THE INFLUENCE OF PRODUCTIVITY SOFTWARE ON STAFF DEVELOPMENT

AT THE UNIVERSITY OF PITTSBURGH

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The purpose of my research was to evaluate the Faculty and Staff Development Program (FSDP) at the University of Pittsburgh. The FSDP provides a variety of organizational development workshops for the university community. The primary focus of my research was to evaluate the effectiveness of learning outcomes from the Microsoft Excel Productivity Software Workshop offered by the FSDP. My qualitative research analyzed quantitative and qualitative data from a survey instrument and interview protocol regarding the FSDP workshop experiences of a sample population. The research endeavor was to uncover the underlying influences of the FSDP in Microsoft Excel. Thus, my research analyzed the sample population's learning outcomes that produced knowledge and skills from the Microsoft Excel workshop that were transferable to the workplace.

The following areas of my research, practitioner experience, and warrants pertaining to learning and development are addressed in my dissertation. The introduction provides a brief synopsis of my practitioner background in the context of my research focus and a dissertation summary. The literature review contains the emerging themes from my investigation of the scholarly discourse regarding staff development in business and higher education. The methodology section presents the systematic approach of my qualitative research in discovering

the influence of productivity software on staff development through the collection and analysis of quantitative and qualitative data. The results section explains the evidential outcomes from the data analysis of my sample population's experiences and perceptions in the FSDP. The discussion section provides an argument about how my research results and practitioner experience are substantial and relevant to the scholarly discourse on staff development within higher educational institutions. The recommendations section provides the rationale for my proposed deliverable for a learning and development program in technical efficacy that originated from my research and decades of practitioner experience. The conclusion provides insight into the importance of the development and implementation of an institutional policy for staff development that is sustainable and relevant to an evolving workplace influenced by innovative technology.

Key Words

Higher Educational Institution, Staff Development, Learning and Development, Productivity Software, Microsoft Excel, Technical Efficacy, Technical Proficiency, Professional Proficiency, Job Performance, Personalized Staff Development, Workplace Skills, Workplace Technology, Innovative Technology, Technological Advancement

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PREFACE

Information technology is evolving at an astounding pace in the twenty-first century, creating greater demands for individuals and institutions to remain current and adapt to innovative technologies, yet many higher education professionals are lacking the ability to keep up with relevant emerging technologies. There is an increased need for insightful leadership in higher educational institutions who can address the adaptive challenges of innovative technology to develop effective policies and methodologies to equip staff in the efficient use of workplace technology. My research desire was to provide insight into the importance of staff learning and development that equips and motivates staff to use workplace technologies to improve their professional performance during the constant developments in technological advancement.

My research provided an objective that helped broaden my practitioner experience in framing, identifying, and investigating adaptive challenges stemming from constantly evolving technologies. With this knowledge, my hope is to develop, implement, and evaluate effective technical training methods and practices to increase the skill set of my audience in the Faculty and Staff Development Program at the University of Pittsburgh. My research expectation was also to provide academic discourse pertaining to staff learning and development within the context of higher education that is support staff centered. The intent of my research is to inform staff learning and development programs by contributing to the understanding of a higher education landscape that is consistently influenced by technology trends.

Three decades at the University of Pittsburgh have provided me with numerous practitioner opportunities to develop, implement, and facilitate staff development programs for technical efficacy. Thus, I have been successful at delivering effective training on academic and administrative software for thousands of individuals within the university community. My research initiative has increased my appreciation for staff learning and development in higher education and allowed me to embrace my professional capacity, enabling me to contribute significantly to a constructive dialogue in staff technical learning and development.

My life-shaping experiences and individuals of influence have affected my practitioner presence within higher education. I would like to take the opportunity to acknowledge those individuals of influence who have been instrumental in encouraging and supporting my purpose of contributing to learning and development within higher education. To God, who has blessed me with his compassionate grace, and allowed me to witness his divine attributes through the lives of numerous influential individuals:

- To the memory of a great 20th-century leader, Dr. Martin Luther King, Jr., who has influenced my life purpose through his courageous servant leadership.

- To the memory of my grandparents, Edward & Sallie Franklin and Louvenia Wright, who taught me commitment and love for God, family, and community.

- To the memory of my parents, William and Gladys Franklin, who taught me integrity, service to others, and the importance of interdependence.

- To my spiritual mentor, Dr. Willa M. Johnson, who exemplifies a "heart full of grace and soul generated by love" and continues to have a considerable influence on my life.

1.0   INTRODUCTION

"Everybody can be great, because anybody can serve. You only need a heart full of grace. A soul

generated by love (King, 1968)."

The words of Dr. Martin Luther King, Jr. are the foundation for my life mission statement, shaping my intent to develop a heart full of grace and a soul generated by a love that serves to enrich and empower the lives of others in teachable moments. My practitioner footprint is driven by my life mission and provides the contextual framework for my research study on the influence of productivity software on staff at the University of Pittsburgh. My life mission also intertwines with my professional aim to have an influence on technology learning outcomes. My practitioner tenure at the University of Pittsburgh has strengthened my professional and life-shaping experiences that enhance my unique voice as a technical trainer within higher educational institutions. In turn, as a technical trainer at the University of Pittsburgh and adjunct faculty at the Community College of Allegheny County, I have had opportunities to contribute to staff development and student learner outcomes that promote technological efficacy in higher educational institutions.

Information Technology is evolving at an astounding pace in the twenty-first century, creating higher demands and challenges for institutions and individuals to remain current and adapt to innovative technologies. Because of my professional involvement within the University community, I have seen an increase in staff responsibilities due to a culture inundated by innovative technological advancement. Numerous higher education support staff who have taken

my technology workshops have communicated the adaptive challenges to develop their technical competency within an educational institution that is continuously changing because of internal and external trends. The phenomenon of evolving innovative technology within the past three decades at the University of Pittsburgh has provided an opportunity for me to develop and implement technology training that enhances staff development in an environment of radical shifts in the education and administrative areas influenced by information technology. Therefore, my goal is to motivate and help support staff adapt to workplace technologies that will increase job proficiency.

1.1   STAFF DEVELOPMENT UNDERPINNING

As a practitioner, I confront the same adaptive challenges as staff constituents at an institution that is evolving under the influence of emerging technology. I have an arduous task of first seeking resources that broaden my scope of comprehending institutional policies and procedures driven by political, economic, social, and technology trends. Along with understanding the university culture, I continue to seek professional development and lifelong learning that focus on a global technological society. The drive for self-development connects with my passion for teaching and equipping others in an ever-changing environment. Because of my professional development enrichment, I have the expertise to develop, implement, and evaluate effective technical training methods and practices that increase staff technical efficacy. Numerous staff verbally communicate my positive influence on technology training at the University of Pittsburgh, along with evidence provided by staff comments on the Faculty and Staff Development Program Course Evaluations stored at the Office of Human Resources. My most

significant accomplishments as a practitioner are teachable moments when I learn innovative technology and develop technical training that lessens technology anxiety and increases technical proficiency within the University community.

A metaphoric illustration that exemplifies my professional development as a practitioner is similar to a body of water that continuously changes as multiple streams of water flow into its reservoir; at the same time providing enrichment to its surrounding boundaries and outflowing channels. My practitioner experience at the University of Pittsburgh offers nurturing developmental opportunities and resources as incoming streams that enhance my professional reservoir of knowledge and skills to cultivate staff learning outcomes that influence workplace technical efficacy.

In addition, as a practitioner, I coordinate and facilitate numerous technology workshops and have observed that support staff who use workplace technology are in one of two categories: *Technically savvy* and *Technical deficient* – with the latter group increasing. Therefore, my research study interest is to conduct an evaluation of the Faculty and Staff Development Program (FSDP) in technology training at the University of Pittsburgh. Scholarly evidence regarding my Dissertation in Practice supports my professional observation of the increasing technical deficiency with workplace technology amid a society of technological explosion. My underlying assumption of staff technical deficiency supports the necessity to evaluate the effectiveness of the FSDP in maximizing technical training that reduces technical deficiencies. My goal has always been to help staff increase proficiency with workplace technology in a non-threatening learning venue.

1.2   CONTEXTUAL FRAMEWORK FOR RESEARCH

As a leading public research institution and a member of the American Association of Colleges and Universities (AAC&U), the University of Pittsburgh is at a competitive pace with technological relevance and sustainability that supports its research and academic programs. My research study intent is to examine the influence of productivity software on the sample population of support staff who provide their professional expertise for academic research, education programs, and administration at the University of Pittsburgh.

The Neilsen study (2016) summarized the computer competency of employees from the ages of 16 to 65 in the global workplace from 2011 to 2015 in 33 countries. Neilsen's study results concluded that only 5% of the employee population studied had high technological proficiency skills. The United States was a part of the Neilsen study as well. Therefore, given the popularity of personal computer and internet usage in the United States, many employees lack strong skills in workplace technology. Neilsen's research provides substantial evidence to support the rationale for providing workplace staff development focused on technological-efficacy training. The influence of productivity software on staff development at the University of Pittsburgh is a significant area of study given the importance of staff support at a leading public research institution. Changes in the workplace and technology necessitate the need for training that maximizes staff technical proficiency through staff development programs.

Microsoft Excel is the most popular productivity software relevant to staff development at the University of Pittsburgh. Microsoft Excel is a spreadsheet application with analytical features using calculation and graphing tools. Based on the statistical evidence I found, Microsoft Excel workshops have the highest staff attendance of all the technology workshops offered by the Faculty and Staff Development Program (FSDP), which is under the

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administration of the Organizational Development (OD) division of the Office of Human Resources at the University of Pittsburgh. Moreover, since the implementation of Lynda.com, an online technology, creativity, and business training service made available at the University of Pittsburgh, in 2014, Microsoft Excel Essentials has been among the top five online training accessed by staff each year. Microsoft Excel is also a universal productivity software package that is used throughout the University academic and administrative units. The primary focus of my research was support staff who used Microsoft Excel to perform job duties within their units. My study examined the influence of Microsoft Excel Productivity Software training on staff development at the University of Pittsburgh.

A better understanding of staff learning and development in productivity software skills can be essential for the measurement of human capital and efficiency within the university workplace, making research into this area essential. The intent of this research is to investigate the effectiveness of the FSDP offering of Microsoft Excel Productivity Software to maximize staff performance in the workplace at the University of Pittsburgh. Consequently, my guiding research questions were:

1. What are achievable Microsoft Excel skills from the FSDP workshop?
2. What are transferable Microsoft Excel learning outcomes from the FSDP workshop?
3. What lessons in effective technology training can be learned from my study?

1.2.1 Inquiry Approach

I utilized primary data collection to gain an understanding of the influence of Productivity Software on staff development at the University of Pittsburgh. An assessment instrument and interview protocol were developed to evaluate the learning outcomes from the Faculty and Staff

Development Program Microsoft Excel Workshop. The standardized survey instrument is a structured form (see Appendix A) that consists of both quantitative and qualitative data received from 33 respondents directly after their workshop experience. The interview protocol (see Appendix B) includes an open-ended questionnaire to obtain more meaningful and in-depth information from six individuals randomly selected from the 33 workshop participants. The interview protocol intent was to expand upon the assessment instrument responses. The qualitative and quantitative variables for learning outcomes are the Microsoft Excel skills learned and applied in the work environment, such as creating spreadsheets, building Pivot Tables, and developing new task materials using excel. The results from the survey instrument and interview protocol were analyzed using the Kirkpatrick Framework for Evaluating Training Programs. The Kirkpatrick Framework was initiated by the Canadian Interprofessional Health Leadership Collaborative (CIHLC) to evaluate healthcare training programs (Steinberg, 2013). The Kirkpatrick Framework can also serve as a universal training evaluation model used as an assessment tool to determine the effectiveness of the FSDP in equipping support staff to be proficient in Microsoft Excel Productivity Software. The Kirkpatrick Framework was designed as a four-level evaluation model: 1) Reactions, 2) Learning, 3) Transfer and 4) Results. Level 1 measures the response from the trainees to ensure motivation and interest; Level 2 measures the increase in comprehension and appreciation forward new awareness; Level 3 measures the transfer of knowledge; and Level 4 measures the learning results that can demonstrate an analytical ability in task performance. The Kirkpatrick Framework was the baseline with which I measured the effectiveness of the Faculty and Staff Development Program in Microsoft Excel.

1.3   RESEARCH SUMMARY

My research is an evaluation of the effectiveness of the FSDP for Microsoft Excel Productivity Software at the University of Pittsburgh. The sample population was comprised of 33 individuals that were randomly selected from the 135 population of registrants in the Microsoft Excel Essentials and Pivot Tables 2013 workshops. To evaluate the efficiency of the FSDP in providing Microsoft Excel workshops, I used qualitative research and collected both quantitative and qualitative data from a survey instrument and interview protocol.

My approach in analyzing data was in two parts that used multiple research instruments, including a survey instrument, interview protocol, and Kirkpatrick Framework program evaluation model. The first part of my analysis was of the data collection findings from the survey instrument and interview protocol. The second part of my data analysis compared the quantitative and qualitative results from the survey instrument and interview protocol against the Kirkpatrick Framework. The learning outcomes derived from my two-part approach revealed the answers to my guiding research questions. A model of my two-part data analysis is illustrated in chapter four of the results.

