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An Examination of Middle School Counselors' Comfort with Technology

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AN EXAMINATION OF MIDDLE SCHOOL COUNSELORS'

COMFORT WITH TECHNOLOGY

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DEDICATION

This dissertation is dedicated to my husband and children. Many people have said they don't know how I've completed this dissertation with two small children. I would not have been able to accomplish any of this venture without the constant support from my husband, Mark. From taking the kids outside to play so that I could write to bringing me cupcakes to fuel my brain, this process would not have been possible without his encouragement that I would survive this process and come out better on the other side.

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ABSTRACT

The purpose of the current study was to investigate the differences in comfort with technology in middle school counselors in South Carolina. The researcher's goal was to determine the effects of years of experience, technology training, gender, and age on middle school counselors' comfort with technology. After a review of literature, it was determined that this study was warranted to determine middle school counselors' comfort with technology.

As technology progresses, it is critical that school counselors are appropriately trained to utilize technology in their work. Their comfort levels with technology should be as strong as their ability to use a computer. New school counselors are typically highly trained in the use of current technology. Many veteran school counselors may or may not have the same comfort levels with their newer school counselor colleagues.

The researcher used the forty-item Computer Attitude Scale (CAS) as a survey instrument to determine new and veteran middle school counselors' computer anxiety, confidence, liking and usefulness. Data was collected from middle school counselors in South Carolina by using a survey mailing. Descriptive statistics were used to analyze the data.

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ASCA- American School Counselor Association

CAS- Computer Attitude Scale

SPSS- Statistical Package for the Social Sciences Version 19

CHAPTER ONE

INTRODUCTION

The medium, or process, of our time- electric technology is reshaping and restructuring patterns of social interdependence and every aspect of our personal life. It is forcing us to reconsider and re-evaluate practically every thought, every action. --- Marshall McLuhan

If Sigmund Freud were trying to find research about depression in clients, he would have to search through scores of books and papers in order to find useful information. This research could take days to complete. If a counselor were researching depression in today's world, they could complete a Google search on depression on the Internet and receive about 270,000,000 results in less than a second. These results could be filtered through in order to find professional, peer-reviewed publications for information about depression. The counselor would have these results as well as access to everything that Freud published about depression in clients in a matter of minutes.

Around the world, technology has changed the ways in which individuals live and interact with one another. Earlier forms of technology were initially utilized for government and corporate work, so it exhibited little impact on the common individual's

life (Granello, 2000). Computers were enormous and inefficient in their earlier stages, thus not cost-effective or practical for use by individuals. Technological advances continued and computers became employed by practically every profession in some form. The potential for technology use in the work setting became more feasible and changed the ways in which most professions functioned (Granello, 2000). While many professions have been profoundly and immediately affected by the advent of technology, others have been more gradually affected over time. In considering the counseling movement, one must consider the changes in the world around it. As the rest of the world reacted to advances in technology, it was inevitable that the counseling profession would be bound to react as well (Granello, 2000). While there have always been debates as to the effectiveness and necessity of technology within the realms of counseling, its use has unquestionably become an integral part of the field (Van Horn & Myrick, 2001).

The world continues to evolve and change rapidly, and school counseling has grown and changed to support it. As school counselors began working within a vocational frame of reference, they rapidly began to incorporate additional considerations in working with students. The emphasis of school counselors moved beyond assisting students in determining their future career paths (Wingfield, Reese, & West-Olatunji, 2010). Instead, they began to look into ways in which they could be of assistance in all aspects of the student-- academically, emotionally and socially. As school counselors began to work more holistically with students the need arose for them to keep abreast of developing trends within the school setting. School counselors began using more advanced methods of communication and record keeping, along with discovering ways to work more efficiently with students (Glosoff, 2009). New approaches and techniques

developed due to the need for school counselors to mirror the swift speed of change in the world around them.

There are various techniques and approaches used to support the work of school counselors. Among these approaches is the use of technology in the school setting incorporated with other work aspects of school counselors (Sabella, 2000; VanHorn & Myrick, 2001). As students are using technology as part of their daily educational experiences, so must school counselors in their daily work with students. Technology use provides a means for school counselors to increase their efficacy in schools (Stone & Turba, 1999). Additionally, the expectation of the American School Counselor Association (ASCA) is that school counselors incorporate technology into their work. According to ASCA's School Counselor Competencies from the ASCA National Model (2007), school counselors should demonstrate the following competencies:

- I-B-1g. Uses technology effectively and efficiently to plan, organize, implement and evaluate the comprehensive school counseling program
- III-B-1f. Knows, understands and uses a variety of technology in the delivery of guidance curriculum activities
- IV-A-6. Current and emerging technologies such as use of the Internet, Web-based resources and management information systems
- V-B-1f. Uses technology in conducting research and program evaluation

In considering the national technology standards that school counselors are expected to adhere to, it is important to consider the South Carolina standards set forth for school counselors. The South Carolina Comprehensive Developmental Guidance and

Counseling Program Model (2008) refers to the American School Counselor

Association's Ethical Standards for School Counselors in its model. Within the Preamble

to the Standards, technology standards are discussed within two sections:

A.10. Technology

The professional school counselor:

a. Promotes the benefits of and clarifies the limitations of various appropriate

technological applications. The counselor promotes technological applications (1)

that are appropriate for the student's individual needs, (2) that the student understands

how to use and (3) for which follow-up counseling assistance is provided.

b. Advocates for equal access to technology for all students, especially those

historically underserved.

c. Takes appropriate and reasonable measures for maintaining confidentiality of

student information and educational records stored or transmitted over electronic

media including although not limited to fax, electronic mail and instant messaging.

d. While working with students on a computer or similar technology, takes reasonable

and appropriate measures to protect students from objectionable and/or harmful

online material.

e. Who is engaged in the delivery of services involving technologies such as the

telephone, videoconferencing and the Internet takes responsible steps to protect

students and others from harm.

E.1. Professional Competence

The professional school counselor:

c. Strives through personal initiative to maintain professional competence

including technological literacy and to keep abreast of professional information.

Professional and personal growth are ongoing throughout the counselor's career.

School counselors use technology in different ways to support their work with students in their school setting each day (Owen Jr., 1999). A number of school counselors use applications in Microsoft Office. Applications such as Microsoft PowerPoint are used to present information such as classroom guidance lessons to students (Sabella & Booker, 2003). Microsoft Excel has been utilized by some school counselors as a means for compiling and keeping track of data pertinent to their school's needs. Many school counselors create newsletters in order to disseminate information to others by using Microsoft Publisher. E-mail is a basic means of communication for school counselors as they communicate frequently with teachers, administrators, parents, colleagues and students (VanHorn & Myrick, 2001). Within their e-mail system many school counselors also maintain an electronic calendar of their activities and appointments.

School counselors utilize many online resources in their daily work. Many use the Internet for researching a vast array of areas to gain information in areas such as higher education, college, military occupations, scholarships, videos for lessons, career websites, disorders and mental health issues (VanHorn & Myrick, 2001). Along with Internet research school counselors may create and administer online surveys for needs assessments to be completed by students, parents and teachers. They may also use technology as a means for providing students, parents, and staff with information via

their school's website (Owen Jr., 1999; Wilczenski & Coomey, 2006)). Many school counselors are responsible for creating and maintaining their own guidance department web page within the school's website. Within most school settings a database for student information is kept current and utilized by school staff. These databases typically contain vital information about students that school counselors need to obtain, such as age, attendance, discipline, grades, courses enrolled in, and parent/guardian information (Stone & Turba, 1999).

