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Post Advanced Technology Implementation Effects on School Psychologist Job Performance

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Walden University
2017

Abstract

Post Advanced Technology Implementation Effects on

School Psychologist Job Performance

by

Rana Dirice Hobson

M.S., College of New Rochelle, 2000

B.S., Hunter College, 1993

Dissertation Submitted in Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

Psychology

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Abstract

The technology acceptance model (TAM) has been widely used to assess technology

adoption in business, education, and health care. The New York City Department of

Education (NYCDOE) launched a web-based Individualized Educational Program (IEP)

system for school psychologists to use in conducting evaluations and reviews. This

quantitative study examined the relationship between school psychologists' TAM factors

associated with the web-based IEP system's perceived usability and usefulness measured

by a TAM Instrument with individual job performance assessed by the Job Performance

Ratings Measure. A random sample of 69 NYCDOE school psychologists participated in

this study, and a regression analysis addressed the research questions. The results showed

no positive effects of perceived ease of use in job performance. In addition, there were no

positive effects of perceived usefulness in job performance. The results of this study

might benefit administrators and districts to see the need to explore additional resources.

As ease of use and usefulness are vital to technology acceptance, providing resources to

school psychologists are key to the overall success of the IEP process. Future research

should take a qualitative approach to illuminate why and how school psychologists accept

technology, especially when it involves the IEP process.

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Dedication

       I dedicate my dissertation to my parents, Mr. and Mrs. Joseph and Rosa Hobson, who celebrated their 51st wedding anniversary on June 19, 2016. My parents are so dear to me, and I love them so much. Every goal that I have wanted to achieve, my parents have given me 100% support. I also dedicate my dissertation to my siblings, Rhonda, Rolanda, and Joseph Jr., for all of their support and love as well. To my nieces, Demi and Daniele, and my nephew, Deion: Always aim high in your goals and know that with hard work and dedication, all can be achieved.

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I continue to give glory and honor to God for answering my prayers and giving me strength to overcome any adversities during this dissertation process. Special thank you expressed to my family, especially my parents, who have instilled in me the importance of education and following my dreams. They made sure to block all calls and other distractions while I was in the basement working away at my computer. Thank you to my siblings, nieces, and nephew for checking on me throughout this process. I give special thanks to my extended family, dear friends, church family (St. Andrew's Episcopal Church – New York City), coworkers (Harry S. Truman High School – Bronx, New York), and sorority sisters (Delta Sigma Theta Sorority, Inc.) for their support as well. There were so many times when I was unavailable, yet I continued to receive so much understanding and support. Thank you to Walden University's staff, especially, Dr. Rachel Moore, Committee Chairperson, and Dr. David Yells, Committee Member, for their professionalism, expertise, and support in helping me reach my goal.

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Chapter 1: Introduction to the Study

Introduction

Job performance is a meaningful concept as it relates to the success of an organization, group, and individuals (Beheshti & Beheshti, 2010; Bravo, Santana, & Rodon, 2015) and is defined as how well an individual or group performs a task (Smedley & Wheeler, 2009). In this competitive work world, individual success and productivity are vital to organizational success (Lin, Chen, & Wang, 2011). With this idea, companies implement new systems or equipment to improve job performance and overall outcome (Lin et al., 2011). In the workplace, computer technology can be effective in increasing the productivity and efficiency of individual and group tasks (Bell & Kozlowski, 2012), and various companies use computers to accomplish this increase among their workforce. For example, retailers speed item purchasing and reduce checkout lines; airports screen passengers to ensure safety and ease the check-in process; and banks accurately keep customer financial records and provide access to accounts (Alhendawi & Baharudin, 2013; Beheshti & Beheshti, 2010; Cascio, Mariadoss, & Mouri, 2010). Educational institutions utilize computer technology for their personnel to save time, record students' performance, easily access students' information (More & Hart-Barnett, 2014), and produce more professional-looking documents (Borisinkoff, 2014).

Researchers have applied Davis' (1986) technology acceptance model (TAM) on the effects of new technology on job performance in the fields of business, education, and health care (Hernandez, Jimenez, & Martin, 2008; Holden & Karsh, 2010; Mouakket, 2010; Smarkola, 2007; Teo, 2011; Teo & Noyes, 2011). Specifically, the model can be used to examine how perceived ease of use and perceived usefulness contribute to job performance (Davis, 1993). However, researchers have not yet explored the application of TAM to study advanced technology effects on school psychologists' job performance, especially as it relates to the Individualized Educational Program (IEP) process.

Background

In this study, I examined the use of advanced technologies among a sample of school psychologists and their job performance. Certified school psychologists hold at least a master degree in school psychology and are certified by a state's department of education to work in school systems (NYSED, 2015). *Advanced technology* is much needed for school psychologists as their primary duties include writing comprehensive reports of psychological, educational, and vocational evaluations and behavioral plans (Florell, 2011) in collaboration with parents, pertinent school staff, and the students to develop an IEP (Yell, Katsiyannis, Ennis, & Losinski, 2013). Advanced technology refers to technology that is used to enhance performance (Florell, 2011).

An IEP is created for a child with a disability and reflects the child's academic skills, social and emotional functioning, health concerns, vocational interests, goals, strengths and needs, and appropriate recommendation of support services (Blackwell & Rossetti, 2014; New York City Department of Education [NYCDOE], 2009). School

psychologists are challenged with maintaining compliance of IEPs for students classified with a disability (More & Hart-Barnett, 2014). According to No Child Left Behind Act (NCLB), IEPs must accurately reflect relevant student information and completed in a timely manner to aid in educational planning (USDOE, 2015a). With growing technological advances, school districts have begun using computerized IEP systems to address these challenges (More & Hart, 2013).

From 2009 to 2011, the NYCDOE launched a Special Education Student Information System (SESIS), a web-based online data system used to track services for students with disabilities and support the workflow of the IEP process (NYCDOE, 2011). As a web-based system, SESIS supports authorized users to access students' online information rather than retrieve hard-copy school records that might get lost or misfiled (NYCDOE, 2011). One significant role of SESIS is to increase accessibility to students' records for designated school staff. In providing quicker access to student records, staff within the building are better prepared in meeting students' needs (More & Hart-Barnett, 2014). For example, teachers can immediately review student IEPs and identify the students' strengths, needs, and learning style that will aid in class instruction. A guidance counselor can immediately review the records of a newly admitted student to determine in which special education program that student would best succeed. Related service providers, such as speech, physical, and occupational therapists, can immediately access student records in their caseload to review students' needs prior to delivery of services.

According to the National Association of School Psychologists (NASP, 2006), school psychologists are responsible for the IEP process of students who are initially

referred to the Committee on Special Education and those who are currently receiving

special education services. With regard to SESIS, all assessments and documents related

to the IEP process are created and recorded on this web-based system. Hand-written

documents are no longer used. SESIS provides team members the ability to input

important information anytime and anywhere as long as they have Internet access.

According to More and Hart (2013), the use of technology in managing data eliminates

the amount of time spent on paperwork and improves the quality of work.

There is literature in the field regarding the use of technology related to IEP

software (More & Hart, 2013; More & Hart-Barnett, 2014). There is, however, a lack of

research that speaks to the use of web-based IEP systems and their effectiveness on job

performance for school psychologists. With this study, I filled that gap in the literature.

Problem Statement

In this study, I assessed job performance as a postimplementation job outcome

among school psychologists after using SESIS during the IEP process. The problem was

that implementation of software programs by school personnel may be accompanied by

nonadoption of the system (Holden & Rada, 2011; Plaza & Rohlf, 2008), lowering job

performance of technology users (Sykes, Venkatesh, & Johnson, 2014). Therefore,

researching any positive effects on job performance using the SESIS web-based IEP

system provided essential information to understand the support school psychologists

need.

According to NASP's (2006) Task Force on the Blueprint for Training and

Practice III, technology advancement has become a key topic during the past decade.

NASP (2006) identified the rapid growth of technology in psychology and endorsed its

use to support school psychologist duties. Florell (2011) noted that the rapid

advancement of technology since the 1980s has served to be significant in enhancing the

productivity of report writing, reducing manual labor, and saving time and money. Florell

also reported that the use of technology might enhance communication, consultation, and

intervention between parents and educators. More and Hart-Barnett (2014) further

reported that school districts have adopted technology to assist in compliance issues,

align an IEP with the state's curriculum, and lessen time to produce a quality IEP.

On the other hand, there are studies that reveal less positive responses to the use

of technology. More and Hart-Barnett (2014) reported that technology might also prove

challenging as these systems provide drop-down options that could diminish the focus on

an individualized plan. Blackwell and Rossetti (2014) reported that if the IEP process is

viewed as a paper pushing task, developing an individualized plan that is specific to the

child might be a challenge despite the use of technology. Florell (2011) stated that there

are positive aspects to the use of technology; however, with the rapid advancement of

technology, Florell emphasized the importance of exploring the adoption of technology

as this might impact how it is used. *Technology adoption* refers to user acceptance of

technology (Davis, Bagozzi, & Warshaw, 1989). Florell reported the importance of

exploring models that relate to the adoption of new technology for the school

psychologist. The TAM Instrument examines how technology users adopt new

technology (Davis et al., 1989). TAM has two variables: perceived ease of use (PEOU)

and perceived usefulness (PU; Davis et al., 1989). PEOU examines how technology is

easy to use and effortless, and PU examines how technology is useful in enhancing job performance or productivity (Davis et al., 1989). I investigated the relationship between PEOU and PU and job performance among school psychologists in this study.

Through an exhaustive search of literature, I found several articles that reported the adoption of technology in areas of business and health care (e.g., Holden & Karsh, 2010; Lee & Wu, 2011; Moshiri & Simpson, 2011; Mouakket, 2010). There was a gap in the literature assessing job performance as a postimplementation job outcome among school psychologists after using SESIS technology during the IEP process. I designed this study to fill the gap in literature and extend scientific knowledge of TAM.

Purpose of the Study

The intent of this study was to understand the effects of PEOU and PU of web-based IEP system on job performance for school psychologists during the IEP process. The goal was to better understand resources required for introducing web-based systems to improve technology acceptance. The results of the study might benefit administrators and districts in exploring resources needed to support school psychologists during the IEP process.

Research Questions and Hypothesis

In this study, I examined the effects of technology adoption on job performance for school psychologists in the IEP process. Technology adoption and job performance were respectively measured using the TAM Instrument (Davis et al., 1996b) and Job Performance Ratings Measure (JPRM) [Blickle et al., 2008; see Appendices A and B,

respectively]. I developed the following research questions (RQs) to address the identified gap in the literature:

RQ1: Does PEOU as indicated on the TAM Instrument have a positive effect on job performance as indicated on the JPRM among school psychologists after using SESIS technology during the IEP process?

H_11: PEOU has a positive effect on job performance among school psychologists after using SESIS technology during the IEP process.

H_01: PEOU does not have a positive effect on job performance among school psychologists after using SESIS technology during the IEP process.

RQ2: Does PU as indicated on the TAM Instrument have a positive effect on job performance as indicated on the JPRM among school psychologists after using SESIS technology during the IEP process?

H_12: PU has a positive effect on job performance among school psychologists after using SESIS technology during the IEP process.

H_02: PU does not have a positive effect on job performance among school psychologists after using SESIS technology during the IEP process.

Theoretical Framework

The TAM was the theoretical framework for this study (Davis et al., 1989), and it was adapted from Fishbein and Ajzen's (1975) theory of reasoned action (TRA) that examines people's behaviors in certain situations. Davis et al. (1989) introduced TAM to focus on people's behavior regarding the use of technology in the workplace and specifically, examine how users accept or reject new technology. User acceptance of new

technology is important to companies, as it determines the success or failure of the

system and job outcome (Teo, 2011). TAM is a widely used model in explaining or

determining user acceptance in adoption of technology (Liu, 2010). Since the 1980s,

TAM has been successfully applied to various technologies, job settings, and populations

(Davis et al., 1996a).

There are two important factors of TAM that examine user acceptance, PEOU and

PU, which impact the likelihood for user technology adoption (Davis et al., 1996a).

PEOU refers to how effortless the user perceives using the technology system to be

(Davis et al., 1989). Mouakket (2010) reported that the easier a technology system is the

more likely employees are to use the system. Teo and Noyes (2011) further reported that

the more difficult a system is, the less likely employees will be to use or accept the

system. PU refers to how a user perceived that the use of technology would improve his

or her productivity (Davis et al., 1989). Teo and Noyes reported that PEOU and PU are of

one directional effect in that the user's perception of whether a system is easy or difficult

to use will impact the perceived usefulness of the system, but the user's perception of

whether the technology is useful will not impact the user's perception of its ease of use.

Regardless of how useful the system is perceived, user acceptance might be low if the

user believes the system to be difficult to use. As PEOU and PU are key indicators to

examine user acceptance, in this study, I examined whether PEOU and PU of advanced

technology have positive effects on the job performance of school psychologists. Further

information on the TAM and its use will be provided in Chapter 2.

Nature of the Study

In this study, I took a quantitative approach to address the RQs to predict the relationship between the TAM variables of PEOU and PU and job performance among NYCDOE school psychologists. A random sample of 69 school psychologists who worked within the NYCDOE public schools was recruited to voluntarily participate in this study. Data were collected through surveys that participants completed using SurveyMonkey. Demographic variables included each participant's gender, age, borough employed, number of schools on caseload, number of referrals to special education on caseload, type of school (grade level), number of years employed as a NYCDOE school psychologist, and prior experience using online systems. The independent variable was technology adoption measured by PEOU and PU, and the dependent variable was job performance. I used the TAM Instrument to assess PEOU and PU, two measures of technology acceptance (Davis et al., 1989). Job performance was measured using the JPRM (Blickle et al., 2008). A descriptive analysis described the sample characteristics and the obtained data set. Data were analyzed using a multiple regression analysis.

Definitions of Terms

The following terms were operationally defined for the purpose of this study:

Accountability: Taking responsibility on a task to assure it is completed as required (Lin et al., 2011).

Advanced technology: The use of technology to improve job performance (Florell, 2011).