The research results from the qualitative data on the survey instrument revealed successful learning outcomes from the FSDP with the Microsoft Excel workshops. The sample population ranked the Course Content, Facilitator, Course Aids, and Overall at the highest rakings ("Strongly Agree" and "Agree"). Both the quantitative and qualitative data from the survey instrument and interview protocol were in sync concerning information on specific Microsoft Excel knowledge and skills that were learned and used in the workplace.

I compared the results from the quantitative and qualitative data collected to the four levels of the Kirkpatrick Framework for the Evaluation of Training Programs that served as the criteria for evaluation as described below:

1. **Reactions:** The workshop objective was to communicate the importance of and motivate registrants to learn Microsoft Excel skills for job performance. The results showed the sample population's interest level with respect to learning Microsoft Excel Productivity Software.

2. **Learning:** The workshop objective was to equip registrants with the ability to comprehend Microsoft Excel essential features and communicate them thoroughly. The results revealed the knowledge and skills achieved by the sample population.

3. **Transfer:** The workshop objective was to help registrants achieve an accurate understanding of Microsoft Excel essential features. The results disclosed the sample population's level of ability to transfer their Microsoft Excel skills learned to the workplace.

4. **Results:** The workshop objective was to equip registrants with the ability to analyze various Microsoft Excel features to determine the best approach to perform various work tasks. The results showed the sample population's level of ability to comprehend Microsoft Excel essential features and to communicate innovative ideas in the workplace.

The overall purpose of the Kirkpatrick Framework for my research was to compare the data results to the four levels acting as performance indicators for an effective FSDP. When the results were compared to the Kirkpatrick Framework it was evident that the FSDP was effective

at initiating a technology training atmosphere that encouraged a positive *reaction* that stimulated *learning* into skills that were *transferable* to the workplace and *resulted* in the increase in professional proficiency that supports the University Responsibility Centers (education and administrative units). My research evaluation revealed positive learning outcomes evidence from the Kirkpatrick Framework that can be used as performance indicators for staff development in technology that will enhance technical efficacy and increase job performance at the University of Pittsburgh.

2.0   LITERATURE REVIEW

The literature review for my research provides supportive warrants related to the influence of a rapidly expanding world of technological innovation on staff development in higher education. The literature review provides background on three key themes surrounding scholarly discourses. The supportive evidence is in the areas of *contextual background*, *best practices*, and *technology efficacy* for staff development. Most research information regarding staff development in higher education pertains to faculty; however, there appears to be little information regarding staff who provide professional support to the research, academic, and administrative areas within higher educational institutions.

The data on faculty development does provide some parallels regarding the dynamics and culture for support staff development. Scholarly discourses suggest faculty development is a result of the transformation of institutional pedagogy, in which similarities in developmental practices can apply to support staff. The literature review draws from scholarly evidence and conceptual sources, directly and indirectly, relative to support staff development in higher education. Support staff in institutions of higher learning tend to be the unsung heroes and backbone of supportive efforts to promote the institutional mission and purpose.
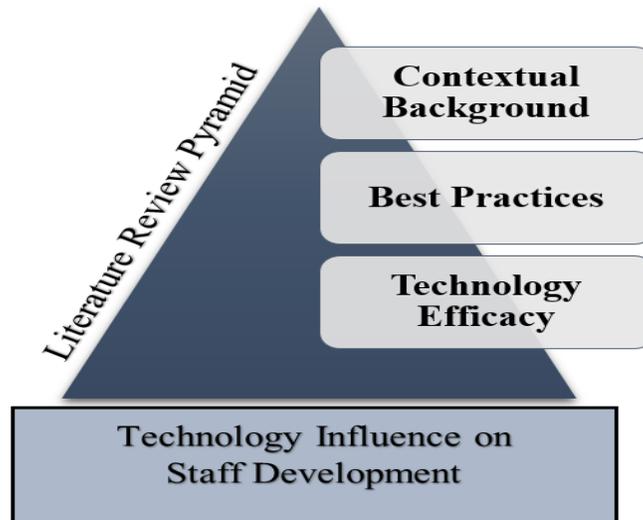
Figure 1. Literature Review Perspective Model

2.1   CONTEXTUAL BACKGROUND

Innovative technology has revolutionized the workplace, resulting in the elimination of many jobs, while at the same time creating the need for new positions and skill requirements. Higher education institutions must be adaptive to the technological trends that are creating new workplace demands. The influence of technology is transforming the global work environment, in which many jobs that will exist a decade from now do not exist today (Frey, 2014). Gray (2013) references The Australian Financial Review, which estimates that by the year 2020 the workplace will be using 70 percent of technology resources to perform tasks. Gray also states it is imperative for individuals to be aware of technology trends and have intentionality regarding their lifelong learning development plan. Davies, Fidler, & Gorbis (2011) argue that because of an embryonic millennial workplace, employers and employees must comprehend the relevance of lifelong learning that helps individuals to adapt to new skill sets created by technological advancements. Gray (2013), citing Tracey Wilen-Deugenti of Silicon Valley, reports: "Now we

are in a technology-based world. The shift happened very fast and it has changed the nature of the skills that people need in the workforce."

According to scholarly evidence, external trends are the motivation for the continuous radical shifts occurring within higher education institutions globally. Colleges and universities are constantly trying to keep pace with the consequences of the twenty-first century policy, economy, social, and technology trends (Morrill, 2007). Given the ever-changing educational community, staff development programs have a monumental task in providing technical training resources that will become obsolete within months or years of implementation. Therefore, institutions of higher learning have a daunting challenge to provide staff development that supports a workplace that is changing continuously by innovative technology. Al-Musawi (2007) states staff development programs in higher education must be responsive to perpetual institutional technologies that are changing the workplace and skill requirements.

Schmidtlein and Taylor (1996) asked staff at private and public universities affiliated with the American Association of Colleges and Universities (AAC&U) to respond to questions about institutional changes because of external and internal trends. The staff respondents agreed that their institutions were affected by political and academic demands that resulted in adaptive changes which old practices were obsolete. The American Association of Colleges and Universities is a network of peer institutions at leading public or private research universities. Membership in the American Association of Colleges and Universities is by invitation and based on outstanding recognition in academic research and educational programs. One of the key issues from the growing national and global competition in higher education is a result of an increase in the usage of technology (Schmidtlein and Taylor, 1996). Technology is evolving at a fast pace,

creating the need for new technical skills to become proficient with changing technology applications and software (Eshet-Alkalai, 2010).

2.2   BEST PRACTICES

Scholarly evidence within businesses and higher education institutions provides best practices for staff development. The Merriam-Webster Dictionary (2006) defines staff development as an "act of progressive advancement towards staff betterment." The three central overarching themes that guide best practices in the discourse for staff development are *training*, *leadership*, and *time commitment*. These themes of best practices guide the staff advancement that results in professional efficacy. The following scholarly evidence supports the themes for staff development to promote staff proficiency in the workplace. Leaman (2016) reveals how an appropriate learning environment can build self-efficacy that results in increased staff productivity and quality of work performed. Bradley, Kallick, & Regan (1991) demonstrate that well-designed staff development programs enhance staff knowledge. The key factor in best practices for staff development is to ensure that staff acquire new skills needed in the workplace. Heathfield (2016) indicates the practical application of competencies is an essential aspect of staff development. Although there are differentiations for job classifications, the goal for all staff development is to increase job proficiency no matter the job description or qualifications.

The best practice themes within the context of higher education mandate improvement standards for academic research and educational programs. Therefore, the University of Pittsburgh's membership in the American Association of Colleges and Universities and association with the top 10% of the world's top 800 universities is motivation for establishing a

staff development program that provides supportive efforts towards maintaining academic research and education programs accreditation.

2.2.1 Training

The context of training consists of providing essential information needed to enhance performance and learn new skills in the workplace (Heathfield, 2016). Boroch, et al (2007) characterize higher education institutions with excellent faculty and staff development programs as fostering greater student retention rates and performance. To improve the educational outcomes of students, then, both faculty and staff must take advantage of effective development programs that align with the institutional mission and purpose. Therefore, the betterment of institutional pedagogy substantiates the need to enhance educational programs along with staff development.

Seibold and Gamble (2015) argue that training is critical in providing staff with the skills to support the continual growth required for job performance within organizations. Training is also essential to monitoring and evaluating staff knowledge and expertise (Seibold and Gamble, 2015). Seibold and Gamble also explain knowledge is the core competency in institutions that facilitate training as a continuous process. Shoham (2009) argues the need for staff training and development results from technological innovations and radical workplace shifts in higher education. Staff should continually seek to improve upon skills that are relevant in a changing environment.

Scholarly evidence in the business and higher education environments provide best practice for staff development as *internal* and *external training*, *mentoring*, *coaching*, and *job shadowing*. Heathfield (2016) defines each of these:

1. Internal training provides an opportunity for staff to develop knowledge and skills about in-house dynamics.

2. External training helps to develop a broader learning experience regarding current and new skills.

3. Mentoring provides knowledge relating to the context of the organizational culture that provides successful integration into the workplace environment.

4. Coaching empowers an individual for success via a partnership that provides professional advisement and tools for self-sustainability in the workplace.

5. Job shadowing is a novice employee acquiring thorough familiarity of the skill set through observation.

2.2.1.1 Training Rationale

From 2011 to 2015, Nielsen conducted a study in 33 countries, including the United States investigating the computer competency of employees from the ages of 16 to 65 in the workplace. Neilsen's study results concluded that only 5% of the employee population studied had high technological proficiency skills. Therefore, despite the popularity of personal computer and internet usage in the United States, many employees lack strong skills in workplace technology. The Neilsen research evidence provides a supportive rationale for implementing workplace staff development in the area of technological efficacy training.

2.2.2 Leadership

Adaptive leadership is responsible for providing effective staff development programs that are conducive to an ever-changing workplace in higher educational institutions. An important aspect

of leadership is to interconnect best practices and ensure the alignment of staff development with the institutional mission. Boroch, et al (2007) illustrates the role that leadership plays in developing and implementing effective staff development programs that are in alignment with the organizational mission and purpose. Commitment and buy-in to staff development are also vital at all levels within an organization, which requires leadership initiation to facilitate the success of staff growth (Seibold and Gamble, 2015).

2.2.3   Time Commitment

Time commitment to staff development is an important best practice because even though the Office of Human Resources recruits the most experienced candidates, often after hired there is little investment to enhance staff skills. The implementation of continual staff learning and development within a changing educational environment is vital for institutions of higher learning. One-day or week-long training sessions are only a small consideration for staff development (Heathfield, 2015). Craig (1996) states that training for each staff person should consist of a minimum of forty hours per year. Boroch, et al (2007) agree, indicating that staff development is not a one-time event, but an ongoing program within higher educational institutions. Thus, staff development consists of the continuous cultivation of self-improvement and self-enrichment.

2.3   TECHNICAL EFFICACY

Many individuals utilize technology daily for texting, emailing, and social media, which creates a false sense of technical proficiency. New and innovative academic technologies make it

increasingly difficult for staff to remain technologically relevant (Jeffrey, 2011). This challenge, along with the demands of the workplace in higher education, creates a wider gap in technology efficacy. Technology is evolving at a fast pace, creating a need for new digital skills to become proficient with emerging technical applications and software (Eshet-Alkalai, 2010). Technology efficacy is pertinent to staff proficiency because of technological advancements that has already and continues to transform institutions of higher learning. Therefore, requirements for technical skills have become increasingly important for job performance. Fisher and Bennion (2005) show that technical communications are permeating the workplace that provide various means of communications that create the need for new competencies, skills, and training.

Olufs (2012) break down the skill needed to be productive in the workplace, saying that individuals need to acquire essential skills for the computer keyboard, Microsoft applications, email, and internet. Armstrong & McElhone (1987) illustrate further that computer training is critical in adult learning for appropriate preparation for the use of new technology. Epple (1992) argues that technology awareness is essential for both the trainer and trainee regarding staff training. Trainers need to have the expertise in technology to design and provide training that meets the technical needs of staff.

Yow (2010) indicates that researchers have found that many individuals entering the workplace are deficient in the technology skills needed to succeed. Technology training for staff is essential to bridging the gap between emerging technology and digital deficiency (Al-Musawi, 2007). The Jordan & Jameson (2001) research study reveals obstacles related to Digital Information Literacy is associated with low self-efficacy or anxiety in developing technical skills. The human factors of intimidation, motivation, and overwork further contribute to the lack of technology proficiency. Shoham (2009) adds that opposition to change plays a significant

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factor in digital deficiency; thus, adequate support resources are needed to increase technical competence.

Communication, teamwork, analytical skills, and presentation skills are the primary qualifications required within the millennial workplace. The integration of technological innovations is affecting workplace dynamics (Acevedo, 2016). Hanat (2016) suggests the use of email, Google Wave, and Skype are some of the required technical skills in today's workplace. Staff development is necessary to help increase staff proficiencies in the use of email, the internet, and software applications that are conducive to job performance in communications, teamwork, analytical skills, and presentation skills. Doyle (2016) shows technical skills vary depending on the job requirements. There are numerous software applications to support workplace duties. Therefore, staff development should be generalized and individualized to meet the complexity of technological skill requirements. The design and implementation of staff development must align with the external and internal institutional trends that precipitate improvement standards for higher learning institutions. Al-Musawi (2007) states staff development programs in higher education must be responsive to perpetual institutional technologies that are changing the workplace and skill requirements.