While many of the previously named forms of technology have been exploited by school counselors (Carlson, Agahe Portman, & Bartlett, 2006; Sabella, Poynton, & Isaacs, 2010; Stone & Turba, 1999; VanHorn & Myrick, 2001), newer forms of technology are being implanted into the school setting each school year. What may have been the most current and widely used form of technology for school counselors when it first started being utilized is not necessarily the most advanced form of technology being utilized today (Wilczenski & Coomey, 2006; Gerler, 1995). In many cases, some older forms of technology are obsolete and obligate school counselors to end up working harder and not smarter. With the advent of cyber bullying on social networking websites such as Facebook and Twitter, school counselors are seeing the need to mediate between students' internet communications on the internet (Chibbaro, 2007). Employing these new forms of technology is not just a trend that school counselors should consider following, it is a necessity if they want to remain effective and efficient in their work with students.

The profession of counseling has transitioned far beyond the days of lying on a couch to discuss one's problems with a therapist. Technology has become commonly used by counselors in both their direct and indirect work with clients. Technological tools have provided support to practically every kind of counselor working today (Granello, 2000). Among those using technology as a mechanism for supporting the counseling profession are school counselors (Sabella & Booker, 2003). School counselors use a variety of methods to help students daily, some more so than others. Although computer use is common for the majority of school counselors, there are undoubtedly those school counselors who have reasons for not utilizing technology as much as other school counselors. For some school counselors, they may feel lower comfort levels with using technology in their daily work (Carlson, Agahe Portman, & Bartlett, 2006). In order to consider some of the reasoning for the differences in use, the researcher was attempting the current study as a means for determining how comfortable middle school counselors are with computers.

PROBLEM STATEMENT

Many forms of technology are widely used by younger generations, so much so that it can be considered an integral part of their lives. Children are learning to use technology at very young ages (Bauman & Tatum, 2009). As these younger generations enter the workforce, they are often armed with an arsenal of technological skills beyond that of their veteran counterparts already in the workforce (Edwards, Agahe Portman, & Bethea, 2002). Graduate programs across the country are graduating future school counselors who are typically very knowledgeable about technology and its many uses

within the school setting (LaTurno Hines, 2002). Furthermore, school counseling programs are also requiring students to use technology within their courses as a means for preparing them to enter the profession sufficiently prepared with a current technological knowledge base (Edwards, Agahe Portman, & Bethea, 2002; LaTurno Hines, 2002; Wilczenski & Coomey, 2006). There are very few, if any, school counselors who do not use technology in one form or another as a means for completing some aspect of their jobs.

Although actual counseling is still conducted face to face with students in the school setting, many other components of the school counselor's job are supported by the use of technology. While there is a great deal of research detailing how school counselors are using technology (Van Horn & Myrick, 2001), there is limited research regarding their comfort levels with using computers (Holcomb-McCoy, 2005; Rainey, McGlothlin & Guillott Miller, 2008). Current literature suggests that school counselors use computers as part of their daily work, yet does not provide information as to how school counselors feel about having to use it (Stone & Turba, 1999).

As new school counselors enter the field, research has shown very little of their comfort levels with technology. Another area of research that is lacking in information is the comfort level of veteran school counselors in using technology within the school setting (Owen Jr., 1999). Years of experience in the school counseling profession may be an influencing factor in the comfort levels of school counselors in regards to technology. New school counselors are entering the profession with a set of competencies from the ASCA National Model (ASCA, 2007). Veteran school counselors may not have the

same levels of training as new school counselors and, therefore, may experience lower levels of comfort in their technology use (Carlson, Agahe Portman, & Bartlett, 2006).

Research is very inconsistent in considering the effects of gender on school counselor comfort with technology. Many studies do not include gender as a variable in the data (Holcomb-McCoy, 2005; Herman, Leggett, & Remley, 2008; Yushau, 2006); others may collect gender information from participants without analyzing it. Of the previously conducted studies analyzed for the current research study, the researcher found that sixty nine percent collected gender data from their participants. Only fifteen percent of the previously conducted studies analyzed gender as part of their data analysis (Sabella, Poynton, & Isaacs, 2010; Dollarhide, Gibson, & Saginak, 2008). Although it may be an important factor, the area of gender does not have a consistent foundation in determining its effect on school counselor comfort with technology.

An additional variable that lacks consistency in its research base is age and its effect on school counselor comfort with technology. As with gender, researchers often do not collect and/or analyze age in their studies (Holcomb-McCoy, 2005; Herman, Leggett, & Remley, 2008; Studer & Oberman, 2006; Walsh, Barrett, & DePaul, 2007). In regards to the studies analyzed for the current research study, sixty nine percent of the studies collected demographic data on age. Thirty nine percent of the studies analyzed age in their data evaluations (Korobili, Togia, & Malliari, 2010; Sabella, Poynton, & Isaacs, 2010; Dollarhide, Gibson, & Saginak, 2008; Curry & Bickmore, 2012; Yushau, 2006). Age has not proven itself to be a consistently analyzed variable in studies

involving school counselor comfort with technology. This may be a central factor to consider when establishing its effect on school counselor comfort with technology.

The factors that may influence school counselors' levels of comfort have seen very little and inconsistent research throughout current literature (Sabella, Poynton, & Isaacs, 2010). The rapid rate at which technology is growing necessitates a serious look at school counselors' comfort level with it (D'Andrea, 1995). It is the belief of the researcher that there may be an effect of middle school counselors' years of experience, technology training, age, and gender and their comfort levels with technology. The current study intends to study the comfort levels of middle school counselors with regards to technology and determine where gaps may lie within their comfort levels.

NATURE OF STUDY

The current study hoped to answer the following research question: What effects do years of experience, technology training, gender, and age have on middle school counselors' comfort with technology? While investigating these differences consideration should be given to the following hypotheses from the subscales of the Computer Attitude Scale:

1. There will be a significant main effect for years of experience, but no main or interaction effect for technology training, age or gender, on the computer anxiety subscale of the CAS.

2. There will be a significant main effect for years of experience, but no main or interaction effect for technology training, age or gender, on the computer confidence subscale of the CAS.

3. There will be a significant main effect for years of experience, but no main or interaction effect for technology training, age or gender, on the computer liking subscale of the CAS.

4. There will be a significant main effect for years of experience, but no main or interaction effect for technology training, age or gender, on the computer usefulness subscale of the CAS.

The following hypotheses will be considered in regards to demographic data and ASCA technology competency standards:

1. H_o= There is no association between gender and level of comfort with technology.

   H_a= There is an association between gender and level of comfort with technology.

2. H_o= There is no association between age and level of comfort with technology.

   H_a= There is an association between age and level of comfort with technology.

3. H_o= There is no association between years of experience and level of comfort with technology.

   H_a= There is an association between years of experience and level of comfort with technology.

4. H_o= There is no association between race and level of comfort with technology.

H_a= There is an association between race and level of comfort with technology.