Collaboration: Working with others to reach the task goal of the group. Specific to this study, collaboration involves giving members of the IEP opportunities to share their expertise and ideas to reach an appropriate recommendation for the student (Ruppar & Gaffney, 2011).

Individual Disabilities Education Act (IDEA): An act passed by Congress in 2004 to ensure children with disabilities have the opportunity to receive a free and appropriate education (USDOE, 2015b).

Individualized Education Program (IEP): A document created according to federal and state guidelines for a student identified with a disability to reflect the strengths and needs of the student with a recommendation of program and services (Gartin & Murdick, 2005).

Job performance: How well an individual or group performs a task (Smedley & Wheeler, 2009).

No Child Left Behind Act (NCLB): Developed in 2001, this act requires states to develop assessments and basic skills and implement measurable goals to improve students' educational outcome (USDOE, 2015a).

Perceived ease of use (PEOU): How much a person perceives technology to be easy to use, effortless (Davis et al., 1989).

Perceived usefulness (PU): How a person perceives technology to be useful to enhancing job performance or productivity (Davis et al., 1989).

Productivity: Successfully reaching an identified goal (Ulhoi & Jorgenson, 2010).

Technology adoption: The user acceptance of technology (Davis et al., 1989).

Assumptions

As in this study I measured responses of school psychologists, I assumed that participants truthfully responded to survey questions and used SESIS during the IEP process. The responses to the survey questions were confidential and given on a voluntary basis. These assumptions were necessary in drawing inferences to the results of this study.

Scope and Delimitations

In this study, I used the TAM to determine PEOU and PU of technology in a workplace. A review of the literature explored theories relevant to this topic, and the TAM was found to be the most appropriate framework to examine the variables used in this study. Other theories I considered included the coordination theory, which focused on coordinating activities to support working cooperatively together (Crowston, 1997); the socio-technical systems theory, which focused on the link between technical and social systems (Ulhoi & Jorgensen, 2010); the activity theory, which focused on exploring human activities (Allen, Brown, Karanasios, & Norman, 2013); and the diffusion of innovations, which studied the pattern of innovation over time (Fichman & Kemerer, 1999). I found these theories to be less suitable for examining the relationship of job performance and technology use.

I limited participation in this study to school psychologists working in the boroughs of New York City (NYC). To be employed as a school psychologist for the NYCDOE, credentials had to include a Master of Science degree in school psychology

and certification by NYSED as a school psychologist (NYSED, 2015). Therefore, the type of degree and certification were already satisfied as part of employment.

I delimited this study to the examination of school psychologists for their primary role in conducting the IEP process. The sample size was delimited to school psychologists who worked in the public school system and excluded those school psychologists who work for the district office. Although I explored the primary role of the school psychologists in the IEP process in this study, school psychologists who work in the school buildings were called upon for other duties such as crisis intervention and consulting with administration, teachers, and parents. Because there were variations in the duties of school psychologists who work in the buildings compared to those who work in the district, I found it relevant to include only those who work in the school buildings. This study was delimited to school psychologists who were currently employed at the time of the study and had worked at least 1 year in the school building. The roles of the school psychologists in the elementary, middle, and high schools are similar; therefore; school psychologists who work for these school levels were sampled in this study. The results of this study were generalized only to the school psychologists who work for the NYCDOE and have been currently employed for at least 1 year in a school building.

Limitations

Limitations are weaknesses in a study that cannot be controlled. In this study, the sample participants were school psychologists employed by the NYCDOE public school system; therefore, this study limited generalizability across school systems outside of

NYC. Another limitation was the uncertainty as to whether all school psychologists who participated in this study were trained using SESIS. As this was not one of the inclusion or exclusion criteria, I limited whether that factor was essential to the results of this study. Lastly, another limitation of the study was that technological difficulties that school psychologists experienced might have impacted their perception of technology acceptance. Examples of technological difficulties might have included the inability to save work due to the system timing out, interruption in Internet service, and accessibility issues during repair or system upgrade.

Significance

Organizations have implemented the use of technology to support productivity; however, with the implementation of new technology, the users' acceptance of advanced technology is a significant issue to explore as this might impact their job performance (Florell, 2011). Therefore, in this study, I used the TAM to examine the positive effects of technology adoption on job performance among school psychologists after using a web-based IEP system. The study's results are useful for principals, district administrators, and supervisors of psychologists in determining whether additional resources are needed to assist school psychologists in their duties. The results might also serve as further contributions to the body of literature for organizations that choose advanced technology for their workplace.

Summary and Transition

Job performance is an important concept to the success of an organization (Beheshti & Beheshti, 2010). In this competitive job world, companies have implemented

technology to support these demands in the fields of health care, military, business, and education (Lin et al., 2011). Technology has rapidly become essential to support the job tasks of school psychologists whose primary role is to write reports of administered assessments and develop the IEP in collaboration with the IEP team (Florell, 2011). In response to the growth of technology, the NYCDOE has implemented SESIS, a web-based online data system that is used to track services for students with disabilities and supports the workflow of the IEP process (NYCDOE, 2011).

In this study, I assessed job performance as a postimplementation job outcome among school psychologists after using SESIS during the IEP process; however, implementation of software programs by school personnel might be accompanied by nonadoption of the system (Holden & Rada, 2011; Plaza & Rohlf, 2008), lowering job performance of technology users (Sykes et al., 2014). NASP (2006) identified the rapid growth of technology in psychology and endorsed its use to support school psychologist duties. In understanding how effective technology systems are in addressing issues of job performance, researchers have applied the TAM as a theoretical framework to examine such a relationship (Liu, 2010). TAM examines how technology users adopt (reject or accept) new technology in the workplace (Davis et al., 1989). TAM addresses user acceptance by two determinants: PEOU and PU (Davis et al., 1989). PEOU refers to how users perceive technology to be free of effort, and PU refers to the usefulness of technology in enhancing productivity (Davis et al., 1989). After searching other theories, I found TAM to be most appropriate for this study, which examined whether PEOU and

PU have positive effects on job performance among school psychologists after using SESIS during the IEP process.

In Chapter 2, I will present a literature review of articles relevant to this study. TAM, the theoretical foundation used for this study, will be further discussed by my examination of the two significant components of TAM: PEOU and PU. In Chapter 3, I will provide specific information on the research design, population, data collection, recruiting procedures, and informed consent. Instrumentation information on validity, reliability, data analysis, ethical procedures, and treatment of data will also be discussed. I collected data for this study in survey form through a random sampling of 69 school psychologists who work within the NYCDOE public schools. A database of schools and school psychologists was accessed through the NYCDOE website, which was publicly available. Participation in this study was on a voluntary basis.

Chapter 4 will entail a descriptive analysis of the demographic variables, which included gender and age of participants, borough where employed, number of schools on caseload, number of referrals to special education on caseload, type of school (grade level), number of years employed in position, and prior experience using online systems. I tested the results of regression assumptions for collinearity, normality, outliers, and independence. I conducted a regression analysis using the Statistical Package for the Social Sciences (SPSS) 21.0 to address the RQs of whether PEOU or PU had a positive effect on job performance.

In Chapter 5, I will discuss the results of this study, which provide relevant information to districts, principals, supervisors, and psychologists on the resources

needed to further support school psychologists. An additional outcome of the results is to provide further information to school districts, organizations, or companies that would consider implementing advanced technology to the workplace. The findings of the study add to the body of literature and advanced knowledge on the topic of technology adoption among school psychologists.

Chapter 2: Literature Review

Introduction

In this study, I sought to understand the effects of PEOU and PU of a web-based IEP system on job performance for school psychologists during the IEP process. The IEP is an important document that reflects the strengths, needs, and services of the student classified with a disability (Blackwell & Rossetti, 2014). The IEP must be carefully crafted and adhere to the federal special education laws (Gartin & Murdick, 2005). School districts have implemented IEP technology programs in an effort to support job performance (More & Hart, 2013); however, companies must examine user acceptance of new technology, as this might impact job performance (Florell, 2011). Therefore, researching the positive effects on job performance using advanced technologies (i.e., web-based IEP systems) provided essential information towards understanding the support that is needed for school psychologists during the IEP process.

With the growing implementation of technology in the workplace, researchers have examined technology adoption that refers to user acceptance of the technology (Venkatesh, Thong, & Xu, 2012). If employees do not adopt technology, this could impact the completion of job tasks (Teo, 2010). TAM is the most recognized and commonly applied model to ascertain technology adoption (Holden & Karsh, 2010). There are two significant components to the TAM: PEOU, which refers to ease of use (Davis et al., 1989), and PU, which refers to the technology being useful in enhancing performance (Davis et al., 1989). The purpose of this study was to quantitatively examine

whether technology adoption variables (PEOU and PU) have a positive effect on job performance.

Chapter 2 will be divided into four sections. In the first section, I will further discuss the rationale for this study. In the second section, I will provide the literature search strategy and in the third section, I will explain the TAM as the theoretical foundation used for this study. The final section will include a review of key variables and summary of the chapter.

There are 6.6 million public school students within the United States who receive special education services and require IEPs (Blackwell & Rossetti, 2014). Prior to the implementation of technology, IEPs were handwritten, which took considerable time, created burden with paperwork, and produced less professional-looking IEPs (Borisinkoff, 2014). During the past few years, school districts have attempted to meet these challenges by implementing technology. A number of articles supported the positive impact of computerized IEP systems. More and Hart (2013) reported that computerized IEP systems have features aligned with the special education laws and these systems save time as many educators can access information and input data that streamline the IEP process. Florell (2011) summarized that the use of computer technology supports the school psychologist in creating quality and efficient reports. Similarily, Borisinkoff (2014) reported that IEP software produces more professional-looking documents. Furthermore, Florell (2008) noted an increase in job performance when using computerized IEP systems while NASP (2006) recognized that technology is essential to the job duties of school psychologists.

Despite reports of the positive effects of computerized IEP systems, a few articles reported concerns regarding user friendliness. More and Hart (2013) revealed that special education teachers had difficulty finding technology to be user friendly. In addition, Florell (2008) also made known that school psychologists expressed concerns with embracing new technology as it rapidly changes. Therefore, with the increased use of advanced technology, it is important to ascertain whether school psychologists will adapt to technology in the work setting (Florell, 2011).

Overall user acceptance is key to technology adoption (Florell, 2011; Liu, 2010; Smarkola, 2007). Many researchers have applied the TAM to their studies in the business and health care fields (Hernandez, Jimenez, & Martin, 2008; Holden & Karsh, 2010; Mouakket, 2010; Smarkola, 2007; Teo, 2011; Teo & Noyes, 2011). There was, however, a significant lack of research that addresses the concerns of technology adoption among school psychologists in the educational setting. Therefore, my completion of this study was essential to filling this research gap by examining the technology adoption of computerized IEP systems that apply the TAM.

In this study, I applied the TAM to quantitatively examine whether technology adoption has a positive effect on job performance. The two factors of technology adoption that will be measured in this study are PEOU and PU. With this study, I sought to answer the following RQs:

RQ1: Does PEOU as indicated on the TAM Instrument have a positive effect on job performance as indicated on the JPRM among school psychologists after using SESIS technology during the IEP process?

RQ2: Does PU as indicated on the TAM Instrument have a positive effect on job performance as indicated on the JPRM among school psychologists after using SESIS technology during the IEP process?

Literature Search Strategy

I used Walden University's online library and Google Scholar to search for literature for the current study. The following professional websites were also searched: NASP, NYCDOE, New York State Education Department, and U.S. Department of Education. During my initial literature search, EBSCO Host-PsycArticles provided limited references for this dissertation topic. Walden's Library department assisted me in a further exploration of Academic Search Complete, ProQuest Central and Science Direct. In addition, my search involved the EBSCO Host database to include PsycBooks, PsycEXTRA, Psyc CRITIQUES, Psyc INFO, ERIC, Computers & Applied Science Complete, Education Research Complete, and Business Source Complete. The key search terms used in this review included: *school psychologist, job performance, Individualized Education Program, organizational psychology, special education, user acceptance, technology adoption, special educational services,* and *technology.* In the search, the keyword combinations I used were: *advanced technology and business, advanced technology and education, school psychologists and Individualized Education Program, school psychologists and job performance, Individualized Education Program and technology, job performance and technology, computerized individualized education program systems,* and *technology acceptance model.* All literature included in this review were peer reviewed and published within the last 5 years; however, five articles

associated with the TAM are older than 5 years as they are seminal work to this topic. For

this study, I found 77 articles to be relevant to the topic. In addition, three book

references and seven professional website references were used.

Theoretical Foundation

The TAM was the theoretical foundation that I used in this study. Davis (1986)

developed the TAM as part of a dissertation research. TAM is the most widely used

model to examine user acceptance of technology (Davis, 1986). The model was derived

from the TRA developed by Fishbein and Ajzen (1975). The TRA's model is from the

field of social psychology that is based on three factors: behavior intentions, attitude, and

subjective norm (Davis, 1986). The TRA hypothesizes that behavior intentions depend on

attitude and subjective norms (Fishbein & Ajzen, 1975). Therefore, if a person intends to

complete a task or perform a behavior, it will likely be carried out. Behavior intentions

refer to the performance behavior; attitude refers to the beliefs and feelings about

performing the behavior; and subjective norm refers to the perception of expectations in

performing a behavior (Fishbein & Ajzen, 1975). The TAM and TRA both explore the

behavior element with TAM specifically focusing on the behavior element associated

with user acceptance of technology (Davis, 1993). The TAM replaces the attitude factor

of TRA with PEOU and PU (Davis, 1986). The TAM hypothesizes that determinants of

computer acceptance are PEOU and PU.

Over the years, researchers conducted studies applying the TAM to various fields

that provided management with information on technology adoption; however, I found a

significant gap in studies applying the TAM to the job performance of school

psychologists. In this study, I sought to fill this gap in literature. In the following section, I will report on how TAM has been applied in other studies.

