (2012) and Nazari and Gorman (2013) posited

that the quantitative approach was deductive because the researcher is attempting to

identify the overarching principles of a situation and then narrowing the focus. Allwood

(2012) stated that the quantitative approach allows the researcher to focus on accepting,

refuting, or modifying hypotheses. The research plan for the study involved the following

dependent variables: a) learning style preferences of generational cohort employees (RQ

1), b) preferences of generational cohort employees for technology training activities

such as Adobe Creative Cloud, Cloud Computing, and SharePoint 2013 (RQ 2), c)

collaboration and organizational training initiatives of generational cohort employees

(RQ 3); and one independent variable, up to five generational cohorts for all research

questions. The nonexperimental survey design allowed me to answer the research

questions related to collaboration among generational cohorts using the cause and effect

technique. According to Nazari and Gorman, I could not manipulate the categorical

independent variable (generation). The approach allowed me to engage in comparative

research and to analyze the collected data at a specific time (Nazari & Gorman, 2013).

Nazari and Gorman pointed out that because the investigation did not include pre- and

posttests or manipulation of the independent variable (generations), the quasi-

experimental approach was not applicable.

The quantitative research method (deductive in nature) was highly recognized in

management because many researchers associated the approach with objectivity and high

levels of validity (Trochim, 2006; Vaitkevicius & Kazokiene, 2013). Interval

measurements were useful in this study. The data collected through those techniques

allowed me to analyze differences among participants' responses and to determine

whether the differences were significant. A qualitative approach that focused on

individuals' beliefs and lived experiences (Yung, 2014) was not appropriate because the

research approach for the study was deductive in nature and demonstrated characteristics

of evaluation research. Trochim (2006) pointed out that the deductive form of research

provided important information to specific audiences to support leaders' decision-making

processes within organizations. In research related to the field of business, the literature

review surrounding evaluation research appears to support techniques that range from

experimental (quantitative) to various qualitative approaches. Venkatesh et al. (2013)

noted that the use of mixed methods was limited in information systems (IS) studies. The

discussions on the use of mixed method research approach suggested that the

methodology provided a more detailed analysis of the research topic than would be

possible using quantitative or qualitative approaches alone.

The mixed-methods approach can be time consuming, and although I developed skills in quantitative research since my undergraduate years, I was not versed in the use of the qualitative research. Based on the nature of the research topic and research questions, the mixed-methods approach was not needed (see Gravetter & Wallnau, 2008). I used QuestionPro, an online survey website, to collect data using a survey for which reliability and validity had been established. Data analysis procedures included descriptive statistics and hypotheses testing using ANOVAs. Once the data were collected and the descriptive statistics of the dependent and independent variables were analyzed, I used SPPS software to conduct the appropriate inferential statistical analyses. I calculated descriptive statistics with a focus on percentages for the independent variable of the up to five generational cohorts. I also conducted a one-way ANOVA for the research hypotheses in RQ 1 and RQ 3 because there were five comparison groups for the generational cohorts. For RQ 1, the assumptions of the normal one-way ANOVA were not met, so I used a modified version of the ANOVA (Welch ANOVA) along with the Games-Howell post hoc test to analyze the data using generational cohorts and learning styles preferences of the study participants as variables.

For RQ 2, I calculated frequency distributions, percentages, mean scores, and cross tabulations across the up to five generational cohorts. I used the Kruskal-Wallis test (nonparametric) for analyzing ranked data and the Dunn's (1964) procedure with a Bonferroni adjustment (Hossain & Ahmed, 2016) to determine differences in preferences among the up to five generational cohorts.

For RQ 3, I used chi-square tests of independence to analyze the predicted use of technology activities among the up to five generational cohorts. The analysis of the data allowed me to propose a plan that might enhance collaboration among generational cohorts in for-profit organizations. The independent variable (generations of up to five generational cohort employees) was the same for the three research questions and was determined by the three items in Part 4 of the survey. The findings of the study could add to the existing body of knowledge regarding collaboration among generational cohorts.

Significance of the Study

The data collected and analyzed in this study were used to determine how the up to five generations that coexist in an organization might adapt to changing technology through training to enhance intergenerational collaboration within a single organization. Avital (2014) identified the gap that exists by investigating perceived connections between social change and information technology. Avital suggested that any changes implemented by managers should incorporate existing systems within the organization. Cekada (2012) proposed that any successful attempt by organizations to offer training to the generational cohorts should begin with focusing on the unique characteristics and idiosyncrasies of each group.

Significance of the Study to the Management Field

Two compelling themes arise in the discussion of management, organizations, and collaboration among workers. First, irrespective of the lack of consensus regarding many topics related to management among researchers and those who practice the craft, there was agreement on the role of motivation in determining performance in the workplace

(Breevaart et al., 2014). Managers and leaders must ensure that they provide workers with the tools to enhance individual performance as well as develop ways to ensure the survival of the organization. Second, as the system thinking theory indicates, many organizational leaders fail to recognize that organizations are complex systems that are interconnected and can only operate efficiently when all parts are working together (Jatobá, de Carvalho, & da Cunha, 2012; Senge, 2006). In the past year, many organizations began spending vast amounts of resources to ensure that the information systems technologies are as advanced as possible to prevent attacks on the systems, as was the case with the credit card breech in the United States in late 2013 (Riley, Elgin, Lawrence, & Matlack, 2013). Many business leaders fail to focus on the fact that humans control the technology, and the systems are as efficient as the people who operate them. Woods (2016) proposed that the makeup of the present workforce was changing and would continue to change as fewer baby boomers remained in organizations and those positions were taken over by the millennials.

Recently, the focus has been on the issue of training workers in information technology (IT) skills to foster ongoing collaboration among the up to five cohorts that might be present in any organization. To achieve some measure of success with cohort collaboration, Parry and Urwin (2011) posited that organizational leaders had to move beyond the confusion that exists about the distinction between generations and cohorts. Instead, leaders' emphasis should be on designing organizations that foster IT training and professional development for all workers irrespective of cohort. Srinivasan (2012) did not focus on classification of workers into groups but identified the lack of

collaboration among the multigenerational workers as a worldwide issue that leaders could only address by appropriate leadership training, respect among all stakeholders, and focused training for all employees.

Significance of the Study to the Information Technology Profession

Because technology is the great equalizer, any attempt at successful multigenerational training requires knowledge of the group, the preknowledge that individuals bring to the learning process, and the learner's preference style for receiving instruction. The discussion continues as to the importance of IT training for all workers in the organization to foster collaboration. However, researchers are now concentrating on the connection between information and communication technologies and the impact on social change within and outside the organizations (Avital, 2014; Cekada, 2012). That idea centers around providing the technology skills that might allow workers to interact positively with each other and enhance self-esteem. All individuals within the organization have knowledge that, if shared, might lead to innovation and allow the organization to sustain competitive advantage (Schmitz, Rebelo, Gracia, & Tomás, 2014). Connelly, Zweig, Webster, and Trougakos (2012) argued that there was reluctance of employees to share knowledge because of distrust among workers. The leadership could alleviate some distrust by providing training for all employees irrespective of cohorts.

As organizations continue to incorporate the most advanced technologies to counteract competition in the environment, the technologies will be of little value to the organizations unless they are appropriate for each organization, the employees share

knowledge, and employees receive the training needed to implement the tools (Connelly et al., 2012). Because technology continues to advance quickly, without continual professional development, leaders, managers, and workers might find that their IT skills become obsolete within a short span with dire consequence on the competitive advantage and sustainability of the organization. The organizational leadership must consider that the needs of IT professionals continue to change from technical focus to project management and business.

To keep pace with the changes, those individuals must continue to gain new skills through training (Gallagher, Gallagher, & Kaiser, 2013; Hawk et al., 2012). Although researchers identified the need for training to reduce friction among the generational cohorts, there were no suggestions as to what would constitute training. Further exploration would be necessary because IT training would have to be specific to the information technology systems that each organization has in place. The findings of this study could allow organizations to foster positive social change among the up to five generations that coexist in an organization. The change might be possible as the individuals adapt to changing technology through training to enhance intergenerational collaboration within an organization. The findings could allow organizations to focus on how to adapt to changing technology rather than how existing identifiable generations could best adapt to enhance economic progress in their communities, countries, and the world.

Significance of the Study to Collaboration Among Generational Cohorts

Although the issue of generational cohorts continues to affect many organizations, some researchers point to the lack of conversation around the issue (Gursoy et al., 2013; Srinivasan, 2012). The discussions to clarify the perceived observations of any differences among the cohorts continue to be underresearched in the field of management (Srinivasan, 2012). Unless organizational leaders have the necessary awareness of the issues, as Bharadwaj, Sawy, Pavlou, and Venkatraman (2013) suggested, then the workplace might become prone to misunderstandings and distrust resulting in a hostile working environment. In an exploratory study related to the hotel industry, Chi, Maier, and Gursoy (2013) pointed out that leaders should keep up to date on the recent research regarding generational cohorts, especially about the baby boomers and GenXers who are the largest groups with the longest presence in any organization. The leaders and managers should then adjust the knowledge to meet the unique characteristics and leadership style of each organization. Gursoy et al. (2013) proposed that once organizational leaders understood how to develop positive connections among the generational cohorts, then there could be a decline in attrition. Marcinkus Murphy (2012) suggested that the implementation of mentorship programs and exchange of information among cohorts might be successful ways to enhance collaboration among the cohorts within organizations. Cross and Gray (2013) cautioned that irrespective of how daunting the task to bring the company into the data-driven environment, managers and leaders should initiate changes within the internal environment and make team work a priority to foster collaboration among the cohort

Operational Definitions

Adobe Creative Cloud: "The cloud computing services present organizations with opportunities to manage their IT expenditure on an ongoing basis, and access to modern IT resources to innovate and manage their continuity" (Prasad et al., 2014, p. 336).

Baby boomers: Individuals born between 1945 and 1964 who have "life experiences shaped by the Vietnam War, Woodstock, the Cuban Missile Crisis, the Civil Rights Movements, the Cold War, the United States landing on the moon, the Kennedy assassination, and Women's Rights Movements" (Deyoe & Fox, 2011, p. 3).

Cloud Computing: "Data resources [that] are stored over the platonic world of the Internet—Cloud computing provides consumers a new way to share data resources and services that belong to various organizations or sites" (Maya, Hyotaek, & Hoon Jae, 2014, p. 241).

Generation X: Individuals "born between the years 1965 and 1979, this is the smallest generation–approximately 50 million—in the workforce. Events that shaped their lives included Three Mile Island, the Iran Contra affair, MTV, AIDS Crisis, Challenger disaster, Desert Storm, Los Angeles riots, and the Iranian hostage crisis" (Deyoe & Fox, 2011, p. 3).

Generation Y: The newest generation to join the workforce, born between 1980 and 1999. "Other names for this generation include Millennial, Echo-Boomers, and Net Gen. Their lives have been shaped by events such as the Oklahoma City bombing, the Waco Branch Davidian Massacre, school violence, the digital age, Enron and other

corporate scandals, reality TV, 9/11; the War on Terror, and Web-based social networking" (Deyoe & Fox, 2011, p. 3).

Generation Z: "Generation Z or the Digital natives are born in the Digital world with complete technology of PCs, Mobile, gaming devices and Internet" (Jain, Vatsa, & Jagani, 2014, p. 18).

Generational cohort: A group of individuals who identify through birth years, location, and significant life events (Lester et al., 2012).

Information system or information technology collaboration: "Process or system facilitating communication, providing a depository for information and resource sharing, and allowing for remote meeting attendance" (Jessell, Smith, Jemal, & Windsor, 2016, p. 242).

Information technology (IT): The field of engineering that refers mainly to technology and business applications of computing (Al-Muomen & Abdulla, 2016).

Information technology training: "The use of knowledge to apply [IT] materials, processes, techniques, and tools for human activity" (Cook & Sonnenberg, 2014, p. 44).

Learning style: "An individual's natural or habitual pattern of acquiring and processing information in learning situations" (Purwanti et al., 2013, p. 657).

Large businesses or firms: For industrialized countries, "large businesses had 250 or more [employees]" (Robinson & Stubberud, 2015, p. 142)

Medium businesses or firms: "Upper limit for the 'medium-sized enterprises' is usually 100-250 employees" (Inyang, 2013, p. 125).

SharePoint 2013: "SharePoint [is used] to collect data because it is a web-based application that can be used to collect data in lists" (Cox, 2015, p. 56).

Small businesses or firms: "Is usually put at between 5-10 workers with and upper-limit of 50-100" (Inyang, 2013, p. 125).

Technology acceptance model (TAM): "Davis (1989) developed the model to explain computer usage behavior and the TAM model was later expanded to include adoption of innovation by Prescott and Conger in 1995" (as cited in Nath, Bhal, & Kapoor, 2014, p. 85).

Veterans: "Born in years prior to 1945, this generation is referred to Silent's, Traditionalists, Matures, or Pre-Boomers. Their life experiences [are] shaped by events such as the Great Depression, Lindbergh flying across the Atlantic, the Hindenburg disaster" (Deyoe & Fox, 2011, p. 3).

Scope of the Study

The scope of this study included the members of up to five generational cohorts who work specifically with IT support systems. These employees are in small, medium, and large for-profit firms in a major metropolitan city in the Southeastern United States. The scope of the study centered on the implementation of IT training activities, initiatives, and the connection between learning style preferences and collaboration among generational cohort employees. The data were collected through QuestionPro from a selection of respondents who were employed in firms that use IT processes. Uprichard (2013) suggested that a large sample would increase the ability of the researcher to generalize the findings of the study. The review of the literature provided

discussions that indicated that none of the three categories of nonrandom sampling would be appropriate for this study: (a) quota sampling, where a specific number of individuals are targeted; (b) purposive sampling that allows the researcher to select a sample that might represent the features of the population under investigation; or (c) convenience sampling, also known as haphazard sampling in which the researcher uses whoever is available to participate in the study (Hall, Higson, Pierce, Price, & Skousen, 2012).

I used stratified sampling and specific procedures to protect the study participants. Stratified sampling is appropriate when the population for the study is well defined (Singh & Solanki, 2013), as was the case in this study. I developed a survey (Appendix A) to collect the data for the study and received permission to use or modify any of the preestablished instruments from the authors prior to conducting the study (Appendices B and C). I informed the potential participants in the informed consent form in the QuestionPro database that (a) there would be no compensation for participation in the research study, b) participation would be voluntary, and (c) they could refuse to participate without any repercussions. I outlined in the informed consent that there would be minimal risk of psychological stress while completing the survey. If participants felt stressed during the process, they could stop at any time. In addition, participants were told through the informed consent form that any information provided would be kept confidential. In the informed consent form, potential participants learned that I would not use information for any purposes outside of the study. In addition, I would not include their names or any information that could identify them.

Assumptions, Limitations, Delimitations

Assumptions

In a quantitative study, the researcher does not test the assumptions; the approach allows the researcher to take the statements or ideas for granted. There were three major assumptions in this study. First, I assumed that the participants understood and had skills in the use of IT processes and tools. The participants were involved in IT jobs in for-profit firms in a large metropolitan city in the Southeastern United States. I also assumed the premises of the theories in the theoretical framework of the study were accurate and recognized the importance of collaboration among generational cohorts within an organization.

Second, I assumed the participants were a representative sample that allowed for generalization of the findings. Grafström and Schelin (2014) advised that the researcher should choose a representative sample of the population under investigation because that choice provided the claim to generalization. Based on the suggestion from Rohwer (2014), I assumed that participants answered the questions on the survey honestly and provided responses that were consistent.

The third assumption was that the instrument used in the study would measure what it was designed to measure and accurately describe what I intended to describe. Rohwer (2014) suggested that the survey measurement be scientific in nature. As with all science, there was no guarantee of the accuracy of the data collected through the survey. Based on the suggestion of Barber, Kaul, and Chilvers (2013), I assumed that the use of

the survey method would reduce errors in the data collected. Finally, I performed a pilot study to identify any questions that might not be clear in the context of the study.

Limitations

My research study was not a true experiment that required simple random sampling where each participant or element has the same chance of being selected for the study. Simple random sampling was based on the population (total number of elements or people from which the sample was selected) (see Uprichard, 2013). Instead, I conducted a nonexperimental study and used stratified sampling. I selected the appropriate sample (number of participants), after calculation, from which to collect data for analysis to ensure that the findings were correct. The selection of the sample participants was conducted by QuestionPro, an online data collection platform. Self-selection bias might occur because the participants were volunteers and that might affect the generalizability of the findings from my study. I used the survey that I developed to arrive at the findings of the study; therefore, the findings would have to be verified through additional studies (see Blackburn, Hart, & Wainwright, 2013). The use of web-based data collection via QuestionPro allowed for proper procedures to maintain the privacy and confidentiality of the participants.

The sample population was limited to the up to five generational cohorts who worked in small, medium, and large for-profit organizations that used technology and had access to the online survey. Adamsen, Rundle-Thiele, and Whitty (2013) pointed out that although the validity and reliability of the Likert-scale instrument had been favorably evaluated, the scale was only valid when it measured what it was intended to measure.

There were discussions about ways to enhance collaboration among the up to five generations that exist at any one time in an organization. Those discussions might require less focus on the differences and more in-depth dialog about similarities among the cohorts (Cekada, 2012). This study focused only on how leaders might use IT training to enhance collaboration among the up to five generational cohorts. The study involved only generational cohorts in for-profit firms in a large metropolitan city in the Southeastern United States.

Delimitations

The study was conducted in businesses where IT initiatives and training were integral parts of the activities of the generational cohorts. The hypotheses were tested through a quantitative survey-based approach. The qualitative or mixed-methods approach was not appropriate because I did not meet face-to-face with participants or conduct observations of the participants. The quantitative survey approach focused on U.S. participants between the ages of 18 and 73 years. Other groups were excluded from the study because those populations were not relevant. Although the population was limited to a large metropolitan city in the Southeastern United States, the findings of this study have potential generalizability based on the number of other for-profit firms that exist in the same region and the participant pool that engaged in the data collection process.

Social Change Implications

The leaders in the field of information systems management continue to introduce new ways to bring attention to positive social change (Smith, 2012). The interconnections

of the global business world continue to expand as the applications of information technology become more easily accessible. The discussions among researchers in the field of management suggested that successful management would involve a combination of knowledge skills of leaders and employees (Lai & Hong, 2015; Swift, 2012). Based on that thought, the focus of positive social change must involve a dream and the community in which the organization operates. Organizational leaders continue to face many negative issues with realizing competitive advantage that might be resolved with the introduction of creative information technology initiatives.

One area where organizations might foster positive social change is to engage in finding solutions to the situation where they will be faced with the presence of the up to five generational groups for the foreseeable future. Ahmad et al. (2013) proposed that the differences in the way that the generations viewed and used technological processes and tools affected the cohort interactions. Nevertheless, the negative perception persists that the older generation might be resistant to the fast-paced changes in IT. The discussions presented in the review of the literature indicated that perceived conflicts and resistance to IT among the older generations might not be due to differences but rather to people's perceptions (Brown, 2012). The findings of this study could allow organizations to foster positive social change among the up to five generations that coexist in an organization as the individuals adapt to changing technology through training. Such adjustment among the leaders and employees could enhance intergenerational collaboration within a single organization.

Summary

As with any emerging research area, scholars focus on places where the existing body of knowledge related to information technology requires more supporting information. The information presented in Chapter 1 suggested that scholars were not focusing on the impact of innovations in ISM on positive social change, and that there were gaps related to ISM procedures, risks, and personnel. This study focused on techniques to enhance collaboration among the generational cohorts. Chapter 1 provided the overview of the major ideas related to the topic of generational cohorts and IT.

The information in Chapter 2 validates the choice of the topic for investigation, the theoretical framework for the proposed study from Chapter 1, and the rationale for the methodology (procedures, instruments, analyses). The discussion in Chapter 2 presents a critical analysis of literature related to information systems management, generational cohorts, and collaboration among groups of individuals. Concepts discussed include the use of IT training to promote collaboration among multiple generations, especially the theories related to the literature; the evidence for the existing gap, and the possible questions that evolve to minimize or close the existing gap.

Chapter 2: Literature Review

The literature review involves discussions of the major ideas of the innovation of information technology (IT), their applications to information systems management (ISM) in organizations, and how those concepts influence the ways that leaders manage diversity within any organization. The analysis of organizational diversity focuses on the differences and shared experiences of the generational cohorts within any organization. The impact of motivation in the business world and its relationship to the beliefs and values of the generational cohorts is evaluated. With the daily advances in IT, many organizations must find new ways to remain solvent to maintain competitive advantage through the maintenance and introduction of new information processes and tools. IT governance, ISM, and knowledge exchange are discussed to determine the bearing on IT training initiatives. One area where organizations might foster positive social change would be to engage in finding solutions to the situation that exists with the presence of up to five generational groups for the near future. It would be necessary to develop procedures to enable the generations to work together and connect the objectives of any business with IT management. The relationship between IT processes, tools, and customer satisfaction might result in improved practices within the business environment.

A negative perception persists that the older generations might be reluctant to engage in the fast-paced changes in IT. The perceived conflicts and resistance to IT among the older generations might not be due to any difference but rather to people's perceptions (Brown, 2012), especially regarding learning styles. Armstrong, Cools, and Sadler-Smith (2012) observed that researchers spent the last 40 years investigating the

connections between learning styles and business and industry. Learning styles continue

to be associated with the field of education, but researchers in the field of business and

industry are placing more emphasis on the concept. The investigation was important as

organizational leaders attempted to understand, developed training programs for, and

worked with the multigenerational groups that coexisted in the workplace (Cross, 2012;

Muse, 2015; Purwanti et al., 2013). Some researchers, including Mahajan and Chaturvedi

(2013), suggested the use of techniques such as blended learning where the techniques

simultaneously exposed the learner to knowledge (lectures or discussions) and the

application of the knowledge in skill training.

Other researchers proposed that the training should be coupled with knowledge

management (Swift, 2012). Amitabh and Sinha (2012) suggested the implementation of

the individualized approach. Irrespective of the chosen IT training approach, the

leadership should concentrate on the individuals within the organization and the way they

internalize information (Lai & Hong, 2015). The findings of this study could allow

organizations to foster positive social change among the up to five generations that

coexist in an organization as the individuals adapt to changing technology through

training. The initiative might enhance intergenerational collaboration within a single

organization.

In this chapter, I examine the status of previous research included in the problem

statement, the social dynamics in organizations, the relationships between the

generational cohorts, and the approaches to IT. I highlight how the analysis of the

literature provided the rationale for advancing the current study. The literature review

includes (a) the historical research related to the advances in IT, (b) the connection to information systems management (ISM), and (c) generational cohorts as well as IT and the role in business and industry. The discussions include the nuances of generational cohorts, the theoretical frameworks, the impact of IT and ISM on organizations, information dissemination and knowledge management (KM), learning styles related to business and industry, research on training initiatives for multigenerations in business organizations, research methods (quantitative versus qualitative survey), the differing methodologies, and the summary.

Title Searches and Research Documentation

I gathered the information needed to complete the literature review from the management course materials and textbooks, as well as relevant journal and peer-reviewed articles from online databases. The online research databases included ABI/ INFORM, Business Source Complete, Communications of AIS, Communication of the ACM, Computers and Applied Sciences Complete, and Computer and Information Science EBSCOhost, ProQuest, and SAGE. I also used the Google Scholar search engine. Journal peer-reviewed articles included selections from *Advanced Corporate Learning*, *AI & Society*, *Business Strategy*, *Computer Information Systems*, *Diversity Management*, *Information Systems Management*, *Information Technology*, *Knowledge and Process Management*, *Managing Projects in Business*, *Management Decisions*, *Organizational Behavior*, *Small Business*, and *Enterprise Development*. The theoretical investigation of Maslow's needs theory, technology acceptance theory (TAM), and generational cohort theory (GCT) initiated the review of the literature. The theoretical ideas and information

from books in Walden University's courses with specialization in ISM were applied to information technology processes and training with the focus on reducing the gap that exists in collaboration among the multigenerations in the workplace.

Walden University's library included most the research databases. The key words and phrases used to conduct searches were *information technology*, *generational cohorts*, *generational theory*, *learning styles*, and *information technology training*. The concepts from those areas and related searches within the databases included *Adobe Creative Cloud*, *baby boomers*, *Cloud Computing*, *collaboration*, *competitive advantage*, *echo boomers*, *fifth generation(millennials)*, *Generation X*, *Generation Y*, *Generation Z*, *information dissemination*, *information systems or information technology collaboration*, *information technology training plan*, *knowledge management*, *large*, *medium*, *small businesses or firms*, *motivation*, *Nexters*, *project management*, *self-actualization*, *SharePoint 2013*, *Technology Acceptance Model* (*TAM*), and *veterans (traditionalists)*.

For a recent topic such as SharePoint 2013, there was minimal peer-reviewed articles, and sparing use was made of other sources of information. For technical articles that were only available for purchase, the abstracts provided relevant information that facilitated further searches. Some articles that were beyond the scope of the mandated period were used to gain insight into the ideas that are now part of the ongoing research in information technology. Each area of research supported the ideas used to complete the review of the literature.

Historical Research

Information Technology Evolution

The culture of most organizations continues to change as the up to five cohorts of employees interact in environments where the use of information technology processes became the main form of communication over the past two decades. The older members of the organization continue to learn new processes that have become second nature to the younger cohorts. The development of IT continues to change and leaders, managers, and employees must adjust and collaborate to maintain a positive environment conducive to the successful operation of the organization (Srinivasan, 2012). The historical perspective of research related to IT and information systems management (ISM) involves the development of processes that include computer science, business processes, and the people involved in the use of the technologies. Davern, Shaft, and Te'eni (2012) postulated that the changes, advances, uses, and emerging applications as individuals became more connected with and through information systems (IS) influenced existing research.

Avital (2014) proposed that individuals continued to discuss social issues but did not focus on how the issues connected to IT or the impact of innovations in ISM on positive social change. Diffie (2008) explained the inception of computer security occurred in the 1960s, and issues related to security have continued to the present time. D'Arcy, Herath, and Shoss (2014) pointed out that research emerged and continued to focus on the concept of information security (IS) and the stress experienced by employees as they coped with the stressful demands imposed by internal security. Diffie

pointed out that computer security involved securing the computer within a heavily guarded environment. The rudimentary security process involved cryptography, which was controlled by the military during World Wars I and II, and involved the U.S. Data Encryption Standard.

Since the days of military personnel using a system to identify friend or enemy, revolution of the procedures has continued. By the 1970s, an individual could communicate securely through "development of public-key cryptography" (Diffie, 2008, p. 56). The new process marked further expansion in the 1990s "resulting in the Advanced Encryption Standard, which may be the most secure and carefully studied algorithm in the world" (Diffie, 2008, p. 57). The evolution related to data and IS issues continued as customers made greater demands for faster access to information. As globalization continued to make the world of technology a smaller environment, organizations experienced a variety of technological trends including the advances in digital connections of people, devices, and sensors; Cloud Computing; and smarter products (Krishnapuram, 2013). At the same time, organizations focused on ways to identify vulnerabilities in the system brought on by the interconnections of the cyber environment and tried to develop new ways to detect attacks (McEvoy, Tunstall, Whelan, Murphy, & Marnane, 2014), in systems.

The current discussions centers on Cloud computing that involve the processes whereby the Internet controls the hardware and software resources and contributes to organizational communication (Choudhary & Vithayathil, 2013; Ghilic-Micu et al., 2014). Many IS personnel proposed that improving cyber security would increase as the

use of computers continued to grow worldwide. Other trends include increased

"partnership among information technology workers, global centralization of processes,

and virtualization of networks where many *virtual* servers can be run on a single physical

server" (Hao, Fu, Trenkamp, & Prapatanant, 2012, p. 1229). Researchers revealed that

new trends continue, and change is resulting from the emerging IS. The developments are

bringing together various organizations as they embrace the potential technology,

especially through virtualization. As organizations incorporate training of all employees

in IT processes as a part of the culture of the organization, the creation of networks that

are without borders, using information security techniques, is possible.

Generational Cohorts

As the workforce in the United States ages, organizational leaders are more aware

that the generations are working together in teams or next to each other in the workplace.

Researchers compared the characteristics of various generational cohorts (Davis,

Pawlowski, & Houston, 2006; Miller et al., 2013; Parry & Urwin, 2011; Rathman, 2011),

but the concern with many of the studies was the subjective reporting, the wide range of

characteristics investigated, and the lack of consensus of the findings. Cekada (2012)

attributed the differences in generational approaches to IT to the differences in training

that the cohorts received. Cekada's premise was that just as the computers of the 1960s

were being retired, so was the group of employees who learned on those machines.

Cekada posited that the generational cohorts viewed the use of technology through

different lenses concerning the function of IT. To assist with collaboration among the

groups, managers might need to foster discussions that incorporate the positive

characteristics of all cohorts as the focus turns to information technology training. The

literature related to IT training of the generational cohorts was limited and focused on the

research related to characteristics including similarities and differences of the cohorts.

Implications for Practicing Managers

Managers face changes in the structure and function of organizations, and must

develop new ways to assist the generational cohorts as they attempt to satisfy their needs.

The analogy of "Plato's Cave" (Morgan, 2006, p. 208) provided the reasons why

managers should change the outdated ways of thinking to ensure organizational

sustainability. Morgan (2006) cautioned that narrow-minded views resulted in some

companies losing their competitive edge, and innovative thinkers such as Bill Gates and

others used pioneering thinking to leave behind IBM's larger hardware. Workers are

constantly looking for ways to satisfy varying levels of needs. Employees experience

delays in realizing those levels of need, and it becomes more difficult for leaders to

motivate workers. The ongoing economic downturn in the United States and the world

compounds the work of managers. Because achieving those needs might be a fleeting

process, managers need to have the skills and knowledge to recognize how to help

members of each generational cohort realize goals and ascend the ladder.