5. H_o= There is no association between highest earned degree and level of comfort with technology.

   H_a= There is an association between highest earned degree and level of comfort with technology.

6. H_o= There is no association between work setting and level of comfort with technology.

   H_a= There is an association between work setting and level of comfort with technology.

7. H_o= There is no association between graduate program preparation and level of comfort with technology.

   H_a= There is an association between graduate program preparation and level of comfort with technology.

Additional information on the nature of the study, including the design, survey instrument and procedures of the study will be discussed in more detail in chapter three.

PURPOSE OF STUDY

The current study seeks to focus on the levels of comfort experienced by middle school counselors in South Carolina. Specifically, the researcher hoped to answer the following research question:

What effects do years of experience, technology training, gender, and age have on middle school counselors' comfort with technology?

It was unknown by the researcher as to what levels of comfort middle school counselors experience in their daily work with technology in the school setting. The researcher wanted to study this area as a means for gaining more insight into the factors that may determine middle school counselors' comfort with technology. The information gained in this study may provide a number of implications for further study into this subject. The assumption of the researcher was that the current study would uncover a significant difference between the groups of middle school counselors. This perceived difference provided the researcher with the opportunity to present the need for additional training and access to technology among all middle school counselors, especially those that are considered veteran counselors.

BACKGROUND AND THEORETICAL BASE

In considering the information to be gained by this study, the researcher chose to approach the study through the lens of a quantitative researcher. Therefore, the theoretical framework for the current research study was quantitative in nature. A qualitative study of the same issues presented may have yielded very specific results that could explain the research question in a different manner (Orcher, 2005). The researcher could choose to interview a small number of middle school counselors and ask more in-depth questions about their personal perceptions and comfort levels with computers. The responses would be very detailed and specific to the particular counselor being interviewed. However, the researcher contemplated the possible implications of the

study and resolved to make the study's results more generalizable to a wider population. In determining the research design of the study, the researcher considered the research question to be answered and determined that this study was quasi-experimental due to its lack of manipulation of any variables (Orcher, 2005). Moreover, the groups of school counselors included in the study were not randomized.

As a non-experimental study, the research was causal-comparative and correlational due to its comparison of existing groups of school counselors (Fraenkel & Wallen, 2006). A causal-comparative design was appropriate as it does not manipulate the independent variable (Gay, Mills, & Airasian, 2006). This study will attempt to ascertain possible levels of differences between the groups being compared. A correlational design will provide the researcher with the opportunity to examine the relationships between the independent variables (Orcher, 2005). While numerous studies have been completed as a means for determining school counselors' use of or perceived importance of computers in their work (VanHorn & Myrick, 2001; Carlson, Agahe Portman, & Bartlett, 2006; Sabella, 2000; Sabella, Poynton, & Isaacs, 2010; Owen Jr., 1999), limited research exists in the area of examining school counselors' comfort with computers.

This study sought to quantitatively examine the effects of years of experience, gender, and age on middle school counselors' comfort with computers by using the Computer Attitude Scale (CAS) created by Gressard and Loyd in 1986. The scale has been modified and used in research studies to determine individuals' attitudes about computers (Yushau, 2006; Korobili, Togia, & Malliari, 2010). The use of this scale

provided the researcher with the opportunity to compare the responses of numerous

middle school counselors. While a qualitative approach to this study may also have

yielded a glimpse into the perceptions of several new and veteran school counselors, it

would not have been viable for the researcher to infer the perceptions of these counselors

in comparison to one another. A causal comparative approach to this study allowed the

researcher to compare the groups of middle school counselors without the potential bias

of the researcher creating a negative interference with the results of the study. Further,

the utilization of the CAS provided the opportunity for these results to be more

generalizable and utilized on a larger scale within the school counseling profession.

One of the effects being measured in the current study will be defined as years of

experience for new middle school counselors and veteran school counselors. New school

counselors and veteran school counselors will be differentiated by the number of years of

experience held by each group. New school counselors will be defined as those with five

or less years of professional experience and veteran school counselors will be defined as

those with six or more years of professional experience. Research into determining a

defined number of years of experience yielded limited and inconsistent results. Studer

and Oberman (2006) examined practicing school counselors' use of the ASCA National

Model in their supervisory practices. In examining number of years of experience as a

variable in their study, they defined differences in school counselors based on either six

or less years of experience or seven or more years of experience. This study did not

define years of experience in terms of new versus veteran school counselors. In another

study, Herman, Leggett and Remley Jr. (2008) examined the preparedness of school

counselors to deal with legal issues. Their study separated school counselors' years of

experience into four categories: than 4 years of experience, 4–7 years of experience, 8–12 years of experience, and more than 12 years of experience. This study also did not define terms for school counselors such as new or veteran. Curry and Bickmore (2012) recently completed a study of how the ASCA model was being presented to novice school counselors. This study specifically defined novice school counselors as those in their first or second year of service or in their first year in their school setting. In investigating new school counselors' practice of leadership activities, Dollarhide, Gibson, and Saginak (2008) defined new counselors as those in their first and second year as practicing school counselors. Finally, Walsh, Barrett, and DePaul (2008) studied the day to day use of the ASCA model by newly hired school counselors. These school counselors were defined as those having between 1-5 years of experience as a school counselor. While some of these studies provide a definition of new or novice counselor, none define school counselors in terms of new or veteran. Additionally, the years of experience varied between studies. Therefore, it was the determination of the researcher to define year of school counseling experience as follows: new school counselors are those with five or less years of experience and veteran school counselors are defined as those having six or more years of experience.

In considering other variables to examine in the current study, the researcher referred to the Demographic Data Analysis Table (Table One). Research into studies offering an analysis of gender and its effect on school counselor with technology provided inconsistent results. Owen, Jr. (1999) collected data on gender when investigating computer utilization by school counselors. However, he, along with numerous others who collected gender data from participants (Korobili, Togia, &

Malliari, 2010; Edwards, Portman, & Bethea, 2002; Carlson, Portman, & Bartlett, 2006; Studer & Oberman, 2006; Curry & Bickmore, 2012; Rainey, McGlothlin, & Miller, 2008), failed to analyze this data beyond a cursory demographic collection. Although smaller in number, other studies chose to both collect and analyze gender in their data analyses. In researching school counselors' perceived importance of technological competencies, Sabella, Poynton, & Isaacs (2010) examined the relationship of several demographic variables, including gender, with school counselor perceptions. An additional study by Dollarhide, Gibson, & Saginak (2008) analyzed gender as part of its data collection. The inconsistency of gender analysis between studies justifies the researcher's examination of gender and its effect on school counselor comfort with technology.

Age is a variable that is often collected as part of demographic data in studies. Although frequently collected, age is not consistently analyzed in all studies. Many studies within the Demographic Data Analysis Table (Table One) collected demographic data on age (Owen, Jr., 1999; Korobili, Togia, & Malliari, 2010; Edwards, Portman, & Bethea, 2002; Sabella, Poynton, & Isaacs, 2010; Carlson, Portman, & Bartlett, 2006; Dollarhide, Gibson, & Saginak, 2008; Curry & Bickmore, 2012; Yushau, 2006; Rainey, McGlothlin, & Guillot Miller, 2008). However, age in regards to its effect on school counselor comfort with technology is not examined within many studies. Of the studies within Table One, several went beyond data collection and analyzed age as part of their data analysis. Korobili, Togia, & Malliari (2010) analyzed age within their study examining computer anxiety and attitudes among undergraduate students. Additionally, Sabella, Poynton, & Isaacs (2010), Dollarhide, Gibson, & Saginak (2008), Curry &

Bickmore (2012), and Yashau (2006) all collected and analyzed data in regards to age of participants within their studies. While these studies did collect and analyze data on age, there were no consistent analyses across studies investigating comfort with technology. The results of these inconsistencies justified the researcher's collection and analysis of age in regards to school counselor comfort with technology.