Several researchers have applied the TAM to examine the user acceptance of a new technology system. Davis et al. (1989) suggested future research to examine the relevance of extended factors to the TAM. Some of the researchers that followed Davis et al's recommendation focused on the use of external factors in examining user acceptance. In addition, I also found articles that supported the hypothesis of TAM that were developed decades ago. Jones, McCarthy, and Halawi (2010) applied the TAM to examine user acceptance of an information system. They surveyed 174 employees from various industries and found that employee training and support have a positive impact on technology acceptance. Furthermore, PEOU was found to have a positive effect on PU. Turner, Kitchenham, Brereton, Charters, and Budgen (2010) conducted a review of literature to examine if TAM predicts actual use. The authors examined 73 articles and found that behavioral intentions impact actual usage; however, PEOU and PU do not have an impact on actual usage. Mouakket (2010) applied the TAM to examine the user acceptance of complex Enterprise Recourse Planning (ERP) systems. In Mouakket's study, a total of 550 employees who worked in various organizations in the United Arab Emirates completed surveys. The TAM was extended to examine *computer self-efficacy* that refers to the ability of the user to complete a task (Mouakket, 2010). Results revealed that PEOU has a positive influence on PU, and both PEOU and PU have a positive influence on the ERP systems. Computer self-efficacy was found to improve both PEOU and PU (Mouakket, 2010).

Liu (2010) applied TAM to the use of Wikis software used to create web pages and has been used in classroom settings. Liu extended the TAM by adding three variables: wiki self-efficacy, online posting anxiety, and perceived behavior control. Both qualitative and quantitative approaches were used for a convenience sample of 126 students at a state university to ascertain Wiki adoption in the study. Liu's results revealed that computer self-efficacy has a positive influence on both PEOU and PU; however, online posting anxiety does not have a positive influence on PEOU and PU. Finally, Liu found that PEOU and PU were determinants to the intentions and usage of wiki software.

I found additional articles that were 5 years old or older but also included them to provide further information and a more extensive history of the various researchers and studies that have applied TAM to examine user acceptance. Hernandez, Jimenez, and Martin (2008) conducted a study applying TAM to ascertain the acceptance of business software. Their results revealed that both PEOU and PU have a positive influence on the intention to use the system. Zhang, Guo, and Chen (2007) conducted a quantitative study to survey adoption of an English e-learning system among 150 Chinese undergraduate students at a business school. Extended factors added to the TAM were compatibility, facilitating condition, perceived enjoyment, individual characteristics, and training impression (Zhang et al., 2007). Their results revealed that most of the external factors have direct or indirect influence on intentions of use.

In my literature search, I found additional articles on the positive effects of technology acceptance. Holden and Karsh (2010) analyzed 20 studies that applied TAM

to information technology in the health care field. Results revealed positive effects of use and the user perceiving the health technology system as useful. Almahamid, Mcadams, Kalaldeh, and Al-sa'eed (2010) examined the relationship between PEOU, PU, and technology adoption of e-government system. They used a quantitative approach to sample responses from Jordanian citizens, and the results revealed that Jordanian citizens perceived the e-government systems as useful. In addition, there was a positive effect of technology adoption and intention to use this system.

The TAM has been applied to examine user acceptance with new systems and in various fields; however, there is a significant gap in the literature that explores the user acceptance of IEP systems. The primary role of school psychologists is to chair the IEP process (NYCDOE, 2009). The IEP is an essential document that reflects the strengths, needs, and recommended services of students with disabilities (Diliberto & Brewer, 2012). The IEP process must adhere to the IDEA (USDOE, 2015b). Errors in the IEP development might delay services rendered to students with disabilities and might result in school districts facing hearing and court proceedings for violating IDEA (USDOE, 2015b). As user acceptance is a key concept to productivity, I found the TAM to be a significant theoretical foundation to understanding the influence of technology adoption on job performance of the school psychologist.

I have explored several theories for the current study as explained in Chapter 1. The theories considered included the coordination theory (Crowston, 1997), the socio-technical systems theory (Ulhoi & Jorgensen, 2010), the activity theory (Allen et al., 2013), and diffusion of innovations (Fichman & Kemerer, 1999). These theories were

found to be irrelevant for examining the relationship of job performance and technology

adoption. The TAM is the most fitting theory to apply. This theory relates to this study by

determining whether PEOU and PU have a positive influence on job performance. Many

researchers examined how a particular new system is influenced by the TAM factors

(Edmunds, Thorpe, & Conole, 2012; Jones, McCarthy, & Halawi, 2010; Liu, 2010;

Mouakket, 2010; Teo & Noyes, 2011;). The TAM factors being measured are the key

concepts to the TAM: PEOU and PU. There is a significant gap in the literature that has

applied the TAM to the computerized or web-based IEP systems.

Technology Adoption and Job Performance in Educational Settings

Technology adoption is defined as user acceptance of technology (Hsiao & Yang,

2011). In this study, the technology adoption model is used as a theoretical foundation.

The two key concepts of the TAM are PEOU (perception of technology being easy to

use) and PU (perception of technology being useful in improving productivity). Through

an exhaustive search, limited literature was found regarding technology adoption in the

educational setting. In this study, I sought to fill this gap.

Florell (2008) conducted a quantitative study of 369 school psychologists from

seven states to examine their perceptions of the use of technology and its effect on

productivity. Results revealed that overall technology is perceived as useful in

productivity. In addition, older technology was perceived as least useful compared to new

technology. Borisinkoof (2014) conducted a qualitative study of eight special education

teachers, enrolled in a graduate program, to examine their experience with using a

computerized IEP system. Results of the study revealed benefits relating to populated

goal banks, built-in calendars and reminders, security features, online technical support, alignment with federal and state guidelines, time savers, efficiency improvement, ease of learning system, and quality IEPs. Limitations noted were that the study was a small sample size of a small district. In addition, the study focused on special education teachers and no other members of the IEP team.

Teo (2011) studied teachers' intentional use of technology by exploring PEOU, PU, subjective norm, facilitation conditions, and attitude toward use. In Singapore schools, 592 teachers completed a self-report. Results revealed that when teachers perceived technology to be useful, their productivity increased. In addition, when technology is perceived to increase productivity, a positive attitude toward the use of technology occurred. Limitations to this study included that self-report survey might result in inflated responses. In addition, surveys were completed online, which might have resulted in some teachers not having felt an ease of use completing surveys online. This might have impacted generalizability. Teo reported future research should compare groups across countries or cultures to determine these external factors that could influence user acceptance.

Teo and Noyes (2011) applied the TAM to examine the survey responses of 153 preservice teachers' employed in Singapore. The external factor added was that perceived enjoyment was a significant determinant of PEOU and PU and intention to use technology. Limitations to this study showed that self-reporting might result in inflated variance. Teo (2010) studied 239 preservice teachers' attitudes to computer user acceptance by adding external variables of subjective norm, facilitating conditions, and

technological complexity. The sample of preservice teachers was from the National Institute of Education in Singapore. The research questions addressed whether preservice teachers' attitudes toward computers would be influenced by PEOU, PU, subjective norm, and/or perception of technology complexity. Results revealed that these external factors were significant determinants of preservice attitudes to computer use. Limitations included that self-reporting might result in common variance and inflated variables. In addition, preservice teachers and practicing teachers have different demands with using technology, and this might impact the results across both groups. Future research should compare these two groups to assess any significant differences in their intention to use technology.

Smarkola (2007) conducted a study to examine user acceptance of computer applications for class assignments. One hundred and sixty student teachers and 158 experienced teachers completed a self-report survey. Results revealed that both student teachers and teachers perceived computer usage as useful for their class lessons and, therefore, have greater intentions to use the system. In an article by Ertmer and Ottenbreit-Leftwich (2010), the authors discussed the perception of technology usage among teachers. Technology has increasingly become relevant and prevalent for teachers in their instructional approach. In examining technology use from the teachers' perspective, factors explored were knowledge, self-efficacy, pedagogical beliefs, and school culture. Results of the article reported that support is needed to change teachers' beliefs to understand the benefit of technology in the classroom.

Technology Adoption and Job Performance in Other Settings

In this competitive work world, job performance is key to companies and their goal to provide top-quality goods and services. Job performance is defined as how well an individual or group performs a task (Motowidlo, 2003; Smedley & Wheeler, 2009). Companies have explored the use of technology in efforts to save time, decrease costs, and improve overall performance. Technology implementation has been vastly used throughout various job settings.

Technology also has been implemented to foster learning. Torkzadeh, Chang, and Hardin (2011) assessed whether technology fosters job learning. A quantitative approach was used to assess data from 308 end users to determine the relationship between technology and job learning. Results revealed that end users see value in technology improving their job skills. Cheng, Wang, Moormann, Olaniran, and Chen (2012) studied the adoption of e-learning in the workplace. A sample size of 222 individuals from different companies and colleges in mainland China completed questionnaires. E-learning is a web-based technology system that is used for employees during training in the workplace and for students on college campuses. Results of the study revealed that technology acceptance impacts employees' intentions to use the system.

Lin (2012) examined technology adoption of the Visual Learning System (VLS), applying the task-technology fit (TTF) model. A sample of 165 students in Taiwan who use VLS completed questionnaires. VLS is an e-Learning system that supports learning. Results of the study revealed that perceived fit and satisfaction are important factors to technology adoption of the VLS system. Yaghoubi and Bahmani (2010) examined

adoption of online banking in Iran, applying TAM and the theory of planned behavior. A sample size of 349 bank customers completed questionnaires. Results of the study revealed that customers' intentions of using online banking are positively influenced by perceived usefulness and behavior control.

Researchers examined the use of the information system (IS) in the workplace. Bravo, Santana, and Rodon (2015) examined the link between IS and performance. A total of 246 professionals who worked in Peru completed questionnaires. These professionals worked mainly in private sectors in the areas of finance, management, and logistics and utilized IS an average of 21 hours per week. Bravo et al. (2015) concluded that task knowledge, ease of task and usefulness, and ease of technology are relevant factors to performance. The study also concluded that management would benefit from examining factors of the individual, technology, and task, and how these factors interact. Moshiri and Simpson (2011) examined the effects of information technology in the workplace. Data collection from the Canadian Workplace and Employee Survey were obtained reflecting the years 1999–2003. Results revealed that technology usage had a positive impact on employee productivity, and this was consistent during the years reviewed in this study.

Researchers explored information and communication technology (ICT) in the workplace (Chesley, 2010; Edmunds, Thorpe & Conole, 2012; Venkatesh, Bala, & Sykes, 2010). Askenazy and Caroli (2010) examined the use of ICT in a French workplace. ICT is an extension of IS that includes telephone lines and wireless signals (Askenazy & Caroli, 2010). They examined data obtained from two French Labor Force

surveys conducted in 1998. Results revealed that the use of ICT had a positive impact on cooperation and supporting positive working conditions relating to occupational risks and injuries. Venkatesh et al. (2010) studied the effects of ICT in the workplace. This study was a longitudinal study of 1,743 employees who worked in organizations in India. Results revealed that ICT did not increase job satisfaction or performance. The authors reported these results as surprising and possibly linked to the service sector in India.

Edmunds et al. (2012) conducted a study applying TAM to examine its influence on students' use of ICT. A sample of 421 university students in the United Kingdom completed surveys to examine their PEOU, PU, and motivation to use ICT during their studies and social activities. Results revealed that PEOU and PU influence students' motivation to use ICT. Chesley (2010) examined the effects of ICT use on work effectiveness, workload, and pace. The data from 1,667 employees in 2011 and 547 employees in 2002 were collected to assess the role of technology. Results revealed that the frequency of computer use influenced an increase in workload, effectiveness, and pace of life.

Researchers investigated technology adoption effects on different types of business software used by companies. Lee, Lee, Olson, and Chung (2010) studied the technology adoption on ERP and improving productivity by applying the TAM. ERP is a business software that companies use to integrate operations such as sales and marketing, manufacturing, product planning, and storing data (Lee et al., 2010). A sample of 209 employees in Korea completed questionnaires relating to their PEOU and PU on ERP systems. Results revealed that PEOU and PU were important factors in determining

employees' intentions to use the system. Beheshti and Beheshti (2010) reviewed

literature to examine the effects of ERP systems on improving productivity and

performance. The article concluded that the adoption of ERP systems made an impact on

lowering costs, improving performance, and improving customer service and satisfaction.

Kuo and Lee (2011) explored technology adoption of the knowledge management system

(KMS) among companies in Taiwan. KMS is a technology of custom-based knowledge

(Kuo & Lee, 2011). A sample of 151 employees completed a questionnaire. Results

revealed that technology adoption factors of PEOU and PU significantly affected

technology usage.

Cascio et al. (2010) examined the impact of management on employees' adoption

of sales force automation (SFA) technologies. SFA refers to a software program for

business tasks such as inventory control and customer tracking (Cascio et al., 2010).

Results revealed that SFA was essential to technology adoption, and when management

was committed to technology, employees most likely successfully adopted technology.

Coker (2011) studied the impact of workplace leisure internet browsing (WLIB) on

improving work productivity. Although employees were reprimanded for using the

Internet for personal browsing during work hours, Coker (2011) reported that WLIB

served as a means to reenergize employees, which in turn improved their focus and

concentration to complete work tasks. Office workers using an online survey completed a

total of 268 surveys. Results revealed that WLIB could have a positive impact on

increasing work productivity when the time engaged in WLIB did not exceed 12 percent

of work time.

In regards to the impact of technology adoption on wireless technology and networks such as the Internet, Yen, Wu, Cheng, and Huang (2010) examined the adoption of wireless technology by applying the TAM and TTF models. TTF model refers to the link between IS and individual performance (Yen et al., 2010). A sample of 231 employees completed questionnaire-based surveys. PEOU and PU had significant correlation on intentions to use wireless technology. PEOU had significant impact on PU. TTF had a significant impact on technology adoption. The study concluded that intention to use technology was influenced by technology fit and technology adoption factors.

Wu, Cheng, Yen, and Huang (2011) studied the technology acceptance of wireless technology applying the TAM. A sample size of 188 respondents completed a questionnaire. Results revealed that TAM was a good fit model to examining user acceptance and user intentions. Wang and Wang (2010) examined technology adoption of mobile Internet (m-Internet), applying the unified theory of acceptance and use of technology model. m-Internet refers to wireless Internet that can be accessed through mobile technology such as smart and mobile phones (Wang & Wang, 2010). A sample of 343 individuals in Taiwan completed an online survey. The study revealed that acceptance of m-Internet had an impact on its use.