Kleyn, Abratt, Chipp, and Goldman (2012) proposed that leaders of organizations

should focus on ethical training among all stakeholders within the organization.

Bharadwaj et al. (2013) suggested that managers should place greater emphasis on

improved communication among all stakeholders within the organization and the role of

IT to enhance the process within the environment. In contrast, De Waal, Maritz,

Scheepers, McLoughlin, and Hempel (2014) offered that leaders should stress that the

transformational changes within the business world might continue unabated into the near

and distant future. De Waal et al. identified factors that contributed to the revolutionary

changes that included the speed of new advances, the open access to information, and

globalization. Organizational leaders should ensure that the generational cohorts become

equipped with the IT knowledge and skills that might ensure active participation in the

change process. As information technology changes, managers must recognize the

changes and help employees to see the focused continuation of training and learning to

ensure active participation in the global economy.

A Review of Prior Professional and Academic Literature

Information Systems Management as an Agent of Change

This research study focused on IT training among the generational cohorts. Avital

(2014) proposed that to assist business leaders with the knowledge and use of information

systems, the designed processes should reflect the actual business processes used in

organizations. Cekada (2012) suggested that any successful attempt by any organization

to offer training to the generational cohorts should begin with focusing on the unique

characteristics and idiosyncrasies of each group. Cekada advised that as the technology

was moving forward at such a fast pace that leaders had to develop new techniques to

supervise the workforce. Because technology is the great divider, any attempt at

successful multi-generational training requires knowledge of the group, the pre-

knowledge that individuals bring to the learning process and the learner's preference style

for receiving instruction. Based on those issues leaders should realize that training

initiatives could be a daunting exercise. Lyons and Kuron (2014) identified the

challenges and opportunities that leaders of organizations would realize when the

generational cohorts interacted with each other in an organization. Lyons and Kuron

proposed that to minimize antagonism and friction among employees, leaders should find

ways to focus on the improving socialization and collaboration among groups.

As individuals, we face constant changes in our lives and business interactions

because of technological advances. Many individuals have minimal knowledge of

software development, which is one area that is integral to our continued survival. Many

employees and managers used the systems without giving much thought to the software

development process (Dingsoyr & Smite, 2014). It is critical that the leadership of

organizations use the appropriate software tools to support all the organizational

processes and the thinking of the generational cohorts. Rathman (2011) acknowledged

the groups in the workplace but put forward that the groups made strides in resolving any

existing differences as well as how to meet their goals.

Dixon, Mercado, and Knowles (2013) pointed out that the organizational leaders

needed to display a greater understanding of the differences among the cohorts and

should recognize that workers responded differently depending on whether the

technology was an integral part of the job description. Mullan (2008) was more specific

in identifying the differences, and Mullan posited that there were distinct differences

among the cohorts that could result in tension within the workplace. Those differences

resulted from each group's understanding of organizational expectations. The rapid pace

of dissemination of information technology continued to affect more individuals and

enabled them to connect with each other in innovative ways. Thus, the narrowing of the global environment was one of the positive contributions of IT.

The expansion of technology left many people in less developed countries behind and was only applicable to the elite. For IT to become a truly global phenomenon, society and IT personnel must engage the generational cohorts and the cultural nuances in rich and poor countries. The ongoing question centered on how organizations and ISM personnel might incorporate social change so the communities become positively impacted. The major disconnect for me is that there is no consensus among business leaders as to the role of ISM. Various researchers provided guidelines that allowed for the identification of the cohorts, veterans, baby boomers, Generation X, Generation Y, and Fifth Generation also known as "millennials, Nexters, Echo Boomers" (see Parry & Urwin, 2011, p. 80). Davis et al. (2006) proposed that the most common way of identifying the cohorts included "share[d] birth years" (p. 43). I investigated ways to bring the various generations to the same point of understanding of the importance, benefits and acceptance of IT.

<div align="center">**Generational Cohorts**</div>

Definition

The review of the literature indicated varying definitions of a cohort but the consensus was that age ranges might define cohorts. The perceived differences among groups that might share cultural or economic events were widened by the advances in IT (Ferri-Reed, 2014). The ever-evolving technologies influence the way cohorts maintained

balance between work and private life, especially among the younger cohorts compared to baby boomers.

Veterans

This cohort included the individuals who were "born between 1925 and 1945", and were often called the "Silent Generation" (Rathman, 2011, p. 10). Based on their technological experiences, these individuals preferred face-to-face dialogue and communication.

Baby Boomers

Baby boomers were people "born between 1946 and 1964" (Bussin & van Rooy, 2014, p. 3). As a group of individuals, they realized the greatest social change and improved conditions of wealth. The group continued to anticipate positive changes in their environments. The researchers attributed a hardworking attitude to the group of independent thinkers.

Generation X

Born between "1965 and 1980" (Bussin & van Rooy, 2014, p. 3), the members of this group grew up in a time when both parents were working outside the home and they developed a high degree of independence. These individuals became responsible since they often they had to let themselves in the house and take care of themselves until the parents or guardians arrived home. These individuals were identified as the independent generational cohort (Bussin & van Rooy, 2014).

Generation Y

This group of individuals was "Born 1981-1999" (Bussin, & van Rooy, 2014, p. 3). The cohort grew up with the introduction of technology and had no fear in using technology to further their personal and professional goals. This cohort was much more comfortable with technology than their parents and in many instances taught their parents to use technology. Generation Y individuals had the freedom to excel and many exuded high levels of confidence. Miller et al. (2013) incorporated the members of the Fifth generation in the Generation Y cohort.

Fifth Generation—Millennials, Nexters, Echo, Boomers

Miller et al. (2013) indicated that members of the Fifth generation were those individuals who were "born in the 1980s and 1990s" (p. 226). Those individuals are known as "Generation Y, Nexters, Echo Boomers" (Parry & Urwin, 2011, p. 80) matured as technology expanded and became the global risk-takers by using IT tools and processes. With the continued interest on the performance of the generational cohorts in the workplace, this group received much attention since researchers proposed that the Fifth generation would be the largest group in the workforce in the next ten years (Bussin & van Rooy, 2014; Miller et al., 2013).

Beliefs, Values, Differences, and Shared Experiences

In some instances, one generation expresses views of another generation in negative ways. For example, other generations described the traditionalists as technologically slow while baby boomers were the egomaniacs who always had to be in control. Other generations viewed the Gen Xers as individuals with poor work ethics

while the millennials were only interested in self-promotion (Miller et al., 2013). In describing each generation as a group, there were many positive and negative attributes of each generation included loyal and patriotic (traditionalists), optimistic and competitive (baby boomers), independent and anti-authority (Gen Xers), and technologically informed and capable of multi-tasking (millennials) (Davis et al., 2006; Ferri-Reed, 2014; Miller et al., 2013; Mullan, 2008). Some researchers generalized the identified beliefs and values of the cohorts, and managers should be cautious with applying the generalization to individuals of each cohort.

Ferri-Reed (2014) identified three cohorts, "baby boomers, Generation Xers, and millennials" (p. 20) and agreed with Mullan (2008) that there were differences among the cohorts. In contrast to the findings of Mullan, Ferris-Reed attributed the uniqueness among the cohorts to "differences in attitudes, personality traits, and behavior[u]rs" (p. 1). Ferri-Reed put forward that leaders had not developed any plausible techniques to embrace the skills of the cohorts to reduce conflicts and enhance collaboration. Davis et al. (2006) focused on the findings related to the characteristics of baby boomers, Generation X and IT acceptance and usage. Lester et al. (2012) proposed that leaders might realize greater collaboration among the cohorts by focusing on building trust and open exchange among the cohorts.

Davis et al. (2006) expressed difficulty in agreeing with many of the prior findings because those researchers based the ideas on personal opinions and data that were insubstantive to draw plausible conclusions. Lester et al. (2012) encouraged managers that in finding new employees the aim should be to develop cohesive teams that included

members of the older cohorts. Davis et al. pointed out that some studies investigated varying characteristics "such as work, loyalty to employers, and commitment to profession, attitude towards [IT] and its usage" (p. 43) and because there was no consistency in the characteristics studied, the findings varied. Lester et al. advised that much of the differences associated with the cohorts involved biases rather than actual observations. In the earlier study by Davis et al. the discussions indicated that leaders ignored the commonalities between the baby boomers and Gen X cohorts because of preconceived ideas of generational differences. Davis et al. proposed that age might be the only issue separating the two generations.

Mullan (2008) did include the classification presented by Ferri-Reed (2014) and added a fourth generational cohort, the "traditionalists, Baby Boomers, Gen X-ers, and Millenials" (p. 16). Mullan proposed that for effective collaboration among the cohorts there needed to be a reconciliation of any perceived differences among the cohorts. Davis et al. (2006) identified shared trust characteristics among some groups although Mullan hypothesized that there was no one shared characteristic among the groups. Organizational managers and leaders would have to understand the dynamics and driving force of each group. It might then become less difficult to determine the IT processes and tools that would allow each group to become comfortable with the changing technology. As individuals become more comfortable, trust develops (Lester et al., 2012) and organizations could have the necessary ingredients for maintaining sustainability. Rathman (2011) suggested that those professionals who wanted to be successful should connect with all generations within the workplace and not assume that collaboration was

the duty of leadership within the organization. Davis et al. and Mullan put forth that the generational differences were subtle and could be easily resolved. Rathman proposed that the major divergence was the choice of communication that each cohort preferred to use. It was incumbent on all members of the organization to learn about each group and exhibit empathy as the starting point for successful collaboration.

Generational Differences and Ethics

Miller et al. (2013) investigated whether there were indeed differences in work ethics among individuals in the fifth generation. Miller et al. pointed out that many of the conclusions arrived at regarding work ethics and the cohorts were subjective. Brown (2012) cautioned business leaders that stereotypical perceptions rather than fact contributed to the perceived generational differences. Brown recommended that to reduce the friction among the cohorts, leaders should take all nuances of the cohorts into consideration when creating collaborative programs. Parry and Urwin (2011) identified the inconsistencies among researchers with assigning an exact span for the generational cohorts and argued that the proposed overlap of the periods could blur the characteristics attributed to specific cohorts. Parry and Urwin attributed genetic and environmental factors as contributors to generational differences and similarities and contended that the similarities in work values were more evident on the lines of the sexes within the cohorts

Theoretical Frameworks

Most management models and theories concentrated on the relationships and interactions within each organization. Many such theories emphasized the importance of leaders understanding and incorporating the unique characteristics of employees to

achieve success within the organization. The discussions focused on Maslow's hierarchy of needs theory and technology acceptance model (TAM). In 1953, Maslow suggested that there were needs that everyone wanted to satisfy. It was importance to recognize that statement even if the personal needs might only be partially satisfied.

Maslow's Hierarchy of Needs Theory

The discoveries of the hierarchy of needs theory centered less of the behaviors of individuals and more on their characteristics because Maslow (2000) presumed that human behavior was dependent on individual choices. Discussions in the literature review indicated that Maslow's discoveries might by applicable only in the context of the United Sates and not in organizations in other cultures because the researcher's investigations were limited to United Sates (Maslow, 2000). The individualist culture of the United States continued to be evident within business organizations. With the increase in globalization, corporate and civil society faced the issues of economic expansion and cultural globalization. Further research might provide more information on the application of Maslow's conclusions in societies, unlike the United States, where the importance of the individual fades and the focus is on the collective good.

The multicultural, multigenerational workforce that is visible in American businesses has workers with different beliefs, and diverse racial, ethnic, and gender backgrounds. The same representation of workers is in multicultural, globalized organizations, with a magnification of the degree of representation. Friction among workers developed from individual views, their responses to the goals of the organizations and the IT knowledge and skills of the individuals that they were willing to

share. Conflicts among the cohorts were attributed to differences in the cultural values, peculiarities, and language. The diversity of the workers within organizations could become the source of friction between corporate and civil society and managers must develop tactics that take into consideration the diverse employees in the organization. Managers needed to recognize the importance of goal setting as one of the basic needs of all employees that should be satisfied to elevate self-esteem. The role of managers became problematic since they had to find ways to keep the members of the generational cohorts motivated under the difficult worldwide economic conditions (Maslow, 2000). Although Maslow's discoveries provided tangible answers the ideas may not be applicable in all cultures.

Technology Acceptance Model

Davis (1989) developed the technology acceptance model (TAM). As researchers focused on the background of the acceptance and adoption of technologies, the review centered on the disruptive potential of the technology (Sultan & van de Bunt-Kokhuis, 2012). Much of the research involved and continued to investigate the applications of TAM in marketing, customer preferences, and the use of technologies (Li, 2013; Nath, et al., 2014). Although the assumption exists that intention was connected to specific groups of workers and less favorable for older workers, Meier et al. (2013) maintained that the model did not provide enough information because of some employees, regardless of age, resisted changes to technology. For this study, the focus was on the TAM model that attempted to understand the behaviors of end-users and how the ease of use and acceptance of technology had the potential to enhance collaboration among cohorts.

At the turn of the century, Venkatesh (2000) proposed that it was imperative for leaders to develop training programs that would allow employees to accept and use new information technology systems. Svendsen, Johnsen, Almås-Sørensen, and Vittersø, (2013) investigated that idea to determine if there were perceived connections between TAM and people's personalities. Svendsen et al. (2013) carried out the analysis using the "three core constructs: perceived usefulness (PU), perceived ease of use (PeU), and behavio[u]ral intention (BI)" (p. 323). The researchers posited that the discussions in the review of the literature did not provide a consensus of the perceived connections but did support the findings that a relationship existed between behavioral intention and perceived ease of use of the technology. Fador (2014) incorporated the premises of TAM and investigated the underlying principles of innovation in technology to advance productivity in organizations. Fador concluded that organizational leaders should allow employees to recognize the value of new technologies for themselves and use the new initiatives to ensure competitive advantage for the organization.

Nath et al. (2014) extended the TAM approach and investigated the influence of the actual use of technology rather than the behavioral intention of the user. The findings implied that perceived ease of use influenced the self-efficacy of each employee, which affected the ease of adopting new technology by the employee and organization. Meier et al. (2013) proposed that in addition to investigating the three core concepts of TAM, researchers should also study how to reduce the fear that was evident in the acceptance of the technologies by employees. Korpelainen and Kira (2013) put forward that the implementation of new ITs influenced learning and collaboration within the workplace

and that the focus should be on the adoption as a process to foster social and learning interactions within the organization. It is important to remember that the cohorts are unique in their ways of thinking and managers should discover the distinctive characteristics of the cohorts and capitalize on them.

Generational Cohort Theory

The principles of generational cohort theory (GCT) involved two assumptions and both were related to the socioeconomic experiences of the individual during the childhood and adolescent years (Siordia & Leyser-Whalen, 2014).). Other researchers differentiated the social and political events of the period during which generations were born (Lester et al., 2012). The assumptions developed into the continual discussion to clarify definition of generational cohorts and to bring greater understanding to the differences and similarities of the cohorts. Brown (2012), and Lester et al. proposed that such research might allow organizations to determine the truth of the stereotypical perceptions regarding differences that persisted about generational cohorts.

The literature review indicated areas where researchers have applied the premises of GCT to understand behaviors of individuals in media preferences, habits of global consumers, and marketing research (Carpenter, Moore, Doherty, & Alexander, 2012), for travel related to cultural issues, and communication among cohorts in organizations (Lester et al., 2012). In discussing the misconceptions of work values among generations, Parry and Urwin (2011) expressed concern with the lack of clarity between the definitions of generations versus cohorts. The debate around those concepts continued unabated although the only agreement was that generational identity influenced many

areas of organizations. The discussions indicated that it was becoming more critical for leaders and researchers to come to a consensus on what generations meant and how the differences impacted the operations of the organization. Lester et al. (2012) proposed that researcher could conduct additional studies to determine the connections of the theory and practice to assist managers as they faced the greatest challenges of working with the workforce that consisted of many generations.

Project Management, Training, and Collaboration

The discussions in the review of the literature indicated that the performance of organizations, project management processes, and the employees were connected. The project management offices (PMOs) were the groups within the organization that assisted with standardizing projects (Tsaturyan & Müller, 2015). The review of the literature indicated that PMOs were constantly changing and could become the source of tension among those employees who were involved in the projects (Quade, Birkenkrahe, & Habermann, 2013). Bendoly (2014) theorized that there was a perceived connection between decision-making and all parts of any organization. Once managers recognized that any project affected all areas of the organization, then leaders could use techniques to understand the importance of projects in real world situations. Each project was unique and the project manager and the multigenerational project team determined the success of each project. The composition of the group necessitated collaboration to reduce conflict and ensure successful completion of each project.

The leader of such project teams must ensure appropriate supervision of all members and that team members should understand the relationship of the project to the

culture of the organization (Bendoly 2014). Bendoly attributed project failure to lack of collaboration between the objectives of the project, the organization, and the senior management. To and Tam (2014) suggested that the major focus of project management should be on communication and collaboration. Quade et al. (2013) proposed that managers should focus on training initiatives along with continued professional development for all employees irrespective of the size of the organizations. Other researchers provided specific suggestions to ensure the success of any project. Wang and Wang (2012) supported that assumption and proposed that the success of training depended on the employees and the unique features of the organization. Kukko (2013) advised that teamwork and collaboration among employees were critical factors in determining success in all projects including IT projects.

Challenges and Strategies in Managing Information Systems

With the revolution in IT, managers have to be willing to develop new ways of thinking, incorporate the knowledge and skills of all stakeholders, and use those opportunities to impact positive social change through IT training initiatives (Spangler, Sroufe, Madia, & Singadivakkam, 2014).). The major concepts related to e-commerce, e-business, and e-management involved the application of developing techniques (Campbell, Wells, & Valacich, 2013). Those procedures allowed managers to understand the markets that affected the business, learning about e-commerce concepts and techniques within the organization, and understanding how to communicate and manage the process (Campbell et al., 2013). As the revolution continued, e-commerce allowed businesses to move from simple direct to interconnected business relationships.

ISMs techniques were essential in helping managers to enhance strategic planning, engage in appropriate business decisions, and gain competitive advantage (Ahmad et al., 2013). The challenges of changes within the workforce including the generational cohorts demanded that the manager becomes devoted to on-going professional development so that all stakeholders of the organization benefit. Managers must keep a constant focus on training, knowledge management (KM), communication, evaluation of existing IT systems, and be willing to reorganize and change.

Knowledge Management, Information Dissemination, and Collaboration

The people in my organization who displayed emotional intelligence (EI) are the leaders who understand the importance of the followers. They are the administrators who want to be *real* leaders; they were honest with themselves and with others. Those leaders are always willing to listen to and help others to develop and grow as they, in turn, realized personal growth. Within any organization, some stakeholders are the ones who could ensure the survival of the company and foster competitive advantage. Chennamaneni et al. (2012) addressed the lack of existing research on how the use of technology in knowledge management (KM) would affect the cohorts when the baby boomers retired. The findings from analysis of the survey instrument by Chennamaneni et al. indicated that the generational differences did not influence collaboration and KM but were more dependent on the support that the management team provided for the cohorts to engage in collaboration.

Once managers have the necessary information, they could determine the selected internal stakeholders who should be involved in all stages of the training process. During

the communication process, managers should share formal communication such as newsletters and training programs about the organization's decision with all internal stakeholders. This would foster acceptance and feedback about the decision. Managers would only need to share the final decision with external stakeholders to ensure transparency in the IT training process. Kamaruzzaman, Zawawi, Shafie, and Mohd Noor (2016) pointed out that in people were more focused on using their minds rather than their hands to solve issues, therefore organizations should use that idea to maintain sustainability and increased profits in organizations. Kamaruzzaman et al. proposed that the process could be feasible when all cohorts received the appropriate IT training. The appropriate training in the use of KM and IT tools might foster dissemination of information to allow for understanding interactions between people, processes, and systems.

Knowledge Management Processes

There were connections between KM processes and the unique culture of any organization. Although Kamaruzzaman et al. (2016) pointed to the inherent difficulty with implementing knowledge management in an organization, they indicated that the process was possible. Many businesses equated KM with the corporate knowledge that might be in the minds of employees as well as the company's databases. The process might be time-consuming, but there was much to be gained by first getting the buy-in to the idea from top to bottom of the organization. One example of implementation would be to collect and disseminate data from sales and marketing campaign if the organization was focusing on improving profits through a marketing initiative.

Based on the discussions in the review of the literature, managers had various

forms of IS that incorporated information technologies to support decision-making,

maintain organizational operations, and achieve competitive advantage. Although the

field of information systems management continues to expand, researchers perceived that

there were instruments that contained the necessary characteristics for the most important

skill of IT professionals, which was interpersonal communication. Managers had the

opportunity to use instruments coupled with knowledge sharing and increased trust

among employees to gain the competitive advantage for any company (Kukko, 2013;

Swift, 2012). The final responsibility for successful implementation of processes would

be the responsibility of the leaders within any organization to connect with all people

who were integral to the working of the organization.

Competitive Advantage Using Information Technology

Organizational leaders who focused on improving innovations, management

training, and the professional development of employees were likely to meet the demand

of the changing IT environment and maintain competitive advantage (Breznik &

Lahovnik, 2014). One drawback of the implementation of IT processes was the resistance

from employees who feared the change. Control Objectives for Information and Related

Technologies (COBIT), an IT process that connects IT to business principles, Capability

Maturity Model® Integration (CMMI) for Development, and International Systems of

Organization (ISO) could provide guidance during the development phase. However,

there was concern about the cost and the usefulness and security benefits of COBIT to the

organizations (Frisken, 2015). Other researchers pointed to the importance and success of

IT processes to elevate the competitive advantage by creating knowledge and for responding to customers in a more rapid speed (Roberts & Grover, 2012). Although, I agree that the criteria of agility could produce results, I believe that the resistance to change comes from the cost of implementation of the technologies, lack of training initiatives, and the lack of communication among stakeholders.

Embracing Change and Shifts in Mind-Set of Managers

Leaders should recognize the importance of training the generational cohorts so that all members of the organization became competent. French and Holden (2012) focused on managers emphasizing positive behaviors among all stakeholders within the organization. Managers should understand that formal and informal communications must transmit the same information to prevent frustration among stakeholders. The leadership must communicate the final decision to the cohort employees and external stakeholders to ensure transparency in the decision-making process. The literature review indicated that management information systems provided ideas that managers might use to minimize external challenges (Bharadwaj et al., 2013). Based on the discussions in the literature review, managers could achieve success through focused and appropriate IT training among the cohorts to realize collaboration and successful achievement of the goals of each organization.

Learning Styles Related to Business and Industry

Learning is the never-ending process that continues, for many individuals, beyond the formal education process (Riding & Rayner, 2013). Educational leaders considered the concept of learning and cognitive styles to be in the educational or psychological

domain. Although the concepts of learning and cognitive styles have been the focus of research for over 40 years, the ideas were not generally associated with business and industry. There was no consensus among the educators whether the terms learning and cognitive styles were distinct or interrelated. Educational psychologists pointed out that to make the discussion of learning styles more easily understood leaders combined the concepts into learning/cognitive style or approach or strategy based on the conceptual models (Riding & Rayner, 2013). Riding and Rayner (2013) emphasized that researchers continued to distinguish between cognitive styles and learning styles.

Armstrong et al. (2012) noted that cognitive styles were areas of investigation by psychologists in the 1970 but the lack of consensus on the findings resulted in minimal continued research in the field of psychology. As the psychological interest declined in the 1970s, researchers in other fields including education, business, and management developed an interest in understanding the learning behaviors of individuals and the connection to the workings of organizations. Business organizations recognized that the human element was the factor that could allow any organization to survive in the competitive world of business and so the focus shifted to the training of employees and leaders (Purwanti et al., 2013). Sawa and Swift (2013) suggested that organizations were designing programs and integrating those programs with technology to embrace the learning of the multigenerations in the workplace.

The educational research on learning styles related to our sense of hearing, seeing, and touching were used by researchers as the basis for other classifications of learning styles (Riding & Rayner, 2013). Based on the work of Kolb (1976) and Honey and

Mumford (1982) researchers "identified four distinct learning styles or preferences: activist, theorist, pragmatist, and reflector" (Purwanti et al., 2013, p. 657). Szablowska-Midor (2012) defined the groups as:

a) "the activist was the individual who approached each issue with problem solving attitude and developed various approaches to resolving the problem.

b) the theorist focused on analyzing the issue logically and was objective rather than subjective in the chosen approach to solving the problem,

c) a pragmatist who was always ready to test any new ideas that were garnered from the training sessions, and

d) the reflector spent time to observe peers during meetings and discussion, collected data, and performed analysis before developing a strategy to solving the problem" (p. 127).

The classification of learners might be the result of the research on blended and social learning as the way to incorporate the various learning styles within business organizations (Lai & Hong, 2015; Mahajan & Chaturvedi, 2013). Cross (2012) posited that with the revolution in IT there was the interconnection between learning and working and leaders who wanted to realize success within organizations had to embrace the change. Cross cautioned that if organizations did not embrace the change then survival might be in jeopardy because of the speed and volume of knowledge and the interconnectedness of all areas of the organization.

Mahajan and Chaturvedi (2013) in connecting higher education and business learning posited that the blended learning approach might be the method that could

enhance meaningful learning in the organization. Lai and Hong (2015) hypothesized that such support for learning might come through collaborative or social learning to embrace all learning styles within any organization. The social technique coupled with specific learning strategies might produce long-term learning successes within the organization (Lai & Hong, 2015). Riding and Rayner (2013) cautioned that although much of evidence regarding learning styles was accurate, to develop a full understanding of the concept, organizational leaders needed to consider employees' unique characteristics and pre-existing knowledge.

Information Technology Training Programs

Adobe Creative Cloud

Adobe Creative Cloud is the software program that allows for editing of photos, drawings, and sketching (Grotta & Grotta, 2012).). The creators completed the most recent updates to the program in May 2013 and the major updates affected several Creative Cloud applications (Stubbs, 2014). Although the concept of Adobe Creative Cloud was a simple idea, many individuals made incorrect assumptions about the software because they did not grasp the premises (Grotta & Grotta, 2012). Adobe continued to provide clarifications and information to address major misconceptions. The upgrades covered a broad area of application and required users to spend the time to understand and become familiar with the changes. Kissa (2016) identified the major areas of the Adobe Creative Cloud (Photoshop, the Creative Cloud, and the Marketing Cloud). The platforms allowed users to maintain the most current applications for software use. Kissa suggested that once users became familiar with the applications they would

experience the value of having access to all applications with a single download of Adobe

Creative Cloud, one of the best software for use in fostering teamwork in the business

environment.

Cloud Computing

The Cloud Computing model came into existence at the turn of the century and

many advances continued so allowing organizations to invest in a model that provided

organizational efficiency. The adoption of Cloud Computing in the IT department of an

organization depended on the type of competition that the organization faced and the

need to enhance customer services or resource planning (Li et al., 2013). The managers

had the choice to implement the disruptive technology in large, medium, and small firms.

Budrienė and Zalieckaitė (2012) characterized Cloud Computing as "a technology,

products, an architecture, and a business model" (p. 124). Other researchers preferred to

describe Cloud Computing as a "platform or architecture" (Choudhary & Vithayathil,

2013, p. 68). Irrespective of the characterization, there was consensus on the function,

which was to allow the organization to reduce overhead expenditures and find new

avenues for storing data (Garrison, Kim, & Wakefield, 2012). From the IT standpoint, the

platform "provides an alternative or is an adjunct to in-house information technology (IT)

services" (Choudhary & Vithayathil, 2013, p. 68). With the implementation of Cloud

Computing organizational leaders could maintain projects in one area and employees had

the ability to work cooperatively on the same project in real time while sharing

documents, photographs, and videos. Although the hype continues as to the success of the

use of Cloud Computing to enhance collaboration within organizations, there is growing

concern with privacy and Maya et al. (2014) suggested the need for on-going discussions.

SharePoint 2013

As an emerging area of IT there is limited peer-reviewed information on the

platform. Whether it was SharePoint 2010 or the updated SharePoint 2013, technical

leaders credited the platform with being the best application for advancing collaboration

among employees within an organization (Ristova & Gecevska, 2012). SharePoint 2013

was characterized as an easy to implement and to use platform. The program allowed

each employee to interact with the newly revised collaboration tool through a

personalized portal page. The platform permitted all individuals who had access to the

page to work together on any given project (Ristova & Gecevska, 2012). The Microsoft

(2014) professionals suggested that the most recent version of the platform was easier to

navigate. The platform allowed users to:

> store and sync documents, organize, consolidate and manage tasks, as well
>
> as "manage risk with *eDiscovery* across *SharePoint*, *Microsoft Exchange*,
>
> and *Microsoft Lyncusers*, and could allow users to conduct file shares
>
> using Windows 8, Windows Phone, iOS and Android devices (p. 15).

The developers of Microsoft (2014) provided information to highlight the unique features

of SharePoint 2013 that allowed use for collaboration and provided organizations with

the ability to tailor applications to specific needs.