OPERATIONAL DEFINITIONS

To account for variations in definitions that may differ within the reading audience, the following terms and definitions were used in this study. To construct these operational definitions the researcher utilized peer-reviewed literature, published documents from the American School Counselor Association, Merriam-Webster Online Dictionary, and Wikipedia.

- **Age:** an individual's development measured in terms of the years requisite for like development of an average individual (http://www.merriam-webster.com).
- **American School Counselor Association:** The American School Counselor Association (ASCA) supports school counselors' efforts to help students focus on academic, personal/social and career development so they achieve success in school and are prepared to lead fulfilling lives as responsible members of society. (http://schoolcounselor.org)
- **Comfort with technology:** for the purposes of the current study, comfort with technology will be defined as the four subscale scores on the Computer Attitude Scale. These subscales are computer anxiety, computer confidence, computer

liking, and computer usefulness. The total score for the Computer Attitude Scale is available, but was not used for this study due to the possibility of the score misrepresenting participants' subscale scores.

- **Computer:** one that computes; *specifically*: a programmable usually electronic device that can store, retrieve, and process data (http://www.merriam-webster.com).

- **Computer use:** computing, also known as computer science, is usually defined as the activity of using and improving computer technology (http://en.wikipedia.org/wiki/Computer_use). For the purpose of this study, the terms computer use and technology will be used interchangeably.

- **Gender:** the behavioral, cultural, or psychological traits typically associated with one sex

- **Middle School Counselor**: for the purposes of this study, a middle school counselor will be defined as a school counselor who works in a public school setting serving students in grades 6-8.

- **New School Counselor:** due to the limited research available in defining new school counselors, for the purpose of this study the term 'new school counselor' will refer to those school counselors with five or less years of experience as a professional school counselor.

- **Participant:** For the purposes of this study, a participant is considered to be a middle school counselor who completed the CAS and returned his or her survey to the researcher. This term may be used interchangeably with the term respondent.

- **Respondent:** For the purposes of this study, a respondent is considered to be a middle school counselor who completed the CAS and returned his or her survey to the researcher. This term may be used interchangeably with the term participant.

- **School Counselor:** professional school counselors are certified/licensed educators with a minimum of a master's degree in school counseling. The school counselor supports a safe learning environment and works to safeguard the human rights of all members of the school community and addresses the needs of all students through culturally relevant programs (ASCA, 2005).

- **Technology:** a manner of accomplishing a task especially using technical processes, methods, or knowledge (http://www.merriam-webster.com). For the purpose of this study, the terms technology and computer use will be used interchangeably.

- **Technology training:** for the purposes of this study, technology training will refer to any training (specific training or technology coursework) that a school counselor received while completing his or her school counseling graduate program.

- **The South Carolina Comprehensive Developmental Guidance and Counseling Program Model:** a guide for Prekindergarten through Grade Twelve school counseling programs in South Carolina. The model was originally developed in 1999, but was revised in 2008.

- **Veteran School Counselor:** due to the limited research available in defining new

school counselors, for the purpose of this study the term 'veteran school counselor' will refer to those school counselors with six or more years of experience as a professional school counselor.

- **Work Setting:** for the purposes of this study, work setting will be defined as the location of the school in which the school counselor works, defined as rural, urban, or suburban.

- **Years of Experience:** the number of full years of experience a participant has as a professional school counselor.

ASSUMPTIONS, LIMITATIONS, SCOPE, AND DELIMITATIONS

Assumptions

The assumption of the researcher was that there would be a main effect for years of experience, but no main or interaction effect for technology training, gender and age for middle school counselors based on their survey results.

Limitations

One particular limitation of this study may include the bias of the researcher. The researcher is currently employed as a full time school counselor in South Carolina and this may unduly influence the results of the current study. In considering survey administration for the current study, a limitation to the success of the study involves the mailing of the survey. The researcher may find a low response rate due to mailing the survey to the respondents (Orcher, 2005). An additional limitation to the current study will include respondent honesty. Although responses to the survey will be confidential in

nature, there is no guarantee that the respondents will report their comfort levels honestly. Respondents may not be honest if they think their beliefs are socially unacceptable (Agresti & Finlay, 2009). They may respond to the survey by answering the way they think the researcher wants them to respond. Although validity of the Computer Attitude Scale in the survey may be questioned as a possible limitation, research has found the scale to be both valid and reliable (Woodrow, 1991; Loyd & Gressard, 1984; Gardner, Discenza, & Dukes, 1993).

Scope

The scope of the current study includes middle school counselors in a grades 6-8 school setting in South Carolina. Although the scope of this study only encompasses the views of middle school counselors in South Carolina, data obtained from this study can offer insight into the technological needs of middle school counselors throughout the country.

Delimitations

A delimitation of this study is that it includes only middle school counselors. Without the input of elementary and high school counselors, the full scope of the issue of comfort with technology cannot be fully addressed. Consequently, this study cannot be generalized to the overall K-12 school counselor population. Additionally, the current study limited participation to middle school counselors in South Carolina.

SIGNIFICANCE OF STUDY

As the researcher determined the significance of the study, several areas came into consideration. The areas included are knowledge generation, professional application, and social change.

Knowledge Generation

This study hoped to expand the knowledge of school counselors by examining the effects of years of experience, technology training, gender, and age on middle school counselors' comfort with technology. All school counselors, regardless of years of experience, technology training, gender, or age may benefit from the opportunity to receive technology training. Professional school counselors adhere to particular standards and competencies set forth by the American School Counselor Association (ASCA). This organization established a set of school counselor competencies that "will equip new and experienced school counselors with the skills to establish, maintain, and enhance a comprehensive, developmental, results-based school counseling program addressing academic achievement, personal and social development and career planning. (ASCA, School Counselor Competencies, 2007)" These competencies include:

- I-B-1g. Uses technology effectively and efficiently to plan, organize, implement and evaluate the comprehensive school counseling program
- III-B-1f. Knows, understands and uses a variety of technology in the delivery of guidance curriculum activities

- IV-A-6. Current and emerging technologies such as use of the Internet, Web-based resources and management information systems

- V-B-1f. Uses technology in conducting research and program evaluation

As school counselors consider the expectations set forth by ASCA in regards to technological competencies, it will be important to consider the knowledge generated by the current study. School counselors' adherence to these competencies validates the need for the current study. If school counselors are not comfortable with using technology, it will be more difficult to adhere to the competencies. School counselors can provide data from the current study to their school districts in order to request additional technological training.   The knowledge gained by this study has the potential to encourage additional training for all K-12 school counselors who are experiencing lower levels of computer comfort.