3.0   METHODOLOGY

My research goal was to gain information regarding the learning experiences and perspectives of Microsoft Excel workshop registrants that would provide evidence to evaluate the effectiveness of the Faculty and Staff Development Program (FSDP). Lukens (2015) articulates program evaluation as an assessment mechanism that examines and provides knowledge regarding successful outcomes for organizational practices. Therefore, my research focus sought to uncover practices and experiences from a select group of support staff at the University of Pittsburgh who participated in the FSDP to gain Microsoft Excel knowledge and skills. Examination of the quantitative and qualitative data collection revealed how practices and experiences affected learning and development outcomes and increased job proficiency.

The purpose of my study was to understand how the FSDP in Microsoft Excel Productivity Software affects the learning outcomes and experiences for support staff at the University of Pittsburgh and determine the effectiveness of the FSDP. Merriam's (2015) textbook on the design and implementation of qualitative research and the article by Gill, Stewart, Treasure, and Chadwick (2008) about the methodology of qualitative research data collection both provided meaningful insight into my research approach. My method of choice was qualitative research that utilized both quantitative and qualitative (mixed methods) data collection.

3.1   RESEARCH DESIGN

To maximize the research results of my study, my choice of methods was qualitative research that used both quantitative and qualitative data collection, via a survey instrument with follow-up interview protocols. The research methodology enabled me to examine staff learning and development outcomes from the FSDP workshops for Microsoft Excel at the University of Pittsburgh. My study involved registrants from the spring 2017 FSDP workshops for Microsoft Excel Essentials and Pivot Tables. The application of qualitative research in utilizing a survey instrument and interview protocol receives validation from scholarly evidence based on research studies noted below that are like my study relating to the influence of innovative technology within and outside of higher educational intuitions.

My interview protocol receives substantiation from Jeffrey, Hegarty, Kelly, Penman, & McDonald's (2011) research method for data to determine obstacles and support variables that are relational to Digital Information Literacy (DIL) within higher education staff and students. Major obstacles that are consequential to Digital Information Literacy reveal low self-efficacy or anxiety in developing technical skills. Utilizing a similar interview method as Jeffrey, et al (2011) I was able to gain insight into my study for evaluating staff barriers that prevent adequate learning and development outcomes from Microsoft Excel Productivity Software training at the University of Pittsburgh.

Rosenthal's (2008) qualitative research used interviews and surveys to focus on the processes by which older women in a Florida retirement community received computer knowledge and skills. The research method obtained data about women's learning outcomes. The intent was to find factors that influenced struggles and methods of achievement regarding digital literacy. Many of the women in the study expressed motivation to learn new technology.

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Rosenthal's (2008) mixed methods in using surveys and interviews support my research methodology in discovering the underpinnings that influence staff learner outcomes for the FSDP Microsoft Excel Productivity Software workshop.

3.2   SAMPLE POPULATION

Mertens (2015) argues that a qualitative research should strategically use purposeful random sampling to obtain in-depth information from a small group of individuals. Therefore, purposeful random sampling was how I determined which six workshop registrants to interview, in the hopes of receiving rich research data that provided substantial and relevant data to aid in developing a credible research study. My target research population consisted of the 135 registrants from the Faculty and Staff Development Program workshops for Productivity Software during the 2017 Spring Semester at the University of Pittsburgh. The identified sample population was comprised of all 33 registrants from the Microsoft Excel Essentials and Pivot Tables 2013 workshops.

The interviewees were a purposeful random sampling of six registrants from the April 25, 2017, Microsoft Excel Essentials (18 attendees) and May 2, 2017, Microsoft Pivot Tables (15 attendees) workshops. I selected the six registrants among the ten registrants from the Microsoft Excel Essentials and Pivot Tables workshops who volunteered to participate in my study. From the ten volunteer registrants, I selected two registrants from each workshop who only attended one of the two workshops and two registrants who attended both workshops. My decision for using purposeful random sampling was to obtain meaningful data from workshop registrants who experienced various learning perspectives in different Microsoft Excel workshops.

3.3   DATA COLLECTION

3.3.1   Survey Instrument

The Faculty & Staff Development Program Course Evaluation (see Appendix A) was the primary data collection instrument for my study. Organization Development at the Office of Human Resources developed the survey in 2003 for the FSDP workshops. The purpose of the survey is to measure the workshop learning outcomes and solicit feedback for improvement. Organization Development publishes an annual year-end report on the FSDP workshop results. My study sought to answer the research guiding questions about learning outcomes and transferable knowledge/skills from the quantifiable data on the survey instrument.

The registrants filled out anonymous surveys after the workshops. Mertens, (2015) suggests surveys are a means for anonymity in collecting useful data. My study measured the effectiveness of the workshop looking at quantitative and qualitative variables. The usable quantitative survey categories were: Course Content Evaluation, Facilitator Evaluation, and Overall. These survey category rankings are: Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree. The qualitative survey section has open-ended questions about the registrants' workshop experience. My study searched for correlating themes among the qualitative data.

3.3.2   Interview Protocol

The data collection protocol was a semi-structured open-ended questionnaire (see Appendix B). The questionnaire's intent was to follow-up on the survey instrument to gain meaningful and in-depth information about achieved knowledge and transferable skills acquired by workshop registrants.

3.3.3   Data Analysis Approach

Data collection from the survey instrument and interview voice recordings used Microsoft Excel Productivity Software for data transcription, analysis, management, and storage. My analysis of qualitative coding for the survey instrument and interview protocol focused on emergent coding that determined emergent themes from the sample population's feedback regarding their practices and experiences. Based on the survey instrument's quantitative descriptive statistics, I used Microsoft Excel to provide chart illustrations.

3.4   CULTURE OF EVIDENCE

The diagram on the next page illustrates a cultural evidence model that represents my practitioner experience and research goal. The cultural evidence model is a framework of collaborative components that drive the influence of productivity software on staff development at the University of Pittsburgh. Gaffney, Lubinescu, & Ratcliff (2001) state that higher educational accreditation establishes the components for institutional effectiveness for student learning. My cultural evidence model for staff learning outcomes in productivity software is an assimilation of Middaugh's (2010) dialog on higher education accreditation standards of strategy, evaluation, improvement, and assessment that develop sustainable criteria for institutional effectiveness in learning outcomes.
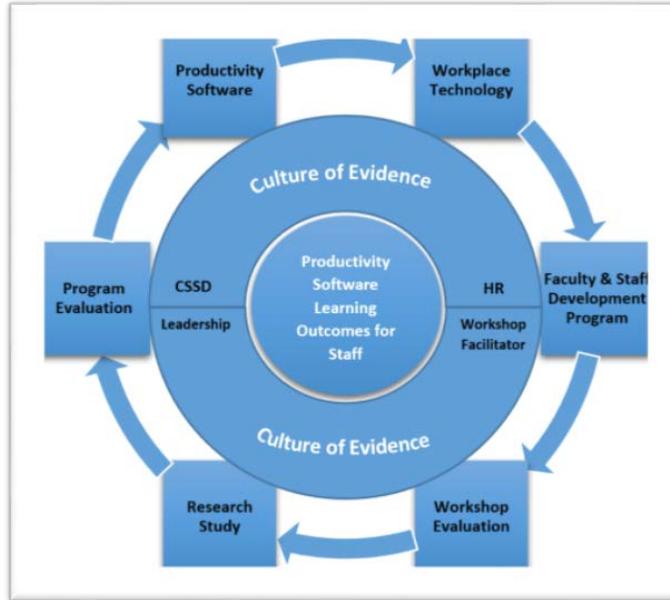
Figure 2. Cultural Evidence Model

The pictorial cultural evidence model represents the current interdependent components for staff development in productivity software that is based on my research. At the core of the cultural evidence model is productivity software learning outcomes for staff influenced by the Faculty and Staff Development Program (FSDP) along with other university units and standards. The mid-circle culture of evidence is the stimulus for the outer-circle factors that provide the direct influence of productivity software on staff development.

The mid-circle inducement agents within the culture of evidence are Computing Services and Systems Development (CSSD), Leadership, Office of Human Resources, and the Workshop Facilitator. *CSSD* is responsible for forecasting evolutionary technology and the implementation of the technical infrastructure and resources (along with productivity software, services, and training) that sustains academic research and the educational mission of the University of Pittsburgh. *Leadership* consists of deans, directors, department chairs, and supervisors from the University Responsibility Centers (University academic and administration units) who implement, manage, and oversee unit policies and procedures. These leaders must also provide

supportive initiatives that assist support staff with increasing technical competency in job performance. The *Office of Human Resources* division of Organization Development provides products and services that promote increases in professional proficiency at the university's colleges, schools, and departments, thus equipping staff with knowledge and skills to master workplace functions and tasks. *Organization Development* is also responsible for coordinating the FSDP workshops for the university community. The *Workshop Facilitator* for the FSDP technology workshops is a partnership with CSSD. The role of workshop facilitator is a part of my responsibility as the CSSD technical trainer. My tasks as a workshop facilitator are to develop technical training that provides systematic instructions on current productivity software for hands-on workshops. All the collaborative mid-circle (culture of evidence) university units initiate standards that affect the outer-circle components that influence technical efficacy within the workplace.

The outer-circle process starts with *Productivity Software*, which is a part of the relevant and innovative technologies used at the university community. *Workplace Technology* uses productivity software as a part of functional academic and administrative technology. The *Faculty and Staff Development Program* objective is to provide productivity software development for support staff that increases professional performance within university units. *Workshop Evaluation* is the process by which workshop registrants provide feedback about their workshop experience with the intentionality to evaluate workshop success and incorporate improvements for future workshops. *Research Study*'s purpose is to investigate and analyze data from workshop registrants' anonymous evaluations and follow-up with registrant interviewees to understand the experiences and influence of productivity software workshop on registrants.

Program Evaluation utilizes research results to influence continual FSDP improvements toward the development of staff technical efficacy with productivity software in the workplace.

Amey, VanDerLinden, & Wang (2002) illustrate that the influence of changing technology in higher educational institutions creates a need for digital competency. Technology is also evolving at a fast pace, creating a need for new digital skills, to become proficient with emerging academic and administrative technology (Eshet-Alkalai, & Chajut, 2010). Therefore, the establishment of a harmonious connection of interdependency with CSSD, leadership, Organization Development, and workshop facilitator is the impetus that guides a sustainable and relevant culture that will result in effective staff development with productivity software at the University of Pittsburgh.

4.0   RESULTS

The University of Pittsburgh's Office of Human Resources provides products and services that promote the increase of professional proficiency for university staff. The Organization Development Division at the Office of Human Resources is responsible for the oversight and coordination of these professional development products and services. The mission of Organization Development is to provide the following for the university community: Organization Analysis, Process Mapping, Performance Management, Strategic Planning, Training and Development Programs, and the Faculty and Staff Development Program (FSDP).

My research data came from a sample population of 33 subjects who participated in the FSDP workshops for Microsoft Excel Essentials and Pivot Tables. My research intent for quantitative and qualitative data collection using a survey instrument and interview protocols was to analyze the responses from the sample population for tangible results regarding the influence of productivity software on staff development at the University of Pittsburgh. The final process in my data analysis compared the results to a program evaluation model that measures the efficiency of training programs.

In obtaining research results, my approach was to utilize a two-part data analysis scheme that encompassed multiple research instruments, including a survey instrument, interview protocol, and program evaluation model. This approach was able to provide in-depth data from the sample population as well as evaluate the FSDP for Microsoft Excel. The first part of my data analysis portrays the data collection findings from the survey instrument and interview

protocol. The second part of my data analysis compares the quantitative and qualitative results from the survey instrument and interview protocol against the program evaluation model. The learning outcomes determined from the program evaluation model revealed the answers to my guiding research questions. The figure below is an illustration of my two-part data analysis scheme, which is the strategic outline from which this chapter was written.
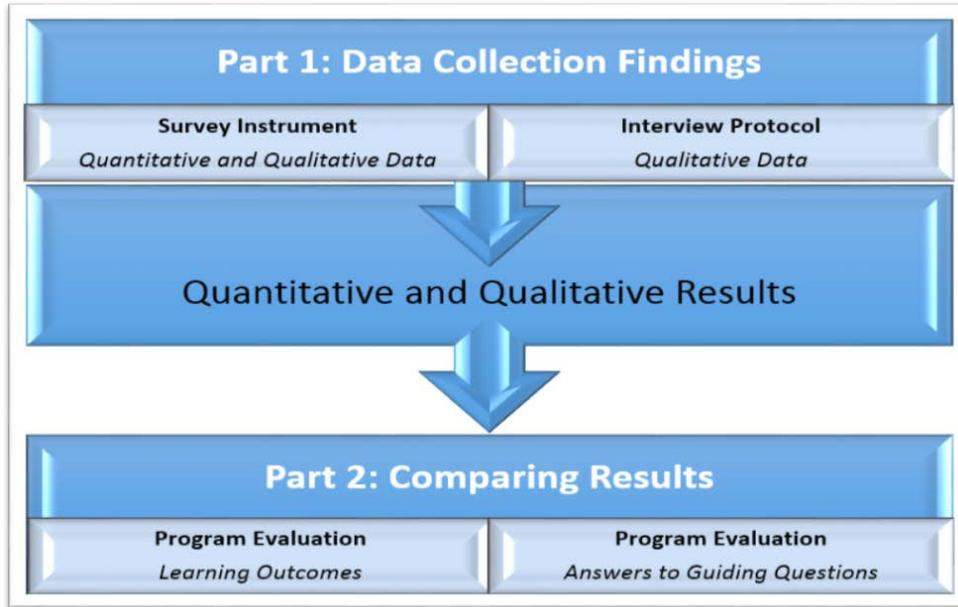
Figure 3. Two-Part Data Analysis Scheme

As mentioned in the introduction, the program evaluation model is the baseline that I used to measure the effectiveness of the Faculty and Staff Development Program in Microsoft Excel. Examination of the quantitative and qualitative data determined how practices, experiences, and concepts affect learning outcomes that increase job proficiency. Thus, my qualitative research provided an understanding of how the FSDP in Microsoft Excel Productivity Software affects learning outcomes for support staff at the University of Pittsburgh. Comprehending the learning experiences of support staff provides meaningful insight into the development and implementation of relevant and sustainable staff development.