Information Technology Training for the Generational Cohorts

Cekada (2012) put forward that researchers defined the four generations by the culture, the social occurrences, and the political incidences of the times in which they grew and matured. Cekada acknowledged the presences of four generational cohorts in the organizations, "the Silent Generation (or veterans; born 1933 to 1945); Baby Boomers (born 1946 to 1964); Generation X (born 1965 to 1980); and Generation Y/Millennials (born 1981 to 2000)" (p. 40). Marcinkus Murphy (2012) presented similar arguments to those of Cekada. Marcinkus Murphy proposed that IT could be the tool that might enhance collaboration, reduce friction, and improve learning among the generational cohorts in the business environment. Marcinkus Murphy advocated for a process of "reverse mentoring" (p. 550) where the members of the older generation became the students and the younger generation became the teachers.

Cekada (2012) suggested that leaders should incorporate the unique qualities of each generational cohort into the overall IT training initiative with the technological skills, acumen, creativity, and excitement of the younger cohorts to develop a comprehensive training program. Any such training initiative would lead to collaboration and greater understanding among the cohorts and assist with reducing tensions within the organization (Lyons & Kuron, 2014). Cekada did not provide any content information for use during the training sessions. Armstrong et al. (2012) proposed that each employee would find training beneficial if there was a connection between the problem and the individual unique cognitive (learning) styles. The researchers noted that the organizational leaders needed to develop a deeper understanding of learning styles.

Marcinkus Murphy (2012) suggested that the younger cohorts who had the necessary skills in technology should receive training in communication techniques so they could influence the acquired knowledge in effective ways to the older cohorts. Marcinkus Murphy used the undertaking of "Tennessee's CIO, Mark Benge" (p. 6) to present a novel approach for improving training of IT employees.

Quade et al. (2013) provided suggestions to address the issue of training and suggested that organizational training and professional development could minimize the gap created by globalization in organizations. Raemdonck, Gijbels, and Groen (2014) pointed out that many of the traditional training programs were not successful because learning was such a personal and complex process, therefore any training program by necessity should embrace a personal approach. Most of learning acquired in the workplace came from informal learning such as asking questions of our peers and those who had the knowledge, or through interactions in the lunchroom, then any training program should seek to capitalize on such processes to enhance competitive advantage (Swift, 2012). Quade et al. proposed that the employees undergoing training and the unique characteristics of the organization would determine the success of the training initiative.

Review of Research Methods

The changes among the employees within the organization required that managers develop new and inventive processes to maintain and address the systems so that the companies function with optimal efficiency (Bendoly, 2014). That premise appears to be the overarching idea behind much of the research discussed in this study. The discussions

presented in the literature review indicated that IT, collaboration among cohorts, and IT training involved all three design approaches—quantitative, qualitative, and mixed-method. Yung (2014) suggested that researchers should ensure that the research questions in a qualitative study began with: what, how instead of why–because the researcher wanted to avoid the cause and effect approach that was consistent with quantitative strategy. Starr (2014) identified the common approaches within qualitative research that included "in-depth interviews, focus groups, and case studies" (p. 238) among others.

Some researchers suggested that the qualitative approach provided a clear picture of how individuals perceived their world (Garcia & Gluesing, 2013; Randle, Mackay, & Dudley, 2014). A researcher could carry out an investigation using a combination of techniques such as semistructured interviews and observations, surveys, participant observations, and narrative interviews (Deyoe, & Fox, 2011; Miller et al., 2014; Quade et al., 2013). Other researchers used preexisting surveys and presented descriptive findings (Brown et al., 2010). The findings from the literature review supported the suggestion that the research strategy preference in the field of management continued to be the quantitative approach (Venkatesh et al., 2013). The quantitative research strategy included research question (s) and the testing of hypotheses, collection, and statistical analysis of data. The purpose of such strategy was to determine whether any relationships existed between and among variables developed from the research questions and the required data analyses to test the hypotheses (Nazari & Gorman, 2013).

Spector and Meier (2014) proposed that the ideal way to conduct quantitative research was to "take observations before and after each step in a process to show how

the variable changes from before to after an event, or continuously monitor a variable to see how it changes as events occur" (p. 1109). Researchers administered surveys that were analyzed using statistical methods (Chi et al., 2013; Eliasa et al., 2012; Lazazzara et al., 2012). Many of the quantitative research studies were nonexperimental but were effective in allowing the investigators to show that there was a relationship between and among the variables under investigation. The analysis supported the choice of the nonexperimental technique for this study, and I used a survey to determine the relationship between and among the variables under investigation.

Quantitative Versus Qualitative Survey and Differing Methodologies

Researchers undertake investigations to provide resolution to a gap that might be evident in the literature or to provide resolution to an issue that might be affecting the optimal functioning of the organization (Vaitkevicius & Kazokiene, 2013). The outcome of a chosen investigative approach would be to arrive at possible solutions to the research questions (Nazari & Gorman, 2013; Yung, 2014). It was important for scholars to be familiar with research terminology because the understanding of terminology was crucial to learning and understanding the research field. Other researchers agreed that a researcher's epistemology and ontology perspectives could inform the individual's worldviews (Allwood, 2012; Barnham, 2012). Those ideas became the underlying principles in business research. As with qualitative research, the quantitative research strategy included one or more research questions but the method of collecting data to answer the question differed. Nazari and Gorman (2013) put forward that in conducting qualitative approach the data collection process might involve structured or unstructured

observations, interviews, questionnaires, and diaries. The researcher might use focus groups, field notes, personal documents, newspaper articles, photographs, and information from various types of meetings (Allwood, 2012; Nazari & Gorman, 2013). Vaitkevicius and Kazokiene, (2013) argued that for the investigator who was engaging in quantitative research the testing of hypotheses would be the objective and the approach would involve an experimental method where the researcher used instrument based questions.

Researchers in the field of management favored the quantitative approach that incorporated statistical methods and included data analysis (Allwood, 2012). Allwood (2012) suggested that qualitative and quantitative research strategies incorporated many similar features. Although quantitative and qualitative research strategies had differing approaches and outcomes, and the quantitative research strategy embraced experimental techniques, and the use of surveys for data collection was a common feature of both research approaches (Frankfort-Nachmias, Nachmias, & DeWaard, 2014). The survey method did not involve experimentation where observations were not used to collect data and was, therefore, descriptive. Barnham (2012) put forward that the first step required the researcher to determine the purpose of the selected data collection method. The researcher should clearly identify why the method might be the best one for the quantitative research strategy that examined relationships among or between the variables. In the case of qualitative strategy, the most appropriate technique allowed the researcher to explore the phenomenon under investigation.

Another area of difference between quantitative and qualitative surveys related to the questions on the survey, which may be structured or unstructured depending on whether the researcher was conducting a case study or observation (Batagan & Constantin, 2012). The questions on the quantitative survey were often close-ended compared to an open-ended format in qualitative surveys (Barnham, 2012; Rohwer, 2014). Reliability and validity were the two basic features of any research measurement procedure and fell under the umbrella of instrumentation (Stone, 2015). Reliability related to scores and never to people who were participants in a study. Validity was a test of the extent to which an instrument measured what the researcher said the instrument measured. The ability of the researcher to use the findings of the "study to answer the research question will depend on the reliability and validity of the instrument that the researcher uses" (Frankfort-Nachmias et al., 2014, p. 147). Whether the researcher decided to choose the qualitative or quantitative survey strategy depended on the research questions in the study. Based on the above analysis, although the qualitative research survey might provide answers to the research questions in this study, the qualitative strategy would not allow me to analyze the variables under investigation. The most appropriate strategy was the quantitative survey approach that allowed for the statistical analysis of the collected data to provide answers to the research questions.

Summary

As with the indistinct designation of the bands that define the cohorts, the discussions presented in the literature review indicated, that there continued to be no consensus regarding the similarities and differences that might exist among the

generational cohorts. Researchers were inclined to propose that there were variations within and among the cohorts based on a combination of the genetic make-up and environmental influences. The integral issue for all cohorts was the desire to use inherent talents to achieve personal success and satisfaction. As leaders focus on collaboration among the cohorts who might be present within an organization, there are factors that complicated the process. To minimize the complications, the leadership should recognize the importance of IT training for all cohorts. Leaders should engage in brainstorming techniques and repeated communication with the cohorts to gain understanding of the unique learning styles before implementing IT training initiatives. The leadership within each organization should focus on the uniqueness of the organization and the IT skills and knowledge that workers possessed before engaging in any training process. When a plausible solution to training among the cohorts is developed, a manager must be willing to reflect and adjust the decision-making process to sustain change and group collaboration. The information in Chapter 3 provides the research design for the study, justification of the research design, the populations, sample and sampling procedures. The discussions in Chapter 3 present details of the informed consent, instrumentation and materials, the pilot study, the survey validity and reliability, the data analysis plan, internal and external threats to validity, ethical concerns, and the summary.

Chapter 3: Research Method

By early 2000, leaders in organizations faced environments with up to five generations working together, for the first time. Many managers and leaders were accustomed to the presence of three or four generations and with the entry of the fifth generation, the leadership was not well prepared to deal with the lack of collaboration among the cohorts. The ongoing discussion of how to enhance collaboration among the cohorts has focused on learning that extended beyond the traditional processes of learning and embraced social learning (Lai & Hong, 2015; Riding & Rayner, 2013). Such learning processes emphasized the social aspects of mentoring and developing mental relationships and networks. In addition to the learning and training initiatives, organizational leaders began to address collaboration issues by embracing the similarities and differences of the cohorts.

Researchers proposed that leaders could use those findings, coupled with IT, to create opportunities that might improve cooperation and collaboration among members within organizations (Cekada, 2012; Lyons & Kuron, 2014). The use of IT and the advances in communication through IT continued to be the area of greatest conflict among the generational cohorts. Wang, Schneider, and Valacich (2015) proposed that organizations must use the findings about the various learning styles to establish new learning and training approaches to improve collaboration among the generational cohorts. Chapter 3 includes the research design, justification of the research design, the target population and sampling procedures, instrumentation and materials, pilot study,

operationalization of variables, reliability and validity of the survey, data collection and

data analysis procedures, threats to validity, ethical concerns, and the summary.

Research Design

The purpose of this quantitative, nonexperimental study was to determine whether

a relationship existed between and among the up to five generational cohort employees

(independent variable), their learning styles (DV), preferences for technology learning

activities (DV), and the predicting of the collaboration among generational cohort

employees (DV). I measured and considered all of the identified variables for inclusion in

the statistical analysis to accept or refute the hypotheses and answer the research

questions. The proposed research design was quantitative, nonexperimental, comparison

group because I collected information from up to five generational groups. The purpose

of the study included understanding how the organizational leadership might improve

collaboration among the up to five generations that coexisted in any organization.

Null Hypotheses ($\mu1 = \mu2... = \mu k$, $\alpha = 0.05$)

H_O1: There is no significant difference between various learning style preferences

of the up to five generational cohort employees in for-profit firms in a large

metropolitan city in the Southeastern United States.

H_O2: There is no significant difference between the various preferences of the up

to five generational cohort employees for technology training activities such as

Adobe Creative Cloud, Cloud Computing, and SharePoint 2013 in for-profit firms

in a large metropolitan city in the Southeastern United States.

H_O3: There is no significant difference between collaboration and organizational training initiatives of the up to five generational cohorts in for-profit firms in a large metropolitan city in the Southeastern United States.

Alternative Hypotheses ($\mu1 \neq \mu2\ldots\neq \mu k$, $\alpha = 0.05$)

H_A1: There is a significant difference between various learning style preferences of the up to five generational cohort employees in for-profit firms in a large metropolitan city in the Southeastern United States.

H_A2: There is a significant difference between the various preferences of the up to five generational cohort employees for technology training activities such as Adobe Creative Cloud, Cloud Computing, and SharePoint 2013 in for-profit firms in a large metropolitan city in the Southeastern United States.

H_A3: There is a significant difference between collaboration and organizational training initiatives of the up to five generational cohort employees in for-profit firms in a large metropolitan city in the Southeastern United States.

I created a four-part survey (Appendix A) by using some items from two previous survey instruments. I established the reliability of the entire survey (Cronbach's alpha) by using the data collected from the 335 participants in the study. Because validity was not a property of the test, I established internal validity related to the selection of participants for the study, and external validity associated with the sampling technique (stratified sampling) used to collect the data for analysis. The dependent variable for each research question was unique. For RQ 1, the dependent variable was learning style preferences. The dependent variable for RQ 2 was preferences for technology training activities such

as Adobe Creative Cloud, Cloud Computing, and SharePoint 2013. For RQ 3, the

dependent variable was collaboration and organizational training initiatives of

generational cohorts. The independent variable for the research questions was the same:

generations of up to five generational cohort employees. The survey instrument was

delivered electronically to collect data from members of generational cohorts in for-profit

firms in a large metropolitan city in the Southeastern United States.

In business research and other disciplines, the use of survey instruments allows

the researcher to engage in deductive reasoning to accept, refute, or modify hypotheses,

answer research questions, draw conclusions, and arrive at appropriate findings

(Allwood, 2012). A survey is not the only approach that researchers can use to collect

information about a topic under investigation, but individuals in financial and business

organizations, libraries, restaurants, news agencies, political and government

associations, and academic organizations continue to accept and credit the approach

(Barber et al., 2013). Although individuals accept surveys as one method of collecting

primary data, there continues to be skepticism about generalizability of findings from

studies that include small groups of participants (Johnson & Bachan, 2013). Because

sample size is essential for generalization in any research study, I used G*Power 3.1.7 to

establish the sample size of 323 that would be adequate for generalizability in my study.

Other approaches to data collection relate to the opinions and attitudes of

individuals and include observations and structured or semistructured interviews that are

exploratory in nature (Frankfort-Nachmias et al., 2014). Such approaches would be

appropriate for conducting qualitative studies. Mail questionnaires or surveys could

provide the data needed to find answers for the hypotheses in this research study. The electronically delivered method is more cost effective for collecting information from a larger number of respondents (Tong & Chow, 2013), although Adamsen et al. (2013) proposed that there was some concern with the lower response rate.

The dependent variable in RQ 1 (learning style preferences among the cohorts) was measured using the items in Part 1 from the Honey and Mumford (1982) Learning Styles Questionnaire (LSQ). The chosen items allowed me to determine the differences between various learning style preferences of generational cohort employees. To apply support to employees in business environments, the use of the LSQ gained popularity in understanding how adults processed information (Michie & Zumitzavan, 2012). Researchers and organizational leaders used the LSQ in its entirety or a modified form as the survey of choice to gain deeper understanding of how managers might learn to improve training in organizations (Culpin et al., 2014; Michie & Zumitzavan, 2012). For RQ 2, the dependent variable (various preferences of generational cohorts for technology training activities such as Adobe Creative Cloud, Cloud Computing, and SharePoint 2013) was measure using items I developed in Part 3 of the survey (Technology Learning Activity Preferences).

For RQ 3, the dependent variable outcomes were measured using items in Part 2 of the survey from a survey that Brown et al. (2010) developed. The survey by Brown et al. was an extension of the UTAUT survey by Venkatesh, Morris, Davis, and Davis (2003) to focus on the adoption and use of technology. The model provided "greater value to practitioners who are attempting to foster successful use of a specific

technology" (Brown et al., 2010, p. 12), and the survey was more appropriate for use in this study rather than the UTAUT. I used various statistical tests to analyze the data collected from the developed survey and to draw conclusions regarding strategies that might enhance collaboration among generational cohorts in for-profit organizations. The independent variable (generations of up to five generational cohort employees) was determined by using the three items from Part 4 of the survey.

Justification of Research Design

Researchers and organizations use surveys to collect information about people regarding feelings, opinions, or behaviors (Cooper & Johnson, 2016). The review of the literature included discussions of the various nonexperimental survey designs including comparison group survey, which was an extension of cross-sectional study design (Frankfort-Nachmias et al., 2014). The researcher can use comparison and cross-sectional designs if there is no need to manipulate the variables. The cross-sectional design allows the researcher to collect and analyze data at a specific time (Frankfort-Nachmias et al., 2014). Other approaches for comparing two or more groups involved experimental with random sampling as well as experimental and nonexperimental groups or quasi-experimental approaches that included preassigned groups with nonrandom sampling (Uprichard, 2013). Although my study was deductive in nature and involved hypotheses, the experimental and the quasi-experimental approach were not appropriate for my research plan because there was no need for group assignments. My research plan involved the independent variable (generations of up to five generational cohort employees) and the dependent variables: learning style preferences (RQ 1), preferences

for technology training activities such as Adobe Creative Cloud, Cloud Computing, and SharePoint 2013 (RQ 2), and collaboration and organizational training initiatives of generational cohort employees (RQ 3).

The quasiexperimental approach was not appropriate for the research design because my study did not involve pretests or posttests or manipulation of the independent variable (see Gupta, 2014). Although the review of the literature suggested that experimental quantitative research provided the best evidence for demonstrating cause and effect and might eliminate other possible explanations, nonexperimental research was effective in allowing me to show that there was a relationship between the variables. Because there was no need to manipulate the independent variable, the nonexperimental approach was appropriate. The survey study was nonexperimental and allowed me to develop an explanation for behaviors among the participants in the groups and answer the RQs (see Brown et al., 2010; Frankfort-Nachmias et al., 2014; Uprichard, 2013) even though I was not able to manipulate the categorical independent variable.

The use of the Internet to distribute surveys and collect data has been supported by researchers over the past decade. Barnham (2012) and Frankfort-Nachmias et al. (2014) attributed the support to easier access to the surveys, especially within the marketing field; greater access to the Internet by participants; reduced need for an interviewer; and the ability of participants to remain anonymous. Although some researchers viewed the use of the surveys in a positive light, there were cautions that other researchers identified. Frankfort-Nachmias et al. warned researchers to guard against selection bias in choosing the sample for the study. Bradley and Brand (2013)

advised researchers to focus on effect and sample size because those two factors had a large impact on construct validity.

<div align="center">**Target Population and Sampling Procedures**</div>

Target Population

In identifying the population for a study, the researcher has to focus on the content, size, and the time when the population will be used (Frankfort-Nachmias et al., 2014). Gravetter and Wallnau (2008) defined the population as "the set of all the individuals of interest in a particular study" (p. 3). The population determined whether the study met scientific criteria and could produce plausible findings (Uprichard, 2013). The population for this study was employees in small, medium, and large for-profit organizations that used technology. The population was from a large metropolitan city in the Southeastern United States where the up to five generations of workers coexisted. Data from the U.S. Bureau of Labor Statistics (2013) indicated there were 114, 220 employees in the various categories assigned under information technology workers for the metropolitan and nonmetropolitan areas of the Southeastern United States, and the numbers did not include managerial personnel. Krazoom Inc. (2014), a private organization, provided surveys that identified 3360 information technology workers as of May 2014, in the Southeastern state that was the focus of the study.

The geographical location for this study was one of the major metropolitan cities in the Southeastern United States. There were 14 states and the District of Columbia in the Southeastern United States with the Atlantic Ocean on the east and the Gulf of Mexico on the south (United States Geography, n. d.). A search of the U.S. Census

Bureau did not provide a definition for the Southeastern region but provided data that was specific to each of the 14 states and the District of Columbia (U.S. Bureau of Labor Statistics, 2013). The data from the U.S. Census Bureau (2010) between 2000 and 2010 indicated that there was "10 percent population growth in parts of Florida, northern Georgia, North Carolina, [and] Virginia" (p. 5) with the greatest growth in population compared to other regions of the United States.

Informed Consent

The literature review included discussions about the role of informed consent in any research investigation that originated from ethical issues related to clinical testing of humans (Nunan & Yenicioglu, 2013). The guidelines of the informed consent supported human rights and dignity and was not a suggested action but a required duty whenever any researcher conducted investigations involving human subjects (Girvan & Savage 2012; Mandal & Parija, 2014). The institutional review board (IRB) of Walden University approved the informed consent form for distribution to the research participants. Walden University's approval number for this study was 01-05-16-0261257.

The information in the form covered:

a) my identity as the researcher.

b) the purpose of the research investigation.

c) the procedures to be followed to complete the surveys.

d) the voluntary nature of participation.

e) privacy.

f) confidentiality and anonymity.

g) any harm or benefits associated with completing the survey.

h) why the individual was chosen to participate

i) that there would be no incentives for completing the surveys (Nunan, & Yenicioglu, 2013).

I used QuestionPro to distribute the survey and to collect the data in support of my study. Although disadvantages such as low response rate might exist, I was prepared to make necessary adjustments, but it was impossible to ignore the cost-effective nature and convenience of the survey method (Callegaro, 2013). QuestionPro administrators required that all researchers included a consent form at the top of each survey. The officers of QuestionPro required encryption of all data to ensure anonymity of the participants and protection of the collected data. Panayides (2013) suggested that reliability allowed the researcher to evaluate internal consistency of survey instrument. For this study, I used SPSS software to calculate Cronbach's alpha (α) to determine reliability for each construct. The closer the measurement of α was to 1 the more reliable were the items for measuring the specific construct. A value over 0.8 confirmed that items on the survey measured the same construct and was reliable. It was important to keep the measurement error to the minimum to ensure that the survey instrument was accurate and produced the desired results (Field, 2014). I completed the validity test for the research study once I collected the data from the pilot study. I established content validity by determining that the items on the survey were appropriate to answer the research questions (Field, 2014; Louangrath, 2013). Consistent application and scoring of the survey instrument minimized threats to internal validity.

To minimize the threat to external validity (generalizability) the participants were from the wide cross section of information technology employees in large, medium, and small firms in the Southeastern United States. Participants were guaranteed that their responses would be anonymous as outlined in the consent form. I contacted potential participants through introductory emails from me and from QuestionPro. I posted both forms to the QuestionPro database to receive consent from the participants and to begin the data collection. Individuals who did not meet the above criteria were not eligible to participate in my study. Through the established database, the participants clicked a link to the survey to complete and return the completed surveys anonymously, through the portal.

Sampling Procedures

Researchers used sampling to select specific cases (people, groups or organizations) from a population to gather data and draw conclusions about the population (Uprichard, (2013). The technique used to collect data from study participants was stratified sampling techniques (Shi, 2015). I used probability sampling to divide the population of employees into groups (strata) from large, medium, and small firms based on the classifications identified in Chapter 1. I then selected all study participants from each group and not the original population to allow the potential participants equal opportunity for selection for my study (Shi, 2015). The sample size was determined independently because the sample from each stratum was independent. I used stratified sampling although there were simple random and systematic forms of random sampling (Frankfort-Nachmias et al., 2014).

With stratified sampling, the researcher aimed to have sufficient individuals in each sub-group (Frankfort-Nachmias et al., 2014; Swathi, Reddy, & Reddy, 2014). Proportionate stratified random sampling was not possible because there was no available data regarding percentages of the cohorts who were engaged in information technology in Southeastern United States. The common feature or main stratum to divide the population, prior to random selection, was generations. First, I divided the population of the generations into five strata: Veteran/ Silent Generation (born between 1925 and 1945, Baby Boomers (born between 1946 and 1964), Generation X (born between 1965 and 1976), Generation Y (born between 1977-1998), and Fifth Generation (born between 1981/82 and 1999). I sampled each participant only once based on the classification outlined above and divided the completed surveys into cohorts (strata). There was inequality in size for each stratum and I used all participants from each of the five generational groups after I consulted with my committee member, Dr. Bharat Thakkar.

Sample

Johnson and Bachan (2013) suggested that the sample in any research study would include individuals from the population under investigation and should be large enough so that the researcher might draw plausible conclusions from the data. The sample size in a research study depended on various factors based on the population from which the researcher selected the sample (Berger, Bayarri, & Pericchi, 2014; Field, 2014. The sample size of 323 was determined by using the statistical tool G*Power 3.1.7 (Faul, Erdfelder, Lang, & Buchner, 2007). The analysis included the specific information for F tests -ANOVA: Fixed effect, special, main effects and interactions in Table 1.

Table 1

F tests **-** *ANOVA: Fixed Effect, Special, Main Effects, and Interactions*

Input:	Effect size f²	=	0.25
	α err prob	=	0.05
	Power (1-β err prob)	=	0.95
	Numerator df	=	5
	Number of groups	=	5
Output:	Noncentrality parameter λ	=	20.1875000
	Critical F	=	2.2423786
	Denominator df	=	318
	Total sample size	=	323
	Actual power	=	0.9506396

The study participants included as many qualified professionals as possible, in organizations with IT processes, from the up to five cohorts to realize the required sample size of 323. Those generational groups included: veterans, baby boomers, Generation X, Generation Y, and Generation Z (Deyoe & Fox, 2011; Schroer, 2012). Gravetter and Wallnau (2008) suggested the confidence level of 95% that allowed me to provide evidence that the findings from the research data analyses were consistent with 95% of the time.

Instrumentation and Materials

I used a survey that included items from two previous survey instruments and a customized survey section (Part 3) to collect the data for my study. Part 1 of the survey include items from the Honey and Mumford (1982) Learning Styles Questionnaire (LSQ). The chosen items allowed me to determine the differences between various learning style preferences of generational cohort employees. Pearson, TalentLens, a division of Pearson Education Ltd., provided permission to use the items (Appendix C).

Part 2 of the survey included items from the Predicting Collaboration Technology Use: Integrating Technology Adoption and Collaboration research survey that was developed by Brown et al. (2010) to collect data that were analyzed to measure the outcomes of the dependent variable (collaboration and organizational training initiatives of generational cohort employees). Taylor and Francis Group provided permission to use the items (Appendix B). Part 3 of the survey included items that I created to measure outcomes for the dependent variable (preferences of generational cohort employees for technology training activities such as Adobe Creative Cloud, Cloud Computing, and SharePoint 2013). Part 4 of the survey included three items related to the independent variable (five generational cohort employees).

Honey and Mumford (1982) Learning Styles Questionnaire

The Honey and Mumford (1982) Learning Styles Questionnaire (LSQ) consisted of two versions, one consisting of 80 items and the other composed of 40 items. Both versions were developed by Peter Honey and Alan Mumford (Honey & Mumford, 2000) using the work of Kolb (1976) that was an extension of the work on experiential learning by Dewey (1910). The work of Dewey (1910) and Kolb's (1976) experiential learning theory were highly regarded premises in the field of education with the focus on how students learn. The developers revised the LSQ in 1986 and 2006 and the last version was appropriate for assessing the learning styles of managers, learning teams, and conflict management in various organizations (Culpin et al., 2014; Michie & Zumitzavan, 2012). The LSQ focused on four learning styles (independent variable in this research study) that included: activist, reflector, theorist, and pragmatist. Each learning style was

associated with 20 items on the questionnaire and provided information on the learning

style preference and the degree of preference. Goulding and Syed-Khuzzan (2014)

pointed out that the "α coefficient of the LSQ was within 0.49-0.66" [and was

considered] and "adequate measurement scale" (p. 147)
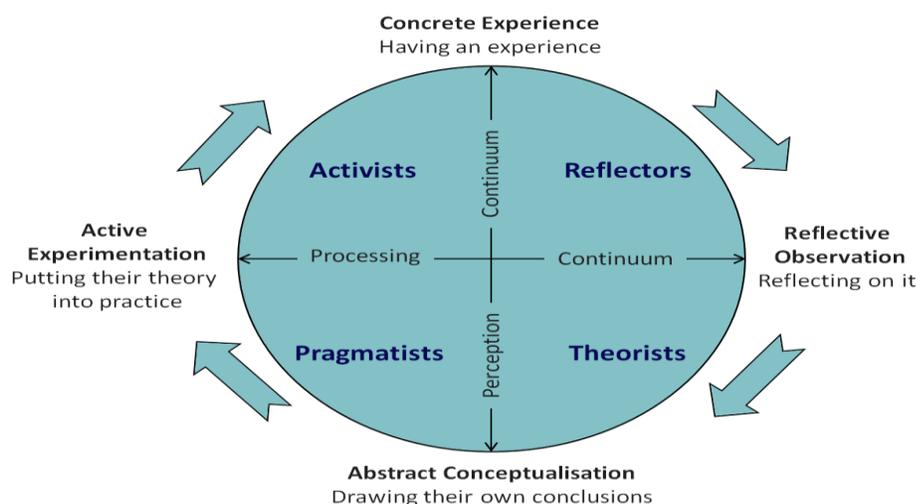
Figure 1. Honey and Mumford typology of learners (Honey & Mumford, 1982, p. 3).

In subsequent years, Honey and Mumford (1982) made modifications to the

original questionnaire and researchers proposed that the construct validity and internal

reliability were acceptable ($\alpha = 0.41$ to 0.65). The values were similar to other learning

style surveys such as Index of Learning Styles (ILS) with low internal reliability ($\alpha =$

0.41 to 0.65) (Goulding & Syed-Khuzzan, 2014). I selected the LSQ for this study

because of its use in other studies to measure learning styles of individuals in the fields of

business, healthcare, and education (Aziz, Yi, Alwi, & Jet, 2013; Michie & Zumitzavan,

2012). The reliability and validity values were satisfactory (Goulding & Syed-Khuzzan,

2014; Honey & Mumford, 1982). I used the items to measure the outcomes of the

dependent variables in my study.

Predicting Collaboration Technology Use

Brown et al. (2010) developed the predicting collaboration technology use:

Integrating Technology Adoption and Collaboration research survey as an extension of

the Unified Theory of Acceptance and Use of Technology (UTAUT) survey by

Venkatesh et al. (2003) to focus on the adoption and use of technology. The nature of the

survey by Brown et al. was more appropriate for use in this study rather than the

UTAUT. I did not identify research studies that used the instrument to collect data

although various studies referenced the instrument (Alryalat, Dwivedi, & Williams, 2012;

Chan, Yee-Loong Chong, & Zhou, 2012; Edmunds, Thorpe, & Conole, 2012; Schumann,

Wünderlich, & Wangenheim, 2012). Brown et al. conducted two field studies, in Finland,

among 826 individuals some of whom were users although others were potential users.