Lee and Wu (2011) studied the technology acceptance of e-Service markets by surveying 236 international travelers who purchased airline tickets via websites in Taiwan. Lee and Wu applied the technology acceptance factors in their study. Results revealed that technology acceptance factors of trust and PU influenced travelers' technology acceptance of e-Service. Johar and Awalluddin (2011) examined technology

acceptance on electronic commerce (e-commerce), which refers to purchasing products or services through the Internet (i.e., online shopping, business-to-business or consumer -to-consumer sales, and electronic funds transfer). Respondents who reside in Malaysia completed a total of 611 questionnaire surveys. Results revealed that the TAM factors (PEOU, PU, and perceived enjoyment) were a good fit model to explaining the e-commerce adoption.

Further researchers examined the use of technology in the workplace to improve overall organizational performance, accountability, and collaboration of services (Camison & Villar-Lopez, 2014; Green, 2012; Litwin, 2011). Pot (2010) discussed the importance of workplace innovation to improve work performance by examining European work programs. *Workplace innovation* is defined as implementing new systems to improve individual/organizational performance (Pot, 2010). Workplace innovation may include non-technological and technological systems. Pot concluded that workplace innovations had a positive influence on the quality of work and overall performance within organizations.

Green (2012) studied the evolution of job skills by assessing survey data obtained from the United Kingdom skills surveys of 1992, 1997, 2001, and 2006. Results revealed that employees' involvement regarding the workplace and computer technologies had an impact on increased job knowledge and skills. Camison and Villar-Lopez (2014) examined the effects of organizational innovation and technological innovation on performance. A sample of 144 Spanish industrial companies were surveyed and revealed

that when organizations engaged in change that involved technology innovation, both factors had a positive impact on performance.

Litwin (2011) studied employee involvement on technology adoption in the health care workplace. Sixteen clinics were sampled during a 35-month period from October 2004 through August 2007. Employee involvement in the workplace refers to allowing their input and participation in implementing changes to the workplace (Litwin, 2011). Results revealed that using technology had a positive impact on performance and increased with employment involvement. Cornell, Eining, and Hu (2011) examined the correlation between process accountability and use of technology, applying the TAM. *Process accountability* is defined as identifying or justifying how a process was reached or a decision was made (Cornell et al., 2011). A sample of 130 college students with business majors completed surveys. Results revealed that process accountability had a significant impact on decisions to use technology.

Maheu, Pulier, McMenamin, and Posen (2012) reported on advanced technologies and their role in the future regarding communication and productivity in the mental health and psychology fields. Maheu et al. (2012) reported that technology played an essential role in fostering collaboration between all primary care providers in treating patients. It is important to move away from "tradition" and engage in *psycho-technologies*—that is, refer to an application of technology for psychological purposes (Maheu et al., 2012). Examples of psycho-technologies include mobile devices, such as smart phones and tablet computers, that are helpful in communicating with patients and/or professionals in a timely manner, especially during crisis situations. Mobile

devices yield quick responses when it is necessary to consult with other professionals. *Cloud computing* is another psycho-technology that centralizes data storage through software networks and remote services and improves access to patient information (Maheu et al., 2012). The authors further reported that virtual worlds, virtual reality, and gaming are other types of psycho-technologies that can simulate physical presence in the real world or imagined worlds and have been used to treat veterans returning from war.

In this literature review, the articles discussed so far reported technology adoption as it pertains to the workplace; however, there are studies that also explored technology adoption of hedonic technology. Lin and Bhattacherjee (2010) studied *hedonic technologies*, which refer to pleasure-related technologies. In this study, online video games were the hedonic technologies explored. A sample of students was selected from a Taiwanese university, and 485 questionnaires were completed using a Chinese language survey. The TAM factors of PEOU and PU were replaced by perceived enjoyment and social images. Results revealed that social image had a greater impact on hedonic technologies, as students' primary focus was on improving social interaction and related activities, which hedonic technologies may provide. The study also concluded that further research was needed to ascertain whether TAM was a good fit model to use when exploring hedonic systems. Liang and Yeh (2010) examined technology acceptance on the use of mobile games. A total of 390 individuals in Taiwan who use hedonic technologies completed online surveys. Results revealed that technology acceptance factors had effects on the use of mobile games.

Mitzner et al. (2010) studied technology adoption among older adults who are often viewed as the most intimidated by technology usage. A sample of 113 older adults participated in the study to assess how they perceive technology to have positive or negative benefits. Positive benefits include that technology is useful, convenient, and supports life activities, while negative benefits include that technology has security concerns, is inconvenient, and has unhelpful features. Results revealed that positive responses were greater than negative responses in older adults' attitudes and usage of technology. Positive responses reflected that when technology was perceived as useful and easy to use, participants were more willing to adopt technology.

Researchers explored the negative impact of technology in the workplace. Ayyagari, Grover, and Purvis (2011) studied the stressors of technology use. *Technostress* is a term that has not gained much attention. It refers to the poor link between the user and the new technology (Ayyagari et al., 2011). The study examined possible stressors of technology in the workplace. A sample of 661 professionals completed surveys. Results revealed that technostress does exist. In addition, the study revealed that technology characteristics (usability, intrusiveness, usefulness, complexity, and reliability) could be dominant predictors of stressors such as work overload and role ambiguity. Karr-Wisniewski and Lu (2010) examined technology usage as a negative impact on productivity. A sample of 61 employees completed a web-based survey. The study measured the effects of technology overload, which consists of system overload, information overload, and communication overload (Karr-Wisniewski & Lu, 2010). *Technology overload* refers to an overload in technology gadgets or tools that can impact

productivity (Karr-Wisniewski & Lu, 2010). Results revealed that technology overload impacted an individual's productivity; therefore, it was important to solve problems with technology overload so that productivity was not negatively impacted.

Tarafdar, Tu, and Ragu-Nathan (2011) studied technostress on satisfaction and performance. A total of 233 questionnaires were completed by employees who use ICT. Results revealed that technostressors reduce employees' job satisfaction and performance. Shu, Tu, and Wang (2011) examined the correlations between technostress, *computer self-efficacy* (the belief that one can successfully engage in technology-related tasks), and *technology dependence* (routine use of technology). A sample size of 305 employees who worked in a variety of organizations in China completed surveys. Results revealed that a high level of computer self-efficacy lowered technostress. Employees with a higher level of technological dependence have a higher level of technostress. The study concluded that the factors of computer self-efficacy and technological dependency were important in understanding computer-related stressors.

Summary and Transition

In this study, I examined the effects of technology adoption on job performance among school psychologists who use a web-based IEP system during the IEP process. The problem is that implementations of software programs by school personnel might be accompanied by non-adoption of the system (Holden & Rada, 2011; Plaza & Rohlf, 2008), lowering job performance of technology users (Sykes, et al., 2014). Therefore, examining whether PEOU and PU have a positive effect on job performance among school psychologists after using SESIS during the IEP process provides essential

information to understanding the support that is needed for school psychologists. The major themes related to the scope of this study are explained in the next section.

Technology is rapidly being implemented in the workplace to save time and costs, and increase accuracy and quality of goods and services and overall productivity (Smedley & Wheeler, 2009). School districts have implemented technology such as computerized or web-based systems to support the IEP process. The web-based IEP systems have features that align with federal mandates (More & Hart, 2013). Benefits also include that these systems are used simultaneously by providers, increase productivity, provide drop-down choices, save time, and improve professional-looking documents (Borisinkoof, 2014). Although there are benefits to the implementation of technology, user acceptance is key to determining intentions of employees to use the technology (Florell, 2011). One major and widely used theory to examine user acceptance is the TAM developed by Davis (1986) and derived from the TRA developed by Fishbein and Ajzen (1975). Both theories examine the behavior element, but the TAM focuses on the behavior intention to accept technology. Davis (1986) hypothesizes that users would likely adopt technology if they perceive that the technology is easy to use, free of effort, and useful in improving productivity. Therefore, PEOU and PU are the two main concepts of the TAM.

A large number of articles explored technology adoption in areas of IS (Jones, McCarthy, & Halawi, 2010; Moshiri & Simpson, 2011), ERP systems (Askenzay & Caroli, 2010; Edmunds, Thorpe, & Conole, 2012; Venkatesh, Bala, & Sykes, 2010;), business software (Cascio, Mariadoss, & Mouri, 2010; Hernandez, Jimenez, & Martin,

2008; Kuo & Lee, 2011; Lee, Lee, Olson, & Chung, 2010; Liu, 2010), e-learning systems

(Cheng, Wang, Moormann, Olaniran, & Chen, 2012; Yaghoubie & Bahmani, 2010;

Zhang, Guo, & Chen, 2007), health information systems and health care (Holden &

Karsh, 2010; Litwin, 2011), e-systems (Almahamid, Mcadams, Kalaldeh, & Al-sa'eed,

2010; Johar & Awalluddin, 2011; Lee & Wu, 2011), and wireless technologies (Wu,

Cheng, Yen, & Huang, 2011). Technology adoption was also explored on hedonic

systems such as mobile or video games (Liang & Yeh, 2010; Lin & Bhattacherjee, 2010).

Although numerous studies supported the use of technology in the workplace, some

studies reported concerns of technostress, which is the poor link between the user and the

new technology (Ayyagari, Grover, & Purvis, 2011; Karr-Wisniewski & Lu, 2010; Shu,

Tu, & Wang, 2011; Tarafdar, Tu, & Ragu-Nathan, 2011).

    An exhaustive literature search found a significant gap that can provide

recommendations to school districts on whether user acceptance of web-based IEP

systems has a positive effect on job performance among school psychologists. Therefore,

the current study aims to fill that gap. This study is a quantitative approach to examining

the positive effects of technology adoption (PEOU and PU) as indicated by the TAM

Instrument on job performance as indicated by the Job Performance Ratings Measure.

    In Chapter 3, the sections will be divided into the introduction (restating the

purpose of current study), research design and rationale, research methodology

(population, sampling procedures, data collection, instrumentation and operationalization

of variables, threats to validity), ethical procedures, and summary of design and

methodology. Chapter 4 will provide an in depth analysis of the variables that will

address the RQs of my study. Furthermore, in Chapter 5, I will summarize the results of

the study and its relevance to prior studies, implications for social change and

recommendation for future research.

Chapter 3: Research Method

Introduction

Chapter 3 will cover the research methodology and is divided into five sections. The first section is the introduction where I will restate the purpose of this study. In the second section, I will describe the research design and rationale and the time and resource constraint. The third section will include the research methodology that explains the population, sampling procedures (inclusion and exclusion criteria), data collection, recruitment procedures, demographics information, informed consent, debriefing procedures, instrumentation and operationalization of variables (validity and reliability), and data analysis. In the fourth section, I will describe the threats to validity and explain the ethical procedures and treatment of data, and in the final section I will provide a summary of design and methodology.

Research Design and Rationale

The purpose of this study was to understand the effects of PEOU and PU of a web-based IEP system on job performance for school psychologists during the IEP process. I used a quantitative approach in this study and developed the RQs to predict, rather than simply describe, the relationship between variables; therefore, a regression analysis was used to address the RQs. The results of this study explain the positive effects of PEOU and PU of web-based IEP system on job performance for school psychologists during the IEP process. I used one-tailed tests as the RQs specified the direction of the relationship—that is, a positive effect.

Variables

Davis et al. (1989) adapted TAM to examine the acceptance of technology that is important to determine success or failure of system and job outcome. PEOU and PU are two important factors in determining user acceptance (Davis et al., 1989) and were measured using the TAM Instrument in this study. In this study, the independent variable was technology adoption measured by PEOU and PU. PEOU was measured on three items and PU was measured on four items using a 7-point Likert scale, ranging from Strongly Agree (+3) to Strongly Disagree (3). TAM Instrument items were modified by substituting the technology name in each sentence (Davis et al., 1989). For example, I included the phrase, "SESIS" into the following survey prompts: "Interacting with <u>SESIS</u> does not require a lot of my mental effort (PEOU)," and "Using <u>SESIS</u> improves my performance (PU)." I measured job performance using the Job Performance Ratings Measure (Blickle et al., 2008), a 6-item scale used to self-report job performance using a 5-point Likert scale. Job performance rating anchors range from "a great deal better than other person in a comparable position," to "much worse than other person in a comparable position," with intermediate anchors "better than," "as good as," and "worse than," and the option of "can't say."

Design

A regression analysis was the research design for this study. In connecting this design to the RQs of this study, my goal was to examine whether the PEOU and PU (independent variables) have a positive effect on job performance (dependent variable). I considered other types of analyses but rejected them as they would not answer the RQs.

For example, a *t* test was not used as there were no treatment variables in this study. Data were analyzed using SPSS 21.0 for regression analysis. I obtained responses from the participants through self-report surveys. Surveys are a quantitative approach used to measure opinions (Creswell, 2009), and therefore, the use of surveys was appropriate to this study.

Time and Resource Constraint

Regarding the time constraint of this study, I administered the surveys during the NYC public school year from June 1, 2016 through June 30, 2016. School psychologists also work during the summers but on a per-session basis (NYCDOE, 2013). Therefore, the opportunity to obtain a sample size needed for the current study was greater during the 10-month school year which runs from September through June. There were no resource constraints to this data collection choice.

Design Choice

The design I chose for this study was consistent with previous quantitative approach studies that used regression analysis and self-report surveys to examine the effects of technology adoption on job performance (Buckner, Castille, & Sheets, 2012; Cascio et al., 2010; Moshiri & Simpson, 2011; Smarkola, 2007). The use of this design choice was needed to advance knowledge in the area of technology adoption and job performance among school psychologists. The results of my study will fill the gap in literature.

Methodology

Target Population

In this study, the target population was school psychologists who work in the NYC public school system. According to the guide to NYC public schools budget for year 2012–2013, there were 1,100 school psychologists employed (NYCDOE, 2013). At the time of the study, there were 578 schools in Brooklyn, 360 in Manhattan, 357 in Queens, 446 in the Bronx, and 76 in Staten Island--totaling approximately 1,817 schools (NYCDOE, 2013).