Professional Application

The results from this study may be used by middle school counselors in South Carolina as a means for requesting technology training from their schools/school districts. This training may serve to increase school counselors' comfort levels with technology in their work. The knowledge gained from the completion of this study may broaden beyond middle school counselors and extend to elementary and high school counselors. Additionally, this research may have the possibility of being applied to school counselors beyond South Carolina. It was the researcher's hope that the results of this study may help school counselors advocate for additional technology training that school counselors may receive in future years.

Social Change

When the researcher finds significant differences in middle school counselors' comfort with technology, then change can be created for future school counselors. School counselors may face challenges in utilizing technology within the school setting. However, it is the obligation of the school counseling profession to increase the efficacy of its counselors by supporting their efforts to gain additional technological knowledge. The social changes created by the results of this study include a better understanding of the needs of middle school counselors in regards to computers. Therefore, school districts can provide technology training to all of their school counselors, be they new or veteran school counselors. These appropriately trained school counselors will feel higher levels of comfort in using their computers as a means for integrating technology into their work.

SUMMARY

Technology has changed the ways in which humans live their lives in numerous ways. In both our personal and professional lives, technology has infiltrated our existence and become a fundamental component of our daily functioning. In the work setting, technological advances have created ways for people to work more efficiently and become more creative in their work. As the counseling profession has progressed, technology has provided various ways for counselors to complete their work more effectively with clients, both directly and indirectly. Within the profession of school counseling, technological advances have changed a number of the ways in which school counselors perform their job responsibilities. School counselors may experience varying

levels of comfort when working with technology, and the current study seeks to find out what differences may occur in those comfort levels. More specifically, the researcher hoped to determine the effects of years of experience, gender, and age on middle school counselors' comfort with technology. These assumed differences may provide implications for further study into this area as well as the need for additional technology training for school counselors in the future. Within chapter two, a literature review will be presented. Chapter three includes the research methodology used in this study, including descriptions of the Computer Attitude Scale (CAS), procedures for data collection and analysis and study limitations. The results of the study will be presented in chapter four. Chapter five will provide an interpretation of the findings and implications for future research studies based on these findings.

CHAPTER TWO

INTRODUCTION

The intent of this chapter is to offer an overview of the literature related to the differences in comfort levels with technology in middle school counselors. Current literature related to school counselors' comfort with technology is narrow in scope. Empirical research in this area is limited as well. Therefore, the following literature review addresses areas of technology and computer use by school counselors, such as comfort levels, skill levels, attitudes and perceptions. These areas present integral components of school counselors' computer use within the school setting.

The review of the literature examined several areas: the use of technology in counseling, the history of school counseling, and technology use in school counseling. Additionally, the areas of perceptions/thoughts/attitudes about technology in educational settings including school counseling, school counselor comfort with technology, technology training, years of experience, gender, age, information regarding the Computer Attitude Scale, and causal-comparative research will be discussed. Several of the studies in the literature review are presented from the perspectives of various educators due to the sparseness of studies completed utilizing school counselors. The areas discussed within the literature review were related to the variables in the study and associated with the research question.

CONTENT AND ORGANIZATION OF REVIEW

A review of the literature regarding school counselor comfort with technology rendered a progression of common themes which guided and organized the review. The understanding of school counselors' use of technology necessitated an understanding of the foundations of school counseling and its progression towards the integration of technology within its field. The following chapter is organized based on the following themes: the progression of technology in counseling, a brief overview of the history of school counseling, the progression of computer use in school counseling, the attitudes and perceptions of computer use in professional areas outside of school counseling, school counselors' attitudes, perceptions, comfort with, and uses of technology within the school setting, defining years of experience, gender, and age for school counselors, the use of the Computer Attitude Scale (CAS) and causal-comparative research.

STRATEGY USED FOR SEARCHING THE LITERATURE

In conducting a literature review for the topic of school counselor comfort with technology, the literature search began in the Thomas Cooper Library at the University of South Carolina. The online resources available through the library were utilized by the researcher as a means for accessing article databases and indexes and electronic resources. Key terms that were used in the search included: counselor and technology, school counselor and technology, school counselor and comfort with technology, school counselor and years of experience, CACREP standards, ACES technology standards, school counselor and technology training, computer attitude scale, new school counselor, veteran school counselor, history of counseling, history of school counseling, school

counselor use of technology, school counselor comfort with technology and gender, school counselor comfort with technology and age, computer attitude scale, and causal-comparative research. Primary search engines for information included ERIC (EBSCO), Academic Premier and Psych INFO. Additionally, professional journals such as *Professional School Counseling* and *Journal of Technology in Counseling* were utilized in conducting the search for literature.

TECHNOLOGY IN COUNSELING

The profession of counseling has made tremendous changes throughout its continuum of development. From the rise of Freud and psychotherapy all the way to the advent of online counseling, the profession has molded itself to meet the changing needs of the society surrounding it (Wingfield, Reese, & West-Olatunji, 2010). In considering the infusion of computer technology into the counseling profession, one must consider the progression of technological development throughout the United States. Granello (2000) provided an overview of the historical development of computer technology. This overview offered a clear glimpse into the evolution of computer technology and its eventual impact on the counseling profession.

With the advent of computers in the mid 1940s, counselors did not yet consider their possible use within the realm of counseling. Large mainframe computers were difficult to sustain and costly, therefore the primary users of mainframes were corporations and government agencies. In the 1960s microcomputers took the place of mainframes as the newest form of technology. Counselors started to consider the use of computers in counseling, and in the 1970s and 1980s counselors began to use computers

for therapeutic and training purposes. As computer technology has progressed, its impact

on the counseling profession has changed as well. Vocational guidance was greatly

affected by the use of microcomputers and the 1990s opened a new door to computer use

in the introduction of the Internet and World Wide Web (Granello, 2000). Many

advances in the counseling profession were created due to a more widespread use of

technology by the general population of counselors.

Granello raised the subject of limitations within the counselor computer

relationship. Among these are the issues of training counselor education students via

distance education and providing therapy over the Internet. Additional areas of concern

included the issue of maintaining confidentiality when using a computer to retain client

records or using the Internet to carry out online counseling sessions. While computer

technology may be used to enhance the foundations of the counseling profession,

concerns are continuously raised that question the use of technology as the sole basis for

the counseling relationship. There is the possibility of lower comfort levels in both the

client and counselor in the use of computer technology to such an extent. This lack of

comfort in using technology may extend beyond the range of online counseling.

Many counselors may experience low comfort levels in utilizing technology on a

day to day basis as a support for their work. This may be due to varying levels of

experience in working with technology, counselors' perceptions of the importance of

technology in counseling (Sabella, Poynton & Isaacs, 2010), or even the lack of

familiarity or training provided to understand different technological tools that are

available (Holcomb-McCoy, 2005). Specifically, the comfort level of counselors may

have a significant impact on their use of technology. If a counselor does not consider the use of technology to be important, or has little familiarity or experience with how to utilize technology within his or her work setting, then lower levels of comfort may be inevitable.