Brown et al. (2010) conducted pilot tests among individuals at the university to

establish reliability and validity of the instrument. Brown et al. used the responses to the

questions from the first group to modify the first survey and administered the revised

survey to a second group. The α exceeded "0.80 with support for internal consistency and

discriminate validity" (Brown et al., 2010, p. 27). The sample size was not large enough

to allow the researchers to be specific about internal consistency but the new scales were

based on new research where there "has been minimal conceptual overlap" (Brown et al.,

2010, p. 27) identified. The UTAUT survey used items from Study 2 and included

"constructs of intention to use, performance expectancy, effort expectancy, social

influence, and facilitating conditions" (Brown et al., 2010, p. 26). The items on the

survey instrument that I developed for this study, was appropriate for answering RQ 3:

How will the implementation of information technology initiatives affect collaboration

among generational cohort employees during organizational training in for-profit firms in

a large metropolitan city in the Southeastern United States?

Dependent Variables

For RQ 1, the dependent variable was learning style preferences. The dependent

variable for RQ 2 was preferences for technology training activities such as Adobe

Creative Cloud, Cloud Computing, and SharePoint 2013. For RQ 3, the dependent

variable was collaboration and organizational training initiatives of generational cohorts.

Independent Variable

The independent variable for the research questions was the same: generations of

up to five generational cohort employees.

Pilot Study

Once Walden University's institutional review board (IRB) officials provided the

necessary approval, I conducted a pilot study of the instrument, through the

QuestionPro's site by using an invitation email. The data collected from the pilot study

allowed me to determine whether the I needed to modify the survey instrument for my

study. There were 10 participants not related to the main study. Hazzi and Maldaon,

(2015) posited that the pilot study should be conducted using a sample that reflected the

characteristics of the participants who were in the main research study. Researchers

provided suggestions for improving the validity of a survey. The central advice was the

need for the researcher to maintain consistency in the way study participants completed

the pilot study or the main survey. In addition, the researcher should make changes to the

main study by incorporating any suggestions for improvement from the participants in the

pilot study and adjust completion time, if necessary. There was no consensus in the

literature review regarding the sample size for a pilot study but suggestions indicated that

the sample size should be smaller than the actual sample for the research study (Hazzi &

Maldaon, 2015). The feedback from the individuals in the pilot study allowed me to

determine if the survey was too long, if there were ambiguity or errors in words on the

survey, and the time needed to complete the survey. I was required to contact my

Committee and Walden's IRB if I needed to make changes to the survey. I reported

whether I made changes to the survey in Chapter 4. I did not use any data collected from

the pilot study in the main study.

Operationalization of Variables

The focus of operationalization of the variables involved defining each variable

and describing the process of measuring each variable. For RQ 1, the dependent variable

was learning style preferences. The dependent variable for RQ 2 was preferences for

technology training activities such as Adobe Creative Cloud, Cloud Computing, and

SharePoint 2013. For RQ 3, the dependent variable was collaboration and organizational

training initiatives of generational cohorts. The independent variable for the research

questions was the same: generations of up to five generational cohort employees.

Learning style preferences were based on the notion that individuals differed in the

manner that they processed information (Russ, 2012; Scott, Rodríguez, Soria, & Campo,

2016). Collaboration among generational cohorts became a topic of discussion because of the diverse groups of individuals, based on age, working together at the same time (Rathman, 2011; Sørensen, 2012). Organizational training initiatives were the opportunities that leaders in companies implemented to improve condition within the organization to benefit all stakeholders (Khattak, Rehman, & Rehman, 2014).

Learning Style Preferences: Dependent Variable

The learning style preferences among generational cohort, an interval-level criterion, characterized the likings of learning styles of the various cohorts. The value for learning preferences was derived from the mean values of 24 Likert-type items on a 7-point scale where 1 represented strongly agree and 7 represented strongly disagree in Part 1 of the survey (Appendix A). Participants responded to 14 items in Part 3 of the survey to measure the outcomes of preferences of generational cohort employees for technology training activities, such as Adobe Creative Cloud, Cloud Computing, and SharePoint 2013 (Appendix A). The ranking of the items included most comfortable to least comfortable learning activity preferences on a scale of 1 (most comfortable) to 5 (least comfortable).

Collaboration and Organizational Training Activities: Dependent Variable

Collaboration and organizational training activities among cohorts, an interval-level criterion represented the prediction of collaboration technology use by the various cohorts. The value for learning preferences was derived from the mean values of 15 responses, measured in composites of threes: Items 1-3 (Intention to Use); Items 4-6 (Performance Expectancy); Items 7-9 (Effort Expectancy); Items 10-12 (Facilitating

Conditions); Items 13-15 (Social Presence). The Likert-type scale used items measured

on a 7-point with 1 representing strongly agree and 7 representing strongly disagree in

Part 2 of the survey (Appendix A).

Generational Cohorts: Independent Variable

Measurement of the independent variable, generations of up to five generational

cohort employees was in years.

Survey Validity

Researchers evaluated the design and measured validity by using the three tests of

construct validity, identifying the best theory to support the measurement instrument, and

identifying a representative sample to achieve predictive power (Frankfort-Nachmias et

al., 2014; Viljevac, Cooper-Thomas, & Saks, 2012). The survey instrument used in my

study was a Likert-scale instrument, an affective scaling method that was subject to

construct validity, empirical validity, and content validity (Frankfort-Nachmias et al.,

2014). I established validity of the survey to draw appropriate conclusions and determine

if the independent variable caused a change in each of the dependent variables. The

process of content validation of the survey instrument occurred in stages. In the first

stage, I identified and defined the dependent variables measured: a) learning style

preferences and generational cohorts, preferences of employees for technology training

activities such as Adobe Creative Cloud, Cloud Computing, and SharePoint, and

generational cohorts, c) collaboration among generational cohorts and organizational

training initiatives. In the second stage, I defined the variables and conducted a search of

the literature to identify any preexisting surveys to collect the data that allowed me to

accept or refute the hypotheses.

The original learning styles and collaboration surveys were long. To ensure that

the participants would complete the survey I designed for my study, I chose items from

Honey and Mumford (1982) LSQ survey. I used the selected items to measure the

outcomes of the dependent variable (various learning style preferences of cohort

employees). Items from the Predicting Collaboration Technology Use: Integrating

Technology Adoption and Collaboration survey developed by Brown et al. (2010)

allowed me to measure the outcomes for the dependent variable (collaboration and

organizational training initiatives of generational cohort employees). I created items in

Part 3 of the survey (Appendix A) to measure the outcomes of the dependent variable

(preferences of generational cohort employees for technology training activities such as

Adobe Creative Cloud, Cloud Computing, and SharePoint 2013). Finally, I formatted the

survey with the appropriate required items to improve readability.

Survey Reliability

Reliability allowed the researcher to focus on measurement and the consistency of

the instruments but a researcher can never be confident that reliability and validity were

interchangeable when administering a survey in a study (Field, 2014). I conducted a pilot

study to establish reliability by focusing on any failure of the participants to answer

questions, to determine whether the directions were clear and whether the questions were

in the correct order (Rohwer, 2014). All such disparities could indicate that the survey

was not reliable and revisions were necessary before distribution of the survey to the

study participants. In addition, consistency of the items on the survey I administered was determined (will the items measure what they were supposed to measure) (Field, 2014; Frankfort-Nachmias et al., 2014). I computed the Cronbach's alpha (α) on the data from the main study using SPPS software. As Field (2014) suggested, an α value of 0.70 or above indicated that the reliability of the survey was acceptable.

Data Collection

Once I received approval to conduct the research study from Walden University's IRB, I evaluated the information gathered from the pilot study. I posted the email with information about the purpose and content of the main study as well as the process for accessing the survey on QuestionPro's site. The informed consent form covered detailed information regarding my identity and other necessary information related to the role and protection of the participants (Nunan, & Yenicioglu, 2013). The administrators of QuestionPro required that the researcher ensured anonymity of the participants. I collected the data for the study over a three-week period and the raw data was downloaded, and stored on a zip drive. I entered the raw data including the demographic information in SPPS software and performed ANOVA, Kruskal-Wallis, and chi-square tests of independence to determine if the null hypotheses were statistically significant.

Data Analysis Plan

The data analysis plan incorporated the use of descriptive and inferential data analyses to test the hypotheses. I identified the connections between the hypotheses and the variables. I assigned values to the responses for each item on the Likert survey to

simplify the data entry and analysis process. Each section of the Likert survey targeted one of the variables under investigation.

Descriptive Statistics

Descriptive statistics form the basis for allowing the researcher to conduct a more advanced statistical analysis. The mean was the most basic of central tendency measurements (where the center of frequency distribution was located) (Field, 2014). When a researcher ranked scores in order of magnitude, the middle score was the median, and any number that occurred more often than others in each set of data was the mode. Bedeian (2014) pointed out that it was necessary for researchers to understand the appropriate use of descriptive statistics. For example, when analyzing ordinal and interval data the use of mean was an error because the spaces between the numbers were not identical. The descriptive statistics in this study described the generational cohorts (age groups) by using frequencies and percentages.

Inferential Statistics

Inferential statistics existed as parametric and nonparametric. Both categories of tests allowed the researcher to generalize the findings from the research sample to the population under investigation (Field, 2014; Swathi et al., 2014). For variables that did not have the normal distribution (nominal and ordinal), the researcher was encouraged to use parametric tests whereas nonparametric tests would be used for analyzing interval and ratio data (Lantz, 2013). Whether the researcher decided to use parametric or nonparametric for inferential statistics tests depended on the research questions of the study. Chen, Ng, and Nadarajah (2014) suggested that the ANOVA (parametric) would

be the appropriate test to use when comparing two or more groups if the data met the assumptions of the ANOVA. Lantz (2013) suggested the use of the Kruskal-Wallis test when non-normality existed but Field (2014) proposed that although normality might be absent in the sample, the ANOVA might still be robust when the sample sizes were greater than 50. As Nahm (2016) advised, "nonparametric analysis methods are clearly the correct choice when the assumption of normality is clearly violated" (p. 13). For my study, I used Welch ANOVA (non-parametric), the Kruskal-Wallis test (non-parametric), and the Chi-square (non-parametric) to analyze the data because of the assumptions were violated for normality and homogeneity of variances.

The chi-square test of independence was the appropriate test to use with categorical data to test the hypotheses and to determine the equality of the proportions. I submitted the survey (Appendix A) to Walden's IRB offices for approval before administering the survey to the participants. The data collected through the online services of QuestionPro were analyzed using SPSS software program. I examined the data for missing or careless answers, and errors in responses through a careful search of the responses (Meade & Craig, 2012). I analyzed the data to answer the research questions by supporting or refuting the hypotheses after completing the cleaning process.

Research Questions

Research Question (RQ) 1: To what degree do learning style preferences vary by generational cohort employees in for-profit firms in a large metropolitan city in the Southeastern United States?

RQ 2: To what degree do the various preferences of generational cohort employees for technology training activities such as Adobe Creative Cloud, Cloud Computing, and SharePoint 2013 impact attitudes toward information technology use in for-profit firms in a large metropolitan city in the Southeastern United States?

RQ 3: How will the implementation of IT initiatives affect collaboration among generational cohort employees during organizational training in for-profit firms in a large metropolitan city in the Southeastern United States?

Hypothesis 1 allowed me to determine whether there was an association between generational cohort employees and the various learning style preferences of the study participants. Since the assumptions of the normal one-way ANOVA were not met, the Welch ANOVA, a modified version of the ANOVA along with the Games-Howell post hoc test were used to analyze the data using generational cohorts and learning styles preferences of the study participants as variables.

Hypothesis 2 was an assessment of the technology learning activity preferences of generational cohorts. I used the Kruskal-Wallis test (nonparametric) for analyzing ranked data and the Dunn's (1964) procedure with a Bonferroni adjustment (Hossain & Ahmed, 2016), to provide data for determining differences in preferences among the up to five generational cohorts.

Hypothesis 3 was an assessment of any relationship between collaboration of generational cohort employees and organizational training initiatives using chi-square tests of independence to analyze the predicted use of technology among the generational cohorts.

Threats to Validity for Proposed Study

Threats to validity remained a concern when conducting research using testing instruments such as surveys. Internal validity indicated whether the test measured what it presumed it would do and how well it did, although the external validity referred to the generalization of the findings from the data analyses (Viljevac et al., 2012). The following discussion highlighted threats to both internal and external validity in this study and identified ways for minimizing such threats.

Internal Threats to Validity

If the findings for the sample were not valid then the findings for the population were not valid. The way the researcher selected participants and the instruments or methods used to collect the data for analysis affected the internal validity of the study (Viljevac et al., 2012). I addressed the selection of participants by ensuring that participants, in the final sample, came from small, medium, and large non-for-profit firms with information technology employees where the generational cohorts worked. Based on the suggestion of Berben, Sereika, and Engberg (2012), I focused on working with a sample with an effect size of above 80% to ensure the strength of association between the variables.

External Threats to Validity

Threats to external validity were often evident in experimental and quasi-experimental studies where the instrument was not properly administered and the appropriate results were not realized (Aguinis & Bradley, 2014). The suggested threat did not affect this study since the approach was nonexperimental compared to experimental

or quasiexperimental where such issues might arise. The greatest threat to external

validity in my study involved the sampling technique that I used to collect the data for

analysis (stratified sampling). With that sampling approach, although minimized, the

problem that could arise would be whether the sample used was an accurate

representation of the population of workers in the large metropolitan city in the

Southeastern United States.

Ethical Concerns

Based on the National Institutes of Health Protecting Research Participants certification that I

completed (Protection of Human Subjects of Research, 2013), I must comply with specific ethical

behaviors. There were specific guidelines to which I must adhere. I developed and

submitted the informed consent letter to the online survey database, to request

participants' willingness to engage in the research study. The consent form included my

relevant background information, the overview of the research project, and my role as the

researcher. The details of the consent form explained to the participants that involvement

was voluntary, and they could refuse to participate at any time. I clarified that

individuals' identities were concealed, and their names did not appear anywhere in the

study. In addition, all data collected was stored on a zip drive in a locked cabinet, for the

period established by Walden University and was only accessible by me. Once the time

has expired, the data will be shredded. The process of using the online database to collect

the data allowed me to reduce any research bias that might be inherent in the research

study approach. In addition, I advised the participants that they would receive no

compensation for participating in the study. I informed study participants that they could

leave the process without any negative consequences. The anonymity of participants was ensured by the procedures in place on the database of QuestionPro platform. When I submitted the survey, the submission received an identification number (ID) that I used to export the data to Excel. The ID referred only to the survey submission and the information was not linked to the master list at QuestionPro. Once the survey was set up to gather responses anonymously, there was no way to track the responses after the survey was completed. QuestionPro controlled the responses from the survey participants and the storage of the data in a secured database.

Summary

Chapter 3 provided details on the quantitative, nonexperimental, comparison group approach used to collect information from up to five generational groups to answer the hypotheses and research questions of the study. The chapter included information on the cohorts, the total number of participants, and the survey instrument for my study. The discussion included the descriptive and inferential statistics used to analyze the data. The descriptive statistics provided information on the cohorts that might coexist in any organization as well as the classification of organizations (small, medium, and large). Inferential statistics including the Welch's ANOVA, Games-Howell post hoc test; Kruskal-Wallis test (nonparametric) and Dunn's (1964) procedure with a Bonferroni adjustment; and chi-square tests of independence to determine association among the variables. Chapter 4 provides details of the pilot study, the timeframe of data collection, recruitment and response rates, treatments, data collection and analyses, results, and the summary.

Chapter 4: Results

The purpose of this quantitative nonexperimental study was to address the gap identified in the review of the literature regarding generational learning styles and preferences for organizational IT training initiatives. These factors might affect collaboration among generational cohort employees. In the first section of this chapter, I present the data from the online pilot study of 10 independent participants, which was conducted to determine whether changes should be made to the main survey by incorporating any suggestions for improvement from the participants. In the second section, I explain the reliability of the main survey and present demographic information from the 335 respondents from up to five generations of employees in firms that used information technology. The third section provides reports from the analyses of the data to address the three research questions and associated hypotheses. The fourth section provides a summary of the results from the data analyses.

Data Collection

Characteristics of Sample

The sample was taken from an approximated population of employees in for-profit firms in a major city in the Southeastern United States. The respondents to the electronic survey were from the up to five generational cohorts and ranged in age from 18 to 73 years. The goal to collect 323 completed surveys as determined by the sample size calculator was achieved and surpassed with a final sample of 335 participants. The sample size of 323 was determined by using G*Power 3.1.7 (Faul et al., 2007). The analysis included the following information: effect size (f^2), statistical power, alpha (α err

prob), and power (.95). The information presented in the survey was transferred from QuestionPro.com to SPSS for analysis. Each participant was assigned a generic identification number to protect the identity of all participants so that the focus was only on the responses from the participants. All data for analysis were gathered from responses to the online survey. The data from three questions in Part 4 of the survey provided demographic information about the respondents.

The sample for this study included workers who performed duties related to IT processes and procedures required for the normal functioning of any organization. The five group of participants included (a) veterans, born in years prior to 1945; (b) baby boomers, born between the years 1945 and 1964; (c) Generation X, born between 1965 and 1979); (d) Generation Y, born between 1980 and 1999 (Deyoe & Fox, 2011); and (e) Generation Z, individuals born between 1995 and 2012 (Schroer, 2012). The participants were not required to identify their gender but were required to be between the ages of 18 and 73 years.

After receiving approval from Walden University's institutional review board (IRB) (Approval Number 01-05-16-0261257), I contacted Survey Monkey, the approved Internet data collector. After lengthy discussions, Survey Monkey was not able to provide the requested number of participants for the full study. I completed a Change in Procedure Form with Walden University IRB to used QuestionPro as the Internet collecting source. The approval number for the study remained the same (01-05-16-0261257). I started the data collection process after the second approval was secured on 04-05-2016.

Data Analysis I

Pilot Study Phase

The time frame for the pilot study phase was Monday, April 11th to Sunday April 17th, 2016. Ten participants were recruited for the pilot phase, and data were collected from all 10 participants at the end of the week through the QuestionPro site to determine whether the survey instrument required any modifications and to decide whether the validity of the survey required improvement. The consent form that provided information about the purpose of the survey and the respondent's willingness to participate was acknowledged through a hyperlink on the platform. The participants included individuals from all five generational cohorts. The feedback from the 10 participants who completed the pilot study allowed me to identify ambiguity or errors in the survey. There was no need to change the wording of any items on the survey or to adjust the completion time. All 10 participants completed the survey, so I concluded that there was consistency in the way participants in the main study would complete the survey. I did not make any changes to the survey, so there was no need to contact my committee and Walden University's IRB. I did not use any data collected from the pilot study in the main study. Once the pilot was completed, the survey was administered to the participants in the main study.

Main Study

Before completing the main survey, respondents were required to acknowledge the consent form. The data collection phase for the main study occurred from June 20, 2016, to July 18, 2016. Once the data were downloaded from the QuestionPro site, I

discovered that the survey was not completed accurately because there was no information about the number of participants who completed the survey from each generational cohort. The QuestionPro manager agreed to make the necessary changes. The corrected data were prepared by QuestionPro and downloaded on August 15, 2016.

The reliability of the main survey was determined using SPSS software. In Part 1 of the survey, the Honey and Mumford (1982) learning styles questionnaire, there were 24 questions to which participants responded on a 7-point scale where 1 represented strongly agree and 7 represented strongly disagree. Kiliç (2016) proposed that "the reliability of the scale is accepted as good if the coefficient is found equal or greater than .70" (p. 47). A Cronbach's α reliability coefficient of .73 was the output for the 24 items on Part 1 of the survey.

The Cronbach's α reliability coefficient was .87 for 15 questions in Part 2 of the survey, which addressed collaboration technology use (Brown et al, 2010) and required participants to respond to each item on a 7-point scale where 1 represented strongly agree and 7 represented strongly disagree. The Cronbach's α of .87 for items in this part of the survey was consistent with the report from the survey by Brown et al. (2010) of "Cronbach α exceeding .80" (p. 27). A Cronbach's α reliability coefficient of .76 was the output for the 14 items on Part 3 of the survey, which addressed technology learning activity preferences. Table 2 shows the Cronbach's α values and alpha for standardized items in the reliability output. The values of the α standardized items are based on a false perception that the variances of the items are equal (Field, 2014).

Table 2

Cronbach's α *for Main Survey*

	N of Participants	%	Cronbach's Alpha (α)	α Standardized Items	*N* of Items
Part 1: Learning Styles	335	100	.73	.77	24
Part 2: Collaboration Technology Use	335	100	.87	.88	15
Part 3 Technology Learning Activity Preferences	335	100	.76	.77	14

Data Gathering

At the end of the initial 4 weeks, the downloaded data files from QuestionPro indicated that 612 respondents viewed the survey while 459 participants started the survey. One hundred and twenty four respondents were identified as dropouts and were not included in the final count of 335 because they failed to complete all sections of the survey. The completion rate was 72.89%. The 335 respondents who completed the survey surpassed the estimated sample size of 323. Although the personnel at QuestionPro had to reconfigure the presentation of the data to include the number of participants in each generational cohort, the final downloaded data consisted of the original 335 participants. The only discrepancy in the data collection plan was the difference in the number of respondents as outlined in Chapter 3. I began checking the data once the reliability of the main survey was established. The information collected from all 335 participants was included the data analysis. The data collected from the QuestionPro website was stored

and saved under SSL encryption using industry standards and could only be accessed

through my password.

Missing Data

The team at QuestionPro flagged the survey for all cases where respondents

dropped out after starting the survey or where survey items were not completed. The

exported data contained responses from the 335 participants who completed the entire

survey. The data were transferred from Microsoft Excel to SPSS software. The

techniques for dealing with missing data took into consideration how many data were

missing, any patterns observed in the missing data, and the sample size that was required.

Because the sample size was beyond the required power level, the four instances of

missing data that were not assessed by the team at QuestionPro were assigned the three

discrete values, 999. The independent and dependent variables were labeled and assigned

levels for accurate identification.

<div align="center">

Data Analysis II

</div>

I examined the connections among generational cohorts, learning styles,

collaboration, and technology preferences using stratification to assist with a suitable

representation of the population. The descriptive data summary that includes generational

group identification, age range, and size of organization is presented first. The summary

of the statistical analysis from the 335 participants follows the demographic data

discussion.

Collection and Conversion of Data

The data were downloaded from QuestionPro.com, and there was evidence of inequality in percentage size of the cohorts. I consulted with my committee member, who assisted me with understanding that the low participation percentage of the veterans/silent generation was justified bearing in mind that 65 years was considered age of retirement. Following the discussion, the data were screened and transferred to SPSS. The screening process included coding and scoring of items on the survey, rechecking for any missing data, searching for any outliers, conducting normality tests (Kim, 2013), and testing the statistical assumptions of ANOVA (parametric), Welch ANOVA (non-parametric), Kruskal-Wallis (nonparametric), and chi-square test of independence (nonparametric). The failure to meet the assumptions of homogeneity of variances and normality dictated the appropriate statistical tests (Welch ANOVA, Kruskal-Wallis, and chi-square test of independence) to analyze the data. Figure 2 shows the display of the check for outliers of one composite variable (visual observations of box-plot outputs). Similar analyses were performed for the dependent variables in all three parts of the survey. There were no outliers present in those data.

*F*igure ... (partially obscured)
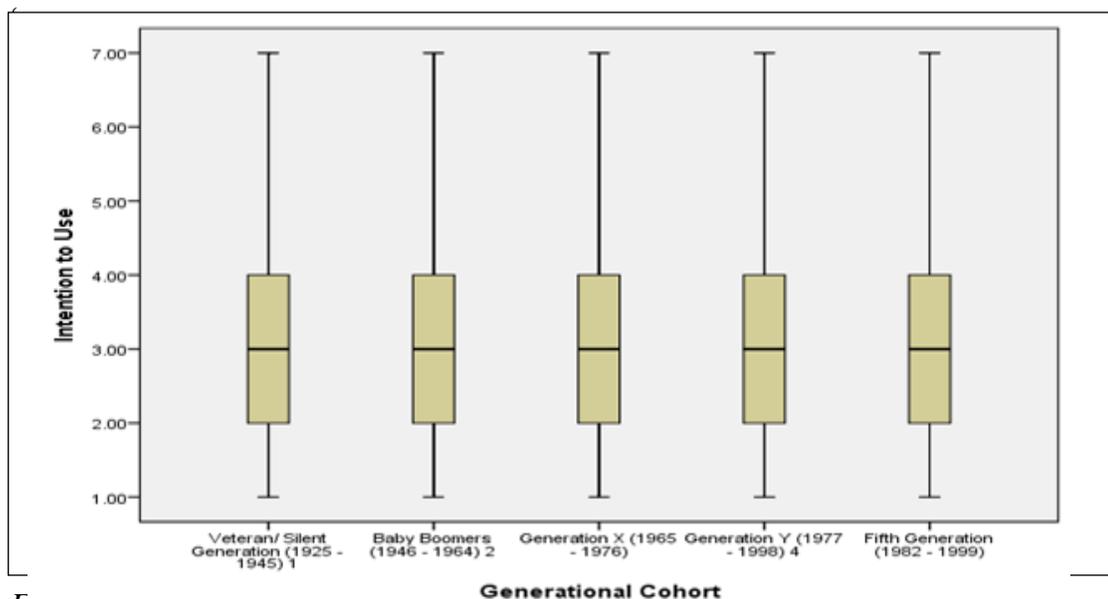
Demographic Data

There were three questions in Part 4 of the survey. For identification by generational cohorts, responses were coded as follows: veterans (1), baby boomers (2), Generation X (3), Generation Y (4), and Fifth Generation (5). Respondents were provided with the name and age ranges of the generations in the first section. For age range, there were five categories to choose from. The choices were coded as follows: 1 (18-25), 2 (26-37), 3 (38-49), 4 (50-68), 5 (69 +). The size ranges of the companies were coded as follows: 1 (under 100), 2 (101 -500), 3 (501-1000), and 4 (over 1000).

Learning Styles, Collaboration, Technology Preferences, and Generational Cohorts

There were 24 items in Part 1 of the survey adopted from The Honey and Mumford (1982) Learning Styles Questionnaire with the participants' responses based on a 7-point Likert-type scale (Sullivan & Artino, 2013). *1* = Strongly Agree, *2* = Agree, *3* =

Somewhat Agree, *4*=Undecided, *5* = Somewhat Disagree, *6* = Disagree, and 7 = Strongly

Disagree (Appendix A). One negatively worded item (Item 24) was reverse coded.

Part 2 of the survey included 15 items from predicting collaboration technology use

survey and the responses from participants were measured on a Likert-type scale on a 7-

point (Sullivan & Artino, 2013). *1* = Strongly Agree, *2* = Agree, *3* = Somewhat Agree,

4=Undecided, *5* = Somewhat Disagree, *6* = Disagree, and 7 = Strongly Disagree

(Appendix A). I developed the 14 items in Part 3 (technology learning activity

preferences). The responses to the items were measured by a decreasing ranking

technique from *1* (most comfortable) to *5* (least comfortable).

Descriptive Analysis of Independent Variable

Table 3 provided information about the generational cohort with which the

individuals identified themselves. Of the 335 respondents, 12.1% (*n*=41) identified as

veterans, 14.7% (*n*=50) were baby boomers, 19.7% were Generation X (*n*=67), 25.9%

were Generation Y (*n*=88), and 26.2% were Fifth Generation (n= 26.2%).

Table 3

Demographic Descriptive Statistics: Generational Cohorts

Cohorts	Frequency	Percent
Veterans	41	12.2
Baby-Boomers	50	14.9
Gen X	67	20.0
Gen Y	88	26.3
Fifth	89	26.6
Total	335	100.0

In Table 4, the 335 respondents identified themselves based on assigned age ranges. The information in Table 4 showed a percentage of 15.5% ($n = 52$) for age range 18 through 25, 33.1% ($n = 111$) for those respondents between 26 and 37 years, 22.1% ($n = 74$) for the age range 38-49, 17% ($n = 57$) for age range 50-68, and 12.2% ($n = 41$) for respondents 69–73 years.

Table 4

Demographic Descriptive Statistics: Age Range of Participants

Age Range	Frequency	Percent
18-25	52	15.5
26-37	111	33.1
38-49	74	22.1
50-68	57	17.0
69-73	41	12.2
Total	335	100.0

Table 5 provided information on the generational cohorts and the sizes of the companies in which they worked. For the veterans, 48.8% (n = 20) worked in companies with less than 100 employees, 19.5% (n = 8) were employed in companies with between 101-500 employees, 22.0% (n = 9) were employed in companies with between 501 and 1000 employees, and 9.8% (n = 4) in companies with over 1000 employees. For baby boomers, 20.0% (n = 10) were employed in companies with less than 100 employees, 46.0% (n = 23) worked in companies with between 101-500 employees, 16.0% (n = 8) were employed in companies with between 501 and 1000 employees, and 18% (n = 9) in companies with over 1000 employees. For Generation X, 13.4% (n = 9) worked in

companies with less than 100 employees, 13.4% (n = 9) were in companies with between 101-500 employees, 50.7% (n = 34) were in companies with between 501 and 1000 employees, and 22.4% (n = 15) in companies with over 1000 employees.