All participants in this study were at least 21 years of age. As there are educational requirements to be employed as a NYCDOE school psychologist, all participants possessed a Master of Science in school psychology and received certification by NYSED (2015). School psychologists who work within the NYCDOE public school system work 10 months out of the school year, from September through June. I accessed the database of schools and school psychologists through the organization's site and conducted a random sampling to reach sample size.

Sampling Procedures

In this study, I focused on school psychologists who work directly in schools and not the districts, as the school-based school psychologists have additional duties beyond those who work in the school districts. All participants were voluntary. The participants of this study were employed in the NYC public schools in the elementary, middle, and high school grade levels. NYC consists of five boroughs: Brooklyn, Queens, Manhattan,

the Bronx, and Staten Island. NYC is described as a metropolitan area and is the most

densely populated major city in the United States (NYCDOE, 2013).

I used a random sampling to select participants who would best represent the

population (Creswell, 2009). There were an estimated 900 school psychologists,

excluding those employed in district offices (NYCDOE, 2013). I used a sample size

calculator for multiple regression to determine the minimum required sample size as 67

with an effect size of 0.15, statistical power level of .8, and the probability level of 0.05

(Soper, 2004). This sample did not include those who work in the district offices as

further explained in the inclusion and exclusion criteria sections of this study. According

to Creswell (2009), 80% power with an alpha of 0.05 is generally acceptable.

Inclusion criteria. The sample included school psychologists who worked in the

NYC public school system. School psychologists were responsible for the IEP process;

however, there were additional duties for school psychologists who worked directly in

schools versus those who worked in the district offices (NYSED, 2015). Additional

duties included crisis intervention and consulting with administration, teachers, and

parents. Because there were some variations in the duties of school psychologists who

worked in the building compared to those who worked in the district, I found it relevant

to include those who worked in the school buildings only. The roles of school

psychologists in the elementary, middle, and high school levels were similar, and

therefore, these school psychologists were included in this study.

Exclusion criteria. School psychologists who work outside of the school

buildings were excluded from this study. Surveys for this study were not sent to school

psychologists who worked in the district office. This ensured surveys were completed by school psychologists who worked directly in the schools. School psychologists who worked for less than one school year were also excluded from the sample.

Data Collection

I collected data through participant responses to surveys. School psychologist participants provided responses through SurveyMonkey. According to Creswell (2009), there was an increasing use of surveys through the Internet to assist with faster returns of data for research.

Recruiting Procedures

Upon approval from both Walden University and NYCDOE's Institutional Review Board (IRB), data collection commenced. Through the NYCDOE website (schools.nyc.gov), a publicly accessible website, I obtained the listings of schools and names of the school psychologists working within the NYC public schools. Contacts were also made to the schools for instances where information was not available on the website. A total of 1,090 school psychologists were identified. After the names and e-mail addresses of the school psychologists were obtained, I chose a random sampling method to reach a sample size of at least 67; however, to ensure the required number of responses was received, 109 invitations were sent to randomly selected participants. The sample participants of this study were a good representation of the population. To explain this further, the sample participants were selected from throughout the five boroughs (Bronx, Manhattan, Brooklyn, Queens, and Staten Island), and the population included both female and male psychologists.

At the initial stage of data collection, I sent school principals of selected participants an invitation as a courtesy because they are the immediate supervisors of school psychologists. The e-mail invitation informed school principals that their school psychologist(s) had been randomly selected to participate in the study, explained the purpose of the study, explained data collection procedures, and provided my contact information as well as the contact information of a representative from Walden University.

I then sent randomly selected participants a Preinvitation Informed Consent Form via e-mail, inviting them to take part in the research study of exploring the effects of post SESIS implementation on job performance. The preinvite informed participants of the purpose of the study and that the study was voluntary. In addition, the preinvite informed participants that any information provided would be kept confidential and that participating in the study would not pose any risks to their safety and well-being. Participants also were informed that they would not be paid. My contact information and that of a Walden University representative were also provided. The preinvitation informed participants that a link to SurveyMonkey would be sent 2 weeks from the date of the preinvitation. The link to SurveyMonkey would connect participants to the page where they could complete informed consent to participate as well as surveys for demographic information, the JPRM, and the TAM Instrument.

The invitation was then sent 2 weeks from the date of preinvitation. I used a universal link for SurveyMonkey so that anonymity would be ensured. With anonymous consent and data collection procedures, identifiers were completely protected from me.

All participants consented. Participants were given 30 days to complete the surveys. A reminder survey was sent 2 weeks before the end of the time period to ensure the completion and return of surveys. Data were collected only once. At the end of 30 days, which was consistent with this study's planned time frame, 75 responses were received; however, out of the 75 responses, six were incomplete. Therefore, I analyzed 69 responses for this study, and the six incomplete responses were excluded.

The expected time to complete surveys was 3–5 minutes. Of the 69 participants, 17 took longer than 5 minutes, with a minimum time of 5 minutes and 11 seconds. Based on results, the time spent on completing surveys ranged from 1 minute and 37 seconds, to 59 minutes and 56 seconds, with an average of 5 minutes and 36 seconds to complete surveys. I exported the responses from SurveyMonkey SPSS 21.0 for data analysis. I was the only person who conducted data analysis.

Demographic Information

I conducted a descriptive analysis to describe the data set. Demographic variables included participants' gender, age, borough where employed, number of schools on caseload, number of referrals to special education on caseload, type of school (grade level), number of years employed as a NYCDOE school psychologist, and prior experience with online systems (see Appendix C). The categorical variable *gender* was coded 1 (male) and 2 (female). A greater number of females than males completed the study. *Age* was coded 1–4: 1 (ages 18–33), 2 (ages 34–48), 3 (ages 49–64), and 4 (ages 65 and above). *Borough Employed* was coded 1–5: 1 (the Bronx), 2 (Manhattan),

3 (Queens), 4 (Brooklyn), and 5 (Staten Island).

The *number of schools on participants' caseload* was coded 1–3: 1 (1–3 schools), 2 (4–6 schools), and 3 (7 or more schools). The *total number of referrals to special education* was coded 1–4: 1 (25–75 referrals), 2 (76–150 referrals), 3 (151–250 referrals), and 4 (251–350 referrals). The *type of school* where participants work was coded 1–3: 1 (elementary), 2 (middle school), and 3 (high school). In this question, participants were required to check all that apply. Therefore, the sum total was performed on SPSS before running descriptive analysis for this question. Although $n = 69$, a total of 105 responses revealed that participants had worked at different school levels. The *number of years employed* was coded 1–5: 1 (1–5 years), 2 (6–10 years), 3 (11–15 years), 4 (16–20 years), and 5 (21 or more years). Lastly, *prior experience using online system* was coded 1 (yes) and 2 (no).

Informed Consent

As principals are the immediate building supervisors of school psychologists, it was important that they knew that their school psychologists were invited to voluntarily participate in this study. In an e-mail, principals were informed that participation in this study would not interfere with work time (see Appendix D). A preinvitation letter was also sent to participants through an NYCDOE employee e-mail, a publicly accessible website, informing them of this research and that a survey would be sent at a later date. This was helpful in alerting participants what to expect and increased responses to completing surveys. A survey through e-mail is cost effective compared to a survey through mail where additional costs (e.g., including a self-addressed stamped envelope)

were needed to assist with the return of the surveys. For this study, SurveyMonkey was used. SurveyMonkey included informed consent for participants to read and agree to participate before completing the survey. According to Creswell, 2009), there is an increasing use of surveys through the Internet to assist with faster returns for research. Participants were informed that their names would be kept confidential.

Debriefing Procedures

Two weeks after the initial letter was e-mailed to participants, the link to SurveyMonkey was e-mailed to participants. The timeframe to complete the survey was 1 month (30 days). A reminder e-mail was sent to participants 2 weeks the month's end to assist with return of survey. Participants were informed of the outcome of this study via e-mail. According to federal regulations and Walden's IRB process, data will be stored for a minimum of 5 years on a password-protected computer, then destroyed.

Instruments

In this study, I examined the effects of technology adoption on job performance. Technology adoption was assessed with the TAM Instrument and job performance was assessed with the JPRM. The following sections will provide details on each instrument used for this study.

Technology Acceptance Model Instrument. The TAM Instrument was developed by Davis (1986) and has been revised through several studies by substituting the name of the system to fit the study. The TAM Instrument for Word Perfect Questionnaire was located through Walden University Library's database of the American Psychological Association and was found to be a good fit for this study.

SESIS, a web-based system used for this study will substitute the Word Perfect system as researched in the Davis and Venkatesh (1996) study. Permissions allow test content to be reproduced and used for noncommercial research and educational purposes without written permission.

PEOU and PU were measured using the TAM on a 7-point Likert scale. PEOU has three points: 1) Interacting with SESIS does not require a lot of my mental effort, 2) I find SESIS easy to use, and 3) I find it easy to get SESIS to do what I want it to do. PU has four points: a) Using SESIS improves my performance on my job, b) Using SESIS on my job increases my productivity, c) Using SESIS enhances my effectiveness on my job, and d) I find SESIS useful on my job. The TAM Instrument has been used in several studies and has a high degree of validity. It has an alpha reliability found to exceed 0.9 (Bravo, Santana, & Rodon, 2015; Cornell, Eining, & Hu, 2011; Davis & Vendakesh, 1996).

Job Performance Ratings Measure. The JPRM was used to measure Job Performance (Blickle et al., 2008b). The JPRM was retrieved from Walden University Library's PsychTests database of the American Psychological Association. Permissions allow test content to be reproduced and used for noncommercial research and educational purposes without written permission. The JPRM has six points: a) how fast the person completes tasks, b) the person's quality of performance, c) how the person deals with unforeseen and/or unexpected events in job activity generally, d) how well the person adjusts to changes and innovations e) how sociable the person acts in cooperation with others, and f) how reliably the person meets work-related commitments and agreements.

The responses are a 5-point Likert Scale. The rating anchors are "a great deal better than other persons in a comparable position," "better than," "as good as," "worse than," with option of "can't say."

Blickle et al. (2008a) examined the relationship between motives, social effectiveness, and job performance. In the study, job performance ratings were used to examine the contextual aspects of job performance. According to Blickle et al. (2008a), the job performance ratings measures task performance, adaptive performance, and contextual performance (Items 1–2, 3–4, and 5–6, respectively). In the study, multiple regression analyses were used to examine variables. The JPRM factor analysis demonstrated an overall good fit with interrater correlations within a normal range, it has reliability estimates of .80 (Blickle et al., 2008a).

Data Analysis

Descriptive statistics summarized the sample data and determined normal distribution. Testing the assumption was required to run the regression analysis. Regression analysis analyzed the data as it was normally distributed. I analyzed the data with the use of SPSS 21.0. Alpha was set to 0.05 with a power analysis of .80 (Soper, 2014). As this study examined positive effects of perceived ease of use and perceived usefulness on job performance, a self-report survey, which is a quantitative approach to measuring these variables, was required. The independent variables were PEOU and PU. The dependent variable was job performance. This study answers the following RQs:

RQ1**:** Does PEOU as indicated on the TAM Instrument have a positive effect on job performance as indicated on the JPRM among school psychologists after using SESIS during the IEP process?

H_11: PEOU has a positive effect on job performance among school psychologists after using SESIS during the IEP process.

H_01: PEOU does not have a positive effect on job performance among school psychologists after using SESIS during the IEP process.

With alpha levels set to 0.05, if probability is less than alpha ($p < 0.5$), there is a significant result that rejects the null hypothesis. In this study, the null hypothesis was that the PEOU does not have a positive effect on job performance. If probability is greater than alpha ($p > 0.5$), the results fail to reject the null hypothesis.

RQ2**:** Does PU as indicated on the TAM Instrument have a positive effect on job performance as indicated on the JPRM among school psychologists after using SESIS during the IEP process?

H_12: PU has a positive effect on job performance among school psychologists after using SESIS during the IEP process.

H_02: PU does not have a positive effect on job performance among school psychologists after using SESIS during the IEP process.

With alpha levels set to 0.05, if probability is less than alpha ($p < 0.5$), there is a significant result that rejects the null hypothesis. In this study, the null hypothesis was that the PU does not have a positive effect on job performance. If probability is greater than alpha ($p > 0.5$), the results fail to reject the null hypothesis.

Threats to Validity

The instruments in this study were used in previous studies across settings and organizations (Almahamid, Mcadams, Al Kalaldeh, & Al-Sa'eed, 2010; Bravo, Santana, & Rodon, 2015; Cornell, Eining, & Hu, 2011; Edmunds, Thorpe, & Conolo, 2012; Lin, Cheng, & Wang, 2011; Sykes, Venkatesh, & Johnson, 2014); however, this study explores one type of setting: NYCDOE. Therefore, threats to external validity might include that the results are not applicable to other groups. Another threat might include that the results are not applicable to other settings.

Ethical Procedures

In addition to approval from Walden's IRB (#03-03-16-0082163), approval from the NYCDOE's IRB was granted before commencing data collection. Researchers had to apply through the NYCDOE's electronic submission system. The NYCDOE's IRB approval was granted for 1 year only. If additional time was required, the researcher must request for a continuation (NYCDOE, 2014).

Upon approval, a letter through the NYCDOE e-mail was sent to principals of schools to inform them of this study. Information regarding my study, purpose of study and explaining the sample participants (school psychologists) were included. Principals were also informed that participation in this study would not interfere with work hours. As the data collection did not require the researcher to conduct the study in person and in the school buildings, consent from school principals for on-site research was not warranted; however, participation in this research was voluntary. In addition, participants had the right to withdraw at any time during this data collection process.

A link to SurveyMonkey was e-mailed to participants and included a consent form that explained the invitation to participate in the study, the researcher's information, purpose of study, procedures, voluntary nature of study, privacy, potential risks and/or benefits of study, contact information for questions, and statement of consent. Participants were invited to complete the survey online through a SurveyMonkey link. The names of the participants were kept confidential and anonymity was ensured. Participants were informed of this during the informed consent process. Only I reviewed the data. According to federal regulations, data will be stored for a minimum of 5 years on a password-protected computer, then destroyed.