The intent of the researcher in the current study was to examine the effects of years of experiences, technology training, gender, and age on middle school counselors' comfort levels with technology by surveying middle school counselors. Research shows the very deep impact the technology has had and is continuing to have on the counseling profession (Granello, 2000). There is no doubt that some familiarity with technology is quickly becoming a necessity in order to stay 'current' in the field of counseling. Numerous forms of technology are currently utilized within the professional- from using computers to email colleagues, teachers, parents, and students, to creating databases to track client information and case notes (Owen Jr., 1999; VanHorn & Myrick, 2001; Sabella & Booker, 2003). Some counselor education programs are preparing future counselors to enter the profession with technological skills in order to begin their careers with a high standard for technology use within the profession (LaTurno Hines, 2002). The understanding that technology is a not just a trend but a core component in supporting the counseling profession is becoming more of the rule rather than the exception.

While research provides support for the use of technology in counseling, there are still numerous areas that have yet to be explored. Questions remain unanswered in regards to why some counselors choose to utilize technology more than others. It could

be a matter of funding, location, experience level, training, comfort level, perceptions, misconceptions, or basic like/dislike of technology (Sabella, Poynton, & Isaacs, 2009). These areas of concern in reference to technological use in counseling have received little to no attention in current research. Although there are an abundance of studies that discuss how technology in being used in the counseling profession, specifically in the profession of school counseling (Owen Jr., 1999; VanHorn & Myrick, 2001; Sabella & Booker, 2003), there are few studies examining why technology is *not* being utilized within the profession. Very few researchers are completing studies on how counselors, and again- specifically school counselors, feel about utilizing technology within their work setting. Unlocking this information may provide the profession with a better comprehension of how to support its counselors and help them gain the knowledge they need in order to utilize technology to a larger extent.

In light of the limited research completed on the topic of how school counselors feel about utilizing technology within the school setting, the researcher's aim was to start filling in the gap in the literature by completing a study examining the effects of years of experience, technology training, gender, and age in middle school counselors' comfort with technology. This specific area has not been researched; with the clear extent to which technology is a component of the school counseling profession, there was a true need for this type of research. Without knowing why some school counselors are not using technology, there will be no way to provide support for them and help them to gain higher levels of comfort with utilizing technology. In studying middle school counselors' level of comfort with technology, the current study hoped to provide a glimpse into some of the possible reasoning behind why some school counselors are not employing more

technology into their professional work. There exists a valid need for research in the topic of school counselor comfort with technology, and the current study aspired to start closing the gap in this area.

A BRIEF HISTORY OF SCHOOL COUNSELING

The history of school counseling is important to consider when one attempts to understand how school counselors' views have changed over time. The earliest role for school counselors was that of vocational guidance to help people discover occupations in which they could work (Wingfield, Reese, & West-Olatunji, 2010). While the profession had its start in the vocational setting, the role of the school counselor has been repeatedly redefined as society becomes more modernized. As the role of the school counselor has broadened, so have the requirements of the work involved to fit the needs of the job. School counselors began to employ more advanced techniques in working with students, thus extending their range of skills for the job (Glosoff, 2009).

School counselors transitioned beyond that of a vocational support to one of helping students' with all aspects of their development.   In 2010, Wingfield, Reese, and West-Olatunji provided an outline of the developmental history of school counseling models. They discussed methods of aiding marginalized students and creating purposeful partnerships with principals in order to increase the efficacy of school counselors. The authors presented a timeline of the progression of the school counseling movement over the past one hundred years that moved from vocational guidance and the mental health movement in school counseling to developmental guidance and comprehensive competency based school counseling guidance programs.

As the mental health movement began to gain momentum and political changes such as the passing of the National Defense Education Act in 1958 took place so did the design of school counseling programs (Glosoff, 2009). School counseling's focus shifted from that of a vocational program to a developmental guidance program. Developmental guidance programs approached school counseling in both a proactive and preventative manner in order to serve all students rather than just reaching a small number of students. With the advent of the ASCA National Model (2005), school counseling programs began a more comprehensive approach to address students' academic, personal/social, and career needs.

Understanding a basic history of school counseling allows one to better comprehend the changes that have taken place within the profession over time. With the more current trends in school counseling, one should consider how they affect the individual school counselor. School counselors are aware of the use of computers within the school setting, and scores of counselors utilize computer technology in a variety of ways to serve the needs of their students and the profession(Owen Jr., 1999; VanHorn & Myrick, 2001; Sabella & Booker, 2003). While most school counselors are aware of computer use within the school, there are still those school counselors who are unaware of the many uses a computer can serve as a means for supporting the school counselor's daily work. Existing literature reflects school counselors' many uses for computers. Research presents information regarding limited information on school counselors' attitudes about technology, their levels of familiarity with it, or their perceptions of the importance of it. What the literature does not clearly reflect is a rationale for why many school counselors don't utilize computers in their daily work.

The researcher intended to examine the effects of years of experience, technology training, gender, and age on middle school counselors' comfort with technology. This topic of study was justified due to the lack of research regarding this area. Very limited research has been conducted in regards to school counselor comfort with technology. The findings of the current study may help to support the growing trend of technology in school counseling by shedding light on the possible reasons for why more school counselors are not utilizing technology as part of their daily work. School counselors' comfort levels with technology may be a reason for school counselors' use or lack of use of technology. In following the progression of school counseling and in reviewing the American School Counselor Association's School Counselor Competencies (2007), it is clear that school counselors will need to understand and be comfortable with using technology within their work setting. The current study will open the door to addressing this topic in the hopes that future research will follow suit.

TECHNOLOGY USE IN SCHOOL COUNSELING

As technology use has become commonplace among most professions, so has the profession of school counseling been affected by technology. The use of technological tools in the school setting to support the work of the school counselor is becoming the norm for schools as across the country (Owen Jr., 1999; VanHorn & Myrick, 2001). Although some of the literature reviewed by the researcher was dated, it was used in the current study as a means for providing a foundational background on the progression of technology use by school counselors within the school setting. As technology use began to gain popularity by school counselors in the past couple of decades, their creative uses

for technology within the work setting began to take shape. Many school counselors started their journey towards technological competence through numerous questions. The more school counselors utilize technology, the more questions will surface in regards to how to utilize it effectively in the profession. Gerler, Jr. (1995) reported that the school counseling profession has been very slow to investigate how technological advances may provide better services for students, parents and teachers. He purported that the number of questions regarding technology outnumber the current applications of technology in the field of counseling:

"How can computer technology be applied to counseling beyond data analysis, record keeping, and information dissemination? How can counseling make the best use of international computer networks? Given the limited financial resources that have traditionally been allocated for counseling and related social programs, where can counseling find the needed technological expertise to help in the discovery of computer applications? Counselor education programs have been increasing the number of hours required to complete master's degrees in the field; how thus can graduate students preparing for careers in school counseling be given the time and opportunity for exploring potential computer applications in counseling? Because most students who apply to counselor education programs derive much of their work satisfaction from areas other than computer technology, who is going to take the lead in doing the necessary work for making the discoveries needed for applying computer technology to counseling? What

then does school counseling need if it is to continue and to expand its efforts

in the application of computer technology to student developmental

needs?"(p. 2)

The author stated that school counselors need to focus their attention on national and

international communications and multimedia authoring. He concluded that counselors

may become so captivated with the ideas of utilizing technology that they lose sight of

actually applying technology to meet the needs of others. It is the charge of the

counseling profession to make technology seem realistic for counselors who may be less

likely to use it.