For Generation Y, 29.5% (n = 26) worked in companies with less than 100 employees, 31.8% (n = 28) were in companies with between 101-500 employees, 18.2% (n = 16) employed in companies with between 501 and 1000 employees, and 20.5% (n = 18) in companies with over 1000 employees. For the Fifth Generation, 24.7% (n = 22) worked in companies with less than 100 employees, 29.2% (n = 26) were in companies with between 101-500 employees, 33.7% (n = 30) were in companies with between 501 and 1000 employees, and 12.4% (n = 11) in companies with over 1000 employees.

Table 5

*Demographic Descriptive Statistics: Generational Cohort*Size of Company*

Generational Cohort	Company Size	Frequency	Percentage
Veteran/ Silent Generation (1925 - 1945) 1	Under 100	20	48.8
	101 500	8	19.5
	501 1000	9	22.0
	Over 1000	4	9.8
	Total	41	100.0
Baby Boomers (1946 - 1964) 2	Under 100	10	20.0
	101 500	23	46.0
	501 1000	8	16.0
	Over 1000	9	18.0
	Total	50	100.0
Generation X (1965 - 1976)	Under 100	9	13.4
	101 500	9	13.4
	501 1000	34	50.7
	Over 1000	15	22.4
	Total	67	100.0
Generation Y (1977 - 1998) 4	Under 100	26	29.5
	101 500	28	31.8
	501 1000	16	18.2
	Over 1000	18	20.5
	Total	88	100.0
Fifth Generation (1982 - 1999)	Under 100	22	24.7
	101 500	26	29.2
	501 1000	30	33.7
	Over 1000	11	12.4
	Total	89	100.0

Descriptive Analysis of Dependent Variables

Learning Style Preferences

Items from the Honey and Mumford's Learning Style Questionnaire (LSQ) measured the learning style preferences of the up to five generational cohorts on four dimensions. Those four aspects included: a) activists (enjoyed being challenged by new ideas), b) reflectors (low profile learners), c) theorists (logical and perfectionist learners), and d) pragmatists (problems are viewed as opportunities). I computed composite scores

by taking the means (*M*) of the Likert-type items for the four variables, activists,

reflectors, theorists, and pragmatists from the raw data (Boone & Boone, 2012). For

learners classified as activists, the items for the composite scores were computed from

raw scores of items 1, 3, 11, 14, 19; raw scores from items 5, 8, 9, 13, 15, 21 produced

the composite scores for reflector learners; for theorist learners, raw scores from items 2,

6, 10, 16, 20, 23 created the new composite scores; and the raw scores from items to

produce the new composite scores to assess pragmatists were 4, 7, 12, 17, 18, revised

coded item 24.

Table 6 provided descriptive information on the four composite scores, activists,

reflectors, theorists, and pragmatists. The scores for activist learners ranged from 1 to 7,

with *M* = 3.97, and SD = 1.79. Scores for reflector learners ranged from 1 to 7, with *M* =

2.37, and SD = 1.14. Scores for theorist learners ranged from 1 to 7, with *M* = 2.70, and

SD = 1.24. Scores for pragmatist learners ranged from 1 to 7, with *M* = 2.52, and SD =

1.12.

Table 6

Descriptive Statistics for Learning Styles Preferences

New Variable	*n*	M	*SD*	Minimum	Maximum
Activists	335	3.97	1.79	1.00	7.00
Reflectors	335	2.37	1.14	1.00	7.00
Theorists	335	2.70	1.24	1.00	7.00
Pragmatists	335	2.52	1.12	1.00	7.00

Predicting Collaboration Technology Use

I use items from the Predicting Collaboration Technology Use survey by Brown

et al. 2010 to measure the potential adoption and use of technology by the cohorts on five

dimensions. The five dimensions included: a) Intention to Use, b) Performance

Expectancy, c) Effort Expectancy, d) Facilitating Conditions, and e) Social Presence. The

composite scores were computed using the M of the five variables from raw data scores.

For intention to use, the items for the composite scores were computed from raw scores

from 1, 2, 3; raw scores from items 4, 5, 6 produced the composite scores for

performance expectancy; for effort expectancy, raw scores from items 7, 8, 9 produced

the new composite scores; the raw scores from items 10, 11, 12 produced new composite

scores for facilitating conditions, and the raw scores from items 13, 14, 15 produced the

new composite scores to assess social presence.

Table 7 provided descriptive information on the five composite scores. The

scores for intention to use ranged from 1.00 to 7.00, with $M = 3.27$ and $SD = 1.78$. Scores

for performance expectancy ranged from 1.00 to 7.00, with $M = 3.01$ and $SD = 1.61$.

Scores for effort expectancy ranged from 1.00 to 7.00, with $M = 2.98$ and $SD = 1.58$.

Scores for facilitating conditions ranged from 1.00 to 7.00, with $M = 3.27$ and $SD = 1.69$.

Scores for social presence ranged from 1.00 to 7.00, with $M = 3.03$ and $SD = 1.57$.

Table **7**

Descriptive Statistics for Predicting Collaboration Technology Use

New Variable	*N*	*M*	*SD*	Minimum	Maximum
Intention to Use	335	3.27	1.78	1.00	7.00
Performance Expectancy	335	3.01	1.61	1.00	7.00
Effort Expectancy	335	2.98	1.57	1.00	7.00
Facilitating Conditions	335	3.27	1.69	1.00	7.00
Social Presence	335	3.03	1.57	1.00	7.00

Technology Preferences

The items that I created for Part 3 of the survey measured the preferences of the generational cohorts for information technology initiatives such as Adobe Creative Cloud, Cloud Computing and SharePoint 13. The responses to the items were measured by a decreasing ranking technique from *1* (most comfortable) to *5* (least comfortable). In Table 8, Item 7, practicing stretch assignments and other job activities (employees take on specific activities to improve skills and knowledge) $M = 2.56$ was the lowest mean score indicating the technology preference with which participants were most comfortable. Item 4, showcasing and using creative work on Behance (a platform for displaying creative work) $M = 3.33$ was the highest mean score indicating the technology preference with which participants were least comfortable.

Table 8

Descriptive Statistics for Technology Preferences

	Mean (*M*)	*n*	Standard Deviation *SD*	Median
1. Downloading, installing, and updating Creative Cloud apps.	2.58	335	1.32	3.00
2. Syncing files from PC to Creative Cloud and accessing them from anywhere.	2.85	335	1.34	3.00
3. Adding fonts from Typekit	3.24	335	1.32	3.00
4. Showcasing and using creative work on Behance.	3.33	335	1.27	3.00
5. Using the wide selection of vector graphics, icons, patterns, and UI kits	3.14	335	1.25	3.00
6. Completing individual assessments, exercises, and games	2.72	335	1.36	2.00
7. Reviewing Q&A sessions with knowledgeable instructors.	2.56	335	1.23	3.00
8. Practicing stretch assignments and other on-the-job activities	2.76	335	1.18	3.00
9. Authoring and sharing documents and data	2.76	335	1.34	3.00
10. Using work flows for 'business processes'.	2.76	335	1.38	3.00
11. Designing personal profiles/websites.	3.14	335	1.32	3.00
12. Interacting with 'best practice' templates for good committee web pages and document libraries, including document management	2.79	335	1.28	3.00
13. Working on project or group activities outside those of teaching and learning.	2.90	335	1.26	3.00
14. Viewing and using full library of web and desktop fonts during design process.	2.81	335	1.26	3.00

*The mean difference significant at 0.05 level

Restated Research Questions and Hypotheses

Research Question 1

RQ 1: To what degree do learning style preferences vary by generational cohort employees in for-profit firms, in a large metropolitan city in the Southeastern United States?

Null Hypothesis ($\mu 1 = \mu 2 ... = \mu k$, $\alpha = 0.05$)

H_O1: There is no significant difference between various learning style preferences of the up to five generational cohort employees in for-profit firms in a large metropolitan city in the Southeastern United States.

Alternate Hypothesis ($\mu_1 \neq \mu 2 ... \neq \mu k$, $\alpha = 0.05$)

H_A1: There is a significant difference between various learning style preferences of the up to five generational cohort employees in for-profit firms in a large metropolitan city in the Southeastern United States.

I calculated the means and standard deviations for the composite scores of the four new variables, activists, theorists, reflectors and pragmatists. Table 9 provided data of the mean +/- standard deviation of four categories of learners. For activist learners, the total mean $M = 3.97$. The total *SD* was 1.79. For the reflector earners, the total mean $M = 2.37$, total $SD = 1.14$. For theorist learners, the total mean $M = 2.37$ and the total *SD* was 1.14. For the pragmatist learners, the total mean $M = 2.52$, and total $SD = 1.12$.

Table 9

Generational Cohorts Factor, Means, and Standard Deviations

Descriptive Statistics for Generational Cohorts

		n	*M*	*SD*	Std. Error	95% Confidence Mean Lower B	Upper B	Min	Max
Activists	Veterans	41	3.99	2.13	0.33	3.31	4.66	1.00	7.00
	Baby B	50	4.34	1.91	0.27	3.80	4.88	1.00	7.00
	Gene X (	67	4.10	1.72	0.21	3.68	4.52	1.00	7.00
	Gene Y	88	3.81	1.69	0.18	3.45	4.17	1.00	7.00
	Fifth Gen	89	3.80	1.70	0.18	3.44	4.16	1.00	7.00
	Total	335	3.97	1.79	0.09	3.78	4.16	1.00	7.00
Reflectors	Veterans	41	2.57	1.29	0.201	2.17	2.98	1.00	5.00
	Baby B	50	2.59	1.29	0.18	2.22	2.96	1.00	5.00
	Gene X	67	2.35	1.24	0.15	2.045	2.65	1.00	6.00
	Gen Y	88	2.22	1.01	0.11	2.01	2.44	1.00	5.00
	Fifth-G	89	2.30	1.02	0.11	2.08	2.51	1.00	5.00
	Total	335	2.37	1.143	0.06	2.24	2.49	1.00	6.00
Theorists	Veterans	41	2.68	1.39	0.22	2.24	3.12	1.00	5.50
	Baby B	50	2.65	1.10	0.16	2.34	2.96	1.00	4.50
	Gen X	67	2.46	1.04	0.13	2.19	2.70	1.00	4.50
	Gene Y	88	2.84	1.30	0.14	2.56	3.11	1.00	6.50
	Fifth G	89	2.77	1.31	0.14	2.50	3.05	1.00	5.50
	Total	335	2.70	1.24	0.07	2.56	2.83	1.00	6.50

(table continues)

		n	M	SD	Std. Error	95% Confidence Mean		Min	Max
						Lower B	Upper B		
Pragmatists	Veterans	41	2.80	1.52	0.24	2.32	3.28	1.00	7.00
	Baby B	50	2.47	1.02	0.15	2.18	2.76	1.00	4.50
	Gen X	67	2.46	1.03	0.13	2.20	2.71	1.00	4.50
	Gen Y	88	2.55	1.08	0.12	2.32	2.78	1.00	4.50
	Fifth Ge	89	2.43	1.05	0.11	2.21	2.66	1.00	4.50
	Total	335	2.52	1.12	0.06	2.40	2.64	1.00	7.00

*The mean difference significant at 0.05 level

Table 10 provided data on testing the assumption of homogeneity of variance using *Levene's* test of equality of variances. Not all variances were equal in populations (Lantz, 2013). The assumption of homogeneity of variances was violated as assessed by *Levene's* test for reflectors learners, ($p = 0.03$), $p < .05$. One assumption of the one-way ANOVA parametric test required that the "population variances of the dependent variables were equal for all groups of the independent variable" (Field, 2014, p. 442). If that assumption was not met bias could result and that could affect the Type I error rate.

Table 10

Generational Cohorts Assumption of Homogeneity of Variances

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Activists	2.20	4	330	0.07
Reflectors	2.65	4	330	0.03
Theorists	2.09	4	330	0.08
Pragmatists	2.11	4	330	0.08

*The mean difference significant at 0.05 level

The one-way ANOVA (Table 11) generated results about the significant differences between the means of the five independent groups, but those results could not be evaluated to determine if the output was a true reflection of the data about the learning styles among the five generational cohorts (Sadooghi-Alvandi, Jafari, & Mardani-Fard, 2012)

Table 11

Analysis of variance (ANOVA) Results for Activists, Reflectors, Theorists, Pragmatists

ANOVA Results					
	Sum of Squares	df	Mean Square	*F*	*Sig.*
Activists					
Between Groups	12.72	4	3.18	.99	.41
Within Groups	1058.70	330	3.21		
Total	1071.42	334			
Reflectors					
Between Groups	6.53	4	1.63	1.25	.29
Within Groups	429.92	330	1.30		
Total	436.46	334			
Theorists					
Between Groups	6.51	4	1.63	1.06	.38
Within Groups	508.43	330	1.54		
Total	514.94	334			
Pragmatists					
Between Groups	4.50	4	1.13	.89	.47
Within Groups	416.63	330	1.26		
Total	421.12	334			

*The mean difference significant at 0.05 level

The *F* test was adjusted to correct the issue of significance by using the Welch ANOVA test (Table 12). Sadooghi-Alvandi et al. (2012) proposed that Welch's ANOVA was the most appropriate test to use "when variances were not equal" (p. 4201). The Welch's ANOVA, a modified version of the ANOVA allowed me to interpret the results of the Games-Howell post hoc test and determine where difference might exist among the cohorts (Spek, Wieringa-de Waard, Lucas, & Dijk, 2013). The data presented in Table 12 indicated that there were no statistically significant differences in the composite scores among activists, reflectors, theorists, and pragmatist learners.

Table 12

Robust Test of Equality of Means Among Activists, Reflectors, Theorists, and Pragmatists

Robust Tests of Equality of Means

		Statistic[a]	df1	df2	Sig.
Activists	Welch	0.96	4	139.14	.43
Reflectors	Welch	1.13	4	137.80	.34
Theorists	Welch	1.24	4	143.00	.29
Pragmatists	Welch	0.58	4	139.66	.68

a. Asymptotically F distributed.

Because there were groups with different numbers of participants and equal variances could be assumed, the Games-Howell post hoc tests were calculated when reflector learners were significant, ($p = 0.03$), $p < .05$ (Castejón, Gilar, Veas, & Miñano, 2016). The Games-Howell post hoc (Table 13) analysis revealed no statistically significant differences among the generational cohorts for reflector learners, highest value $p = 1000$ between veterans and baby boomers, and the lowest $p = .42$ for baby boomers and Generation X cohorts

Table 13

Games-Howell Post hoc Test for Generational Cohort*Reflectors

Multiple Comparisons

Dependent Variable Reflectors	Gen. Cohort	Gen Cohort	Mean Diff.	Std. E	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Reflectors	Veterans	B B	-.02	.27	1.00	-.77	.74
		Generation X	.22	.25	.90	-.48	.93
		Generation Y	.35	.23	.54	-.29	.99
		Fifth Gen	.28	.23	.75	-.37	.92
	Baby Boomers	Veteran/ Silent	.02	.27	1.00	-.74	.77
		Generation X	.24	.24	.85	. 90	.42
		Gen Y	.37	.21	.42	-.22	.96
		Fifth Gen	.29	.21	.64	-.30	.88
	Gen X	Vets	-.22	.25	.90	-.93	.48
		B B	-.24	.24	.85	-.90	.42
		Gen Y	.13	.19	.96	-.39	.65
		Fifth Gen	.05	.19	1.00.	-.46	.57
	Gen Y	Vets	-.35	.23	.54	-.99	.29
		B B	-.37	.21	.42	-.96	.22
		Gen X	-.13	.19	.96	-.65	.39
		Fifth Gen	-.08	.15	.99	-.50	.3
	Fifth Gen	Vets	-.28	.23	.75	-.92	.37
		B. B	-.29	.21	.64	-.88	.30
		Gen X	-.05	.19	1.00.	-.57	.46
		Gene Y	.08	.15	.99	-.34	.50

*The mean difference significant at 0.05 level

Research Question 1 determined the degree to which learning style preferences

varied by generational cohort employees. The analysis indicated that there were no

outliers and the data were normally distributed for each group, as assessed by boxplot and

Shapiro-Wilk test ($p < .05$), respectively. Homogeneity of variances was violated as

assessed by *Levene's* test for homogeneity of variances for reflector learners ($p = 0.03$), p

< .05. The Games-Howell post hoc analysis in Table 12 revealed no statistically significant differences among the generational cohorts for reflector learners, highest value $p = 100$, $p > .05$ between veterans and baby boomers, and the lowest $p = .42$, $p > .05$ for baby boomers and Generation X cohorts. The group means were not statistically significantly different in learning style preferences ($p > .05$) and, therefore, the results failed to reject the null hypothesis.

Research Question 2

RQ 2: To what degree do the various preferences of generational cohort employees for technology training activities such as Adobe Creative Cloud, Cloud Computing, and SharePoint 2013 impact attitudes towards information technology usage in for-profit firms, in a large metropolitan city in the Southeastern United States?

Null Hypothesis ($\mu_1 = \mu_{2\ldots} = \mu k$, $\alpha = 0.05$)

H_O2: There is no significant difference between the various preferences of the up to five generational cohort employees for technology training activities such as Adobe Creative Cloud, Cloud Computing, and SharePoint 2013 in for-profit firms in a large metropolitan city in the Southeastern United States.

Alternate Hypothesis ($\mu 1 \neq \mu 2 \ldots \neq \mu k$, $\alpha = 0.05$)

H_A2: There is a significant difference between the various preferences of the up to five generational cohort employees for technology training activities such as Adobe Creative Cloud, Cloud Computing, and SharePoint 2013 in for-profit firms in a large metropolitan city in the Southeastern United States.

I used the Kruskal-Wallis H test (Guo, Zhong, & Zhang, 2013; Wall Emerson, 2016) to determine whether there were differences in composite scores among the cohort groups of participants and their preferences among predicting collaboration technology use: (intention to use, performance expectancy, effort expectancy, facilitating conditions, and social presence). Prior to conducting the Kuskal-Wallis test, the personnel at Leard Statistics (2015) provided directions to ensure that the assumptions were assessed. The assumptions for the test were the presence of: one dependent variable measured at the continuous or ordinal level; three or more categorical, independent groups; independence of observations; and that the distribution of scores for each group of the independent variable had the same shape. The distributions of composite scores were similar for all groups as assessed by visual inspection of a boxplot.

Table 14 showed that the data from the Kruskal- Wallis analysis of the median composite scores were not statistically significantly different between groups; intention to use and performance expectancy; effort expectancy and facilitating conditions. Median composite scores were statistically significantly different between groups for social presence $\chi^2 (4) = 10.64$, $p = 0.03$, $p < .05$.

Table 14

Kruskal-Wallis Test for Technology Collaboration Preferences by Generational Cohorts

	χ^2	df	p
Intention to Use	2.65	4	0.62
Performance Expectancy	1.13	4	0.89
Effort Expectancy	2.30	4	0.68
Facilitating Conditions	8.06	4	0.09
Social Presence	10.64	4	0.03

Note * Significant level p = 0.05

Table 15 provided the hypothesis test summary for retaining or refuting the null hypotheses that the distribution was the same across the generational cohorts using the independent samples Kruskal-Wallis Test. The decision to retain the null hypotheses was made for: intention to use, p= .62, $p > .05$; performance expectancy, $p = 0.89$, $p > .05$; effort expectancy, $p = 0.68$, $p > .05$; facilitating conditions, $p = 0.09$, $p > .05$. The decision was made not to retain the null hypothesis because the distribution was not the same acroos the generational cohorts for social presence, $p = 0.03$, $p < .05$.

Table 15

Hypothesis Test Summary

Null Hypothesis	Test	Sig.	Decision
The distribution of Intention to Use is the same across categories of generational cohorts	Independent Samples Kruskal-Wallis Test	0.62	Retain the Null Hypothesis
The distribution of Performance Expectancy is the same across categories of generational cohorts	Independent Samples Kruskal-Wallis Test	0.89	Retain the Null Hypothesis
The distribution of Effort Expectancy is the same across categories of generational cohorts	Independent Samples Kruskal-Wallis Test	0.68	Retain the Null Hypothesis
The distribution of Facilitating Conditions is the same across categories of generational cohorts	Independent Samples Kruskal-Wallis Test	0.09	Retain the Null Hypothesis
The distribution of Social Presence is the same across categories of generational cohorts	Independent Samples Kruskal-Wallis Test	0.03	Reject the Null Hypothesis

Asymptotic significances are displayed. The significance level is .05

The distribution of social presence composite scores was not the same across categories of generational cohorts. The associated post hoc used with the Kruskal-Wallis test was the Dunn's (1964) procedure with a Bonferroni adjustment (Hossain & Ahmed, 2016) to provide data for determining differences for social presence among the cohorts.

The Dunn's post hoc analysis (Table 16) revealed statistically significant differences in the unadjusted p values composites scores for social presence between Generation X and baby boomers, $p = 0.01$, $p < .05$; Generation Y and baby boomers, $p = 0.01$, $p < .05$; Fifth Generation and baby boomers, $p = 0.01$, $p < .05$, but not between any other group combinations. For those other groups the results failed to reject the null hypothesis. That determination would only be accurate if each comparison was considered in isolation. (Hossain and Ahmed (2016) argued that whenever the researcher

made multiple comparisons, there was increased risk of Type 1 error. I used SPSS to

calculate the Bonferroni correction (Armstrong, 2014), and the results appeared as Adj.

Sig. in Table 16. For Generation X and baby boomers, Adj. $p = 0.12$, $p < .05$; Generation

Y and baby boomers, Adj. $p = 0.10$, $p < .05$; Fifth Generation and baby boomers, $p =$

0.11, $p < .05$. The results failed to reject the null hypothesis. There was no statistically

significant difference between social presence among the up to five generational cohort

employees for technology training activities.

Table 16

Pairwise Comparison of Composite Scores Generational Cohort Social Presence*

Sample 1-Sample 2	Test Statistics	Std. Error	Std. Test Statistics	Sig.	Adj. Sig.
Gen X (1965-1976)-Gen Y (1977-1998) 4	-1.65	15.35	-.11	.91	1.00
Gen X (1965-1976)-Fifth Generation (1982-1999)	-1.99	15.31	-.13	.90	1.00
Gen X (1965-1976) – Veteran/Silent Generation (1925-1945) 1	30.72	18.77	1.63	.10	1.00
Gen X (1965-1976) – Baby Boomers (1946-1964) 2	44.57	17.69	2.52	.01	.12
Gen Y (1977-1998) 4- Fifth Generation (1982-1999)	-.33	14.23	-.023	.98	1.00
Gen Y (1977-1998) 4- Veteran/Silent Generation (1925-1945)	29.06	17.90	1.62	.10	1.00
Gen Y (1977-1998)-4- Baby Boomers (1946-1964) 2	42.92	16.76	2.56	.01	.10
Fifth Generation (1982-1999) - Veteran/Silent Generation (1925-1945) 1	28.73	17.86	1.61	.11	1.00
Fifth Generation (1982-1999)- Baby Boomers (1946-1964) 2	42.59	16.73	2.55	.01	.11
Veteran/Silent Generation (1925-1945) 1 - Baby Boomers (1946-1964) 2	-13.86	19.94	-.70	.49	1.00

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same.
Asymptotic significances (2-sided tests) are displayed. The significance is .05

Research Question 2 determined to what degree do the various preferences of

generational cohort employees for technology training activities such as Adobe Creative

Cloud, Cloud Computing, and SharePoint 2013 impact attitudes towards information

technology usage. The initial findings from the Kruskal-Wallis test indicated support for

the premise and the assumption of Brown et al. (2010) that social presence was one of the most important factors "influencing the adoption and use of technology" (p. 41). The Dunn Post-Hoc and Bonferroni correction indicated that there were no statistically significant differences in social presence for training activities among the generational cohorts. The results failed to reject the null hypothesis for preferences among predicting collaboration technology use: (intention to use, performance expectancy, effort expectancy, facilitating conditions, and social presence among the up to five generational cohorts).

Research Question 3

RQ3: How will the implementation of information technology initiatives affect collaboration among generational cohort employees during organizational training in for-profit firms in a large metropolitan city in the Southeastern United States?

Null Hypotheses ($\mu1 = \mu2...=\mu k$, $\alpha = 0.05$)

H_O3: There is no significant difference between collaboration and organizational training initiatives of the up to five generational cohorts in for-profit firms in a large metropolitan city in the Southeastern United States.

Alternate Hypotheses ($\mu1 \neq \mu2...\neq\mu k$, $\alpha = 0.05$)

H_A3: There is a significant difference between collaboration and organizational training initiatives of the up to five generational cohort employees in for-profit firms in a large metropolitan city in the Southeastern United States.

Chi-square test of independence were conducted between: the generational cohorts and the dependent variables with the highest mean scores; and the generational

cohorts and the dependent variables with the lowest mean scores. I evaluated the

assumptions to determine that for the variables: 80% of the cells had an expected count

greater than or equal to five (McHugh, 2013); that the variables were measured at the

categorical level; that there was independence of observations; and that cross-sectional

sampling was used. The tests for the strength/magnitude of any association were

assessed.

Most Comfortable Technology Collaborative Activities

The comparison of generational cohort and showcasing and using creative work

on Behance indicated no statistically significant difference, $\chi^2(16) = 23.01$, $p = 0.11$, $p >$

.05, among the generational cohorts in Table 17. The results failed to reject the null

hypothesis. There was no statistically significant difference between collaboration and

organizational training initiatives, showcasing using creative work on Behance among the

generational cohorts

Table 17

*Generational Cohorts *Showcasing and Using Creative Work on Behance*

	Chi-Square Tests		
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	23.01	16	0.11
Likelihood Ratio	25.74	16	0.06
Linear-by-Linear Association	.69	1	0.41
N of Valid Cases	335		

1 cells (4.0%) have expected count less than 5. The minimum expected count is 4.53.

The comparison of generational cohorts * adding fonts from Typekits, indicated no statistically significant difference, $\chi^2(16) =4.094$, $p =0.99$, $p > .05$, in Table 18. The results failed to reject the null hypothesis. There was no statistically significant difference between collaboration and organizational training initiatives, adding fonts from Typekits, among the generational cohorts.

Table 18

*Generational Cohorts *Adding Fonts from Typekits*

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.77	16	0.99
Likelihood Ratio	4.80	16	0.99
Linear-by-Linear Association	.03	1	0.85
N of Valid Cases	335		

0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.39.

In Table 19, the comparison of generational cohorts and the collaborative activity (using the wide selection of vector graphics, icons, patterns, and UI kits)**,** indicated statistically significant difference, $\chi^2(16) =26.97$, $p =0.04$, $p < .05$. The results rejected the null hypothesis.

Table 19

Generational Cohorts *Using the Wide Selection of Vector Graphics, Icons, Patterns, UI kits

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	26.97	16	0.04
Likelihood Ratio	27.94	16	0.03
Linear-by-Linear Association	2.39	1	0.12
N of Valid Cases	335		

0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.26

In Table 20, the association was small, Cramer's V = 0.14 (Einwiller & Steilen, 2015), There was statistically significant difference between collaboration among the generational cohorts and using the wide selection of vector graphics, icons, and UI kits.

Table 20

Cramer's V Test for Generational Cohorts *Using the Wide Selection of Vector Graphics, Icons, Patterns, UI kits

Cramer's V-Test

		Value	Approx. Sig
Nominal by Nominal	Phi	.28	.04
	Cramer's V	.14	.04
N of Valid Cases		335	

The comparison of generational cohorts and designing personal profiles/websites indicated no statistically significant difference, $\chi^2(16) = 4.77$, $p = 0.99$, $p > .05$, in Table

21. The results indicated no statistically significant difference among generational

cohorts * designing personal profiles/websites.

Table 21

*Generational Cohorts * Designing Personal Profiles/Websites.*

<table>
<tr><td></td><td colspan="3">Chi-Square Tests</td></tr>
<tr><td></td><td>Value</td><td>df</td><td>Asymp. Sig. (2-sided)</td></tr>
<tr><td>Pearson Chi-Square</td><td>4.77</td><td>16</td><td>0.99</td></tr>
<tr><td>Likelihood Ratio</td><td>4.81</td><td>16</td><td>0.99</td></tr>
<tr><td>Linear-by-Linear Association</td><td>.04</td><td>1</td><td>0.85</td></tr>
<tr><td>N of Valid Cases</td><td>335</td><td></td><td></td></tr>
</table>

0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.39

For Table 22, the comparison of generational cohorts and the collaborative

activity, (working on project or group activities outside those of teaching and learning)

indicated no statistically significant difference, $\chi^2(16) = 6.67$, $p = 0.98$, $p > .05$. The results

failed to reject the null hypothesis. There was no statistically significant difference

between collaboration among the generational cohorts and organizational training

initiatives, working on project or group activities outside those of teaching and learning.

Table 22

Generational Cohorts *Working on Project or Group Activities

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.67[a]	16	0.98
Likelihood Ratio	6.85	16	0.98
Linear-by-Linear Association	.28	1	0.60
N of Valid Cases	335		

a.   0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.02.

In Table 23, the comparison of generational cohorts and the collaborative activity (viewing and using full library of web and desktop fonts during design process) indicated no statistically significant difference, $\chi^2(16) = 20.77$, $p = 0.19$, $p > .05$. The results failed to reject the null hypothesis.

Table 23

Generational Cohorts *Viewing and Using Full Library of Web and Desktop Fonts

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	20.77[a]	16	.19
Likelihood Ratio	21.33	16	.17
Linear-by-Linear Association	.73	1	.39
N of Valid Cases	335		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.39.

Least Comfortable Technology Collaborative Activities

For Table 24, the comparison of generational cohorts and the collaborative activity (downloading, installing, and updating Creative Cloud apps) indicated no statistically significant difference, $\chi^2(16) = 20.14$, $p = 0.21$, $p > .05$. The results failed to reject the null hypothesis. There was no statistically significant difference between collaboration among the generational cohorts * downloading, installing, and updating Creative Cloud apps.