4.1   SURVEY INSTRUMENT

Registrants from the Microsoft Excel Essentials and Pivot Tables workshops were asked to anonymously fill out the Human Resources Faculty and Staff Development Program Course Evaluation (see Appendix A). The Faculty and Staff Development Course Evaluation collected both quantitative and qualitative data. The quantitative assessment ranking scale was from Strongly Agree (favorable) to Strongly Disagree (unfavorable) based on the staff learning outcomes, and qualitative assessment consisted of open-ended questions to obtain more in-depth answers regarding the workshop experience. The purpose of the Faculty and Staff Development Course Evaluation results is to provide workshop assessments for Organization Development and workshop facilitators to implement a continual improvement plan. Organization Development developed the Faculty and Staff Development Course Evaluation (survey instrument) in 2003. The survey results are published for the annual year-end report at the Office of Human Resources. The quantitative and qualitative data that I collected from the Organization Development's survey instrument was analyzed to provide an assessment of the effectiveness of the FSDP for the Microsoft Excel Workshop.

4.1.1   Quantitative Data

The descriptive statistics analysis in this section depicts my sample population results from the Microsoft Excel Fundaments workshop held on April 25, 2017, with 18 registrants and the Microsoft Excel Pivot Tables 2013 workshop held on May 2, 2017, with 15 registrants. After the workshops, each anonymous Faculty and Staff Development Course Evaluation was entered into a Microsoft Excel Spreadsheet. The data rankings were then categorized and interpreted using clustered column bar charts, illustrated on the next pages. The bar charts from both workshops

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represent the Faculty and Staff Development Course Evaluation quantitative assessment and ranks the following workshop categories: *Course Content Evaluation, Facilitator Evaluation, Course Aids,* and *Overall*. For full descriptions of the abbreviated rating classifications on the bar charts located below and on the next pages refer to Appendix A.
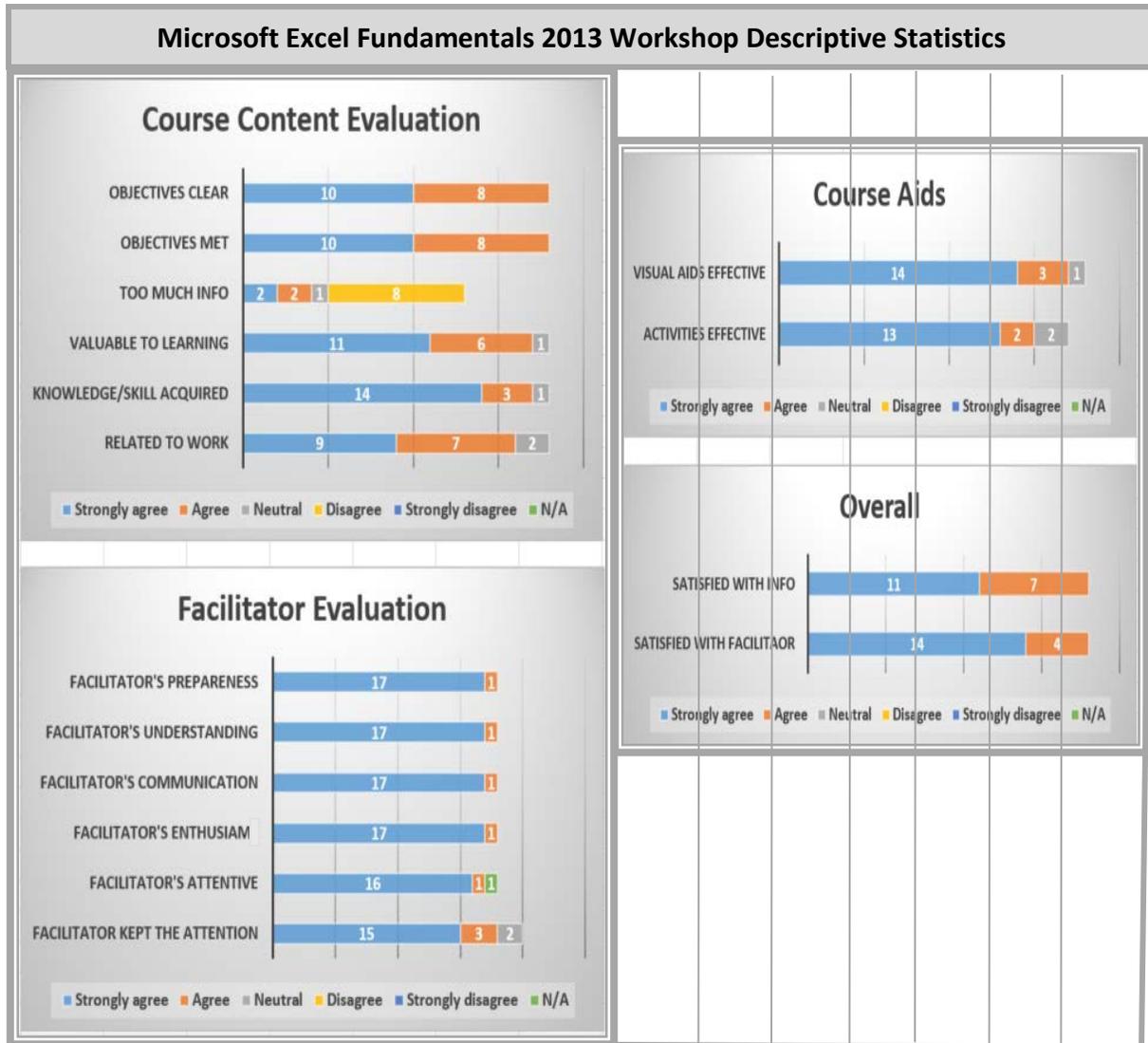
Figure 4. Microsoft Excel Fundamentals 2013 Workshop Descriptive Statistics
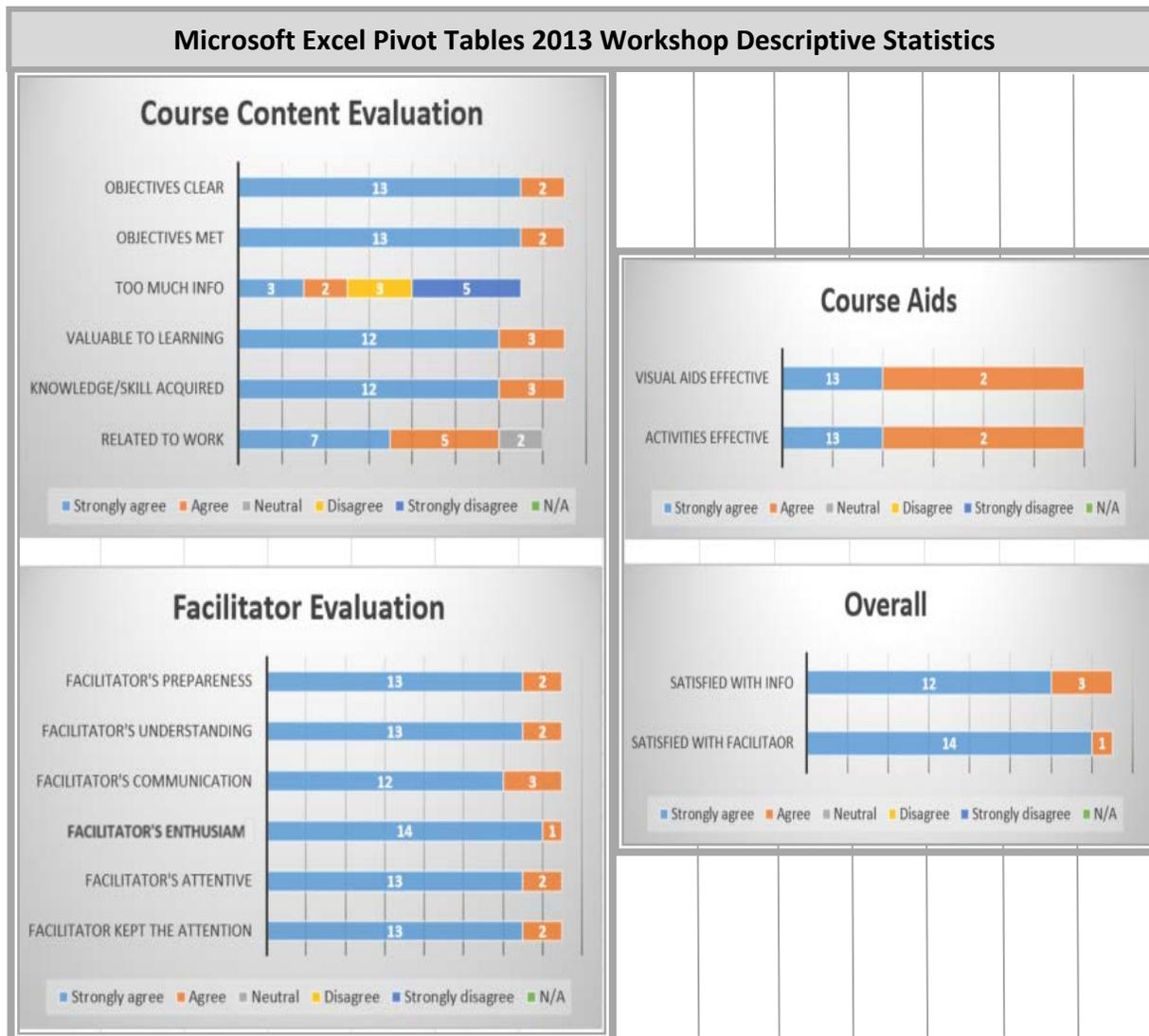
Figure 5. Microsoft Excel Pivot Tables 2013 Workshop Descriptive Statistics

4.1.2 Qualitative Data

The responses to the *Comments* section on the Faculty and Staff Development Course Evaluation from the Microsoft Excel Fundamentals and Pivot Tables workshops were also entered into a Microsoft Excel Spreadsheet. Each workshop registrants' comments were compared and

analyzed for emerging themes. The following table displays interpretive data that represents emerging themes from the sample population.

Table 1. Qualitative Data Emerging Themes

Microsoft Excel Fundamentals 2013 Workshop Qualitative Data Emerging Themes	
1	**What did you like most about the course?**
	• The facilitator was well prepared and knowledgeable of the subject. • The workshop was facilitated at a good pace. • The workshop manual was clear and easy to follow.
2	**What did you like least about the course?**
	(No strong emerging theme – responses varied.)
3	**What would you change to improve the course?**
	• No changes are necessary.
4	**Please provide any additional comments.**
	(No strong emerging theme - responses varied.)
Microsoft Excel Pivot Tables 2013 Workshop Qualitative Data Emerging Themes	
1	**What did you like most about the course?**
	• The facilitator provided thorough explanation and was helpful. • Workshop information was useful.
2	**What did you like least about the course?**
	• Not enough topics.
3	**What would you change to improve the course?**
	(No strong emerging theme – responses varied.)
4	**Please provide any additional comments.**
	• Learned useful skills for job.

4.2   INTERVIEW PROTOCOL

The purpose of the interview protocol was a follow up on the survey instrument (Faculty and Staff Development Course Evaluation) to obtain more in-depth data. Six individuals were a purposeful random sampling selected from the 33 individuals who participated in the Microsoft Excel Essentials and Pivot Tables workshops. These individuals were asked eight semi-structured open-ended questions. The interviews were audio-recorded and transcribed into a Microsoft Excel Spreadsheet.

4.2.1   Qualitative Data

As with the qualitative data from the survey instrument, the data from the interview protocol was collected and analyzed for emerging themes. The following table provides the emerging themes obtained from the data analysis.

Table 2. Interview Emerging Themes

Interview Emerging Themes (IET)	
1	**What was your motivation for taking the Microsoft Excel Workshop?**

	• **IET:** For professional development and as a refresher.
	    ○ *Respondent 2* stated, "Lynda… you think you're doing OK, but you just can't get over a certain part, so that's why your classes were better for me…"
	    ○ *Respondent 4* stated, "…basically brush up on my skills with our spreadsheets."
	    ○ *Respondent 6* stated, "…helps me get further advanced in my skills."