In continuing some of the early uses of computer technology in school

counseling, D'Andrea (1995) presented several projects and activities involving

computers that elementary school counselors could use as a means for increasing their

technological skills and creating collaboration with teachers and administrators.

According to D'Andrea, school counselors could play an important position in promoting

computer technology in order to improve students' development. They could consult

with administrators about how to enhance student learning by using more advanced

technological tools within the school setting. The author described ways in which school

counselors could initiate several projects to encourage not only computer use but also an

appreciation for cultural differences.

Owen Jr. (1999) examined computer utilization among school counselors in

Kentucky in order to gain insight into how much computers were actually being used by

school counselors in the school setting. Participants for this study consisted of ninety two

elementary, middle and high school counselors currently employed in public schools in Kentucky. Respondents completed a nineteen item survey (Computer Utilization Survey) that sought to find out information regarding the availability and current use of computers by school counselors. The study found that middle and high school counselors tended to use their computers many more hours each week than elementary school counselors. Additionally, elementary school counselors reported feeling less confident in their computer skills.

According to the author there is a need for opportunities for school counselors to gain increased technological training. A number of respondents reported that they felt inadequately prepared to use computers in their work as counselors, despite whether or not they used their computer extensively. According to Owen Jr., additional research needed to be conducted in how professional training and in-services could provide school counselors with the opportunity to gain more skills and knowledge in integrating computer technology into their work. The results of Owen Jr.'s study did indicate that a significant number of school counselors felt inadequately prepared to use computers in their work. This finding supports the need for the current study; school counselor comfort with technology may be a possible attributing factor in school counselors' feeling of inadequacy regarding technology use in the school setting.

When research started to explore the possibilities for school counselors in their uses of computer technology, school counselors started exploiting computer technology beyond its most basic uses. Some started reaching to find ways to expand their knowledge and handling of job responsibilities through a more technological lens. Stone

and Turba (1999) discussed how school counselors can utilize computer technology as a means for supporting students' academic success. They supported the use of technology in order to advocate for students, as the more that school counselors can use computers to access data the more they remove barriers that may hinder student's success. School counselors need technological skills in order to support students' academic accomplishments. As school counselors advocate for students it is important that they can identify appropriate practices through the use of technology. According to Stone and Turba, by accessing available school data through computer use the school counselor can discover patterns in student data. School counselors can use technology to provide efficient and timelier information about academic information. Stone and Turba mentioned the ways that school counselors could use technology as a means for advocating for students. Their work involves the assumption that school counselors are not only equipped with the necessary skills to access data on computers, but also the assumption that school counselors have adequate levels of comfort with technology in order to complete those tasks.

In a different study, Van Horn and Myrick (2001) discussed how school counselors can utilize computer technology in different ways in order to work more proficiently and help students succeed. The authors stated that computer technology has affected people in most areas of their lives. Additionally, the use of computer technology can have a significant effect on how school counselors work in various areas of their jobs. The authors suggest school counselors use computer technology as a means for retrieving and disseminating information by using electronic mail, web sites, electronic newsletters, online journaling, distance learning and videoconferencing.

Van Horn and Myrick discussed how school counselors can help students explore college and career opportunities by using computer technology. In order to do this, school counselors need to have and be able to access current information from online sources. According to the authors, school counselors can use technology as a means for networking with other professionals and participating in listservs. One of the limitations the authors feel is present with school counselor use of technology is the counselor's challenge with incorporating technology and fear of learning new skills. The authors conclude that computer technology is becoming an integral aspect of the 21st Century school counselor's success.

Sabella and Booker (2003) presented similar information in an attempt to encourage school counselors to use technology to promote their programs. Their article focused on demonstrating how a multimedia presentation could be converted and distributed in order to use technology to promote a school counseling program. The authors considered how school counseling programs have become an integral part of the school's educational program within the last twenty five years. Knowledge of technology can provide school counselors with assistance in communicating information to others more efficiently. Having skills in using computer software could enable school counselors to collaborate with other professionals to present information to others. Sabella and Booker found that technology could provide school counselors with the tools for sending out information about the school's guidance program more effectively and efficiently. They considered a limitation of using technology to be a school counselor's level of technological proficiency. The authors stated that school counseling professionals need to adapt to working with technology.

In 2006, Wilczenski and Coomey endeavored to explain how new technologies are affecting the practices of school counselors and how counselor educators can use technology to train future school counselors. In some cases, counselors were using technology to complete counseling sessions in lieu of face-to-face counseling. They were using online communication as a means for collaborating with students, colleagues and parents. Wilczenski and Coomey shared that school counselors could use computer technology to engage in continuing education. There are ethical concerns to consider in using distance education in order to train future school counselors. While there were risks, the authors communicated technology expands the types of options that school counselors have in working in the school setting. However, school counselors must use caution in using technology so that they are practicing in an ethical manner.

The topic of this article supports the need for school counselors to be knowledgeable and comfortable with utilizing technology in their work in order to be effective in their work with students. If school counselors cannot match or at least have adequate comfort levels with cyber-communication as their students, they will not be effective in being able to help their students beyond the reaches of their offices. The current study hoped to examine school counselors' comfort levels with technology; this information may help school counselors see the need to be comfortable with technology so that they can successfully work with and help students both in and outside of the school walls.

In moving beyond the basic ways in which school counselors employ technology, Chibbaro (2007) sought to review current literature on cyber bullying along with a

comparison of bullying and cyber bullying. In the author's comparison of traditional bullying and cyber bullying, bullying was defined as direct and indirect behaviors. Similarly, cyber bullying behaviors were both defined as direct and indirect. Chibbaro stated that school counselors needed to develop ways to help students who were victims of cyber bullying in more preventive ways. They needed to provide awareness and strategies to faculty, students and parents that are both preventive and reactive in nature. Lastly, Chibbaro found that school counselors need to be leaders in the school setting in regards to cyber bullying. While providing strategies is something a school counselor may be able to complete without the use of technology, he or she may not be able to truly understand cyber bullying without the ability and comfort to navigate through the Internet in order to understand cyber bullying.

Young children are utilizing technology in both the school and personal settings. Bauman and Tatum (2009) endeavored to supply information about resources such as web sites that school counselors can use to gain current information about social networking and children. The authors suggested that school counselors take a proactive and preventive approach in developing programs that will address both the advantages and disadvantages of students using social networking websites. Bauman and Tatum encouraged school counselors to gain familiarity with the websites that students are visiting for social networking purposes. The authors stated it is essential that school counselors comprehend the benefits and possible concerns of student use of particular websites.

As younger students may encounter potential online predators, it is important that school counselors understand what students are exposed to on websites. Additionally, school counselors need to be aware of the possible negative and hurtful statements that students may encounter with other students on social networking sites. It is important that school counselors are aware of how a student's inappropriate behavior on a website can lead to a lower development of positive social skills. While Bauman and Tatum presented valid concerns for social networking and young children as well as resources for school counselors in accessing social networking sites, their study is based on the assumption that school counselors are familiar and comfortable with accessing the Internet in order to navigate through social networking sites.