Table 24

*Generational Cohorts *Downloading, Installing, and Updating Creative Cloud Apps*

	Chi-Square Tests		
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	20.14[a]	16	0.21
Likelihood Ratio	19.12	16	0.26
Linear-by-Linear Association	1.40	1	0.24
N of Valid Cases	335		

1 cells (4.0%) have expected count less than 5. The minimum expected count is 4.16.

For Table 25, the comparison of generational cohorts and the collaborative activities (completing individual assessments, exercises, and games) indicated no statistically significant difference, $\chi^2(16) = 8.65$, $p = 0.93$, $p > .05$. The results failed to reject the null hypothesis. There was no statistically significant difference between collaboration among the generational cohorts * completing individual assessments, exercises, and game.

Table 25

*Generational Cohorts * Completing Individual Assessments, Exercises, and Games*

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.65	16	.93
Likelihood Ratio	8.63	16	.93
Linear-by-Linear Association	.65	1	.42
N of Valid Cases	335		

a.   0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.75.

The comparison of generational cohorts and the collaborative activity (practicing stretch assignments and other on-the-job activities) indicated no statistically significant difference, $\chi^2(16) = 7.80$, $p = 0.96$, p > .05, (Table 26). The results failed to reject the null hypothesis. There was no statistically significant difference between collaboration among the generational cohorts * practicing stretch assignments and other on-the-job activities.

Table 26

*Generational Cohorts * Practicing Stretch Assignments and Other On-the-Job Activities*

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.80	16	.96
Likelihood Ratio	7.37	16	.97
Linear-by-Linear Association	4.50	1	.03
N of Valid Cases	335		

a. 1 cells (4.0%) have expected count less than 5. The minimum expected count is 4.53.

The comparison of generational cohorts and the collaborative activity (reviewing Q & A sessions with knowledgeable instructors) indicated no statistically significant difference, $\chi^2(16) =6.75$, $p =0.98$, p > .05, (Table 27). The results failed to reject the null hypothesis. There was no statistically significant difference between collaboration among the generational cohorts and organizational training initiatives, reviewing Q&A sessions with knowledgeable instructors.

Table 27

*Generational Cohorts * Reviewing Q & A Sessions With Knowledgeable Instructors*

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.75	16	.98
Likelihood Ratio	6.88	16	.98
Linear-by-Linear Association	.01	1	.91
N of Valid Cases	335		

a. 2 cells (8.0%) have expected count less than 5. The minimum expected count is 3.79.

In Table 28, the comparison of generational cohorts and the collaborative activity (authoring and sharing documents and data) indicated no statistically significant difference, $\chi^2(16) =9.54$, $p =0.89$, p > .05. The results failed to reject the null hypothesis. There was no statistically significant difference between collaboration among the generational cohorts and authoring and sharing documents and data

Table 28

*Generational Cohorts * Authoring and Sharing Documents and Data*

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.54	16	.89
Likelihood Ratio	9.86	16	.99
Linear-by-Linear Association	.00	1	.97
N of Valid Cases	335		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.87.

For Table 29, the comparison of generational cohorts and the collaborative activity using work flows for 'business processes) indicated no statistically significant difference, $\chi^2(16) = 5.62$, $p = 0.99$, $p > .05$. The results failed to reject the null hypothesis.

Table 29

Generational Cohorts Using Work Flows for 'Business Processes'*

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.62	16	0.99
Likelihood Ratio	5.64	16	0.99
Linear-by-Linear Association	.43	1	0.51
N of Valid Cases	335		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.63

Table 30 showed the comparison of generational cohorts and the collaborative activity (interacting with 'best practice' templates for good committee web pages and

document libraries, including document management) indicated no statistically

significant difference, $\chi^2(16) =12.69$, $p =0.70$, $p > .05$. The results failed to reject the null

hypothesis.

Table 30

*Generational Cohorts * Interacting with 'Best Practice' Templates*

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.69	16	0.70
Likelihood Ratio	13.03	16	0.67
Linear-by-Linear Association	2.91	1	0.09
N of Valid Cases	335		

a.0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.51.

Research Question 3 determined the level of comfort of the generational cohort

employees with the implementation of collaborative information technology initiatives.

The distribution statistics were applied to chi-square tests of independence to determine

whether there were statistically significant differences between and among the

generational cohorts for specific collaborative activities. For the technology collaborative

initiatives with which the generational cohorts were most comfortable, there were no

statistically significant differences between showcasing and using creative work on

Behance, $p = 0.11$, $p > .05$; adding fonts from Typekit, $p =0.99$, $p > .05$; designing

personal profiles/websites, $p =0.99$, $p > .05$; working on project or group activities

outside those of teaching and learning, $p =0.98$, $p > .05$, viewing and using full library of

web and desktop fonts during design process, $p =0.19$, $p > .05$. A significant level at 0.5

level was found for using the wide selection of vector graphics, icons, patterns, and UI

kits**,** *p* =0.04, *p* < .05. As Einwiller and Steilen, (2015) proposed the Cramer's V = 0.14

the analysis of symmetric measure produced a small association.

For the technology collaboratives with which the generational cohorts were least

comfortable, there were no statistically significant differences among: downloading,

installing, and updating Creative Cloud apps, *p* =0.21, *p* > .05; completing individual

assessments, exercises, and games, *p* =0.93, *p* > .05; practicing stretch assignments and

other on-the-job activities, *p* =0.96, p > .05; reviewing Q & A sessions with

knowledgeable instructors, *p* =0.98, p > .05; authoring and sharing documents and data, *p*

=0.89, p > .05; using work flows for 'business processes', *p* =0.99, *p* > .05; interacting

with 'best practice' templates for good committee web pages and document libraries,

including document management, *p* =0.70, *p* > .05. The results failed to reject the null

hypothesis.

Summary

The purpose of this study was to address the gap identified in the review of the

literature regarding collaboration among generational cohorts through a quantitative,

nonexperimental approach. The findings from the first research question indicated that

there was no statistically significant difference among the various learning style

preferences of the generational cohort employees and the results failed to reject the null

hypothesis. The results from the second research question indicated that no statistically

significant differences existed with the dependent variables of preferences for

collaborative technologies. The results failed to reject the null hypothesis. For the third

research question, the results did not reject the null hypothesis for the collaborative item

(using the wide selection of vector graphics, icons, patterns, and UI kits)**.** For all other collaborative activities, there were no statistically significant differences among the generational cohorts. The results rejected the null hypothesis.

In Chapter Five, further discussion of results of the analyses provides connections to the review of the literature. Links are developed between the research questions and the findings from the data analyses. The limitations of the study, the recommendations for further research, and the implications for positive social change and a conclusion completes the discussion.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this quantitative nonexperimental study was to address the gap identified in the review of the literature regarding generational learning style preferences and the preferences for organizational IT training initiatives. Those factors might affect collaboration among generational cohort employees. Data were collected from 335 respondents in small, medium, and large for-profit companies that use IT processes. The 335 respondents included individuals from veterans, baby boomers, Generation X, Generation Y, and Fifth Generation cohorts. The survey consisted of four parts and provided data for analysis to understand learning preferences and the prediction of the use of collaboration technology tools, technology preferences, and the demographics of the up to five generational cohort employees. The raw data were collected via QuestionPro and exported to SPSS for analysis. Prior research findings did not provide conclusive evidence about learning style preferences of the cohorts. Previous studies did not indicate specific ways to achieve collaboration among the cohorts in organizations that use IT processes.

Chapter 5 provides a summary of the key findings and whether the findings confirm, disconfirm, or extend the knowledge that is outlined in the literature reviewed in Chapter 2. The chapter includes interpretation of the findings, significance of the study, limitations, recommendations for further research, implications for positive social change, and the conclusion. The findings are interpreted based on the theoretical frameworks outlined in Chapter 2. Additional limitations of the study related to data collection are identified and discussed. Recommendations for further research are

proposed. I also explain how findings might promote collaboration among five generational cohorts of employees who work together in organizations that use IT processes. Finally, I provide a conclusion to the study.

Interpretation of the Findings

The discussions in the literature centered around enhancing collaboration through IT processes among the up the five cohorts working in organizations (Cekada, 2012; Lyons & Kuron, 2014; Marcinkus Murphy, 2012). Other researchers proposed that collaboration might be possible if all employees received the necessary IT training, and that leaders were not realizing success because of the preconceived ideas of generational differences (Davis et al., 2006). This study of ways to enhance collaboration among the up to five generational cohort employees addressed three research questions. Research Question 1 focused on learning style preferences of the up to five generational cohorts. The findings were not anticipated because earlier discussions in the literature about learning styles assumed that "each generation cohort had a unique way of learning" (Kriegel, 2013, p. 82). I anticipated that the limited success in the efforts of organizational leaders to design and integrate programs with technology in the workplace (Sawa & Swift, 2013) might be related to the differences in the learning style preferences of the cohorts (Appendix A, Part 1).

A modified version of the ANOVA, the Welch ANOVA, was used to determine whether there were differences among the learning style preferences of the up to five generational cohort employees in firms that used IT processes. Although the Welch ANOVA indicated statistically a significant difference among the reflector group of

learners, the Games-Howell post hoc analysis showed no statistically significant differences among the cohorts. The confusion between learning styles and learning style preferences that seems apparent in the discussions presented in the literature could be that researchers used the terms *learning styles*, *learning style preferences*, and *learning approaches* interchangeably (Weggelaar-Jansen, van Wijngaarden, & Slaghuis, 2015). Liew, Sidhu, and Barua (2015) attempted to distinguish between the terms and proposed that "learning styles and learning approaches constitute the learning preferences" (p. 2). Based on the confusion that exists about learning styles and learning style preferences, it might be possible that the participants in my study equated learning style preferences with learning styles.

Researchers provided discussions that a connection existed between the unique learning styles of the employees and collaboration, but there was no specific finding to differentiate between learning styles and learning style preferences among the cohorts (Amitabh & Sinha, 2012; Armstrong et al., 2012; Cekada, 2012). Hwee (2015) focused on the cohort differences in teaching-learning as the critical factor that would heighten collaboration and ensure the efficient transfer of skills and knowledge sharing between older and younger employees. Cekada (2012) provided guidance to assist leaders with bringing generational cohorts, through training and management, to meet the goals of the organizations. However, this study focused only on preferences for learning styles and collaborative technologies and did not probe other elements, associated with the cohorts, such as gender or type of information technology jobs.

Although the discussions in the literature supported the distinction among unique learning styles such as activists, theorists, reflectors, and pragmatists (Szablowska-Midor, 2012), the findings from my study did not support learning style preferences among the up to five generational cohorts. The findings supported the assertions in the literature that the concept of learning style preferences was based on the notion that individuals differed in the manner in which they processed information (Russ, 2012; Scott et al., 2016). The controversy about learning style preferences exists and will likely continue. The important concern will be for organizational leaders to focus on providing unique and appropriate technology training that will allow diverse groups of employees to work together (Rathman, 2011; Sørensen, 2012). Lai and Hong (2015) proposed that irrespective of the chosen information training approach, leadership should concentrate on individuals within the organization and the way each person internalizes information. The findings of the current study supported the discussions in the literature that there was no conclusive data to support the idea of learning style preferences of the cohort groups (Cross, 2012; Muse, 2015; Purwanti et al., 2013). The result of this study substantiated the conclusions of Russ (2012) and Scott et al. (2016) that any existing learning style preferences among employees could be attributed to individuals using different approaches when processing information.

To further interpret the findings, I focused on the theoretical framework of Maslow's hierarchy of needs to gain understanding of human behavior and the importance of motivation among individuals in the workplace. The technology acceptance model (TAM), with references to the theory of collaboration and the unified

theory of acceptance and use of technology (UTAUT), allowed me to interpret the findings. The TAM and UTAUT focus on the importance of human resources to the survival and competitive advantage of organizations. The findings of this study that no statistically significant differences in learning style preferences existed among the cohorts could imply that organizational leaders should focus less on stereotypes of cohort employees. Because changes will continue to take place within organizations, leaders must focus on findings ways to encourage collaboration among the employees, irrespective of age (Al-Asfour &Lettau, 2014; Purwanti et al., 2013). Although some older employees will leave organizations, others who should be retiring will have no choice but to remain because of the unstable economic conditions (Eliasa et al., 2012). At the same time, younger workers will be entering the workplace, and leaders should find ways to reduce tensions and enhance collaboration among all groups.

For Research Question 2, I used the independent samples Kruskal-Wallis test, not the correlation test used by Brown et al. (2010). I used the Kruskal-Wallis test to determine whether preferences of generational cohort employees for technology training activities impacted attitudes toward IT use. The findings of the independent samples Kruskal-Wallis test supported the assumption of Brown et al. (2010) that social presence was one of the most important factors "influencing the adoption and use of technology" (p. 41) by employees. The results from Dunn's post hoc analysis, with Bonferroni adjustment, indicated no statistically significant differences between the factors influencing technology learning activity preferences of the up to five generational cohort

employees in for-profit firms in a large metropolitan city in the Southeastern United
States.

Although there may be various training activities available for organizational
leaders to implement, the ones addressed in this research question were Adobe Creative
Cloud (Ross & Blumenstein, 2015), Cloud Computing (Dong et al., 2015), and
SharePoint 2013 (Microsoft, 2014). The discussions from the literature indicated that IT
training activities could enhance collaboration among employees in organizations that use
IT processes. It is important to note that the training activities used in the investigations
were not identified (Ross & Blumenstein, 2015). As leaders consider training
implementation, there might be preferences for other training activities, but the findings
from this study suggested that the participants were familiar with the collaborative
activities and had the knowledge and skills to interact with the processes. The items
selected from the UTAUT model (Venkatesh et al., 2003), including intention to use,
performance expectancy, effort expectancy, social presence, and facilitating conditions,
were not good predictors of the preferences for training activities in organizations where
the up to five generational cohorts used IT processes and skills. Khattak et al. (2014)
asserted that training initiatives were introduced by organizational leaders to assist with
improving working conditions within organizations.

The discussions in the literature indicated consensus on the importance of the use
of collaborative training activities to enhance knowledge sharing among individuals
within any organization (Dulipovici & Vieru, 2015; Yusop & Sumari, 2015). The survey
results from the UTAUT model provided conclusions about how the model performed in

a Finnish environment where computers were the main components of the work environment. Venkatesh et al. (2003) advised that those findings might differ in other countries where technology was not widely used. Based on the findings from my study, organizational leaders should have the opportunity to implement technology training activities using diverse approaches without the added concern that preferences for technology training exist among the up to five generational cohort employees.

From the study of collaborative technology adoption, Brown et al. (2010) concluded that three collaborative characteristics (social presence, immediacy, and concurrency) were critical to the adoption of collaborative technology. Although the results of my study did not confirm this conclusion, Brown et al. (2010) noted that the intention to use technology would depend on the situation within the work environment as well employees' age (variable tested), gender (variable not tested), and experience (variable not tested). Further, Brown et al. (2010) theorized that because their study was conducted in Finland (a technologically developed country), there could be issues with generalizability to employees in other countries. Therefore, the researchers posited that the findings could differ for other studies, as was the case with this study. Researchers in other studies proposed that knowledge exchange was supported by collaboration technologies among librarians and other professionals (Anasi, Akpan, & Adedokun, 2014), and various group of students (Yusop & Sumari, 2015). The decision by leaders to introduce collaborative technologies in organizations should not be based solely on perceived ideas about cohort learning style preferences.

For Research Question 3, the chi-square tests of independence results showed statistically significant differences for the collaborative activity, using the wide selection of vector graphics, icons, patterns, and UI kits. For all other collaborative activities, there were no statistically significant differences between the collaborative activities for generational cohort employees. The findings did not support the conclusions of Cekada (2012) and Marcinkus Murphy (2012) that technology tools could enhance collaboration and would allow cohorts to develop greater understanding of each other. In contrast, the findings supported the stance taken by Raemdonck et al. (2014) that training programs were not often successful because any technology training initiative had to embrace a personal approach because learning was personal and complex. Information technology trainers classified vector graphics, icons, patterns, and UI kits as information and communication technologies (ICTs). Belaud, Negny, Dupros, Michéa, and Vautrin (2014) suggested that those "ICT based platforms [were used for] worldwide collaboration and remote processing for any kind of data" (p. 522). The findings of this study could be signifying that the participants may or may not be knowledgeable about ICTs.

For all other items analyzed, irrespective of the generational cohorts, all participants were most comfortable with the same technology activities practicing stretch assignments and other job activities (lowest mean score). The IT initiative allowed employees to take on specific activities to improve skills and knowledge. The support for stretch assignment continues to increase as employees recognize "the chance to engage in innovation, judgment, and creativity" (Strathearn, 2016, p. 1). Irrespective of generational

cohort, Item 4, showcasing and using creative work on Behance (a platform for displaying creative work), showed the highest mean score indicating the technology preference with which participants were least comfortable.

Behance continues to be developed as a technology that artists use to collaborate with each other and display work using individual dashboards (Rudolph, Hoffman, & Hertzmann, 2016). The finding was not surprising because many participants might not be conversant with or interested in the technology. Although respondents did not work in the same organization or same size companies, the most comfortable selection was "practicing 'stretch' assignments and other job activities." This technology training activity continues to be the focus for development of organization leaders (Dongen, 2014). It could be that the topic that was being promoted through blogs and other technology discussions was familiar to many respondents in the study, which might explain the homogenous response.

There was a similarly common response for the least comfortable selection, showcasing and using creative work on Behance (a platform for displaying creative work) among the up to five generational cohorts. The findings indicated that irrespective of generational cohorts, individuals displayed common degrees of comfort with IT training activities. These findings supported the premises of the motivational theories of Maslow (1958) and McGregor (1960) of self-actualization and team building. Leaders should remember that although employees might be unique in their ways of thinking they are often able to collaborate around common goals. Therefore, IT training activities

should be chosen to reflect the unique nature of the environment in which the cohorts work together.

Significance of the Study

Technology continues to be one driving force in organizations and the advances continue to surface at a rapid pace. At the same time, the world's economy continues to ebb and flow and many older individuals who reach the age of retirement find it difficult to sever ties with the workplace. Organizational leaders recognize that the work environment might have up to five generational cohorts working together for some time in the future. Leaders should turn the focus to creating techniques for managing the cohorts, to realize collaboration and embrace the new challenging that arise with implementing IT training in a knowledge based world. The review of the literature did not provide discussions that arrived at consensus on the approach that leaders might take to resolve the impending challenges. Some researchers pointed to IT training without specific details (Avital, 2014), others proposed that leaders needed to develop understanding of the unique of the cohorts (Cekada, 2012). Others suggested new approaches to motivation among employees (Breevaart et al., 2014). Although humans control the technology, this study attempted to determine whether learning style preferences varied by cohort, what preferences cohort employees had for collaborative technology training activities, and how specific training initiatives might affect collaboration among the cohorts.

The findings of the study supported the conclusions of Parry and Urwin (2011) who suggested that leaders did not need to keep focusing on the differences among the

cohorts and instead should create training opportunities that embraced all employees irrespective of age. Srinivasan (2012) advised leaders to improve their own training so that they would be able to focus on the training of all employees. Finally, Lyons and Kuron (2014) advised against stereotyping of cohorts and learning styles. The goal of any organization should be to realize competitive advantage as the leaders find innovative ways to allow all employees to share knowledge.

Brown et (2010) identified the social presence of collaborative technologies as the characteristic that allowed workers to develop a high degree of personal comfort and provided workers with the opportunity to engage in positive communication within the work environment. Social presence of collaborative training technology was the finding from the data analysis of this study that supported the conclusions of Brown et al (2010) that social presence was one of the most important factors "influencing the adoption and use of technology" (p. 41). Brown et al. concurred that at the start of any training process, employees would experience a lag time with understanding and using the technological before their anchoring skills took over. The focus would be on how the generations in the organization could best adapt as "different users perceived different levels of social presence for a given technology" (Brown et al. 2012, p. 19). Although, the Dunn's Post Hoc test failed to reject the null hypothesis, the importance of social presence of collaboration technologies cannot be disregarded since incorporation of such technologies during training will be key in changing the work environment in positive ways.

The area of creative cloud technology continued to support collaboration among groups (Benacka, 2016; Ross & Blumenstein, 2015). The review of the literature indicated that for organizational leaders to support collaboration the focus must be on understanding how to manage the up to five generational cohorts (Gursoy et al., 2013; Srinivasan, 2012). The survival of an organization depended on allowing the various groups to engage in the sharing of information to enhance collaboration, and to create a positive work environment (Bharadwaj et al., 2013; Gursoy et al., 2013, Marcinkus Murphy, 2012). The results of this study indicated that the cohorts did not show preferences for collaborative training activities. Organizational leaders have the choice to investigate recent research and identify IT collaborative activities that would be applicable and unique to their internal environment. Irrespective of how intimidating the introduction of collaborative technology activities might be to implement, leaders should identify those activities that could support collaboration among the generational cohorts.

Contrary to the idea that training for the generational cohorts should be developed with focus on learning style preferences, the programs to be implemented should be unique to each organization and dependent on the activities taking place within the organization. As organizational leaders develop training initiatives, training professionals and instructional designers should avoid forming judgment about the learning style preferences of the cohorts within the organization, without further investigation. Rather than focusing solely on learning style preferences of the cohorts, organizational leaders must also consider implementing informal learning opportunities where knowledge is shared among individuals or groups to support collaboration. The results indicated that

the cohorts did not display any differences in learning style preferences. It would be prudent for leaders to remember the caution from Armstrong et al. (2012) that how individuals perceived their world and processed information was as unique as each person.

Organizational leaders should investigate the background knowledge that the cohorts have about the training activities to be implemented in the organizations. In fact, the negative perception that the older generations might resist the adoption and use of technology was not supported by the findings of this study. The results supported the suggestion by Brown (2012) that the perceived resistance to IT might be the result of people's perceptions. As organizational leaders develop an understanding of the technology initiative preferences of employees, the most appropriate resources could be implemented using diverse IT activities and approaches to enhance collaboration among the cohorts. The technology initiative process should begin with leaders focusing on the similarities of the cohort employees, rather than on differences, and the ability of each activity to enhance collaboration among all employees, irrespective of age. Although the results of this study might be generalized, it is important that organizational leaders conduct surveys of their unique population before implementing new training and learning initiatives.

Limitations of the Study

First, the numbers and percentages of participants who completed the survey were not equal for each cohort. The participants included: Veterans, 12.1% (n=41), Baby Boomers, 14.7% (n=50), Generation X 19.7% (n=67), Generation Y, 25.9% (n=88), and

Fifth Generation, 26.2% n= 26.2%). However, the numbers could be considered a good representation of the cohorts as they existed in the natural environment. The unequal number of participants in the cohorts excluded statistical analysis using one-way ANOVA parametric tests for RQ 1 and RQ 2. For RQ 1, the Welch ANOVA, a modified version of the ANOVA allowed me to interpret the results of the Games-Howell post hoc test and determine where differences existed among the cohorts (Spek et al., 2013). For RQ 2, I used the independent samples Kruskal-Wallis test and Dunn's post hoc analysis, with Bonferroni adjustment to interpret the factors influencing technology learning activity preferences of the generational cohorts.

Second, my research study was not a true experiment that required simple random sampling where each participant or element has the same chance of being selected for the study. Instead, I conducted a nonexperimental study and used stratified sampling. I selected the appropriate sample (number of participants), after calculation, from which to collect data for analysis (Uprichard, 2013), to ensure that the findings were appropriate.

Third, the selection of the sample participants was conducted by the administrators at QuestionPro, an online data collection platform. Self-selection bias might occur because the participants were volunteers and that might affect the generalizability of the findings from my study. I explained to the administrators at QuestionPro that I used stratified sampling technique. I clarified that I divided the population of the generations into five strata. Any failure by QuestionPro to follow my guidelines might result in the unique quality of the cohort sample not being similar to the

individuals in the population. There was no indication that the administrators at QuestionPro did not adhered to the procedures.

Fourth, sample error might prevent generalization of the findings to the population. Blair, Czaja, and Blair (2013) pointed out that a large sample size did not automatically eliminate sample error but the sample error could be regulated. Sample error for my study was controlled because the sample was accurately defined before the collection of any data. The data were collected from participants of the five cohorts in the sample to reduce coverage bias. Although there were differences in the numbers and percentages of the cohorts after the data were collected, the values were representative of the groups in the natural environment. The 335 respondents who completed the survey surpassed the estimated sample size of 323.

Fifth, the participants for the study consisted only of individuals from the up to five generational cohorts who worked in small, medium, and large for-profit organizations that used technology, and who had access to the online survey. Sixth, as a leader in the IT department of my organization, I have direct knowledge about information technology initiatives and the members up to five generational cohorts that I supervise. That knowledge might have allowed me to develop preconceived ideas about the participants of my study. QuestionPro personnel administered the survey for my study and that procedure allowed me to avoid researcher bias in the data collection.

Recommendations for Further Research

The focus of the research study was to determine whether a relationship existed among the up to five generational cohort employees, their learning styles and their

preferences for collaborative technology learning activities. The findings of the study indicated that organizational leaders should focus on IT initiatives that were unique and appropriate to meet the goals of their organizations. Although perceptions existed about the characteristics of each cohort, those qualities should not be the decision makers when leaders introduced IT training activities in the organization.

The study could be replicated with equal number of participants in the cohort groups although that might be a difficult task because of the actual percentages of cohorts in the natural environment. The data analysis was conducted with nonparametric tests and those tests might have prevented the discovery of significantly statistically outcomes for the data analyses in RQ 1 and RQ 2. Further, with the unequal number of participants in each cohort the use of quota sampling might provide details to determine if gender might affect the responses to the items on the survey.

As discussed in Chapter 2, Venkatesh et al. (2013) posited that the use of mixed method research approach was limited as an approach in information systems (IS) research studies. However, greater clarity might be achieved through interviews (qualitative approach) to determine the reasons for homogeneity of comfort levels for the same training activities among the cohorts. The sample population was limited to the up to five generational cohorts who worked in small, medium, and large for-profit organizations that used technology from the Southeastern United States, and who had access to the online survey. A similar study could be designed to include a more diverse geographical population of employees who use information technology processes. Further studies could be conducted to probe cohorts and collaborative technologies

focusing on other elements, associated with the cohorts, such as gender or type of information technology jobs.

The data collected in my study were limited to the Southeastern United States. As people, in general, we show great similarities and so the findings from my study could be generalized to cohorts in any region of the United States outside of the Southeastern region. I collected data from five generational groups. The conclusions of my study were dominated by the larger numbers of the Generation X, Generation Y, and Generation Z cohorts. These cohorts continue to be the active groups in the present workplace. Cross-sectional studies could be conducted in various regions of the United States, with these groups, who might differ in the acceptance and use of technology and age, but share similar IT educational background.

I did not consider whether the level of experience and education of the various cohorts might influence the findings of my study. The members of veteran and baby boomer cohorts might have greater work experience but less information technology education compared to the three younger cohorts. The older members of the organizations continue to learn new processes that have become second nature to the younger cohorts (Cekada, 2012; Krishnapuram, 2013). Future studies might be conducted to determine the signification of the level of education and experience to the use and acceptance of IT processes among the cohorts.

Implications for Positive Social Change

As indicated in Chapter 1, social change was the continued focus in the management field (Smith, 2012). More than ever, information technology (IT) and

information systems management (ISM) are making the work world a smaller and more intimately connected environment. It is important that organizational leaders find ways to reduce the negative perceptions that exist about generational cohorts and use creative and collaborative information technology to bring the cohorts together. The findings from this study indicated that people have so much in common and those commonalities should be embraced to heighten collaboration among all employees. The findings dispelled some of the popular thoughts about how the cohorts prefer to learn and interact with IT training activities. It is important to repeat the statement from Brown (2012) that the perceived conflicts and resistance to IT among the older generations might not be due to any difference but rather to people's perceptions about learning styles. The cohorts will continue to be present in organizations for the future and positive social change will be possible as leaders develop understanding about learning style preferences of the cohorts. The working environment will require the implementation of innovative, collaborative, technologies training activities as the norm for all organizations. With the daily advances in IT, many organizations should find new ways to improve collaboration to maintain competitive advantage through the training of the cohorts in the use of IT processes. Leaders should make greater effort to develop an understanding of the way that all employees interact with technology training instead of seeing workers as members of a cohort with preconceive characteristics. The focus on heightening collaboration among employees irrespective of cohort should be the focal point of leaders as all members of any organization work to fulfill positive social change in the organization, community, and the world.

Conclusion

As technology continues to be the complex link that brings people and systems together with organizations, collaboration, and greater understanding among the cohorts could be the forces for reducing tensions and enabling sustainability of organization (Lyons & Kuron, 2014). The discussions in the review of the literature provided conclusive evidence that as individuals we have unique learning styles that allow each person to process information in a distinctive way (Purwanti et al., 2013, Riding & Rayner, 2013; Szablowska-Midor, 2012). The distinction of learning style preferences among generational cohorts continues to be a minimally researched area and is worthy of further investigation. The findings of this study provided first-hand data to assist organizational leaders in businesses, that use information technology processes, and other researchers to understand how cohort learning styles and their preferences for IT training initiatives might affect collaboration among the employees.

Organizational leaders should recognize that the up to five generational cohorts will be a feature of the internal environment for some time and how these generations work together will impact knowledge sharing, communication, training initiatives, and the profitability of the organization. Further, it will be important for the leaders to remember that the integral issue for all cohorts is the desire to use inherent talents to achieve personal success and satisfaction. The leadership within each organization should focus on the uniqueness of the organization and the IT skills and knowledge that workers possessed before engaging in any training process and be prepared to be flexible.