2	**Can you give examples of the knowledge and/or skills you learned from the workshop?**

	• **IET:** The ability to use Excel spreadsheet functions.
	    ○ *Respondent 1* stated, "…I like that I could tweak my reports, so they can become easier to read. I really like the toolbar it helps me a lot."
	• **IET:** The ability to navigate and manipulate data on spreadsheets.
	    ○ *Respondent 2* stated, "Definitely the Pivot Tables particularly helped. There's some different little things that we're doing that I knew had to be a simpler

Table 2 continued

	way…which you showed me."
	○ *Respondent 4* stated, "The Pivot Tables and conditioning formatting were extremely helpful…"
	○ *Respondent 5* stated, "So, I right from class went and pulled that information into some clear tables and charts to share…to help us make better decisions."
3	**In what way did the knowledge and/or skills you received from the workshop help your job performance?**
	• **IET:** Understanding Excel functions helped create spreadsheets that are more useful.
	○ *Respondent 1* stated, "…made spreadsheets that I sent to the PR department that they thought were wonderful, because they were easy to understand."
	○ *Respondent 5* referred to creating an Excel report that helped people within the department to understand and access data faster.
	• **IET:** Increased ability to assist colleagues.
	○ *Respondent 2*, referred to helping co-workers to use Pivot Tables rather than another application to process data faster.
	○ *Respondent 4* stated, "…help teach other people within the department…"
4	**Have you been able to keep up with the annual upgrades to the Microsoft Excel Productivity Software? If yes or no, please explain. What version of Microsoft Excel are you currently using?**
	• **IET:** No - Previous software version in use. Not sure.
	○ *Respondent 3* stated, "I try to as much as possible, we do have an IT gentleman on the floor and they upgrade my software as need be. If it gets updated, it's something I don't really know… I believe it is Office 2010."
	○ *Respondent 5* stated, "I don't know that I have been keeping up with things in an intentional way. Most of what I do in Excel is kind of play around until I figure it out and if it looks different I watch a lot of YouTube videos. So, I have tried to do some of the Lynda.com trainings too, but I feel like they're never exactly what I'm looking to learn…"
	○ *Respondent 6* stated, "…I take a lot longer than most people."
5	**What are the Microsoft Excel skill requirements for your specific job duties?**
IET: Understanding and using Excel features to create spreadsheets, Pivot Tables, and formulas.	
6	**In what way have your supervisor and/or manager been supportive of staff development in technology training?**
	• **IET:** They endorsed time for training and allowed training to be shared with others.
	○ *Respondent 2*, referred to work coverage being in place, so that staff can attend workshops.
	○ *Respondent 4*, stated "…every time I come back with any type of training my

Table 2 continued

	supervisor is asking how it can help him as well, because he can't always go to them."
7	**How will your participation in the Microsoft Excel Workshop influence your Annual Staff Performance Appraisal?**

	• **IET:** Referenced training on Annual Self-Appraisal.
	    o *Respondent 1* stated, "You know over the years when I completed my self-evaluation, I always added that I attended classes to improve job performance. When I would get my evaluation back I always received positive feedback for my efforts."
	    o *Respondent 3* stated, "The knowledge I've walked away with is beneficial when it comes time to 'sell yourself' so I think it's beneficial."
	    o *Respondent 4* stated, "My supervisor…likes to see people take the courses…and I take several every year."

8	**What advice would you share about the Faculty and Staff Development Program Workshops for Microsoft Excel?**

	• **IET:** Workshops are more engaging, collaborative, and a broader learning experience than online training.
	    o *Respondent 1* stated, "I'm not computer savvy, but I've always felt welcome in the class even though they're sometimes above my skill level. I always learn something new. I encourage others not to be afraid to attend. That would be my biggest thing, don't be afraid."
	    o *Respondent 2*, statement provides a brief synopsis of all respondents, "…your class takes a lot of the fear out of it. And you have been so patient… I'm very much a person who learns better when I'm in a class... But you're in the class and you hear other people ask questions that I haven't thought about or I'm not using personally, but then it sparks an idea for me. So, that's where it's different for me then a Lynda class. Lynda you're really concentrating on one particular... When in the class you hear people say, 'I need to do this' and I think yeah... And then you'll hear them explain why they need to do it and I haven't encountered that particular thing up to this point…You hear other people's ideas and you think, OMG I'm not the only one who had this problem.... This is neat to see these many people with questions and wanting to learn. You develop this nice interdependency with people and we sort of need that because we get so bunched up with technology and doing things that we forget the human element of the job."

4.3 QUANTITATIVE AND QUALITATIVE RESULTS

The research results consisted of the survey instrument and interview protocol. My qualitative research methodology in gathering data provided significant information that revealed performance indicators for technology training from the learning experiences and perspectives of the sample population who participated in the FSDP for Microsoft Excel Productivity Software at the University of Pittsburgh. The context of my research was a program evaluation that attempts to measure the effectiveness of the influence of Microsoft Excel Productivity Software on staff development. Lukens (2015) defines program evaluation as an assessment mechanism that examines and provides knowledge regarding successful outcomes for organizational practices. The results from the mixed methods of data collection were analyzed and evaluated against the Kirkpatrick Framework. The Canadian Interprofessional Health Leadership Collaborative (CIHLC) is a partnership comprised of universities that developed the Kirkpatrick Framework to evaluate global training programs in health care organizations (Steinberg, 2013). The Kirkpatrick Framework consists of four levels to evaluate a training program's reactions, learning, transfer, and results. This framework can also serve as a universal evaluation model.

4.3.1 Survey Instrument

The quantitative and qualitative data from the survey instrument (Faculty and Staff Development Course Evaluation) provided useful information regarding the sample population's workshop experiences. The process of data analysis answered my guiding research questions by providing the evidence regarding achievable skills and transferable learning outcomes acquired from the FSDP Microsoft Excel workshops. The following quantitative data categories from the survey instrument were analyzed: Course Content, Facilitator, Course Aids, and Overall. Data analysis

revealed that the majority of the sample population replied, "Strongly agree" and "Agree" on the highest rating scale. The quantitative data support that the FSDP Microsoft Excel workshops provided a learning environment for staff to acquire Excel knowledge and skills that were work related. Bloom's (1956) illustrations of the taxonomy for education objectives through knowledge, comprehension, application, analysis, synthesis, and evaluation is also an effective resource to measure my research results. In comparing Bloom's taxonomy to the quantitative data, it revealed a positive influence on *knowledge*, *comprehension*, and *application*. The data analysis disclosed that the sample population was able to demonstrate an accurate understanding and comprehension of the Microsoft Excel concepts to communicate and apply learned skills within their workplace environments. I would like to note that the application of skills learned from my research is somewhat limited and needs further study in the actual work environment to measure the productive outcomes from transferable knowledge and skills.

The qualitative data analysis also provided evidence that supports the effectiveness of the FSDP on the sample population's knowledge and skills received from the Microsoft Excel workshop. Question number 1 from the *Comments* section asked, "What did you like most about the course?" The qualitative data received from the sample population was the primary source for my data analysis that revealed the underpinning for successful technical learning outcomes from the FSDP Excel workshop. The facilitator's role was a crucial factor in creating a learning environment. The facilitator and training manual was thorough, understandable, and clear. One individual's response from the population sample that summarizes all comments stated, "The pace of the class was perfect. There were a few times I got behind but was easily able to catch up with the class and detailed handout. The facilitator was excellent!" The qualitative data showed

overwhelmingly that the workshop manual was clear and helpful, especially when paired with the facilitator's proficiency in presenting in a comprehensible manner.

4.3.2 Interview Protocol

The interviews data analysis provided overlapping evidential support to the survey instrument results and provided more insight into the substantial effects of the FSDP for Microsoft Excel Productivity Software. The interview gathered more in-depth information and understanding of the processes that propel staff development learning outcomes. The results of the data analysis identified not only the types of knowledge and skill learned and applied, but also illustrated the motivations of the sample population, along with the factors in establishing a productive learning environment for staff development.

From the research sample population, the following knowledge was gained, and skills applied to increase their workplace productivity: learning how to create, navigate, and manipulate Microsoft Excel Spreadsheet data. As revealed by the unanimous interviewee responses, these skills were taught and then shared with colleagues. The motivations behind enrollment in the FSDP for job-required skills were self-initiated improvement, supervisor/manager suggestion, and annual performance review feedback. Question number 8 asked, "What advice would you share, about the Faculty and Staff Development Program Workshop for Microsoft Excel?" The data analysis revealed the importance of the inclusion of hands-on training in the FSDP. The primary theme was a comparison of the pros and cons of having both the FSDP workshops and Lynda.com online training at the University of Pittsburgh. The argument suggested that both training venues have their benefits, but workshop training was

preferred because it offers a more engaging learning experience resulting from a facilitator and co-workshop participants.

4.4   PROGRAM EVALUATION

I used the Kirkpatrick Framework to evaluate the effectiveness of the FSDP for Microsoft Excel Productivity Software. In analyzing the research data, I also aligned emerging themes with the appropriate levels within the Kirkpatrick Framework. The comparison of the results with the Kirkpatrick Framework for Evaluating Training Programs provided evidence to support the positive *reactions* that encouraged *learning* and enabled the sample population to *transfer* skills to the workplace *resulting* in increased professional efficacy and proficiency.

The Kirkpatrick Framework for Evaluation Training Programs served as my assessment tool in evaluating the FSDP research results. The following table contains my research results, matched with the Kirkpatrick Framework.

Table 3. FSDP Kirkpatrick Framework Evaluation

FSDP Kirkpatrick Framework Evaluation			
Kirkpatrick Levels of Evaluation	**FSDP Evaluation**	**Research Results**	
		Quantitative Data (Survey)	**Qualitative Data** (Survey & Interview)
Reactions	Measures the interest to learn new technology. The workshop engagement should motivate and stress the importance of learning Microsoft Excel skills for job performance.	Evidence revealed facilitator communicated clearly, was enthusiastic, attentive, and kept participants' attention. **Majority on rating scale:** Strongly Agree / Agree.	Evidence revealed facilitator was a strong motivating factor.
Learning	Measures knowledge and skills achieved. The workshop expectation was to equip the registrants with the ability to comprehend Microsoft Excel essential features to communicate them thoroughly.	Evidence revealed course content met sample population's objectives and provided a valuable learning experience that enhanced comprehension of Microsoft Excel concepts. **Majority on rating scale:** Strongly Agree / Agree.	Evidence revealed the sample population was able to use Microsoft Excel Productivity Software to create spreadsheets, navigate on a spreadsheet, format data, create formulas, and build Pivot Tables.
Transfer	Measures the accurate understanding of Microsoft Excel essential features that are transferred to the workplace.	Evidence revealed course content met sample population's objectives and provided a valuable learning experience that enhanced usage of Microsoft Excel features. **Majority on rating scale:** Strongly Agree / Agree. *Transfer* needs further research within the workplace.	Evidence revealed the sample population was more proficient with using Microsoft Excel for specific workplace tasks and able to assist colleagues. *Transfer* needs further research within the workplace.

Table 3 continued

FSDP Kirkpatrick Framework Evaluation			
Kirkpatrick Levels of Evaluation	**FSDP Evaluation**	**Research Results**	
		Quantitative Data (Survey)	**Qualitative Data** (Survey & Interview)
Results	Measures the comprehension of Microsoft Excel essential features that can communicate innovative ideas. The workshop goal was to equip registrants with the ability to analyze various Microsoft Excel features for the best approach to workplace tasks.	Evidence revealed course content met sample population's objective, provided valuable learning and knowledge/skills were achieved resulting in workplace productivity. **Majority on rating scale:** Strongly Agree / Agree. *Results* need further research within the workplace.	Evidence revealed the sample population was able to develop new workplace methods by using Microsoft Excel to perform tasks. *Results* need further research within the workplace.

The research results provided substantial evidence that the FSDP for Microsoft Excel Productivity Software achieved successful learning outcomes. It was apparent that the sample population received Microsoft Excel knowledge and skills that were in alignment with their administrative requirements.

4.5   GUIDING QUESTIONS

Technology is rapidly evolving in higher education institutions, creating a need for new digital skills to become proficient with emerging academic and administrative technology (Eshet-Alkalai & Chajut, 2010). As a leading public research institution, the University of Pittsburgh provides sustainable and relevant technology that supports its research and educational

communities. Thus, my research objective was to examine how the staff development initiatives at the University of Pittsburgh prepare support staff in responsibility centers to meet job performance requirements related to ever-changing productivity software. My research intent was to investigate how staff development in Microsoft Excel Productivity Software maximizes staff proficiency in a technologically evolving work environment at the University of Pittsburgh.

The Kirkpatrick Framework as a program evaluation tool revealed that the FSDP learning environment was engaging, motivating, and provided explicit instruction that resulted in the enhancement of knowledge and skills in Microsoft Excel features that the sample population was able to use in their specific job tasks. When analyzing the research results pertaining to the transfer of knowledge/skills to the workplace with levels 3 and 4 of the Kirkpatrick Framework, the results are solely based on biased responses. Therefore, future research is needed to evaluate the workplace productivity that results from Microsoft Excel knowledge and skills learned from the FSDP.