Summary and Transition

The intent of this study was to understand the effects of PEOU and PU of web-based IEP system on job performance for school psychologists during the IEP process. The independent variables were PEOU and PU, which were measured using the TAM Instrument (Davis, 1986), and the dependent variable was job performance that was measured using the Job Performance Ratings Measure (Blickle et al., 2008). The sample target was school psychologists who work for the NYCDOE in school buildings. School psychologists who work for the district were excluded. In addition to approval from Walden's IRB, approval from NYCDOE's IRB was granted before commencing data collection. Database of lists of schools and school psychologists was accessed through NYCDOE website, which is a publicly accessible website. A random sample was conducted to reach a sample size of at least 67. Participation was voluntary. Participants were invited to complete the survey online through a SurveyMonkey link. Names were

kept confidential. The SurveyMonkey link included informed consent for participants to read and agree before completing the survey. Data will be stored for a minimum of five years on a password-protected computer.

I analyzed the data using the SPSS 21.0. A descriptive analysis summarized the sample data and determined normal distribution. Regression analysis analyzed the data as it was normally distributed. Regression analysis also answered the research questions of whether PEOU or PU had positive effects on job performance among school psychologists who used SESIS, a web-based system, during the IEP process. Alpha was set to 0.05 with a power analysis of 80.

In Chapter 4, I will present the key findings and statistical analysis of this study. There I will provide a detailed descriptive analysis of the demographic variables. Results of regression assumptions were tested for Collinearity, Normality, Outliers, and Independence. A regression analysis was conducted using SPSS 21.0 to address the research questions of whether perceived ease of use or perceived usefulness has a positive effect on job performance.

In Chapter 5, I will discuss the results of this study, which provides relevant information to districts, principals, supervisors, and psychologists on the resources needed to further support school psychologists. Additional outcomes of the results provide further information to school districts, organizations, or companies that would consider implementing advanced technology to the workplace. Recommendations for further research and social implications of this study will also be discussed in Chapter 5.

The results of the study add to the body of literature and advanced knowledge in the area of technology adoption among school psychologists.

Chapter 4: Results

Introduction

In this study, I assessed job performance as a postimplementation job outcome among school psychologists after using SESIS during the IEP process. According to Holden and Rada (2011) and Plaza and Rohlf (2008), implementation of software programs by school personnel may be accompanied by nonadoption of the system, lowering job performance of technology users (Sykes et al., 2014). Therefore, researching whether there were positive effects on job performance using the SESIS web-based IEP system provided essential information to administrators and districts in better understanding the resources needed, such as additional technology support, for the school psychologists during the IEP process. My findings from this study fill the identified gap in research regarding technology acceptance among school psychologists during the IEP process.

I used the TAM Instrument and JPRM to address the RQs of whether PEOU or PU had a positive effect on job performance. To summarize, the null hypotheses stated that PEOU or PU does not have a positive effect on job performance and the alternative hypotheses stated that PEOU or PU does have a positive effect on job performance. This chapter will include the demographic information of sample, descriptive analysis of sample and variables, tests of assumptions, and results that addressed the RQs and hypotheses that guided the study.

Demographic Information

I collected demographic information about the sample participants (see Table 1). Most of the participants who completed this survey were females ($N = 49$, 71%), compared to males ($N = 20$, 29%). The ages of participants ranged from 18 to 65 or older. Most respondents were 49–64 years old ($N = 27$, 39.1%), and the fewest participants were 65 or older ($N = 3$, 4.3%) while most participants worked in the borough of Brooklyn ($N = 19$, 27.5%), and the fewest worked in Staten Island ($N = 5$, 7.2%). Nearly half of the participants had one to three schools on their caseloads ($N = 49$, 71%), and the total number of referrals to special education on caseload fell mostly at 76–150 ($N = 40$, 58%). A total of 105 responses were obtained from elementary, middle, and high school participants. In this demographic question, participants were required to check all that apply; therefore, with 69 total participants, this discrepancy in responses revealed that these school psychologists had been assigned to a variety of school levels. Most responses, however, indicated that school psychologists had worked at the elementary school level ($N = 40$, 58%). A greater number of participants who completed the survey had 21 or more years of employment in the NYCDOE ($N = 23$, 33.3%), with the least number of years at 16–20 ($N = 4$, 5.8%). The majority of participants had prior experience with an online system ($N = 60$, 87%).

Table 1

Sample Demographic Information

	N	%
Gender		
Male	20	29.0
Female	49	71.0
Age		
18–33	18	26.1
34–48	21	30.4
49–64	27	39.1
65+	3	4.3
Borough Employed		
Bronx	17	24.6
Manhattan	10	14.5
Queens	18	26.1
Brooklyn	19	27.5
Staten Island	5	7.2
# Schools on Caseload		
1–3	49	71.0
4–6	16	23.2
7+	4	5.8
# Referrals to Special Education		
25–75	10	14.5
76–150	40	58.0
151–250	14	20.3
251–350	4	5.8
351+	1	1.4
Type of School		
Elementary	40	58.0
Middle School	33	31.9
High School	32	10.1
Yrs. Employed as NYCDOE School Psychologist		
1–5	17	24.6
6–10	13	18.8
11–15	12	17.4
16–20	4	5.8
21+	23	33.3
Experience with Any Online System		
Yes	60	87.0
No	9	13.0

Sample Demographics

A total of 69 participants completed the demographic survey through

SurveyMonkey. Table 2 provides a demographic breakout of the participants sampled:

a)number of schools on caseload (M = 1.3, Mdn = 1.0, mode = 1.0, SD = .59); b) total

number of referrals to special education on their caseload (M = 2.2, Mdn = 2.0, mode =

2.0, SD = .8); and c)number of years employed as NYCDOE School Psychologist (M = 3.0,

Mdn = 3.0, mode = 5.0, SD = 1.6).

Table 2

Sample Demographic Breakout

	M	*Mdn*	Mode	*SD*
Gender	1.71	2.00	2.00	.46
Age	2.21	2.00	3.00	.89
Borough Employed	2.78	3.00	4.00	1.29
# of Schools on Caseload	1.35	1.00	1.00	.59
Total # Referrals to Special Education on Caseload (Initials, Reevaluations, 3-Year Reviews)	2.22	2.00	2.00	.82
Type of School Total	1.52	1.00	1.00	.68
Number of Years Employed as NYCDOE School Psychologist	3.04	3.00	5.00	1.61
Experience with Any Online System, Whether Work or Personal Use (e.g. banking online, taking a course or workshop online)	1.13	1.00	1.00	.34

Descriptive Analysis

Job Performance Rating

I conducted a descriptive analysis of job performance to examine the sample data.

Job performance was measured using the JPRM (see Appendix B). This measure had six

questions on a 5-point Likert scale: 4 for "a great deal better than others in a comparable

position," 3 for "better than others in a comparable position," 2 for "as good as others in a comparable position," 1 for "worse than others in a comparable position," and 0 for "can't say." Table 3 shows the mean, median, mode, and standard deviation values for each question that comprises the JPRM.

The majority of respondents reported that they felt they are as good as others in a comparable position in how fast they complete tasks ($M = 2.4$, $Mdn = 2.0$, mode $= 2.0$, $SD = .9$). Most participants felt that they are better than others in a comparable position when it comes to their quality of performance altogether ($M = 2.6$, $Mdn = 3.0$, mode $= 3.0$, $SD = .7$) while most respondents felt that they are as good as others in a comparable position in how successfully they deal with unforeseen and/or unexpected events in their job activity generally ($M = 2.4$, $Mdn = 2.0$, mode $= 2.0$, $SD = .9$). A greater number of respondents reported that they are as good as others in a comparable position in how well they adjust to changes and innovations ($M = 2.5$, $Mdn = 3.0$, mode $= 2.0$, $SD = .8$). Regarding how sociable participants act in cooperation with others, most reported that they are better than others in a comparable position ($M = 2.9$, $Mdn = 3.0$, mode $= 3.0$, $SD = .8$). Lastly, most participants reported that they are better than others in a comparable position in how reliable they met work-related commitments and agreements ($M = 2.9$, $Mdn = 3.0$, mode $= 3.0$, $SD = .8$).

Table 3

Descriptive Analysis of Dependent Variable: Job Performance

	M	*Mdn*	Mode	*SD*
How fast do you usually complete the tasks?	2 .38	2.00	2.00	.86
How is the quality of your performance altogether?	2.58	3.00	3.00	.73
How successful are you in dealing with unforeseen and/or unexpected events in your job activity generally?	2.36	2.00	2.00	.98
How well do you adjust to changes and innovations?	2.59	3.00	2.00	.83
How sociable do you act in cooperation with others?	2.92	3.00	3.00	.81
How reliably do you meet work-related commitments and agreements?	2.89	3.00	3.00	.82

Perceived Ease of Use and Usefulness

I performed a descriptive analysis of the independent variables of PEOU and PU to further examine the sample data. Both variables were measured using the TAM Instrument (see Appendix A). The TAM had a total of seven questions. Responses were on a 7-point Likert scale coded from +3 (strongly agree) to 3 (strongly disagree) and among responses of agree, somewhat agree, neutral, somewhat disagree, and disagree.

PEOU had three questions on the TAM Instrument. Table 4 reflects the descriptive analysis for PEOU. For the question, "Interacting with SESIS does not require a lot of mental effort," most participants disagreed while most participants found SESIS easy to use. Lastly, a greater number of respondents somewhat disagreed in finding it easy to get SESIS to do what they wanted it to do.

Table 4

Descriptive Analysis of Independent Variable: Perceived Ease of Use

	M	*Mdn*	Mode	*SD*
PEOU—Interacting with SESIS does not require a lot of my mental effort.	-.11	.00	-2.00	1.92
PEOU—I find SESIS easy to use.	.09	.00	2.00	1.84
PEOU—I find it easy to get SESIS to do what I want it to do.	-.38	-1.00	-1.00	1.77

PU had four questions on the TAM Instrument. Table 5 reflects the descriptive analysis for PU. Most participants strongly disagreed that SESIS improved their performance on their job while most participants somewhat agreed that using SESIS on their job increased productivity. A large number of participants strongly disagreed that using SESIS enhanced their effectiveness on their job. Lastly, most respondents somewhat agreed that they found SESIS useful on their job.

Table 5

Descriptive Analysis of Independent Variable: Perceived Usefulness

	M	*Mdn*	Mode	*SD*
PU—Using SESIS improves my performance on my job.	-.62	.00	-3.00	1.69
PU—Using SESIS on my job increases my productivity.	-.75	-1.00	1.00	1.71
PU—Using SESIS enhances my effectiveness on my job.	-.82	-1.00	-3.00	1.61
PU—I find SESIS useful on my job.	.02	1.00	1.00	1.70

Tests of Assumptions

I used SPSS 21.0 to test assumptions related to regression analysis. Testing assumptions is important to confirm that the regression analysis results are not misleading. The following subsections will reflect the results of regression assumptions tested.

Test for Collinearity

One of the regression assumptions is collinearity, which refers to the linear relationships between the independent variables or predictors (Chen, Ender, Mitchell, & Wells, 2003). The higher the correlation, the more unstable and less accurate the results of the predictors (Chen et al., 2003). To test for collinearity, I conducted a regression analysis to review the coefficients table (see Table 6). Within this table, I explored the tolerance and variance inflation factor (VIF). Tolerance explains how much of the independent variables were not expressed by other independent variables (Chen et al., 2003). Small values indicate tolerance; therefore, the number must be greater than .10 (Chen et al., 2003). In Table 6, the tolerance for PEOU = .505 and PU = .505. Both predictors were greater than .10. VIF is the inverse of tolerance factor and the number must be less than 10 (Chen et al., 2003). In Table 6, the VIF for PEOU = 1.982 and for PU = 1.982, which were both found to be less than 10. Collinearity assumption was met for these predictor variables.

Table 6

Test for Collinearity: Tolerance and Variance Inflation Factors [a]

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Correlations			Collinearity Statistics	
	B	*SE*	Beta			Zero-Order	Partial	Part	Tolerance	VIF
(Constant)	15.78	.44		36.08	.00					
PEOU total	.132	.11	.19	1.14	.25	.19	.14	.14	.51	1.98
PU total	-.00	.09	-.00	-.04	.97	.13	-.01	-.01	.51	1.98

Note. [a] Dependent Variable: JPtotal

Test for Normality

Another regression assumption is to test whether the data has a normal distribution. A descriptive analysis explored whether the dependent variable was normally distributed. The factors explored were the skewness and kurtosis values (see Table 7). These values must be close to 0 (Chen et al., 2003). Table 7 reflects that the skewness of –.163 (*SE* = .289) and kurtosis = –.209 (*SE* = .570) were both near 0.

Table 7

Test for Normality: Skewness and Kurtosis Values

			Statistic	*SE*
	Mean		15.74	.40
		Lower Bound	14.93	
	95% Confidence Interval for Mean			
		Upper Bound	16.55	
	5% Trimmed Mean		15.79	
	Median		15.00	
	Variance		11.31	
JPtotal	Standard Deviation		3.36	
	Minimum		6.00	
	Maximum		22.00	
	Range		16.00	
	Interquartile Range		4.00	
	Skewness		−.16	.29
	Kurtosis		−.21	.57

Test for normality was further assessed by exploring the values of Shapiro-Wilk

and Kolmogorov-Smirnov (see Table 8). The values of these factors should not be

significant, p>.05 (Chen et al., 2003). Both of these values were not significant—$p = .180$

and $p = .200$, respectively.

Table 8

Test for Normality: Kolmogorov-Smirnov and Shapiro-Wilk

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	*df*	Sig.	Statistic	*df*	Sig.
JPtotal	.09	69	.20[*]	.96	69	.18

Note. * This is a lower bound of the true significance
[a] Lilliefors Significance Correction

A further test for normality was conducted by analyzing the histogram (see

Figure 1) and the normal Q-Q Plot (see Figure 2) of JPtotal (*DV*=Job Performance Total).