References

Adamsen, J. M., Rundle-Thiele, S., & Whitty, J. A. (2013). Best-worst

scaling...reflections on presentation, analysis, and lessons learnt from case 3 BWS

experiments. *Market & Social Research*, *21*(1), 9-27.

Aguinis, H., & Bradley, K. J. (2014). Best practice recommendations for designing and

implementing experimental vignette methodology studies. *Organizational*

Research Methods, *17*(4), 351-371. doi:10.1177/1094428114547952

Ahmad, N., Amer, N. T., Qutaifan, F., & Alhilali, A. (2013). Technology adoption model

and a road map to successful implementation of ITIL. *Journal of Enterprise*

Information Management, *26*(5), 553-576. doi:10.1108/JEIM-07-2013-0041

Al-Asfour, A., & Lettau, L. (2014). Strategies for leadership styles for multi-generational

workforce. *Journal of Leadership, Accountability and Ethics,11*(2), 58-69.

Allwood, C. M. (2012). The distinction between qualitative and quantitative research

methods is problematic. *Quality and Quantity, 46*(5), 1417-1429.

doi:10.1007/s11135-011-9455-8

Al-Muomen, N., & Abdulla, A. T. (2016). The information technology skills of science

and social science students at Kuwait University: A comparison. *Libri:*

International Journal of Libraries & Information Services, *66*(3), 223-237.

doi:10.1515/libri-2016-0025

Alryalat, M., Dwivedi, Y., & Williams, M. (2012). A conceptual model for examining E-

government adoption in Jordan. *International Journal of Electronic Government*

Research (IJEGR), *8*(2), 1-31. doi:10.4018/jegr.2012040101

Amitabh, A., & Sinha, S. (2012). The learning continuum formal and informal learning experiences-Enabling learning and creation of new knowledge in an organization. *International Journal of Advanced Corporate Learning*, *5*(2), 10-14. doi:10.3991/ijac.v5i2.2111

Anantatmula, V. S., & Shrivastav, B. (2012). Evolution of project teams for Generation Y workforce. *International Journal of Managing Projects in Business*, *5*(1), 9-26. doi:10.1108/17538371211192874

Anasi, S. I., Akpan, I. J., & Adedokun, T. (2014). Information and communication technologies and knowledge sharing among academic librarians in south-west Nigeria: Implications for professional development. *Library Review*, *63*(4/5), 352-369. doi:10.1108/LR-10-2013-0124

Armstrong, R. A. (2014). When to use the Bonferroni correction. *Ophthalmic & Physiological Optics*, *34*(5), 502-508. doi:10.1111/opo.12131

Armstrong, S. J., Cools, E., & Sadler-Smith, E. (2012). Role of cognitive styles in business and management: Reviewing 40 years of research. *International Journal of Management Reviews*, *14*(3), 238-262. doi:10.1111/j.1468-2370.2011. 00315.x

Avital, M. (2014). Constructing the value of information systems research. *Communications of the Association for Information Systems*, *34*817-822.

Aziz, Z., Yi, T. X., Alwi, S., & Jet, C. N. (2013). Learning style preferences of pharmacy students. *The European Journal of Social & Behavioural Sciences*, *4*(1), 819-835. doi:10.15405/FutureAcademy/ejsbs(2301-2218).2012.4.14

Barber, T., Kaul, S., & Chilvers, D. (2013). Moving an established survey online-or not? *International Journal of Market Research*, *55*(2), 187-199. doi:10.2501/IJMR-2013-019

Barnard, Y., Bradley, M. D., Hodgson, F., & Lloyd, A. D. (2013). Learning to use new technologies by older adults: Perceived difficulties, experimentation behaviour and usability. *Computers in Human Behavior*, *29*(4), 1715-1724. doi:10.1016/j.chb.2013.02.006

Barnham, C. (2012). Separating methodologies? *International Journal of Market Research*, *54*(6), 736-738. doi:10.2501/IJMR-54-6-736-738

Batagan L., & Constantin, D. (2012). The readiness of employees for the future society: Case study. *Theoretical & Applied Economics*, *19*(10), 93-104.

Batra, S., & Vohra, N. (2016). Exploring the linkages of cognitive style and individual innovativeness. *Management Research Review*, *39*(7), 768. doi:10.1108/MRR-03-2014-0047

Bedeian, A. G. (2014). More than meets the eye: A guide to interpreting the descriptive statistics and correlation matrices reported in management research. *Academy of Management Learning & Education*, *13*(1), 121-135. doi:10.5465/amle.2013.0001573. doi:10.1002/hrm.21489

Belaud, J., Negny, S., Dupros, F., Michéa, D., & Vautrin, B. (2014). Collaborative simulation and scientific big data analysis: Illustration for sustainability in natural hazards management and chemical process engineering. *Computers in Industry*, *65*(3), 521-535. doi:10.1016/j.compind.2014.01.009

Benacka, J. (2016). Numerical modelling with spreadsheets as a means to promote STEM
    to high school students. *Eurasia Journal of Mathematics, Science & Technology
    Education*, *12*(4), 947-964. doi:10.12973/eurasia.2016.1236a

Bendoly, E. (2014). System dynamics understanding in projects: Information sharing,
    psychological safety, and performance effects. *Production & Operations
    Management*, *23*(8), 1352-1369. doi:10.1111/poms.12024

Bennett, J., Pitt, M., & Price, S. (2012). Understanding the impact of generational issues
    in the workplace. *Facilities*, 3*0(7/8)*, 278-288. doi:10.1108/02632771211220086

Berben, L., Sereika, S. M., & Engberg, S. (2012). Effect size estimation: Methods and
    examples. *International Journal of Nursing Studies*, *49*(8), 1039-1047.
    doi:10.1016/j.ijnurstu.2012.01.015

Berger, J., Bayarri, M. J., & Pericchi, L. R. (2014). The effective sample size.
    Econometric Reviews, *33*(1-4), 197-217. doi:10.1080/07474938.2013.807157

Bharadwaj, A., Sawy, O. A., Pavlou, P. A., & Venkatraman, N. V. (2013). Digital
    Business Strategy: Toward a Next Generation of Insights. *MIS Quarterly*, *37* (2),
    471-482.

Blackburn, R. A., Hart, M., & Wainwright, T. (2013). Small business performance:
    Business, strategy and owner-manager characteristics. *Journal of Small Business
    and Enterprise Development, 20*(1), 8-27. doi:10.1108/14626001311298394

Blair, J., Czaja, R., & Blair, E. (2013). *Designing surveys: A guide to decisions and
    procedures* (3rd ed.). New York, NY: Sage Publications

Boone, Jr., H. N., & Boone, D. A. (2012). Analyzing Likert data**.** *Journal of Extension*, *50* (2).

Bradley, M. T., & Brand, A. (2013). Alpha values as a function of sample size, effect size, and power: Accuracy over inference. *Psychological Reports*, *112*(3), 835-844. doi:10.2466/03.49.PR0.112.3.835-844

Breevaart, K., Bakker, A., Demerouti, E., Sleebos, D. M., & Maduro, V. (2014). Uncovering the underlying relationship between transformational leaders and followers' task performance. *Journal of Personnel Psychology*, *13*, 194-203. doi:10.1027/1866-5888/a000118

Breznik, L., & Lahovnik, M. (2014). Renewing the resource base in line with the dynamic capabilities view: A key to sustained competitive advantage in the IT industry. *Journal for East European Management Studies*, *19*(4), 453-485. doi:10.1688/JEEMS-2014-04-Breznik

Brown, M. (2012). Responses to work intensification: Does generation matter? The *International Journal of Human Resource Management, 23*, 3578-3595. doi:10.1080/09585192.2011.6543478

Brown, S. A., Dennis, A. R., & Venkatesh, V. (2010). Predicting collaboration technology use: Integrating technology adoption and collaboration research. *Journal of Management Information Systems*, *27*(2), 9-53. doi:10.2753/MIS0742-1222270201

Budrienė, D., & Zalieckaitė, L. (2012). Cloud Computing applications in small and
medium-sized enterprises. *Issues of Business & Law*, *4,* 199-130.
doi:10.520/ibl.2012.11

Bussin, M., & van Rooy, D. J. (2014). Total rewards strategy for a multi-generational
workforce in a financial institution. *South African Journal of Human Resource
Management*, *12*(1), 1-11. doi:10.4102/sajhrm.v12i1.606

Callegaro, M. (2013). From mixed-mode to multiple devices. *International Journal of
Market Research*, *55*(2), 317-320. doi:10.2501/IJMR-2013-026

Campbell, D. E., Wells, J. D., & Valacich, J. S. (2013). Breaking the ice in B2C
relationships: Understanding pre-adoption e-commerce attraction. *Information
Systems Research*, *24*(2), 219-238. doi:10.1287/isre.1120.0429

Carpenter, J., Moore, M., Doherty, A., & Alexander, N. (2012). Acculturation to the
global consumer culture: A generational cohort comparison. *Journal of Strategic
Marketing*, *20*(5), 411-423. doi:10.1080/0965254X.2012.671340

Castejón, J. L., Gilar, R., Veas, A., & Miñano, P. (2016). Differences in learning
strategies, goal orientations, and self-concept between overachieving, normal-
achieving, and underachieving secondary students. *Frontiers in Psychology*, 1-13.
doi:10.3389/fpsyg.2016.01438

Cekada, T. L. (2012). Training a multigenerational workforce: Understanding key needs
learning styles. *Professional Safety*, *57*(3), 40-44.

Chan, F. T., Yee-Loong Chong, A., & Zhou, L. (2012). An empirical investigation of factors affecting e-collaboration diffusion in SMEs. *International Journal of Production Economics*, *138*(2), 329-344. doi:10.1016/j.ijpe.2012.04.004

Chen, Z., Ng, H., & Nadarajah, S. (2014). A note on Cochran test for homogeneity in one-way ANOVA and meta-analysis. *Statistical Papers*, *55*(2), 301-310. doi:10.1007/s00362-012-0475-9

Chennamaneni, A., Teng, J. T., & Raja, M. (2012). A unified model of knowledge sharing behaviours: Theoretical development and empirical test. *Behaviour & Information Technology*, *31*(11), 1097-1115. doi:10.1080/0144929X.2011.624637

Chi, C. G., Maier, T. A., & Gursoy, D. (2013). Employees' perceptions of younger and older managers by generation and job category. *International Journal of Hospitality Management, 34*, 42–50. doi:10.1016/j.ijhm.2013.01.009

Chin, K. (2012). Cloud collaboration: Protecting proprietary information. *Information Management, 46*(5), HT7-HT9.

Choudhary, V., & Vithayathil, J. (2013). The impact of Cloud Computing: Should the IT department be organized as a cost center or a profit center? *Journal of Management Information Systems*, *30*(2), 67-100. doi:10.2753/MIS0742-1222300203

Chung, J. Y., Chen, C-C., Lin, Y-H., (2016). Cross-strait tourism and generational cohorts. *Journal of Travel Research*, 55(6), 813-826. doi:10.1177/0047287515569775

Cogin, J. (2012). Are generational differences in work values fact or fiction? Multi-country evidence and implications. *International Journal of Human Resource Management*, *23*(11), 2268-2294. doi:10.1080/09585192.2011.610967

Connelly, C. E., Zweig, D., Webster, J., & Trougakos, J. P. (2012). Knowledge hiding in organizations. *Journal of Organizational Behavior*, *33*(1), 64-88. doi:10.1002/job.737

Cook, C. W., & Sonnenberg, C. (2014). Technology and online education: Models for Change. *ASBBS Ejournal*, *10*(1), 43-59.

Cooper, I. D., & Johnson, T. P. (2016). How to use survey results. *Journal of The Medical Library Association*,*104*(2), 174-177. doi:10.3163/1536-5050.104.2.016

Cox, P. (2015). Working with SharePoint lists. *Strategic Finance*, *97*(2), 56-57.

Cross, J. (2012). Learning in the 21st Century workplace. *Global Focus: The EFMD Business Magazine*, *63*-4. doi:10.1146/annurev-orgpsych-031413-091321

Cross, R., & Gray, P. (2013). Where has the time gone? Addressing collaboration overload in a networked economy. *California Management Review*, *56*(1), 50-66. doi:10.1007/978-1-4614-1284-7_3

Culpin, V., Eichenberg, T., Hayward, I., & Abraham, P. (2014). Learning, intention to transfer and transfer in executive education. *International Journal of Training & Development*, *18*(2), 132-147. doi:10.1111/ijtd.12033

D'Arcy, J., Herath, T., & Shoss, M. K. (2014). Understanding employee responses to stressful information security requirements: A coping perspective. *Journal of Management Information Systems*, *31*(2), 285-318. doi:10.2753/MIS0742-1222310210

Davern, M., Shaft, T., & Te'eni, D. (2012). Cognition matters: Enduring questions in cognitive IS research. *Journal of the Association for Information Systems*, *13*(4), 273-314.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use and user acceptance of information technology. *MIS Quarterly*, *13*(3), 319-340. doi:10.2307/249008

Davis, J. B., Pawlowski, S. D., & Houston, A. (2006). Work commitments of baby boomers and Gen-Xers in the IT profession: Generational differences or myth? *Journal of Computer Information Systems*, *46*(3), 43-49.

De Waal, G. A., Maritz, A., Scheepers, H., McLoughlin, S., & Hempel, B. (2014). A conceptual framework for guiding business transformation and organizational change in innovative ICT projects. *International Journal of Organizational Innovation*, *7*(2), 6-17.

Deyoe, R. H., & Fox, T. L. (2011). Identifying strategies to minimize workplace conflict due to generational differences. *Journal of Behavioral Studies in Business*, *4,* 1-17.

Diffie, W. (2008). Information security: 50 years behind, 50 years ahead. *Communications of the ACM, 51*(1), 55-57. doi:10.1145/1327452.1327478

Dingsoyr, T., & Smite, D. (2014). Managing knowledge in global software development

    projects. *IT Professional*,*16*(1), 22-29. doi:10.1109/MITP.2013.19

Dixon, G., Mercado, A., & Knowles, B. (2013). Followers and generations in the

    workplace. *Engineering Management Journal*, *25*(4), 62-72.

    doi:10.1080/10429247.2013.11431996

Dong, X., Yu, J., Zhu, Y., Chen, Y., Luo, Y., & Li, M. (2015). SECO: Secure and

    scalable data collaboration services in cloud computing. *Computers & Security*,

    5091-105. doi:10.1016/j.cose.2015.01.003

Dongen, M. D. (2014). Toward a standardized model for leadership development in

    international organizations. *Global Business & Organizational Excellence*, *33*(4),

    6-17. doi:10.1002/joe.21549

Dulipovici, A., & Vieru, D. (2015). Exploring collaboration technology use: how users'

    perceptions twist and amend reality. *Journal of Knowledge Management*, 19(4),

    661-681.doi:10.1108/JKM-11-2014-0468

Edmunds, R., Thorpe, M., & Conole, G. (2012). Student attitudes towards and use of ICT

    in course study, work and social activity: A technology acceptance model

    approach. *British Journal of Educational Technology*, *43*(1), 71-84.

    doi:10.1111/j.1467-8535.2010.01142.x

Einwiller, S. A., & Steilen, S. (2015). Handling complaints on social network sites:

    Analysis of complaints and complaint responses on Facebook and Twitter pages

    of large US companies. *Public Relations Review*, *41*(2), 195-204.

    doi:10.1016/j.pubrev.2014.11.012

Eliasa, S. M., Smith, W. L., & Barneya, C. E. (2012). Age as a moderator of attitude towards technology in the workplace: Work motivation and overall job satisfaction. *Behaviour & Information Technology*, *31*(5), 453-467. doi:10.1080/0144929X.2010.513419

Fador, A. (2014). Innovation and technology acceptance model (TAM): A theoretical approach. *Romanian Journal of Marketing*, (2), 59-65.

Faul, F., Erdfelder, E., Lang, A.G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*, 175-191. doi:10.3758/BF03193146

Ferri-Reed, J. (2014). Building innovative multi-generational teams. *Journal for Quality & Participation*, *37*(3), 20-22.

Field, A. P. (2014). *Discovering statistics using IBM SPSS* Statistics (4th ed.). London, England: Sage Publications.

Frankfort-Nachmias, C., Nachmias, D., & DeWaard, J. (2014). *Research methods in the social sciences* (8th ed.). New York, NY: Worth.

French, S. L., & Holden, T. Q. (2012). Positive organizational behavior: A buffer for bad news. *Business Communication Quarterly*, *75*(2), 208-220. doi:10.1177/1080569912441823

Frisken, J. (2015). Leveraging COBIT to implement information security (Part 3). *COBIT Focus*, 1-7.

Gallagher, V. C., Gallagher, K. P., & Kaiser, K. M. (2013). Mid-level information
technology professionals: Skills and traits relevant to fit, individual and
organizational success factors. *International Journal of Social and Organizational
Dynamics in IT (IJSODIT)*, *3*(2), 22-40. doi:10.4018/ijsodit.2013040102

Garcia, D., & Gluesing, J. C. (2013). Qualitative research methods in international
organizational change research. *Journal of Organizational Change Management,
26*(2), 423-444. doi:10.1108/09534811311328416

Garrison, G., Kim, S., & Wakefield, R. L. (2012). Success Factors for Deploying Cloud
Computing. *Communications of the ACM*, *55*(9), 62-68.
doi:10.1145/2330667.2330685

Ghilic-Micu, B., Stoica M., & Usatu, C. R. (2014). Cloud Computing and agile
organization development. *Informatica Economica*, *18*(4), 5-13.
doi:10.12948/issn14531305/18.4.2014.01

Girvan C., & Savage T. (2012). Ethical considerations for educational research in a
virtual world. *Interactive Learning Environments*, *20*(3), 239-251. Available
from: Computers & Applied Sciences Complete, Ipswich, MA.
doi:10.1080/10494820.2011.641678

Goulding, J., & Syed-Khuzzan, S. (2014). A study on the validity of a four-variant
diagnostic learning styles questionnaire. *Education & Training, 56*(2), 141-164.
doi:10.1108/ET-11-2012-0109

Grafström, A., & Schelin, L. (2014). How to select representative samples. *Scandinavian
Journal of Statistics*, *41*(2), 277-290. doi:10.1111/sjos.12016

Gravetter, F., & Wallnau, L. B. (2008). *Essentials of statistics for behavioral sciences* (6th ed.). Belmont, CA: Wadsworth/CengageLearning.

Grotta, S., & Grotta, D. (2012). Review: Adobe's Creative Cloud and Touch Apps [Tools & Toys]. *IEEE Spectrum*, *49*(1), 22-23. doi:10.1109/MSPEC.2012.6117824

Guo, S., Zhong, S., & Zhang, A. (2013). Privacy-preserving Kruskal–Wallis test. *Computer Methods and Programs in Biomedicine*, 112135-145. doi:10.1016/j.cmpb.2013.05.023

Gupta, S. (2014). SEM for experimental designs: An Information Systems example. *Electronic Journal of Business Research Methods*, *12*(1), 27-40.

Gursoy, D., Geng-Qing Chi, C., & Karadag, E. (2013). Generational differences in work values and attitudes among frontline and service contact employees. *International Journal of Hospitality Management*, *32*, 40–48. doi:10.1016/j.ijhm.2012.04.002

Hall, T. W., Higson, A. W., Pierce, B. J., Price, K. H., & Skousen, C. J. (2012). Haphazard sampling: Selection biases induced by control listing properties and the estimation consequences of these biases. *Behavioral Research in Accounting*, *24*(2), 101-132. doi:10.2308/bria-50132

Hao, W., Fu, J., Trenkamp, C., & Prapatanant, P. (2012). Achieving better Cloud access experience with server virtualization. *Journal of Computational Methods in Sciences & Engineering*, 1229-37. doi:10.3233/JCM-2012-0434

Hawk, S., Kaiser, K. M., Goles, T., Bullen. C. V., Simon, J. C., Beath, C. M., &
Frampton, K. (2012*). The information technology workforce: A comparison of
critical skills of clients and service providers. *Information Systems Management*,
29(1), 2-12. doi:10.1080/10580530.2012.634292

Hayyat Malik, S. (2012). A study of relationship between leader behaviors and
subordinate job expectancies: A Path-Goal approach. *Pakistan Journal of
Commerce & Social Sciences*, *6*(2), 357-371.

Hazzi, O. A., & Maldaon, I. S. (2015). A pilot study: Vital methodological issues.
Business: Theory & Practice, *16*(1), 53-62. doi:10.3846/btp.2015.437

Heaton, B. (2013). Help wanted. (Cover story). *Government Technology*, *26*(8), 12-1

Honey, P., & Mumford, A. (1982, 1992). *The manual of learning styles* (3rd ed.).
Maidenhead, Berkshire: Peter Honey.

Honey, P., & Mumford, A. (2000). *The learning styles helper's guide*. Maidenhead,
Berkshire: Peter Honey.

Hossain, M. E., & Ahmed, S. Z. (2016). Academic use of smartphones by university
students: A developing country perspective. *Electronic Library*, *34*(4), 651-665.
doi:10.1108/EL-07-2015-0112

Hwee, L. L. (2015) Knowledge management in multigenerational UAE workplaces:
Learning-training preferences and knowledge transfer barriers. Society of
Petroleum Engineers. *Abu Dhabi International Petroleum Exhibition and
Conference*, 9-12. doi:10.2118/177425-MS

Inyang, B. J. (2013). Defining the role engagement of small and medium-sized enterprises (SMEs) in corporate social responsibility (CSR). *International Business Research*, *6*, 123-132. doi:10.5539/ibr.v6n5p12

Jain, V., Vatsa, R., & Jagani, K. (2014). Exploring Generation Z's purchase behavior towards luxury apparel: a conceptual framework. *Romanian Journal of Marketing*, (2), 18-29.

Jatobá, A., de Carvalho, P. R., & da Cunha, A. M. (2012). A method for work modeling at complex systems: Towards applying information systems in family health care units. *Work*, *41*3468-3475.

Jessell, L., Smith, V., Jemal, A., & Windsor, L. (2016). Using technology to facilitate collaboration in community-based participatory research (CBPR). *Journal of Technology in Human Services*, *34*(3), 241-255. doi:10.1080/15228835.2016.1186581

Johnson, D. R., & Bachan, L. K. (2013). What can we learn from studies based on small sample sizes? Comment on Regan, Lakhanpal, and Anguiano (2012). *Psychological Reports*, *113*(1), 221-224. doi:10.2466/21.02.07.PR0.113x12z8

Kamaruzzaman, S. N., Zawawi, E. A., Shafie, M. O., & Mohd Noor, S. A. (2016). Assessing the readiness of facilities management organizations in implementing knowledge management systems. *Journal of Facilities Management*,*14*(1), 69-83. doi:10.1108/JFM-01-2015-0002.

Kapoor, C., & Solomon, N. (2011). Understanding and managing generational differences in the workplace. *Worldwide Hospitality and Tourism Themes*, *3*(4), 308-318. doi:10.1108/17554211111162435

Khattak, A. N., Rehman, S., & Rehman, C. A. (2014). Organizational success through corporate trainings: A case study of hotel industry of Pakistan. J*ournal of Business Studies Quarterly*, *6*(1), 167-183.

Kılıç, S. (2016). Cronbach's alpha reliability coefficient. *JMOOD*, *6*(1): 47-8. doi:10.5455/jmood.20160307122823

Kim, H. (2013). Statistical notes for clinical researchers: Assessing normal distribution using skewness and kurtosis. *Restor. Dent Endod* (PMCID: PMC3591587). doi:10.5395/rde.2013.38.1.52

Kissa, E. (2016). Questions and answers. *PSA Journal*, (3), 11

Kleyn, N., Abratt, R., Chipp, K., & Goldman, M. (2012). Building a strong corporate ethical identity: Key findings from suppliers *California Management Review*, *54*(3), 61-76. doi:10.1525/cmr.2012.54.3.61

Klingebiel, R., & Rammer, C. (2014). Resource allocation strategy for innovation portfolio management. *Strategic Management Journal*, *35*(2), 246-268. doi:10.1002/smj.2107

Kolb, D. A. (1976). *The Learning style inventory: Technical Manual*, Boston, MA: McBer.

Korpelainen, E., & Kira, M. (2013). Systems approach for analysing problems in IT

    system adoption at work. *Behaviour & Information Technology*, *32*(3), 247-262.

    doi:10.1080/0144929X.2011.624638

Krazoom Inc. (2014). Georgia IT Trends.

Kriegel, J. (2013). Differences in learning preferences by generational cohort:

    Implications for instructional design in corporate web-based learning (Order No.

    3557195). Available from ProQuest Dissertations & Theses Global.

    (1336030330).

Krishnapuram, R. (2013). Global trends in information technology and their

    implication. *Emerging Trends and Applications in Computer Science* (IEE

    Explore). doi:10.1109/ICETACS.2013.6691382

Kukko, M. (2013). Knowledge sharing barriers in organic growth: A case study from a

    software company. *The Journal of High Technology Management Research*, *24*,

    18-29. doi:10.1016/j.hitech.2013.02.006

Lai, K., & Hong, K. (2015). Technology use and learning characteristics of students in

    higher education: Do generational differences exist? *British Journal of*

    Educational Technology, *46*(4), 725-738. doi:10.1111/bjet.12161

Lantz, B. (2013). Equidistance of Likert-Type scales and validation of inferential

    methods using experiments and simulations. *Electronic Journal of Business*

    Research Methods, *11*(1), 16-28.

Lantz, B. (2013). The impact of sample non-normality on ANOVA and alternative methods. *British Journal of Mathematical & Statistical Psychology*, *66*(2), 224-244. doi:10.1111/j.2044-8317.2012.02047.x

Lazazzara, A., Karpinska, K., & Henkens, K. (2012). What factors influence training opportunities for older workers? Three factorial surveys exploring the attitudes of HR professionals. *The International Journal of Human Resource Management*, *24*(11), 2154-2172. doi:10.1080/09585192.2012.725077

Lester, S. W., Standifer, R. L., Schultz, N. J., & Windsor, J. M. (2012). Actual versus perceived generational differences at work: An empirical examination. *Journal of Leadership & Organizational Studies*, *19*(3), 341-354. doi:10.1177/1548051812442747

Li, C. (2013). The revised technology acceptance model and the impact of individual differences in assessing internet banking use in Taiwan. *Department of Finance*, National Formosa University, Huwei, Yunlin 632, Taiwan

Li, Q., Wang, Z., Li, W., Li, J., Wang, C., & Du, R. (2013). Applications integration in a hybrid cloud computing environment: Modelling and platform. *Enterprise Information Systems*, *7*(3), 237-271. doi:10.1080/17517575.2012.677479

Liew, S., Sidhu, J., & Barua, A. (2015). The relationship between learning preferences (styles and approaches) and learning outcomes among pre-clinical undergraduate medical students. *BMC Medical Education*, 1544. doi:10.1186/s12909-015-0327

Louangrath, P. I. (2013). *Validity test*. Rochester: Social Science Research Network. doi:10.2139/ssrn.2352629

Lyons, S., & Kuron, L. (2014). Generational differences in the workplace: A review of the evidence and directions for future research. *Journal of Organizational Behavior*, *35*S139-S157. doi:10.1002/job.1913

McEvoy, R., Tunstall, M., Whelan, C., Murphy, C., & Marnane, W. (2014). All-or-nothing transforms as a countermeasure to differential side-channel analysis. *International Journal of Information Security*, *13*(3), 291-304. doi:10.1007/s10207-013-0212-y

McGregor, D. (1960). *The human side of enterprise*. New York, NY: McGraw-Hill.

McHugh, M. L. (2013). The chi-square test of independence. *Biochemia Medica*, 23(2),143-9. doi:10.11613/BM.2013.018

Mahajan, T., & Chaturvedi, S. (2013). Impact study of blended learning on functional effectiveness factor of managerial effectiveness. *Journal of Management Research*, *13*(4), 209-218

Maiden, N. (2012). Exactly how are requirements written? *IEEE Software*, *29*(1), 26-27. doi:10.1109/MS2012.6

Mandal, J., & Parija, S. C. (2014). Informed consent and research. *Tropical parasitology*, *4*(2), 78. doi:10.4103/2229-5070.138533

Marcinkus Murphy, W. (2012). Reverse mentoring at work: Fostering cross-generational learning and developing millennial leaders. *Human Resource Management*, *51*(4), 549-573. doi:10.1002/hrm.21489

Maslow, A. H. (2000). *The Maslow business reader* (Stephens, D. C., Ed.). New York, NY: John Wiley & Sons.

Maya, L., Hyotaek, L., & Hoon Jae, L. (2014). Security system for healthcare data in cloud computing. *International Journal of Security & Its Applications*, *8*(3), 241-247. doi:10.14257/ijsia.2014.8.3.25

Meade, A. W., & Craig, S. B. (2012). Identifying careless responses in survey data. *Psychological methods*, *17*(3), 437. doi:10.1037/a0028085

Meier, R., Ben, E., & Schuppan, T. (2013). ICT-enabled public sector organisational transformation: Factors constituting resistance to change. *Information Polity: The International Journal of Government & Democracy in the Information Age*, *18*(4), 315-329. doi:10.3233/IP-1303

Michie, J., & Zumitzavan, V. (2012). The impact of 'learning' and 'leadership' management styles on organizational outcomes: a study of tyre firms in Thailand. *Asia Pacific Business Review*, *18*(4), 607-630. doi:10.1080/13602381.2012.694724

Microsoft. (2014). *Teachnet.*

Miller, M. B., Hodge, K. H., Brandt, A., & Schneider, E. A. (2013). The young and the restless: Gen Y'ers in the workplace! Are you prepared? *FDCC Quarterly*, *63*(3), 226-250.