The combined data analysis from the research survey instrument, interview protocol, and Kirkpatrick Framework for Evaluation Training Programs provided meaningful results that answered my guiding research questions:

Question 1: What are achievable Microsoft Excel skills from the FSDP workshop?

Evidence: The data collection instruments provided strong confirmation that the sample population "strongly agreed" and "agreed" that course content directly related to job duties, and knowledge received was able to be applied. The evidence also revealed that the workshop facilitator was able to clearly communicate the information and was attentive to the workshop participants. Therefore, the sample population was able to use Microsoft Excel Productivity

Software to create spreadsheets, navigate on a spreadsheet, format data, create formulas, and create Pivot Tables. These results were derived from both quantitative and qualitative data.

These results are significant because Lake and Purschak (2006) argue that higher educational institutions must meet the new demands in technology by implementing appropriate technology, providing technical training and support, and developing policies and procedures for computing usage. The intent of my research was to provide evidence of how Microsoft Excel Productivity Software provides sustainable value that aligns with the overall institutional staff development at the University of Pittsburgh.

Question 2: What are transferable Microsoft Excel learning outcomes from the FSDP Workshop?

Evidence: The data collection instruments showed solid evidence that the sample population "strongly agreed" and "agreed" that course content provided valuable knowledge that was useful in workplace performance. Data results indicated an increase in Microsoft Excel skills. The sample population became more proficient in using Microsoft Excel in their job-specific tasks. They were also able to assist colleagues with the functionality of Microsoft Excel. My research provided evidence regarding the learning outcomes from the FSDP Evaluation. The evidence also revealed ways that the Microsoft Excel training lessens the fear of using Microsoft Excel. Shoham (2009) states fear is a significant factor in digital-deficiency; therefore, adequate support resources are essential in maintaining technical competence. Thus, the evidence provided insight into the influence of the FSDP in Microsoft Excel training assisted staff in adapting to technologies related to the workplace.

Question 3: What lessons in effective technology training can be learned from my study?

Evidence: Question number 8 from the interview questionnaire provided the answer to this guiding question, as stated previously. The sample population unanimously referenced the difference between workshops and online training and concluded the importance of having hands-on Productivity Software workshops. The emerging theme revealed that workshops are more engaging and collaborative and offer a broader learning experience than online training. As mentioned previously, Lake and Purschak (2006) express the need for appropriate technical training and support from organizations. Although there are many training venues, the lesson learned from my research revealed that workshops are the preferred method for staff development.

In summary, my research provided evidence from the survey instrument, interview protocol, and Kirkpatrick Framework regarding positive learning outcomes from the FSDP for Microsoft Excel Productivity Software at the University of Pittsburgh. The evidence revealed ways that the FSDP has influenced an increase in proficiency with Microsoft Excel, maximizing technical efficacy within the University responsibility centers. The research results also show that development training is essential in assisting support staff with adapting to technologies related to the workplace in higher education institutions.

5.0   DISCUSSION

The twenty-first century has an astounding technological growth rate that has created the impetus for efficient utilization of technology. The effects of technology create a responsibility for University of Pittsburgh leadership to be cognizant of the technical influences and implement policies to assist staff with adapting to innovative academic and administrative technologies. The implementation of technical learning and development policies for staff can lessen obstacles in using emerging workplace technology, reduce technical intimidation, and increase professional proficiency. Shoham (2009) states that effective technology support and resources are needed to maintain technical competence. Research also indicates that technology is evolving at a fast pace, creating a need for new digital skills to become proficient with technical applications and software (Eshet-Alkalai, 2010). The stated scholarly discourse from Shoham and Eshet-Alkalai support the emerging themes from my research in that the FSDP Microsoft Excel workshops decreased the sample population's sense of intimidation with using productivity software and increased knowledge and skills in technical proficiency.

As stated in chapter two of my literature review, the scholarly discourse on staff development has little dialogue pertaining to staff development for support staff in higher education. Most references on staff development in higher education refer to faculty. For institutions of higher learning to make a greater impact on their espoused mission, staff development must be given a more comprehensive approach that provides similar intentionality as that given to faculty development. My culture of evidence model illustration in chapter three

regarding my research methods provides an outline of my practitioner experience as it relates to my research intent on staff development at the University of Pittsburgh. Kramer and Swing (2010) argue culture evidence within institutions should drive leadership and strategic planning. Therefore, my culture of evidence model is a significant facet that should be included in a much broader scheme in assisting leadership with strategic planning for learning and development within the University of Pittsburgh at-large.

5.1   ADAPTIVE LEADERSHIP

Learning and development resources at the University of Pittsburgh must be available for all support staff in response to emerging technology. An adaptive challenge for leadership regarding staff development is to cultivate a culture of technical proficiency in a climate of changing academic and administrative paradigms affected by innovative technology. Seibold and Gamble (2015) state knowledge is the core competency within institutions, in which training facilitates a continuous process of learning. Adaptive leadership must provide an effective staff development program that is in alignment with ever-changing institutional technology. Progressive leaders must understand current influences of technology to incorporate innovative ways to help staff become a part of an adaptive culture of constant change.

Based on staff development best practices within business and higher education, leadership is an imperative contributory factor that must encourage and initiate resources for technology learning programs that equip staff with new technical skills for the workplace. Previously, in chapter two of my literature review, I referred to Boroch, et al (2007), which argues that leadership is key in the development and implementation of staff development

programs that are in alignment with the organizational mission. A shared institutional vision for staff development is vital and must be communicated by leadership throughout the organization-at-large (Seibold and Gamble, 2015). My research interview protocol revealed that departmental leadership does indeed endorse time for staff development, but it also revealed that everyone among the sample population was self-motivated and took ownership of their learning and development with limited assistance and direction from leadership. It has been my practitioner experience that University of Pittsburgh leadership encourage staff participation in learning and developmental initiatives, but there are no formal institutional policies and guidance for generalized or individualized staff development University-wide. This ambiguous practice leaves staff development as an individual option rather than an institutional standard. Although there are vast technical advancements and resources at the University, many staff have limited assistance in navigating through the complexities of a technological landscape. The lack of a formal unified institutional staff development policy is a disconnection from the scholarly discourse regarding leadership and its responsibility to create an institutional culture for learning and development that promotes technical efficacy.

5.1.1 Leadership Involvement

Technology trends have created a need for adaptive change at the University of Pittsburgh. The effects of innovative technology create the need for effective institution strategic planning that provides institutional stability (Alfred, 2006). Adaptive leadership is a vital factor in being responsive to an evolving educational culture strategically guiding learning and development policies that increase technical efficacy.

Adaptive leadership must also have an active role throughout the entire development and implementation of policy mandates. The following leaders at the University of Pittsburgh have a significant role in influencing learning and development policies that affect outcomes to maximize technology proficiency, reduce technical intimidation, and increase professional performance:

1. Board of Trustees and Chancellor: Mandates innovative technologies and supportive resources for learning and development that equip staff in the effective utilization of innovative academic and administrative technology.

2. Vice Chancellor Offices, Provost Office, Deans: Responsible for the governance of research, academic, and administrative units. These Department Chairs have the authority to grant approval for the implementation of emerging technologies to ensure academic and administrative stability as well as for professional development programs.

3. Directors, managers, supervisors: Enforce mandates by providing oversight, support, and encouragement for staff technical development within the workplace. These individuals have a direct impact on their units in setting the vision that aligns with the University mission. They also are responsible for the facilitation of the day-to-day academic and administrative mission.

Support staff at the University of Pittsburgh are the direct stakeholders who receive lasting benefits from adaptive leadership's ability to effectively articulate and guide progress in acceptance of a shared vision in learning and development that increases staff awareness and skills regarding innovative technology that influences the institutional mission. Staff learning and development that increases professional proficiency will directly or indirectly affect successful academic outcomes for faculty and students. To achieve relevant and sustainable learning and

development, adaptive leadership at the University must approach staff development with a more hands-on approach that guides technical efficacy rather than allowing staff development to be a solely voluntary endeavor. If staff development is an institutional mandate that stimulates a culture of learning with leadership guidance, support, and encouragement, this will result in more staff participation in technical learning and increase human capacity with technical efficacy at the University.

When there is a lack of leadership involvement – a laissez-faire approach to strategic planning and policies that promote a culture of learning development driven by innovative technology -- the following conditions can exist within the University community:

- Lack of impetus for learning and development in technology.

- Deficiency in University buy-in for staff development.

- Lack of staff commitment towards learning how to use new technology.

- Staff perception of new technology as a hindrance towards job performance.

- Staff frustrations with continuous technological upgrades.

- Insufficient time allotted by leadership for staff to learn technology related to job performance.

- Lack of leadership guidance and support of staff technical efficacy development.

- Limited one-on-one or workshop support.

- Lack of technical training and resources conducive to all learning styles.

- Lack of user-friendly documentation.

- Lack of financial funding for training resources.

- Lack of dissemination of communications about innovative technology throughout the University community.

Leadership and strategic planning are conduits to assist in the introduction and guidance of policy implementations that address the above-listed deficiencies. After the development and critical analysis of implementation procedures, leadership must work closely with support staff in academic and administrative units to provide a smooth transition that lessens learning and development barriers. Institutional learning and development must be a joint effort that includes leadership and staff commitment.

5.2   STRATEGIC PLANNING

Innovative research, academic, and administrative technologies are rapidly altering the workplace at the University of Pittsburgh and creating more demands on support staff to adapt to innovative technology. Lacking the necessary skills in using workplace technologies increases the potential for deficiency in professional proficiency using academic and administrative technology. Technology learning and development that bridges the gap between staff technical deficiency and proficiency is paramount within institutions. Millennial technology is an integral factor in the development and implementation of a strategic plan for staff development that is in alignment with an institutional mission and changing workplace technologies. Many job requirements within the University of Pittsburgh are changing along with the institutional paradigm. Jobs that will be available a decade from now do not exist today (Frey, 2014). Therefore, leadership must implement a strategic plan and policy that initiates staff learning and development that is consistent with an evolving institution. The University of Pittsburgh has an excellent opportunity to establish a staff development program that provides progressive skill preparation for an ever-changing work environment.

University leadership must initiate shared-governance in the development and implementation of an institutional strategic plan and policy that encourages and helps staff enhance and learn new technical skills in a changing environment. Strategic planning must establish a policy that helps staff with the following mandates:

- Understanding how their role and their unit's mission relate to the University mission.

- Understanding how technology is transforming their unit and the University-at-large.

- Understanding technology that relates to their work environment.

- Understanding needed technology skills and new skills that will be in demand.

- Providing a generalized and personalized technology development plan.

- Monitoring and assessing staff technology learning and development outcomes.

Because of the technology phenomena, it is imperative that staff development in technical proficiency be an essential component of an institutional strategic plan. Staff are vital to the successful outcome of an institution; therefore, staff development is a pertinent investment. A question that comes from the Linkedln Development and Learning Network is:

"Did you know that the average shelf life of skills is less than 5 years (Linkedln, 2016)?" Linkedln provides valued evidence that strategic planning must be designed for staff investment in learning and development that is more institutionally inclusive and focused on the growing need for technical efficacy.

5.3   RESEARCH INDICATORS

Based on the research results from the qualitative data on the survey instrument, Organization Development at the Office of Human Resources appears to have a successful FSDP that is in

alignment with effective strategic planning. The sample population evaluates the Course Content, Facilitator, Course Aids, and Overall categories at the highest rakings ("Strongly Agree" and "Agree"). This suggests the FSDP for the Microsoft Excel workshop has a well-organized strategic plan that produces favorable learning outcomes. Both the quantitative and qualitative data from the survey instrument and interview protocol support the results, providing in-depth information regarding the specific knowledge and skills used in the work environment, such as manipulating data and creating functional spreadsheets with Microsoft Excel.

It is apparent that the Office of Organization Development provides a viable venue for staff development at the University of Pittsburgh, but staff development workshops lack broad staff participation. The University of Pittsburgh employs 6,845 full-time and 303 part-time staff at their Oakland campus according to the Fact Book on the Institutional Research website (ir.pitt.edu). However, during the school year 2015-2016, only 292 staff at the Oakland campus attended the FSDP for Productivity Software (see Appendix C for the Faculty and Staff Development Program Technology Workshops attendance by term during 2015-2016). The pie chart below offers a visualization of staff participation in the Faculty and Staff Development Program (FSDP) for Technology Workshop through 2015 to 2016.
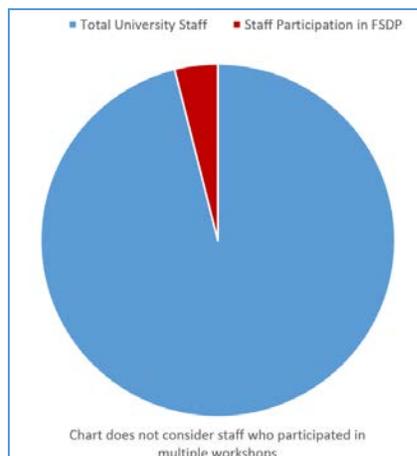

Figure 6. University of Pittsburgh Staff Participation in the FSDP Technology Workshops

Compared to the total University staff number, 1.6 percent of staff participated in the Faculty and Staff Development Program Technology Workshops. This statistic does not consider staff who participated in multiple workshops; therefore, the percentage of staff who participated in the technology workshops is lower. For an institution highly influenced by innovative research and administrative technologies, the University of Pittsburgh must be more proactive in establishing a culture motivated by learning and development to increase technical proficiency.