Both visual diagrams appeared to be normally distributed. The results of test for normality described in this section showed that the data was approximately normally distributed.
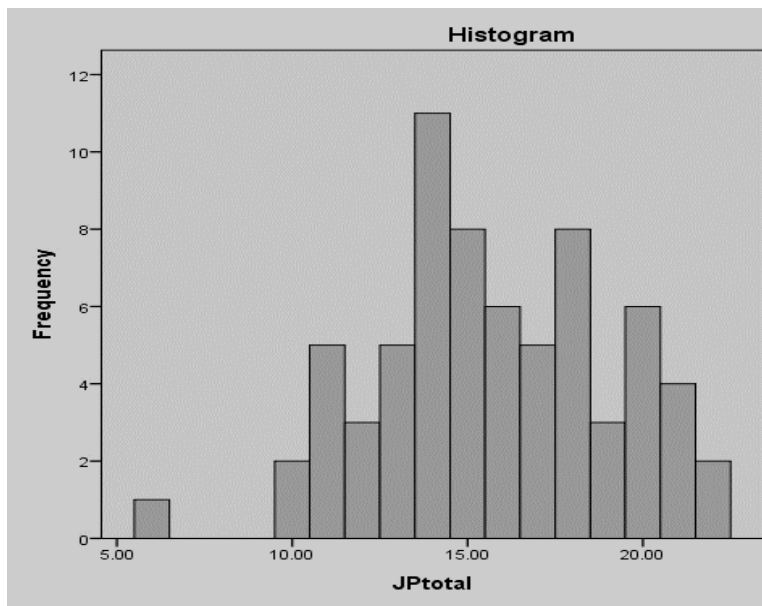

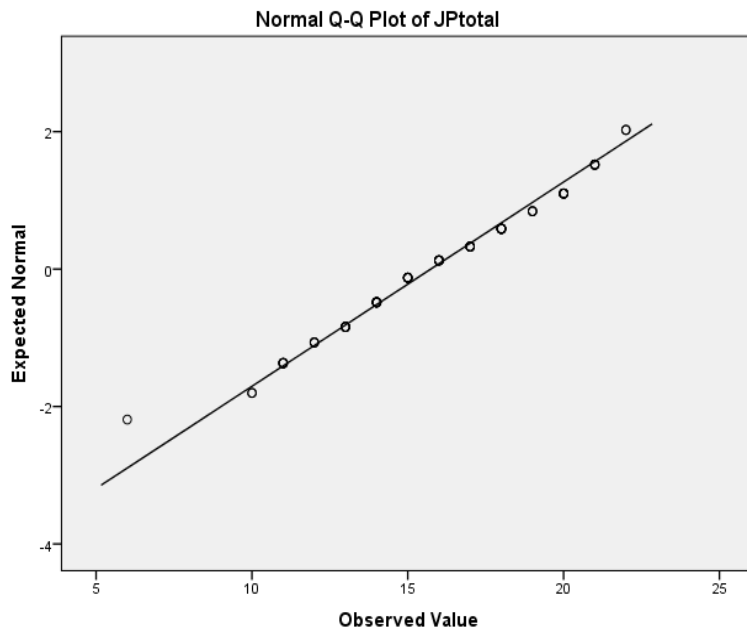*Figure 1*. Histogram of job performance total.

Figure 2. Normal Q-Q plot of job performance total.

Test for Outliers

Another regression assumption is testing for outliers, which refers to assessing

whether there were observation points that were distant from other observations (Chen et

al., 2003). In checking this assumption, a residual statistic was performed (see Table 9).

The standard residual value must be between –3 and 3 (Chen et al., 2003). The values in

Table 9 reflect the standard residual minimum = –2.908 and maximum = 1.780, which

fall within the required values. Further values such as the Cook's Distance were explored

for outliers where the maximum values cannot exceed 1.0. In Table 6, the maximum

values for Cook's D = .112, which does not exceed 1.0. Results of the test for outliers

revealed that there were no observation points that were distant from other observations.

Therefore, there was a linear relationship between variables.

Table 9

Test for Outlier: Cook's Distance Value [a]

	Minimum	Maximum	*M*	*SD*
Predicted Value	14.62	16.95	15.73	.63
Standard Predicted Value	–1.74	1.91	.00	1.00
Standard Error of Predicted Value	14.28	17.31	15.73	.66
Adjusted Predicted Value	14.28	17.31	15.73	.66
Residual	–9.65	5.97	.00	3.30
Standard Residual	–2.88	1.78	.00	.99
Stud. Residual	–2.91	1.81	.00	1.01
Deleted Residual	–9.86	6.15	.01	3.46
Stud. Deleted	–3.09	1.84	.00	1.02
Residual Mahal. Distance	.01	6.31	1.97	1.36
Cook's Distance	.00	.11	.012	.02
Centered Leverage Value	.00	.09	.03	.02

Note. [a] Dependent Variable: JPtotal

Test for Independence

The final test of regression assumption conducted in this analysis was the Test for Independence, which examines correlation of errors among observations (Chen et al., 2003). Table 10 reflects the Model Summary of Durbin-Watson values. The Durbin-Watson has values of 0 to 4 with midpoint of 2. The Durbin-Watson value = 1.944, which is less than the midpoint value of 2, satisfies this assumption.

Table 10

Test for Independence: Durbin-Watson Values

| | | | | Standard Error | | Change Statistics | | | | |
| | | | | of the | R Square | F | | | Sig. F | Durbin- |
Model	R	R Square	Adjusted R Square	Estimate	Change	Square	$df1$	$df2$	Change	Watson
1	.19	.04	.01	3.35	.04	1.22	2	66	.30	1.94

Test of Hypothesis

A multiple regression analysis was used to test the hypothesis of this study. A Likert Scale measured each variable. The dependent variable job performance had six questions as measured by the JPRM. The independent variables PEOU and PU, as measured by the TAM, had three questions and four questions, respectively. Prior to running the regression analysis, a sum of the questions combined for each variable was conducted in SPSS to obtain a job performance total, PEOU total, and PU total. This was necessary to compute as this study measured each variable and not each question of the variable.

Research Question 1

Table 11 shows ANOVA analysis performed to assess the question: "Does perceived ease of use as indicated on the TAM Instrument have a positive effect on job performance as indicated on the JPRM among school psychologists after using SESIS technology during the IEP process?" Results revealed that there was no significant effect, $F(1, 67) = 2.475$, $p = .120$. Therefore, this result fails to reject the null hypothesis that states that perceived ease of use does not have a positive effect on job performance among school psychologists after using SESIS technology during the IEP process.

Table 11

ANOVA: Job Performance and Perceived Ease of Use [a]

Model		SS	df	MS	F	Sig.
	Regression	27.41	1	27.41	2.48	.120[b]
1	Residual	741.90	67	11.07		
	Total	769.30	68			

Note. [a] Dependent Variable: JPtotal
 [b] Predictors: (Constant), PEOUtotal

Research Question 2

Table 12 shows ANOVA analysis performed to assess the question: "Does perceived usefulness as indicated on the TAM Instrument have a positive effect on job performance as indicated on the JPRM among school psychologists after using SESIS technology during the IEP process?" Results revealed that there was no significant effect, $F(1, 67) = 1.135$, $p = .291$. Therefore, this result failed to reject the null hypothesis that

states that perceived usefulness does not have a positive effect on job performance among

school psychologists after using SESIS technology during the IEP process.

Table 12

ANOVA: Job Performance and Perceived Usefulness [a]

Model		*SS*	*df*	*MS*	*F*	Sig.
	Regression	12.81	1	12.81	1.13	.29 [b]
1	Residual	756.49	67	11.30		
	Total	769.30	68			

Note. [a] Dependent Variable: JPtotal
[b] Predictors: (Constant), PUtotal

Summary and Transition

The purpose of this study was to examine whether perceived ease of use and

perceived usefulness have a positive effect on job performance among school

psychologists using SESIS during the IEP process. Upon approval from the appropriate

IRBs, a SurveyMonkey link was sent to randomly selected school psychologists. A total

of 69 completed surveys were used to conduct a multiple regression analysis. Test of

assumptions were performed for collinearity, normal distribution, independence, and

outliers, and all assumptions were met. Results of analysis were conducted to answer the

research questions and test the hypotheses. There was no post-hoc or additional statistical

test of hypothesis needed.

In RQ1, the results failed to reject the null hypothesis that stated that perceived

ease of use as indicated on the TAM Instrument did not have a positive effect on job

performance as indicated on the JPRM among school psychologists after using SESIS

technology during the IEP process. In RQ2, the results failed to reject the null hypothesis

that stated that perceived usefulness did not have a positive effect on job performance as indicated on the JPRM among school psychologists after using SESIS technology during the IEP process. In both RQs, the results failed to reject the null hypothesis, which means that through an observed sample, the null hypothesis is plausible. There was not enough data to support that perceived ease of use or perceived usefulness had a positive effect on job performance. Therefore, the results of this study did not accept the alternative hypothesis as true.

With these results, future research should be considered to explore this study through a qualitative approach to gain further insight as to the school psychologists' perception of technology acceptance as it pertains to their job performance during the IEP process. In Chapter 5, I will reiterate the purpose and nature of study, summarize and compare findings to literature review, discuss limitations of the study, recommendation for future research, positive change implications, and conclusion of study.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

There was a significant gap, which I identified in Chapter 2, regarding the effects of technology acceptance on school psychologists' job performance during the IEP process. I conducted this study to contribute to this gap in the literature by examining whether PEOU or PU have positive effects on job performance while using advanced technology during the IEP process. The results of this study will benefit administrators and districts in better understanding the resources needed, such as additional technology, for school psychologists during the IEP process. In this chapter, I will reiterate the nature of the study, report key findings and interpretation of findings, identify limitations of the study, discuss recommendations for future research and implications for social change, and provide conclusion to the study.

Nature of Study

I used a quantitative approach to examine the RQs as to whether the independent variables, PEOU or PU, have a positive effect on the dependent variable, job performance. Randomly selected school psychologists, who were working in NYCDOE public school buildings, were recruited to voluntarily participate in the study by completing surveys through SurveyMonkey. Sixty-nine participants volunteered for and completed the study. Surveys included the TAM Instrument to examine the independent variables, the JPRM to examine the dependent variables, and a demographic survey to describe the sample characteristics. I used a multiple regression analysis to address the

RQs and test the hypotheses. Data, which I collected through SurveyMonkey, was

exported to SPSS 21.0 for analysis.

Key Findings

Results of this study revealed that most participants who completed the surveys

were females (71%), and most participants were in the 49–64 age range (39%). Within

the five boroughs of NYC, most participants worked in Brooklyn schools (28%), and

most participants worked in elementary schools (58%). The number of schools on

caseload was mostly 1–3 schools (71%), and the number of referrals to special education

was mostly 76–150 referrals (58%). Most participants have been employed in their

position for 21 or more years (33%). Lastly, most participants reported that they had prior

experience using online systems (87%).

The JPRM, a 7-point Likert scale, measured the dependent variable, job

performance. Results revealed that most participants felt that their performance was

better than others' in a comparable position when it comes to their quality of

performance, how sociable they acted in cooperation with others, and how reliably they

met work-related commitments. Most participants responded that they felt their

performance was as good as others' in a comparable position when it comes to

successfully dealing with unforeseen and/or unexpected events and how well they adjust

to changes and innovations.

I used the TAM, a 5-point Likert scale, to measure the independent variables,

PEOU and PU. Regarding PEOU, most participants found SESIS easy to use. Most

participants somewhat disagreed that they found it easy to get SESIS to do what they

wanted it to do. In addition, most participants disagreed that interacting with SESIS did not require a lot of mental effort. For questions related to PU, most participants somewhat agreed that using SESIS on their job increased productivity, and they found SESIS useful in their job. Lastly, most participants somewhat disagreed that SESIS improved their performance and most participants somewhat disagreed that SESIS enhanced their effectiveness on their job.

I conducted multiple regression analysis to address the two RQs of the study: Does PEOU, as indicated on the TAM Instrument, have a positive effect on job performance as indicated on the JPRM among school psychologists after using SESIS technology during the IEP process? Does PU, as indicated on the TAM Instrument, have a positive effect on job performance as indicated on the JPRM among school psychologists after using SESIS technology during the IEP process? Results revealed that I failed to reject the null hypothesis for each RQ that stated that PEOU or PU does not have a positive effect on job performance. Therefore, the null hypothesis was plausible and I did not accept the alternative hypothesis as true.

<div align="center">**Interpretation of the Findings**</div>

TAM was the theoretical framework I used in this study to address whether technology acceptance has an effect on job performance. With the growing demand of technology in the workplace, companies must examine users' technology acceptance as this may impact performance (Florell, 2011). With this in mind, the TAM has been applied to numerous studies in the area of health care and business; however, there was a significant lack of research applying TAM to address the technology acceptance among

school psychologists in the educational setting. As the user acceptance of technology is key to technology adoption (Florell, 2011; Liu, 2010; Smarkola, 2007), my findings from this study contribute to the gap in research by applying the TAM to examine technology adoption among school psychologists during the IEP process.

The findings of this study confirm the finding of studies outlined in Chapter 2. As reported, the PEOU or PU does not have a positive effect on job performance among school psychologists who use advanced technology (SESIS) during the IEP process. Venkatesh et al. (2010) examined the effects of technology in the workplace, and their results revealed similar findings to this study in that the use of technology did not increase job satisfaction and performance. In another study, Mitzner et al. (2010) also confirmed that although there were positive benefits to the use of technology, participants also reported negative benefits (e.g., inconvenient technology, unhelpful features, and reported security concerns). Although I did not measure these negative benefits in this study, the overall concerns of technology having negative benefits are relevant enough to report in this section.

The findings of this study further confirmed the negative impact of technology in the workplace, as I previously reported in Chapter 2. Researchers examined the stressors of technology use, called technostress, which is an overload of technology that might cause a poor link between user and new technology (Ayyagari et al., 2011). Researchers revealed that technostress does exist and may impact productivity (Karr-Wisniewski & Lu, 2010). Researchers further reported that technostress reduces employees' job satisfaction and job performance (Tarafdar, Tu, & RFagu-Nathan, 2011). This confirms

my findings from this study that if users do not perceive technology as easy to use or useful, technology acceptance may impact the user's job performance.