Morgan, G. (2006). *Images of organization*. Thousand Oaks, CA: Sage Publications Inc.

Mullan, E. (2008). The generational divide: World of work survey encourages collaboration. *Econtent*, *31*(9), 16-17.

Muse, P. (2015). *Organizational learning: A management education analysis of the learning styles and strategies of a multi-generational workforce in the HR profession* (Order No. 3722224).

Nahm, F. S. (2016). Nonparametric statistical tests for the continuous data: the basic concept and the practical use. *Korean Journal of Anesthesiology*, *69*(1), 8-14. doi:10.4097/kjae.2016.69.1.8

Nath, R., Bhal, K. T., & Kapoor, G. T. (2014). Factors influencing IT adoption by bank employees: An extended TAM approach. *Vikalpa: The Journal for Decision Makers*, *38*(4), 83-96.

Nazari, M., & Gorman, G. (2013). Social research methods: Qualitative and quantitative approaches, (2nd ed.). *Online Information Review*, *37*(3), 488-492.

Nunan, D., & Yenicioglu, B. (2013). Informed, uninformed, and participative consent in social media research. *International Journal of Market Research*, *55*(6), 791-808. doi:10.2501/IJMR-2013-067

Panayides, P. (2013). Coefficient alpha. *Europe's Journal of Psychology*, *9*(4), 687-696. doi:10.5964/ejop.v9i4.653

Papa, A. (2013). Communications management between stability and innovation. *Managerial Challenges of the Contemporary Society*, (6), 18-22.

Parry, E., & Urwin, P. (2011). Generational differences in work values: A review of theory and evidence. *International Journal of Management Reviews*, *13*(1), 79-96. doi:10.1111/j.1468-2370.2010.00285.x

Prasad, A., Green, P., & Heales, J. (2014) On governance structures for the cloud computing services and assessing their effectiveness. *International Journal of Accounting Information Systems*, *15*(4), pp. 335-356. doi:10.1016/j.accinf.2014.05.005

Protection of Human Subjects of Research. (2013). Washington, DC: U.S. Department of Health and Human Services: Part C, section 2, "Assessment of risks and benefits".

Purwanti, J., Rizky, F., & Handriyanto, W. (2013). Managing learning style across generations in workplace. *Proceedings of the International Conference on Intellectual Capital, Knowledge Management & Organizational Learning*, 655-663.

Quade, S., Birkenkrahe, M., & Habermann, F. (2013). KMUT--Project Management Toolbox. *International Journal of Emerging Technologies in Learning*, *8*(2). doi:10.3991/ijet.v8i2.2485

Raemdonck, I., Gijbels, D., & Groen, W. (2014). The influence of job characteristics and self-directed learning orientation on workplace learning. *International Journal of Training & Development*, *18*(3), 188-203. doi:10.1111/ijtd.12028

Randle, M., Mackay, H., & Dudley, D. (2014). A comparison of group-based research methods. *Market & Social Research*, *22*(1), 22-38.

Rathman, V. (2011). Four generations at work. *Offshore*, *71*(7), 10-11.

Riding, R., & Rayner, S. (2013). *Cognitive styles and learning strategies: Understanding style differences in learning and behavior*. London, England: Routledge Publications.

Riley, M., Elgin, B., Lawrence, D., & Matlack, C. (2013). Missed alarms and 40 million stolen credit card numbers: How Target blew it. *Bloomberg Businessweek: Technology.*

Ristova, E., & Gecevska, V. (2012). PLM and business perspectives of the new paradigms in information technology. *Annals of The Faculty of Engineering Hunedoara - International Journal of Engineering*,*10*(3), 307.

Roberts, N., & Grover, V. (2012). Leveraging information technology infrastructure to facilitate a firm's customer agility and competitive activity: An empirical investigation. *Journal of Management Information Systems*, *28*(4), 231-270.

Robinson, S., & Stubberud, H. A. (2015). A comparison of methods of creativity in small and large European businesses. *International Journal of Entrepreneurship, 19*, 140-151.

Rohwer, G. (2014). Factual and modal notions in social research. *Quality & Quantity*, *48*(1), 547-561. doi:10.1007/s11135-012-9786-0

Ross, P. K., & Blumenstein, M. (2015). Cloud computing as a facilitator of SME entrepreneurship. *Technology Analysis & Strategic Management*, *27*(1), 87. doi:10.1080/09537325.2014.951621

Rudolph, M. R., Hoffman, M., & Hertzmann, A. (2016). A joint model for who-to-follow and what-to-view recommendations on Behance. In Proceedings of the 25th International Conference Companion on World Wide Web (pp. 581-584). *International World Wide Web Conferences Steering Committee.*

Russ, T. L. (2012). The relationship between communication apprehension and learning styles in an organizational setting. *Journal of Business Communication*, *49,* 312-331. doi:10.1177/0021943612456035

Sadooghi-Alvandi, S. M., Jafari, A. A., & Mardani-Fard, H. A. (2012). One-way ANOVA with unequal variances. *Communications in Statistics: Theory & Methods*, *41*(22), 4200-4221. doi:10.1080/03610926.2011.573160

Sanaei, M., Javernick-Will, A. N., & Chinowsky, P. (2013). The influence of generation on knowledge sharing connections and methods in construction and engineering organizations headquartered in the US. *Construction Management & Economics*, *31*(9), 991-1004. doi:10.1080/01446193.2013.835490

Sawa, B., & Swift, S. (2013). Developing high-performing organizations: Keys to recruiting, retaining, and developing people who make the difference. *Leadership & Management in Engineering*, *13*(2), 96-100. doi:10.1061/(ASCE)LM.1943-5630.0000218

Schmitz, S., Rebelo, T., Gracia, F. J., & Tomás, a. I. (2014). Learning culture and knowledge management processes: To what extent are they effectively related? *Revista De Psicologia Del Trabajo Y De Las Organizaciones*, *30*(3), 113-121. doi:10.1016/j.rpto.2014.11.003

Schumann, J. H., Wünderlich, N. V., & Wangenheim, F. (2012). Technology mediation in service delivery: A new typology and an agenda for managers and academics. *Technovation*, *32*(2), 133-143. doi:1016/j.technovation.2011.10.002

Scott, E., Rodríguez, G., Soria, Á., & Campo, M. (2016). Towards better Scrum learning using learning styles. *Journal of Systems & Software*, *111*242-253. doi:10.1016/j.jss.2015.10.022

Senge, P. M. (2006). *The fifth discipline: The art and practice of the learning organization*. New York, NY: Broadway Books.

Shacklock, K., & Brunetto, Y. (2012). The intention to continue nursing: work variables affecting three nurse generations in Australia. *Journal Advanced Nursing*, *68*(1), 36-46. doi:10.1111/j.1365-2648.2011.05709.x

Shi, F. (2015). Study on a stratified sampling investigation method for resident travel and the sampling rate. *Discrete Dynamics in Nature and Society* doi:10.1155/2015/496179

Singh, H. P., & Solanki, R. S. (2013). Efficient ratio and product estimators in stratified random sampling. *Communications in Statistics: Theory & Methods*,*42*(6), 1008-1023. doi:10.1080/03610926.2011.592257

Siordia, C., & Leyser-Whalen, O. (2014). 'Mexican Americans' lucky few and baby boom cohorts: How is relative cohort size related to the likelihood of being out-of-poverty? *Sociological Focus*, *47*(3), 163-173. doi:10.1080/00380237.2014.916594

Skok, W., Clarke, K., & Krishnappa, S. (2013). Managing organisational knowledge: A case study of a global Energy consulting group. *Knowledge & Process Management*, *20*(3), 123-130. doi:10.1002/kpm.1411

Slade, E. L., Williams, M. D., & Dwivedi, Y. K. (2014). Devising a research model to examine adoption of mobile payments: An extension of UTAUT2. *Marketing Review*, *14*(3), 311-336. doi:10.1362/146934714X14024779062036

Smith, P. A. (2012). Affective factors for successful knowledge management. *Technological Change and Societal Growth: Analyzing the Future: Analyzing the Future*, 79. doi:10.4018/jskd.2010100801

Sørensen, E. (2012). Measuring the accountability of collaborative innovation. *Innovation Journal*, *17*(1), 2-18.

Spangler, W., Sroufe, R., Madia, M., & Singadivakkam, J. (2014). Sustainability-focused knowledge management in a global enterprise. *Journal Nentyf Computer Information Systems*, *55*(1), 70-82.

Spector, P. E., & Meier, L. L. (2014). Methodologies for the study of organizational behavior processes: How to find your keys in the dark. *Journal of Organizational Behavior*, *35*(8), 1109-1119. doi:10.1002/job.1966

Spek, B., Wieringa-de Waard, M., Lucas, C., & Dijk, N. (2013). Teaching evidence-based practice (EBP) to speech-language therapy students: are students competent and confident EBP users? *International Journal of Language & Communication Disorders*, *48*(4), 444-452. doi:10.1111/1460-6984.12020

Srinivasan, V. (2012). Multigenerations in the workforce: Building collaboration. IIMB

    Management Review, *24* (1), 48-66.

    doi:10.1016/j.iimb.2012.01.004doi:10.1002/hrm.20448

Starr, M. A. (2014). Qualitative and mixed-methods research in economics: Surprising

    growth, promising future. *Journal of Economic Surveys*, *28*(2), 238-264.

    doi:10.1111/joes.12004

Stone, K. B. (2015). Burke-Litwin organizational assessment survey: Reliability and

    validity. *Organization Development Journal*, *33*(2), 33-50.

Strathearn, J. (2016). Staying human in the digital age. *JKS Talent Network.*

Strauss, W., & Howe, N. (1997). The fourth turning: An American prophecy. New York,

    NY: Broadway Books.

Stubbs, J. (2014). Head in the clouds? Beyond employment in the Creative Services

    Industry. *Journal of Advertising Research*, *54*(2), 138-140. doi:10.2501/JAR-54-

    2-138-140

Sullivan, G. M., & Artino, A. R. (2013). Analyzing and interpreting data from Likert-

    Type scales. *Journal of Graduate Medical Education*, *5*(4), 541–542.

    doi:10.4300/JGME-5-4-18

Sultan, N., & van de Bunt-Kokhuis, S. (2012). Organisational culture and cloud

    computing: coping with a disruptive innovation. *Technology Analysis &*

    Strategic Management, *24* (2), 167-179. doi:10.1080/09537325.2012.647644

Svendsen, G. B., Johnsen, J. K., Almås-Sørensen, L., & Vittersø, J. (2013). Personality and technology acceptance: the influence of personality factors on the core constructs of the Technology Acceptance Model. *Behaviour & Information Technology*, *32*(4), 323-334. doi:10.1080/0144929X.2011.553740

Swathi, B., Reddy, D. R., & Reddy, V. V. (2014). Impact of working conditions on employee participation and employee growth. *Review of HRM, 3*, 147-155.

Swift, P. E. (2012). The impact of affective and cognitive trust on knowledge sharing and organizational learning. *The Learning Organization*, *20*, 20-37. doi:10.1108/09696471311288500

Szablowska-Midor, A. (2012). Personal learning styles of students in GIS distance education as a success factor. In *8th European GIS Education Seminar 6-9 September, 2012 GIS-education: Where are the boundaries?*

Tacchino, J. I. (2013). Will baby boomers phase into retirement? *Journal of Financial Service Professionals*, *67*(3), 41-48.

Tailor, R., & Chouhan, S. (2014). Ratio-cum-product type exponential estimator of finite population mean in stratified random sampling. *Communications in Statistics: Theory & Methods*, *43*(2), 343-354. doi:10.1080/03610926.2012.664235

Tong, V. H., & Chow, D. L. (2013). A study of student participation and nonparticipation in prelecture electronic surveys. *British Journal of Educational Technology*,*44*(5), 869-880. doi:10.1111/j.1467-8535.2012.01374.x

Trochim, W. M. K. (2006). Research methods knowledge-based. *Web Center for Social Research*.

Tsaturyan, T., & Müller, R. (2015). Integration and governance of multiple project

   management offices (PMOs) at large organizations. *International Journal of*

   Project Management, *33* (5), 1098–1110.

Uprichard, E. (2013). Sampling: bridging probability and non-probability designs.

   International Journal of Social Research Methodology, *16*(1), 1-11.

   doi:10.1080/13645579.2011.633391

U. S. Bureau of Labor Statistics. (2013). *Occupational employment statistics*.

   Washington, DC.

United States Geography (n. d.). United States Department of State.

Vaitkevicius, S., & Kazokiene, L. (2013). The quantitative content processing

   methodology: Coding of narratives and their statistical analysis. *Engineering*

   Economics, *24*(1), 28-35. doi:10.5755/j01.ee.24.1.2350

Venkatesh, V. (2000). Determinants of perceived ease of use: Integrating control,

   intrinsic motivation, and emotion into the technology acceptance model.

   Information Systems Research, *11*(4), 342-365. doi:10.1287/isre.11.4.342.11872

Venkatesh, V., Brown, S. A., & Bala, H. (2013). Bridging the qualitative-quantitative

   divide: Guidelines for conducting mixed methods research in information

   systems. *MIS Quarterly*, *37*(1), 21-54.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of

   information technology: Toward a unified view. *MIS Quarterly*, *27*, 425-478.

Viljevac, A., Cooper-Thomas, H. D., & Saks, A. M. (2012). An investigation into the validity of two measures of work engagement. *International Journal of Human Resource Management*, *23*(17), 3692-3709. doi:10.1080/09585192.2011.639542

Walden University. (2013). *2012 Social impact report*.

Wall Emerson, R. r. (2016). Parametric tests, their nonparametric alternatives, and degrees of freedom. *Journal of Visual Impairment & Blindness*, *110*(5), 377-380

Wang, X., Schneider, C., & Valacich, J. S. (2015). Enhancing creativity in group collaboration: How performance targets and feedback shape perceptions and idea generation performance. *Computers in Human Behavior*, 42187-195. doi:10.1016/j.chb.2014.02.017

Wang, Z., & Wang, N. (2012). Knowledge sharing, innovation and firm performance. *Expert Systems with Applications*, *39* (10), 8899–8908. doi:10.1016/j.eswa.2012.02.017

Weggelaar-Jansen, A. M., van Wijngaarden, J., & Slaghuis, S. (2015). Do quality improvement collaboratives' educational components match the dominant learning style preferences of the participants? *BMC Health Services Research*, 15239. doi:10.1186/s12913-015-0915-z

Williams van Rooij, S. (2012). Training older workers: Lessons learned, unlearned, and relearned from the field of instructional design. *Human Resource Management*, *51* (2), 281-29. doi:10.1002/hrm.21466

Woods, K. (2016). Organizational ambidexterity and the multi-generational workforce. *Journal of Organizational Culture, Communication and Conflict, 20*(1), 95-111.

Yung, B. (2014). Differential public service motivation among Hong Kong public

officials: A qualitative study. *Public Personnel Management*, *43*(4), 415-441.

doi:10.1177/0091026014533092

Yusop, F. D., & Sumari, M. (2015). Pre-Service teachers' learning styles and preferences

towards instructional technology activities and collaborative works. *Turkish*

Online Journal of Educational Technology, *14*(2), 116-129.

doi:tojet.net/articles/v14i2/14215.pdf (*SCOPUS-Indexed*)

Appendix A: Survey

TECHNOLOGY AND LEARNING STYLES PREFERENCES

Title: *The Use of Information Technology Training to Promote Collaboration among*

Multiple Generations

Date:

The purpose of this quantitative study is to enhance collaboration and provide information that helps the leaders, managers, and information technology (IT) workers adapt to ever-increasing technology changes regardless of generational differences. The study includes up to five generations of employees from in for-profit firms in a large metropolitan city in the Southeastern, United States. All participants must meet the above criteria to be included in the research study. Your participation in this study is voluntary, your responses will be confidential, and there are no penalty or negative consequences if you choose not to participate or to withdraw from the survey at any time. Your participation will end once you have completed the survey. Thank you for your willingness to participate in this research study.

You do not have to answer any question you do not wish to and you are free to stop taking the survey at any time.

You may ask any questions you have now. Or, if you have questions later, you may contact the researcher via gregg.foster @waldenu.edu. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Walden University representative who can discuss this with you. Her phone number is 1-800-925-3368, extension 3121210. Walden University's approval number for this study is 01-05-16-0261257.

If you consent to participate please mark an X in Yes, I consent, and proceed to answer the survey, if you opt not to participate, just simply not proceed to the survey.

_____Yes, I consent

Enclosed you will find the URL link with the online survey. You will access the online survey by following this URL link: www._____@questionpro. com

Please follow the provided URL link (You can click on the link of copy and paste it in your browser). After you complete the survey, please press SEND.

I will appreciate your submittal on or before the following date (DATE).

Part One: The Honey and Mumford (1982) Learning Styles Questionnaire

Instructions: Please select the most appropriate option for each statement given below as it applies to you. There are no right or wrong answers.

	Strongly Agree	Agree	Somewhat Agree	Undecided	Somewhat Agree	Disagree	Strongly Disagree
1. I act without considering the possible consequences.	☐	☐	☐	☐	☐	☐	☐
2. I tend to solve problems using a step-by-step approach.	☐	☐	☐	☐	☐	☐	☐
3. I believe that formal procedures and policies restrict people.	☐	☐	☐	☐	☐	☐	☐
4. I have a reputation of saying what I think, simply and directly.	☐	☐	☐	☐	☐	☐	☐
5. I like the sort of work where I have time for thorough preparation and implementation.	☐	☐	☐	☐	☐	☐	☐
6. I question people about their basic assumptions.	☐	☐	☐	☐	☐	☐	☐
7. What matters most is whether something works in practice.	☐	☐	☐	☐	☐	☐	☐
8. I take pride in doing a thorough job.	☐	☐	☐	☐	☐	☐	☐
9. I like to reach a decision carefully after weighing up many alternatives.	☐	☐	☐	☐	☐	☐	☐
10. I tend to have a distant, rather formal relationship with people at work.	☐	☐	☐	☐	☐	☐	☐
11. I thrive on the challenge of tackling something new and different.	☐	☐	☐	☐	☐	☐	☐
12. I believe in coming to the point immediately.	☐	☐	☐	☐	☐	☐	☐

13. I am careful not to jump to conclusions too quickly.	□	□	□	□	□	□	□
14. Quiet, thoughtful people tend to make me feel uneasy.	□	□	□	□	□	□	□
15. I get irritated by people who want to rush things.	□	□	□	□	□	□	□
16. I tend to be a perfectionist.	□	□	□	□	□	□	□
17. In meetings, I put forward practical realistic ideas.	□	□	□	□	□	□	□
18. I can see better, more practical ways to get things done.	□	□	□	□	□	□	□
19. I find the formality of having specific objectives and plans stifling.	□	□	□	□	□	□	□
20. I like meetings to be run on methodical lines, sticking to a specific agenda.	□	□	□	□	□	□	□
21. I like to ponder many alternatives before making up my mind.	□	□	□	□	□	□	□
22. I enjoy the drama and excitement of a crisis situation.	□	□	□	□	□	□	□
23. I like to be able to relate current actions to a longer-term bigger picture.	□	□	□	□	□	□	□
24. I don't mind hurting people's feelings so long as the job gets done.	□	□	□	□	□	□	□

Part Two: Predicting Collaboration Technology Use [Constructs and Measures

Instructions: Please select the most appropriate option for each statement given below as it applies to you. There are no right or wrong answers.

	Strongly Agree	Agree	Somewhat Agree	Undecided	Somewhat Agree	Disagree	Strongly Disagree
1. I intend to use	□	□	□	□	□	□	□

SharePoint, or a similar collaboration technology, in the future.						
2. I predict I would use SharePoint or a similar collaboration technology, in the future.	□	□	□	□	□	□
3. I plan to use SharePoint or a similar collaboration technology, in the future.	□	□	□	□	□	□
4. I believe SharePoint or a similar collaboration technology, will be useful for communication.	□	□	□	□	□	□
5. Using SharePoint or a similar collaboration technology will enable me to accomplish future work tasks more quickly.	□	□	□	□	□	□
6. Using SharePoint or similar collaboration technology will increase my productivity.	□	□	□	□	□	□
7. Using SharePoint or a similar collaboration technology will not require a lot of mental effort.	□	□	□	□	□	□
8. I believe SharePoint or a similar collaboration technology will be easy to use.	□	□	□	□	□	□
9. Using SharePoint or a similar collaboration technology will be easy for me.	□	□	□	□	□	□
10. I have the resources necessary to use SharePoint or a similar collaboration technology.	□	□	□	□	□	□
11. I have the	□	□	□	□	□	□

knowledge necessary to use SharePoint or a similar collaboration technology						
12. My immediate supervisor is available for assistance with difficulties with SharePoint or a similar collaboration technology.	☐	☐	☐	☐	☐	☐
13. Using SharePoint or a similar collaboration technology to interact with others creates a warm environment for communication.	☐	☐	☐	☐	☐	☐
14. Using SharePoint or a similar collaboration technology to interact with others creates a sociable environment for communication.	☐	☐	☐	☐	☐	☐
15. Using SharePoint or a similar collaboration technology to interact with others creates a personal environment for communication	☐	☐	☐	☐	☐	☐

Part Three: Technology Training Activity Preferences

Instructions:

The list below represents learning activities associated with Adobe® Creative Cloud™, Cloud Computing, and SharePoint training and learning. Please rank the learning activities with which you are most comfortable based on your learning preferences. 1 represents Most Comfortable; 5 represents Least Comfortable

	1	**2**	**3**	**4**	**5**
• Downloading, installing, and updating Creative Cloud apps	☐	☐	☐	☐	☐
• Syncing files from PC to Creative Cloud and accessing them from anywhere.	☐	☐	☐	☐	☐
• Adding fonts from Typekit.	☐	☐	☐	☐	☐
• Showcasing and using creative work on Behance.	☐	☐	☐	☐	☐
• Using the wide selection of vector graphics, icons, patterns, and UI kits.	☐	☐	☐	☐	☐
• Completing individual assessments, exercises, and games.	☐	☐	☐	☐	☐
• Reviewing Q&A sessions with knowledgeable instructors.	☐	☐	☐	☐	☐
• Practicing stretch assignments and other on-the-job activities.	☐	☐	☐	☐	☐
• Authoring and sharing documents and data.	☐	☐	☐	☐	☐
• Using work flows for 'business processes'.	☐	☐	☐	☐	☐
• Designing personal profiles/websites.	☐	☐	☐	☐	☐

• Interacting with 'best practice' templates for good committee web pages and document libraries, including document management, wikis, and calendars.	☐	☐	☐	☐	☐
• Working on project or group activities outside those of teaching and learning.	☐	☐	☐	☐	☐
• Viewing and using full library of web and desktop fonts during design process.	☐	☐	☐	☐	☐

Part Four: Demographic Information

	A	B	C	D	E
1. With which generation would you identify yourself? **(A)** Veteran/ Silent Generation (born between 1925 and 1945 **(B)** Baby Boomers (1946 and 1964) **(C)** Generation X (1965-1976) **(D)** Generation Y (Born 1977-1998) **(E)** Fifth Generation (Millennials, Nexters, Echo, Boomers) (1981/82-1999)	☐	☐	☐	☐	☐

	18-25	26-37	38-49	50-68	69-73
2. What is your age range?	☐	☐	☐	☐	☐

	Under 100	101-500	501-1000	Over 1000
3. What is the size of your company?	☐	☐	☐	☐

If you have questions about this study, please contact gregg.foster @ waldenu.edu

Appendix B: Permission to Use Learning Styles Questionnaire Survey

PEARSON   ALWAYS LEARNING

PEARSON
TALENTLENS

80 Strand
London WC2R 0RL
United Kingdom
T: +44 (0)20 7010 2860
F: +44 (0)20 7010 6631

www.talentlens.co.uk

Fee Permission Agreement

This Permission Agreement (herein as "Agreement") entered into as of 22 September 2015 between Pearson, TalentLens, a division of Pearson Education Ltd, at 80 Strand, London WC2R 0RL (herein "Publisher") and

NAME: Gregg A Foster
                ("Licensee")

ADDRESS: Walden University
                100 South Washington Avenue #900
                Minneapolis, MN 55401
                USA

(herein "Licensee") WITNESS: Gregg A Foster, PhD Researcher

WHEREAS the Publisher is the owner of the Learning Styles Questionnaire (herein the "Work(s)"); and

WHEREAS the Licensee wishes to adapt the Works to include only 24 items for research purposes only and to administer securely online ("Licenced Use").

NOW, THEREFORE, the Publisher and the Licensee agree as follows:

1. The Licensee may either produce, have produced, and/or distribute the Work(s) specified above, solely for the Licensed Use and subject to the terms and conditions of this Agreement.

2. The Work(s) shall be identified by title on any reproduction unless otherwise expressly provided in this Agreement.

3. The Licensed Use specifically excludes the right to print, copy or distribute in any form, or to translate, adapt, revise, or to exhibit, represent, record or reproduce any portion of the Work(s), either separately or as part of any other larger publication, except as otherwise expressly provided herein. The Licensee agrees to abide by copyright, patent, and trademark laws of such other laws as governed by and interpreted under the laws of the United Kingdom.

PEARSON   ALWAYS LEARNING

11. This instrument contains the entire Agreement between the parties and there are merged herein all prior and collateral understandings and agreements. No amendment or modification of this Agreement shall be valid unless in writing and signed by both parties.

12. Regardless of the place of its physical execution or performance, this Agreement shall be governed by English and Welsh laws and shall be subject to the exclusive jurisdiction of the courts of England and Wales.

Pearson, Clinical Assessment
A division of Pearson Education Ltd

Signature   Date 09/23/15

GREGG FOSTER
Printed Name

STUDENT (PHD RESEARCHER)
Title

Sarah Weinberg   Date 28/09/2015
Export & Permissions Manager

80 Strand
London
WC2R 0RL

Pearson
Clinical Assessment
80 Strand
London WC2R 0RL, UK
T   +44 (0)20 7010 2860
E   info@pearsonclinical.co.uk
W pearsonclinical.co.uk

Gregg A Foster
Walden University
100 South Washington Avenue #900
Minneapolis, MN 55401
USA

23 January 2017

This is the first amendment to the agreement by and between Pearson Education Ltd ("Pearson"), Gregg A Foster ("Licensee") having an Effective Date of 22 September 2015 (the "Agreement"), related to use of the Learning Styles Questionnaire.

Whereas: The Agreement expired on 31 December 2016;

And Whereas: Licensee wishes to continue to the "Licenced Use" to include only 24 items for research purposes only and to administer securely online;

Now therefore, the parties agree to amend the Agreement as follows:

1. The first sentence of Section 6a of the Agreement will be deleted in its entirety and replaced by the following:

    "The Licence granted herein shall be for a period commencing with the date first stated and terminating 31 December 2018, whereupon the Licensed Use shall cease. Licensee must obtain written permission for any extension of this Agreement.

IN WITNESS WHEREOF, the parties have executed this Amendment.
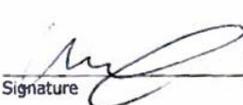
_____ 1/25/17
Signature   Date

GREGG FOSTER
Printed Name

RESEARCHER
Title

Pearson, Clinical Assessment
A division of Pearson Education Ltd

_____ 26 Jan 207
Sarah Weinberg   Date
Export & Permissions Manager

80 Strand
London
WC2R 0RL

Registered Address: Pearson Education Limited, 80 Strand, London WC2R 0RL.
Registered in England and Wales 872828

Appendix C: Permission to Use Predicting Collaboration Technology: Integrating

Technology Adoption and Collaboration Research Survey

Taylor & Francis
Taylor & Francis Group

Permissions

T & F Reference Number: P081715-05

8/17/2015

Gregg A. Foster
Walden University
gregg.foster@waldenu.edu

Dear Mr. Foster,

We are in receipt of your request to reproduce the survey from the following article

Susan A. Brown, Alan R. Dennis & Viswanath Venkatesh (2010)
Predicting Collaboration Technology Use: Integrating Technology Adoption and Collaboration
Research
Journal of Management Information Systems 27 (2): 9-54.
DOI: 10.2753/MIS0742-1222270201

for use in your forthcoming dissertation

Permission is granted to reproduce all editions in print and electronic.

We will be pleased to grant you permission free of charge on the condition that:

This permission is for non-exclusive English world rights.

This permission does not cover any third party copyrighted work which may appear in the material
requested.

Full acknowledgement must be included showing article title, author, and full Journal title, reprinted by
permission of Taylor & Francis LLC (http://www.tandfonline.com).

Thank you very much for your interest in Taylor & Francis publications. Should you have any questions or
require further assistance, please feel free to contact me directly.

Sincerely,

Mary Ann Muller
Permissions Coordinator
Telephone: 215.606.4334
E-mail: maryann.muller@taylorandfrancis.com

530 Walnut Street, Suite 850, Philadelphia, PA 19106 • Phone: 215-625-8900 • Fax: 215-207-0050
Web: www.tandfonline.com

UPDATE
US Journal Permissions From: Gregg Foster [mailto:gregg.foster@waldenu.edu]
Sent: Monday, January 23, 2017 9:29 AM
To: US Journal Permissions <USJournalPermissions@taylorandfrancis.com>

Hi Gregg,
No extension of our permission is necessary.
Our standard permission term is five years.
Best of luck,
Mary Ann