Comparing my research results to the four levels of the Kirkpatrick Framework Evaluation verified that the FSDP for the Microsoft Excel Productivity Software achieved successful learning outcomes for the sample population. The evaluation of the results revealed the following:

- Reactions from the FSDP generated enthusiasm and strong motivation for learning new Microsoft Excel skills.

- The learning objectives from the FSDP were met.

- Transfer of knowledge and skills from the FSDP were accomplished.

- Specific skills learned from the FSDP were applied in the workplace.

My evaluation for the FSDP provides credible information in establishing key performance indicators for a staff development program. From my practitioner experience, the FSDP also appears to be a successful learning program and should be connected to a more expansive staff development program within the University community. Given the low staff participation in the FSDP, it necessitates the need for leadership to initiate an institutional policy for staff development that incorporates my previously stated policy mandate for technical proficiency.

LinkedIn (2017) Workplace Learning Report states that in most organizations the Office of Human Resources is responsible for staff learning and development. It is my opinion that no matter how an organization strategically implements learning and development it must be leadership driven throughout the strategic planning process and policy implementation. When technology learning and development are voluntary, staff participation can be low as revealed in the FSDP at the University of Pittsburgh. LinkedIn (2017) also reports that large organizations focus more on career development and soft skills rather than prioritizing technical skills. The less than 1.6 percent of staff participation in the FSDP for Productivity Software at the University of Pittsburgh supports LinkedIn's national findings on technology learning and development in that information technology receives lesser attention.

The question at hand is when less than 1.6 percent of staff at the University participate in the FSDP for Productivity Software: Are staff-at-large equipped in the utilization of workplace technology? Scholarly discourse responses to the question as previously stated in my literature review, the Neilsen 2016 research findings concluded that 95% of employees in the United States and 32 other countries from the ages of 16 to 65 in the workplace had low technical competency skills. Many employers in the United States face the challenge of new college graduates lacking essential workplace skills (Spellings, 2006). Ninety percent of company executives in the United States report there is a skills gap within the workplace (LinkedIn, 2017). Neilsen (2016) also argues that contrary to the popularity of personal computer and internet usage in the United States, many employees lack strong skills in workplace technology. These scholarly references provide supportive evidence for the need of staff development at the University of Pittsburgh in technological efficacy training. To have more staff participation in learning and development in the use of technology, leadership must take a more proactive role

developing a culture of learning and development through establishing a strategic plan and technical usage policy as stated.

5.3.1 Causal Impact

My casual impact model on the next page is based on, Jaccard, Jacoby's (2010) refer to a direct causal relationship in which one variable affects the outcome of another variable. My conceptual model illustrates the learning outcome effects resulting from academic and administrative software. Within the model, administrative leadership and strategic planning have a causal impact on a negative or positive influence on staff who use academic and administrative software: thus, implementing technology learning and development establishes staff technical efficacy, while a lack of technology training produces staff technical deficiency. Adaptive leadership at the University of Pittsburgh is a key variable to implementing policies and effective learning resources to support technical efficacy. Leadership also have the responsibility to forecast and provide technological resources to guide the enhancement of the use of academic and administrative software through staff development. The underlying foundation of the causal impact model below is leadership, strategic planning, and policy. This is represented in my literature review discourse, research results, and practitioner observation.
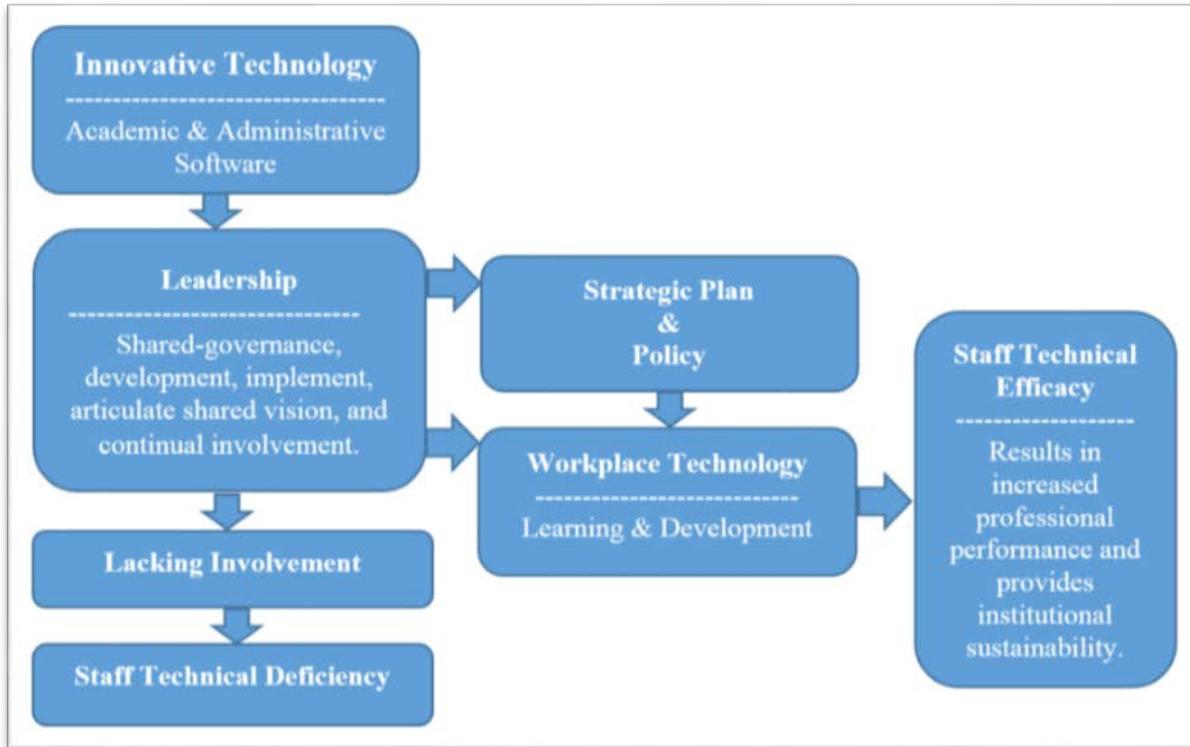
Figure 7. Causal Impact Model

The successful implementation of technology training policies hinges upon effective strategic planning that utilizes an organization's capacity to measure institutional strengths, weaknesses, opportunities, and threats. Positive effects from training polices produce institutional outcomes that provide value and relevance in three areas. First, it enhances human capital by strategically planning for technology training that provides support for evolving academic and administrative units. Second, it allows for the implementation of policy mandates that provide learning and development resources that affect staff maximization of technology proficiency related to professional performance. Thirdly, the positive impact of social capital promotes outstanding recognition for institutional staff technology learning and development programs. One instance of such social capital is the recognition of the University's membership in the American Association of Colleges and Universities, which is a network of peer institutions

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at leading public and private research universities. Membership in the American Association of Colleges and Universities is by invitation and based on outstanding recognition in educational programs and academic research.

Russell and Bray's (2013) article argues that the intended goal of educational policies is to produce positive learning outcomes and minimize learning risks. Seibold and Gamble (2015) argue training is critical in providing staff skills to support continual growth required for job performance within organizations. Training is also essential to monitoring and evaluating staff knowledge, and expertise (Seibold and Gamble, 2015). The upper-level leadership at the University of Pittsburgh must mandate procedural methods to guide how staff development responds to technological advancements that align with policies for learning and development. Therefore, the expected outcomes from strategically planning technology-training policy at the University of Pittsburgh will consist of institutional sustainability to increase staff technical efficacy and create a culture of learning consistent with technological advancements. Leadership must implement strategic planning and policies that improve upon technical skills relevant to the workplace environment. Learning and development are essential to acquire skills for a workplace that is continually evolving because of innovative technology.

5.4   POWER BEHIND ORGANIZATIONAL CAPACITY

Beaver and Weinraub's (2012) definition of organizational capacity minimizes ambiguity in its interpretation of four components: human capital, social capital, program coherence, and resources. Their definition provides a universal means to evaluate organizational effectiveness.

The following components of organizational capacity relate to learning and development at University of Pittsburgh:

- Human Capital: The organizational culture at the University of Pittsburgh is committed to technology training that provides sustainable value to the University community. The improvement purpose and outcome are means to maintain skills and commitment.

- Social Capital: The organizational culture appears as a unified network of relationships committed to a joint mission. Staff technology learning and development must be a shared institutional vision that results in establishing a culture committed to technical efficacy.

- Program Coherence: Organizational culture that is dedicated to technical proficiency must maintain appropriate learning and development resources that meet the needs for the utilization of innovation technology.

- Resources: The collaboration of the Office of Human Resources and Computing Services and Systems Development in the University of Pittsburgh provides technology learning and development for the University-at-large.

In utilizing the construct of organizational capacity within the University of Pittsburgh, two key factors come to mind that would affect the implementation process for attainable effective outcomes regarding technology learning and development: organizational buy-in and shared governance.

The successful implementation of learning and development related to workplace technologies hinges on effective strategic planning driven by leadership at the University. The concept of Beaver and Weinraub's organization capacity can be a measurement instrument to evaluate the University of Pittsburgh's capacity during the strategic planning process for

effective staff development at-large. The University of Pittsburgh's organization capacity is vital in the implementation of learning and development in equipping staff to use innovative technology; but without organizational buy-in and shared governance, the components of organizational capacity can be ineffective in providing meaningful staff development. Leadership must articulate the importance of learning and development within a culture that is influenced by ever-changing technology, along with providing the clarity of purpose that produces the buy-in that drives organizational capacity. Shared governance is also a significant part of the strategic planning process that reinforces staff members' personal stake in and commitment to learning and development that increases technical skills. Organization capacity is like a well-built vehicle: without the power of buy-in (engine) and the spirit of shared governance (gasoline), the vehicle looks good but is not functional at its fullest capacity.

6.0   RECOMMENDATIONS

"Technology gives us power, but it does not and cannot tell us how to use that power (Sack, 2015)."

To maintain a standard of excellence at the University of Pittsburgh, staff development in technology must be a core tenet that results in a positive institutional accreditation standing. Relevant institutional technology is a part of the evaluation and assessment process to acquire accreditation favorably. Therefore, technology utilization by staff should be at a prominent level. As the University must meet accreditation standards, staff should also be evaluated for their technical proficiency, given the technological influence on the University. The evaluation process provides clarity for improvement of educational training that result in institutional effectiveness towards assessment (Kramer, & Swing, 2010). My Technical Proficiency Accountability Model, illustrated in the next section, is a tool that can be used for continual evaluation and assessment of staff technical development in a non-threatening and encouraging environment that helps staff perform at their full potential.

Lake and Purschak (2006) indicate the following challenges to meet the new demands in higher education: implementing of appropriate technology, hiring the right people, providing technical training and support, and developing policies and procedures for computing usage. The University of Pittsburgh hires talented staff who meet professional qualifications in providing support to academic and administrative units. After employees are hired, more intentional efforts to encourage continual learning and development must be given. The University provides

innovative technologies for staff usage, but there is a minimal investment in learning and development that helps staff to navigate through the technological landscape and provides individualized technical development planning that aligns with workplace needs. The influence of technology is transforming the global society, in which many jobs that will exist a decade from now do not exist today (Frey, 2014). Gray (2013) states because of the radical changes in global technology, skills needed in the workplace are changing as well. Gray (2013) also references the Australian Financial Review, which estimates that by the year 2020 the workplace will be using approximately 70 percent technology solutions to perform tasks. The scholarly evidence warrants an urgency for learning and development at the University to help staff understand and use innovative technology. Workplace technology at the University of Pittsburgh is evolving with twenty-first century technology solutions to maintain relevance and sustainability as a leading public research institution.

6.1 TECHNICAL PROFICIENCY ACCOUNTABILITY

As a practitioner in technology training, I witness staff at the University of Pittsburgh who struggle with utilizing technology professionally. Within the last two decades, technological advancement has been explosive. Information technology doubles typically every 18 months, resulting in the future accelerating faster than ever (Taylor, 2015). For staff to remain technologically savvy can be a daunting challenge given the rapid change rate of technology.

My research also attempted to measure the adaptive challenge that staff may experience with innovative technology in their workplace environments. The inundation of technological innovation and its resources for learning can be overwhelming and an adaptive challenge. Staff

development is an essential component to nurturing technological efficacy. Because there are numerous resources available for technology learning, it raises the question: what methods have been implemented to help staff navigate through the maze of an ever-changing technological landscape and provide a personalized approach for technical efficacy? My research inquiry and practitioner observations have revealed evidence of a missing component for staff development at the University of Pittsburgh that when incorporated could increase technical efficacy and professional proficiency. A formal policy that connects the FSDP to a shared vision for a University culture of technology learning and development is lacking. The absence of a shared vision for staff learning and development within the University is contrary to its mission of higher learning. As I previously stated in chapter five, it is essential for leadership to initiate strategic planning and policy implementation that ensures a University-wide culture of staff learning and development in technical proficiency.