Results of this study have also been disconfirmed in comparison to the studies I reviewed in Chapter 2. Through my exhaustive literature review, only a few articles were located that addressed technology adoption and job performance in educational settings. Researchers examined the perception of the use of technology among school psychologists. Results revealed that when overall technology was perceived as useful, there was a positive effect on productivity (Ertmer & Ottenbreit-Leftwich, 2010; Florell, 2008; Teo, 2011). Subsequently, further researchers applied the TAM to examine user acceptance among teachers and revealed that PU influences technology adoption (Borisinkoof, 2014; Smarkola, 2007; Teo, 2010; Teo & Noyes, 2011).

There were also further studies that I reviewed in Chapter 2 that disconfirmed my findings from this study. As mentioned earlier, I only found a few articles regarding technology and job performance in the educational setting; however, additional articles examined technology and job performance in other settings. For example, researchers examined the use of e-learning systems among college students and employees in the workplace reported that technology acceptance improves job skills and job learning (Torkzadeh et al., 2011); ease of task and usefulness are relevant factors to job performance (Bravo et al., 2015); and technology usage has a positive impact on employee productivity (Beheshti & Beheshti, 2010; Moshiri & Simpson, 2011). Technology use influences an increase in workload and effectiveness (Edmunds et al., 2012).

In reviewing the existing literature for Chapter 2, I found additional studies that further reported the positive effects of technology on job performance that disconfirmed the findings of this study. PEOU and PU were important factors in determining the use of systems (Lee, Lee, Olson, & Chung, 2010; Kuo & Lee, 2011). Researchers revealed that technology has a positive impact on work productivity in that it can reenergize employees, which in turn improves their focus and completion of work tasks (Coker, 2011). Acceptance of technology has an impact on the use of technology (Wang & Wang, 2010). Researchers have also revealed that companies might benefit from workplace innovation, such as technology implementation, as this has a positive influence on the quality of work and overall performance (Camison & Villar-Lopez, 2014; Litwin, 2011; Pot, 2010). On the contrary, the findings of my study revealed that perceived ease of use and perceived usefulness did not have a positive effect on job performance and therefore, these studies disconfirmed the results of my study.

Limitations of the Study

The randomly selected participants of this study were school psychologists employed within the NYCDOE that worked in the public school setting. Both male and female school psychologists of different age ranges were randomly selected. In addition, participants worked in variety of school grade levels and different boroughs within NYC. Therefore, this study limits generalizability to school psychologists who work in school systems outside of NYC. Another limitation is that I was uncertain as to whether all school psychologists who participated in this study were trained using SESIS. As this was not one of the inclusion or exclusion criteria, this study limits whether that factor is

essential to the results of this study. Lastly, technological difficulties that school psychologists experienced might have impacted participants' perception of technology acceptance. Examples of technological difficulties might have included inability to save work due to system timing out, interruption in Internet service, and accessibility issues during repair or system upgrade.

Recommendation for Further Research

Researchers have applied the TAM to examine technology acceptance and its effects on job performance in areas of business, education, and health care. However, there was a significant gap in literature of researchers who have applied TAM to explore technology acceptance among school psychologists' job performance, especially as it relates to the IEP process. I conducted this study to fill this gap in the literature.

The execution of this study involved randomly selected participants completing surveys online through SurveyMonkey in order to answer the RQs of whether PEOU or PU have a positive effect on job performance. Results of this study led me to fail to reject the null hypotheses that stated that PEOU or PU does not have a positive effect on job performance among school psychologists using SESIS during the IEP process. Most participants agreed that SESIS was easy to use and somewhat agreed that using SESIS on their job increased productivity and that they found SESIS useful for their job; however, most participants disagreed that interacting with SESIS did not require a lot of mental effort and somewhat disagreed that it was easy to get SESIS to do what they wanted it to. In addition, most participants somewhat disagreed that SESIS improved their job

performance and somewhat disagreed that SESIS enhanced their effectiveness on their job.

The results of responses to the JPRM yielded more favorable results in that most participants felt that they were better than others or as good as others in a comparable position. With these results, school psychologists might feel adequate in their job performance, but most participants did not necessarily agree that SESIS contributed to their level of adequacy regarding their job performance. As I used a quantitative approach in this study, I recommend that further research be conducted using a qualitative approach to examine the discrepancies between favorable results of their job performance and the less favorable results of technology acceptance. A qualitative approach might provide a more in-depth understanding of why and how school psychologists feel a certain way about technology acceptance. Qualitative research in this area is essential to the body of literature, as limited studies have examined technology acceptance through a qualitative approach.

The two determinant factors of TAM are PEOU and PU (Davis, 1993) and are essential factors in examining technology acceptance and its effects on job performance. Researchers have been conducted applying these two factors. As mentioned in Chapter 2, however, several researchers reported the use of extended factors in examining job performance. Davis et al. (1989) suggested future research to include extended factors to the TAM as they found that extended factors are relevant to the effects on job performance. For example, computer self-efficacy, which refers to the ability of the user to complete a task, was found to improve both PEOU and PU on job performance

(Mouakket, 2010). Extended factors of compatibility, subjective norm, attitude toward use, facilitating conditions, perceived enjoyment, perceived fit, satisfaction, individual characteristics, and training impression were also found to have some influence on user acceptance (Johar & Awalluddin, 2011; Shu, Tu, & Wang, 2011;Teo, 2010; Teo, 2011; Teo & Noyes, 2011;Yaghoubi & Bahmani, 2010; Zhang, Guo, & Chen, 2007). These studies confirmed that extended factors contributed to technology acceptance on job performance. Therefore, it is recommended that future research be conducted to examine extended factors of TAM on job performance among school psychologists during the IEP process.

Implications for Positive Social Change

The social implication of this study is important at an organizational level. As stated in Chapter 1, job performance is an essential concept to the success of an organization, group, and individuals (Beheshti & Beheshti, 2010; Bravo, Santana, & Rodon, 2015). As individual and group success is vital to productivity and the success of an organization as a whole (Lin et al., 2011), companies have implemented new systems or technologies to improve overall outcome (Lin et al., 2011). Technology acceptance, however, is important to explore as this might impact job performance (Florell, 2011). This study was conducted to fill in the gap of literature related to technology acceptance and its effects on job performance among school psychologists who use advanced technologies during the IEP process.

Results of this study revealed that school psychologists feel that they are better than or as good as others in a comparable position when performing their jobs; however,

results revealed that most participants experience difficulty with technology acceptance in perceiving that it is easy to use and useful. Therefore, overall results reveal that most school psychologists who participated completed this study survey do not feel that technology has a positive effect on their job performance. These results help administrators and districts to better understand that further resources might be needed for school psychologists during the IEP process.

Unfavorable acceptance of technology might lower technology user job performance (Sykes et al., 2014). Lack of success in an organization (in this case, the NYCDOE's IEP process) is a significant concern, as the state mandates to the IEP process and productivity are essential to completing the IEP process accordingly. Administrators and school districts might need to explore additional resources to address the results of this study. For example, small group training sessions and follow-up sessions might improve the usefulness of technology, the ease of use of technology, and the benefits of technology. As ease of use and usefulness are vital to technology acceptance, providing resources to school psychologists are key to the overall success of the IEP process.

Conclusion

Researchers revealed that technology acceptance is key to job performance— that is, the user's perception that the technology is easy to use and useful might affect overall job performance. Applying the technology acceptance model to research has been prevalent in determining the success of an organization or company; however, there is a significant gap in literature of studies that have applied the TAM to examine its effects on

job performance among school psychologists during the IEP process. This study, therefore, will contribute to the gap in literature.

Through a quantitative approach, this study examined whether perceived ease of use or perceived usefulness has a positive effect on job performance. This study was conducted by examining responses, with the use of SurveyMonkey, from randomly selected school psychologists who work within the NYCDOE public school system. Multiple regression analyses were conducted using SPSS 21.0 and revealed that the TAM variables do not have a positive effect on job performance. Previous studies both confirmed and disconfirmed these results as discussed earlier in this chapter. The demographic characteristics of this study included both male and female participants of varied ages and employment experiences, which suggests a good representative sample of this study; however, as participants selected were from the NYCDOE public school system, the limitation to this study was that it cannot be generalized to represent school psychologists who work outside of the NYC school district.

Besides filling in the gap in the literature, the results of this study might benefit administrations and school districts in better understanding the resources needed for school psychologists to effectively complete their tasks, specifically the IEP process. As the results of this study reveal that school psychologists do not feel that perceived ease of use and perceived usefulness have a positive effect on job performance, additional support and resources might be needed for school psychologists. Recommendations of resources include additional training and follow-up training to improve technology acceptance. School psychologists are essential members to the IEP process, and as

technology acceptance is key to job performance, nonadoption of technology can have a negative impact on the overall success of a company—in this case the NYCDOE's IEP process.

Future research into this topic is much needed, as there is a significant gap in literature; however, it is recommended that future researchers apply a qualitative approach to this study. Learning more about school psychologists' concerns with technology acceptance through a qualitative approach such as interviews can further provide direct information to better understand their concerns and the resources needed to improve their overall job performance when using advanced technology. In addition, Researchers confirmed that extended factors such as perceived enjoyment, perceived fit, satisfaction, and attitude toward use, to name a few, were found to have some influence on user acceptance. Therefore, it is recommended that future research be conducted to examine extended factors of TAM on job performance among school psychologists during the IEP process.

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Appendix A: Technology Acceptance Model Instrument

Background: School Psychologists in the NYCDOE uses SESIS, a web-based system, to complete the Individualized Education Program (IEP) process. The purpose of this study is to quantitatively measure the correlation effects of perceived ease of use and perceived usefulness on job performance.

Instructions: Please complete each set of items below and circle one response for each line item.

Perceived Ease of Use (PEOU)

Interacting with SESIS does not require a lot of my mental effort

Strongly   +3   +2   +1   0   1   2   3   Strongly
 Agree   Disagree

I find SESIS easy to use

Strongly   +3   +2   +1   0   1   2   3   Strongly
Agree   Disagree

I find it easy to get SESIS to do what I want it to do

Strongly   +3   +2   +1   0   1   2   3   Strongly
Agree   Disagree

Perceived Usefulness (PU)

Using SESIS improves my performance on my job

Strongly   +3   +2   +1   0   1   2   3   Strongly
Agree   Disagree

Using SESIS on my job increases my productivity

Strongly   +3   +2   +1   0   1   2   3   Strongly
Agree   Disagree

Using SESIS enhances my effectiveness on my job

Strongly   +3   +2   +1   0   1   2   3   Strongly
Agree   Disagree

I find SESIS useful on my job

Strongly   +3   +2   +1   0   1   2   3   Strongly
Agree   Disagree

Appendix B: Job Performance Ratings Measure

Background: NYCDOE School Psychologists uses SESIS, a web-based system to complete the Individualized Education Program (IEP) process. The purpose of this study is to quantitatively measure the effects of perceived ease of use and perceived usefulness on job performance.

Instructions: Please complete each item below by circling one response for each one.

The rating anchors to choose from range from "a great deal better than other persons in a comparable position", "better than", "as good as," and "worse than" or "can't say"

1. How fast do you usually complete the tasks?

A great deal better than others   4   3   2   1   0   Can't say
in a comparable position

2. How is the quality of your performance altogether?

A great deal better than others   4   3   2   1   0   Can't say
in a comparable position

3. How successful are you in dealing with unforeseen and/or unexpected events (disturbances, interruptions, losses/deficiencies, crisis, stagnations) in your job activity generally?

A great deal better than others   4   3   2   1   0   Can't say
in a comparable position

4. How well do you adjust to changes and innovations?

A great deal better than others   4   3   2   1   0   Can't say
in a comparable position

5. How sociable do you act in co-operation with others?

A great deal better than others   4   3   2   1   0   Can't say
in a comparable position

6. How reliably do you meet work-related commitments and agreements?

A great deal better than others   4   3   2   1   0   Can't say
in a comparable position

Appendix C: Demographic Information

Instructions: Please complete each item below by placing a check mark (√) for only one response unless otherwise indicated.

1. Gender:

   _____Male   _____Female

2. Age:

   _____ 23–35   _____36–48   _____49–61 _____62+

3. Borough Employed:

   _____Bronx _____Manhattan _____Queens _____Brooklyn ____Staten Island

4. Number of schools on caseload:

   _____1–3   _____4–6   _____7+

5. Total number referrals to special education on caseload (initials, re-evaluation, 3-year reviews):

   _____25–75 _____76–150 ____151–250 _____251–350 _____351+

6. Type of School (check all that apply):

   _____Elementary _____Middle School _____High School

7. Number of years employed as NYCDOE School Psychologists:

   _____1–5 _____6–10 _____11–15 _____16–20 _____21+

8. Prior experience with any online system whether work or personal use (such as banking online, taking course or workshop online, etc):

   _____Yes   _____No

Appendix D: Informational Letter to Principals

Dear Principals,

As principals are the immediate building supervisors of School Psychologists, you are sent this email to inform you that your building's School Psychologist has been randomly selected to participate in this study. This study is being conducted by a researcher named Rana D. Hobson who is a doctoral student at Walden University. This researcher is also a School Psychologist employed with New York City Department of Education (NYCDOE), but this study is separate from that role.

The researcher is inviting school psychologists who work for the NYCDOE and uses SESIS during the Individualized Education Program (IEP) process. The purpose of this study is to understand the effects of perceived ease of use and perceived usefulness of web-based IEP system on job performance for School Psychologists during the IEP process.

Data collection is through SurveyMonkey and does not require on site research. Participation of School Psychologists in this study is on a voluntary basis. Completion of surveys will not take place during the work time hours of the School Psychologists. Expected time to complete surveys is 3 to 5 minutes. Data will be collected once.

If you have any questions, you may contact the researcher via XXXXXXXX and/or XXXXXXXX. You may also contact Dr. Leilani Endicott, Walden University representative, at XXXXXXXX. Walden University's approval number for this study is 03-03-16-0082163 and it expires on March 2, 2017.

Thank you.