6.1.1 Proposed Deliverable

My proposed deliverable is a recommendation inspired by my research and practitioner experience, to develop, evaluate, and assess staff technical proficiency at the University of Pittsburgh. If given an opportunity to participate in an institutional shared-governance for staff development, my recommendation for a learning and development plan can guide staff towards technical efficacy in utilizing my Technical Proficiency Accountability Model (TPAM) illustrated on the next page.

Figure 8. Technical Proficiency Accountability Model (TPAM)

This model combines coaching and personalized staff technical development with the goal of increasing job proficiency. The Technical Proficiency Accountability Model was created out of the scholarly discourse regarding staff development and my practitioner experience in technical training. My recommendation would also suggest that my model is implemented as a pilot program to evaluate and assess its capability to enhance staff technical proficiency. The Technical Proficiency Accountability Model's essential component is assessment coaching that assists staff with a personalized plan of action for technology development in the workplace. The initial assessment-coaching goal is to measure staff technical proficiency level in the workplace

and then debrief staff on navigating through the available technology tools, resources, and services to personalize a development action plan. The initial staff technical assessment will determine learning needs to inform the development of a plan that will define goals and objectives. The assessment coach will also measure staff development outcomes for technical proficiency and the continuance of a development plan. Another recommendation for my Technical Proficiency Accountability Model would be to connect it to the Staff Annual Appraisal as a collaborative effort for accountability among a manager/supervisor, staff, and assessment coach that is non-threatening. The academic/administrative unit or the Office of Organization Development can choose the assessment coach. The assessment coach must have qualifications in coaching, innovative technology, evaluation, and assessment.

6.2   MEETING THE MILLENNIAL CHALLENGE

There is an increasing gap between staff technical competency and the usage of emerging academic and administrative technologies in higher education institutions. Job skill requirements are also shifting rapidly because of technology. With the continuous academic and administrative demands within higher education, many staff struggle to stay current with new software and software upgrades; in some cases, they never have an opportunity to develop proficient technical skills. Obstacles related to digital information literacy are consequential to anxiety in developing technical skills (Jeffrey, 2011). Technology training for staff is essential in bridging the gap between emerging technology and digital deficiency (Al-Musawi, 2007). Throughout my practitioner experience in technical training, many workshop participants have expressed the challenge to commit time to learn productivity software because of time constraints regarding

work responsibilities. It has also been obvious from my workshop discussions that self-taught learning does not always provide an extensive comprehension of innovative technology, but only enough technical knowledge to function at a basic level.

As information technology is evolving at an astounding pace in the twenty-first century, it creates great adaptive challenges for staff as technological advancement is outpacing technical proficiency. In approaching these challenges, strategic planning provides value advantages and lasting benefits to stakeholders (Alfred, 2006). Therefore, the University of Pittsburgh administration must know which technology learning and development resources are applicable to provide sustainable value for its institutional mission. With increasing academic and administrative responsibilities, many staff are inundated with new and upgraded technologies. The millennial technology phenomenon of constant change creates the necessity to implement a staff development plan that affects outcomes to maximize technology proficiency, reduce technical intimidation, and increase professional performance that results in value for the university community.

In closing, my recommendation for administrators at the University of Pittsburgh is to consider the exponential change rate of innovative technology and its effect on staff technical proficiency. Scholarly evidence has revealed there is a gap between technical proficiency and emerging technology. Because of twenty-first century technology, leadership will continue to be faced with more adaptive challenges in guiding strategic planning that lessens the gap between technology and its usage. To compete in a technological society, an organization must develop stronger strategic planning to adapt and transform with the opportunities and risk generated by the increased demand for learning and access to technology (Hanna, 1998). Administrators must strategically prepare support staff for the evolutionary pace at which technology is changing the

workplace. Global technology continues to make enormous strides and the University of Pittsburgh faces the challenge of maintaining sustainable and relevant innovative technology for its institution while ensuring learning and development methods that enhance the use of millennial technology solutions.

7.0   CONCLUSION

Imagine how the University of Pittsburgh would function without support staff in academic and administrative units. Greenleaf (1991) gives an excellent portrayal of a fictional character named Leo who demonstrates servant leadership. Greenleaf's imaginary individual keeps a campsite well organized for his fellow nomadic campers. The impact of Leo's service goes unnoticed until his mysterious disappearance leaves the encampment in disarray. Hypothetically, if support staff at the University did not show up for work or not provide professional support to their full potential, it would create a similar scenario. The staff at the University of Pittsburgh provide vital professional services toward successful institutional outcomes. Staff professional contributions are central to the University's mission and effectiveness. Therefore, it is imperative that the University invests in staff learning and development programs that increase technical performance within an environment of technological advancement.

Higher education leadership and strategic planning are the driving forces behind an institutional culture of continuous staff learning and development. The top two themes that affect excellence in higher educational institutions are leadership and strategic planning (Ruben, Russ, Smulowitz, & Connaughton, 2007). My research reveals the importance of leadership and strategic planning for initiating a culture that recognizes staff as key contributors along with leadership. Staff provide significant contributions to the academic and administrative culture at the University that result in considerable impact on institutional accreditation outcomes.

Leadership seeks the most professionally qualified candidates to fill job positions, but after hired there is little incentive to invest in their learning and development. This situation is like, after purchasing a new car and then not providing any maintenance to it. Leadership has a responsibility to implement learning and development in a new way to assist staff within an adaptive culture. Technology is transforming the workplace at a fast pace, creating a need for staff to develop their technical skills to meet new challenges. Because of the paradigm shifts caused by technology, adaptive leadership can help staff to engage in the learning and development process, which in turn helps increase technical proficiency in an evolving workplace.

Adaptive leadership implements effective learning and development that provides enduring value. The most significant attribute of adaptive leadership is developing their staff to meet the challenges of today and tomorrow. Rost (1993) states that leadership must commit to the transformation of their staff and organization. Another important aspect of staff transformation is leadership's ability to be cognizant of generational learning to establish effective learning and development programs. Today's workplace is comprised of Baby Boomers, Generation X, and Millennials. Cornerstone (2017) addresses how the generations learn as follows: Baby Boomers are one-on-one learners, Generation X are independent learners, and Millennials are digital learners. Heathfield (2017) and LinkedIn (2017) suggest internal and external training, mentoring, peer-to-peer coaching, job shadowing, and online training are best training practices in organizations. Therefore, effective learning and development programs must be relevant to meeting the needs of generational learning, providing multiple learning venues.

Another aspect of technology learning and development leaders must be aware of is change. Change is an arduous process for most people; many individuals struggle with

embracing change. An individual's life-shaping experiences frame how they view change. Researchers suggest at around eight years of age an individual's personality is shaped. Given the development of individuals' worldview during their early years, most individuals do not voluntarily seek change. Thus, uncontrollable life events force most individuals to change. With this in mind, adaptive leadership must assist staff to seek continuous learning and development to meet demands of the changing workplace and dynamics in the university environment. The primary internal challenge is creating an adaptive culture to establish trust and respect in which staff value the importance of growing with the institution.

Numerous institutional dynamics cause adaptive challenges for staff, one being learning innovative technologies. Assumptions, which Kegan and Lahey (2001) state are a person's worldview entrenched within their personality, are the lens by which individuals deal with their adaptive challenges. Staff assumptions are rooted in competing commitments, such as fear of power shifts, learning new skills, and new assignments (Kegan and Lahey, 2001). Therefore, leaders must be knowledgeable of competing commitments to guide and empower staff through effective learning and development to obtain institutional benefits.

Finally, as a practitioner, I develop and implement technical training and provide staff support on various technologies such as productivity software and administrative system applications. These are my responsibilities that help support staff to become proficient with university technology resources and services. Because I provide technical training for staff, I have noticed an increasing need for staff development as the university environment continues to change rapidly. To meet this adaptive challenge, I strategized with the Office of Organization Development at the Office of Human Resources, management, and colleagues to implement learning and development programs within the University. My objective was first to seek self-

learning and development to increase my own technical efficacy and teaching ability. Cashman (2008) argues that an effective leader leads by example from the inside out, first developing ones best self. As leaders lead by example, it is my goal to teach from the inside out by first learning myself and then empowering staff to increase their own professional proficiency. My goal is to create a safe and nurturing environment that fosters learning and development to increase staff technical skills that meet the needs of a changing university community. Staff at the University who are committed to the institutional mission can experience as well as prompt positive outcomes within their working environment. As the University of Pittsburgh makes advancements into new research and academic frontiers, support staff that have acquired technical efficacy can share in the adventure that contributes to institutional excellence, sustainability, and relevance in a millennial era.

APPENDIX A

FACULTY AND STAFF DEVELOPMENT PROGRAM COURSE EVALUATION

Faculty & Staff Development Program
Course Evaluation

Please take a few moments to complete the following evaluation. When you are finished, give the evaluation to the facilitator. The results of the evaluation will be used to provide feedback to the facilitator regarding content and delivery. Thank you for your feedback!

Date:		Course Name:	
Time:			
Room:		Facilitator(s):	

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	N/A
Course Content Evaluation						
1. The course objectives were clearly stated.						
2. The objectives of the course were met.						
3. Too much information was presented in the allotted time.						
4. I find the information to be valuable and important to my professional/personal learning.						
5. I can apply the knowledge/skills I acquired in this session in my current job.						
6. The material directly relates to the work I do.						
Facilitator Evaluation						
7. The facilitator was prepared for the course.						
8. The facilitator demonstrated a firm understanding of the course content he/she covered.						
9. The facilitator clearly communicated the information he/she covered.						
10. The facilitator demonstrated enthusiasm about the subject matter.						
11. The facilitator was attentive to my individual learning needs.						
12. The facilitator kept my attention.						
Course Aids						
13. I found the visual aids (e.g., handouts, flipcharts) to be effective in illustrating/supporting the material.						
14. I found the learning activity (e.g., case study, group discussion) to be effective in illustrating/supporting the material						
Course Environment						
15. The room was conducive to learning (e.g., lighting, temperature).						
16. The set-up of the room was conducive to learning.						
Overall						
17. Overall, I am satisfied with the information received in this course.						
18. Overall, I am satisfied with the facilitator.						

Evaluation continued on back....

...Continued from front

Our desire is to continually improve the courses we offer, and we would appreciate any feedback you might offer. Thank you for your feedback!

What did you like the most about the course?

What did you like the least about the course?

What would you change to improve the course?

Please provide any additional comments:

What other courses would you like to see offered?

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APPENDIX B

INTERVIEW QUESTIONNAIRE

	Interview Protocol Questionnaire
1	What was your motivation for taking the Microsoft Excel Workshop?
2	Can you give examples of the knowledge and/or skills you learned from the workshop?
3	In what way did the knowledge and/or skills you received from the workshop help your job performance?
4	Have you been able to keep up with the annual upgrades to the Microsoft Excel Productivity Software? If yes or no, please explain. What version of Microsoft Excel are you currently using?
5	What are the Microsoft Excel skill requirements for your specific job duties?
6	In what way have your supervisor and/or manager been supportive of staff development in technology training?
7	How will your participation in the Microsoft Excel Workshop influence your Annual Staff Performance Appraisal?
8	What advice would you share about the Faculty and Staff Development Program Workshops for Microsoft Excel?

.

APPENDIX C

TECHNOLOGY WORKSHOPS BY TERM 2015 - 2016

Faculty and Staff Development Program Technology Workshops by Term 2015-2016

	Spring 2015	Fall 2015	Spring 2016	Fall 2016
Attendance	35	67	99	91
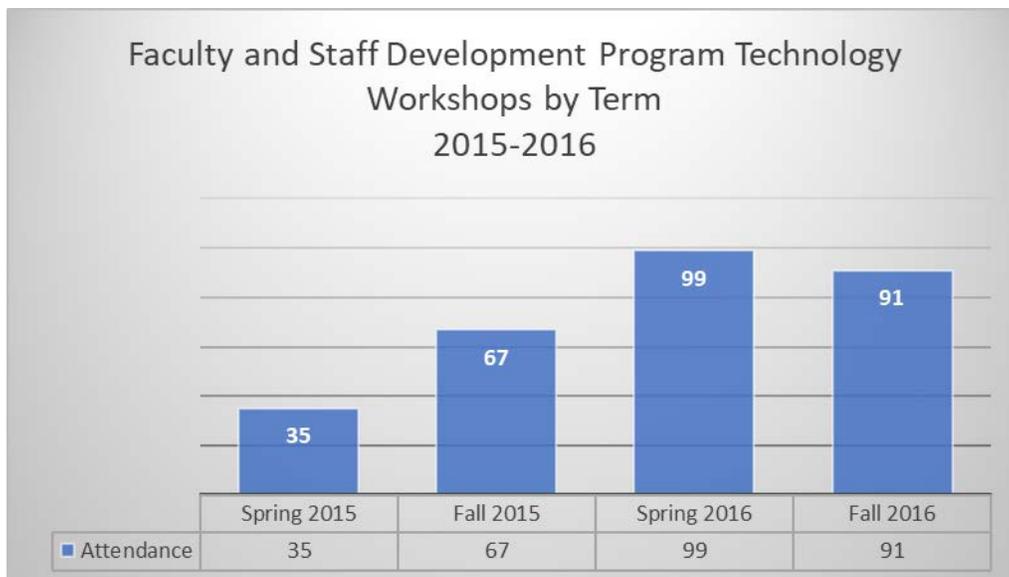
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