Although a number of studies exist that discuss the various ways in which school counselors can utilize technology within the school setting in order to help students, there is a gaping hole in the literature in regards to how school counselors are to achieve the ability and comfort to use technology in their work. Researchers share ideas for helping students in the school and online, but they never share how this is supposed to take place if a school counselor does not have the necessary skills that would make it possible. As many school counselors feel inadequately prepared to employ technology in their daily work, it is important to question why that is the case and explore ways to enable school counselors to feel adequate and comfortable in using technology. School counselors' comfort levels with technology may be one of the missing pieces of the puzzle that could begin to help researchers understand the needs of school counselors in technology training and use. This was a firm rationale for the current study in helping to close the gap in the literature surrounding school counselors' comfort with technology.

PERCEPTIONS AND ATTITUDES ABOUT TECHNOLOGY IN AREAS

OUTSIDE OF SCHOOL COUNSELING

Individual attitudes and perceptions about computer use is a topic of interest to many researchers. The counseling profession is on the slower side of this growing trend of research, as is exampled by the limited studies completed that examine counselors' attitudes and perceptions about technology. The need to utilize technology in everyday life as well as in the work setting is becoming more prevalent with the creation of new forms of technology each year. It is not a matter of *if* the need will arise to use technology in one's professional work setting, but *when* and *how often*. While the need undoubtedly exists, many professionals and aspiring professionals are still reluctant to use technology. Research does not provide one specific reason for this reluctance, but it does consider the individual's anxiety (Korobili, Togia, & Malliari, 2010) or lack of familiarity (Holcomb-McCoy, 2005) with technology as possible reasons for lower levels of computer use.

Korobili, Togia, and Malliari (2010) endeavored to gain insight into the levels of computer anxiety and attitudes towards computers in Greek students enrolled in the Library and Information Systems Department of Technological Educational Institute. Two hundred and forty students participated in the study. Students were administered a questionnaire intended to gain information about their computer and Internet experience. Part of the questionnaire also included a computer anxiety rating scale and computer attitude scale. Participants reported their highest levels of perceived skills in the area of digital entertainment and in using the Internet. The age and year of study for the

participants did not prove to be significant to the outcome of the study. Researchers found that students who reported more positive attitudes towards computers had been exposed to computers at a younger age. Furthermore, participants who scored more highly on the subscales of the questionnaire spent longer hours using computers. The study concluded that students who had been exposed to computers at early ages perceived themselves as having more positive attitudes towards computers and less computer anxiety.

Some graduate programs in counseling may be on the cusp of grasping the clear need for creating standards for technology skills for their students. The following two articles present a glimpse into the development of technology standards and student computer competency levels as they exist within two different counselor education programs. LaTurno Hines (2002) provided an appraisal of technology growth and standards development in regards to technology in counseling. Based on a review of a special issue of the *Elementary School Guidance & Counseling* journal, the author found the general theme of the articles included the discussion of the need for school counselors to gain necessary skills in order to utilize technology more frequently. In 1999, the Indiana State University School Counselor Program considered which technological skills its students would need to be able to perform prior to the completion of its master's degree program. This resulted in the creation of ten technological proficiencies. LaTurno Hines stated that school counseling graduate programs need to infuse technology into their curriculums in order to be prepared to enter the school setting.

Some school counseling programs have considered how they can train future school counselors to exhibit technology competencies in the field in alignment with the ASCA School Counselor Competencies (2007). In 2002, Edwards, Portman, and Bethea attempted to assess student computer competency levels after the completion of an introductory course in computer technology. Twenty six masters level counseling students at the University of Iowa participated in the study. The respondents completed the Computer Technology Competencies Scale (CTCS). The results of the study supported the researchers' hypotheses that students' completion of a computer course increased their computer competency. The authors suggested that counselor education programs consider adding a computer technology course within the program's curriculum. They also suggested that programs teach the application of computer technology.

Research presents support for ways that educators and counselors can use technology in their work. Furthermore, current research shows the beginnings of interest in the area of examining individuals' perceptions, anxiety, or attitudes towards computers. While there are a few counselor education programs who support the need to provide future counselors with technological skills upon entering the work force, there remains a large gap in the literature as to how individuals', and more specifically counselors', comfort levels play into their use or lack of use in regards to technology. There is also limited research in examining school counselors who are already working in the field in regards to their comfort levels with technology. The researcher aimed to examine differences in new and veteran middle school counselors' comfort levels with technology in the hopes that current research can move beyond the fact that school

counselors can use technology in many different ways, but their comfort levels may be affecting their ability to utilize it enough to deem it worthwhile.

SCHOOL COUNSELORS' ATTITUDES, PERCEPTIONS, COMFORT WITH, AND USES OF TECHNOLOGY WITHIN THE SCHOOL SETTING

Limited research has been completed in the area of school counselor comfort with technology. While studies have been completed that examine areas such as school counselors' use of technology, familiarity with technology or perceptions about the importance of technology, little is known about practicing school counselors' comfort with technology. Holcomb-McCoy (2005) examined urban and suburban school counselors' levels of confidence and familiarity with computer technology. Two hundred twenty two school counselors from three school districts (one urban and two suburban) in Maryland participated in the study. They were administered the Computer Technology Competencies Scale (CTCS), a twenty item survey. The results of the survey found that the type of activity being performed on the computer influenced school counselors' familiarity and confidence with computer technology. Participants reported different levels of computer usage based on their school community. Suburban school counselors reported significantly higher rates of email usage than urban school counselors. A majority of participants reported using computers for activities such as writing letters and reports, organizing student data, classroom guidance, and contacting resources. There were lower levels of reported computer use involving activities such as counseling and note taking. Holcomb-McCoy stated that little is known about the frequency with which school counselors use computers in their work in the school setting. There is also

uncertainty as to whether or not the type of school community in which the school counselor works creates a difference in their use of computer technology.

Holcomb-McCoy concluded that further research is needed to explore school counselors' lower levels of email use in communicating with parents and students. An additional needed area of future research is exploring how to improve the levels of usage of computers for counselor tasks. The author felt that existing school counselors would benefit from further professional development in learning ways to enhance counseling activities.

Sabella, Poynton, and Isaacs (2010) intended to discover how school counselors, school counseling students, supervisors, and counselor educators determined their perceived importance of technological competencies as they relate to their work. Participants in this study were invited to participate based on their membership in a professional counseling organization or participation in a counseling listserv. The researchers for this study administered the School Counselors and Technology Survey to participants via email. As the authors attempted to define school counseling technology in relation to their study, they describe school counseling technology as:

"the study and ethical practice of facilitating the academic, personal/social and career development of students by creating, using, and managing appropriate technological processes and resources." (p.609)

Results of this study found that ethical and legal use of technology were the most important competencies listed by the participants. Researchers found that age, level of

practice or position had no effect on the results of the study. Results did discern that younger counselors typically had greater exposure and experience with integrated technology. Sabella, Poynton, and Isaacs recognized that if a school counselor was technologically literate he or she had better knowledge of when to use technology appropriately. They concluded that school counselors were not currently integrating technology on a consistent basis.

In regards to studying school counselors' comfort with technology, the researcher only discovered one study that measured this specific area. In a study completed by Carlson, Portman, and Bartlett (2006), practicing school counselors in three states were studied in order to explore their technology comfort, training, and usage. Three hundred eighty one practicing school counselors in Colorado, Iowa, and New York were mailed surveys to complete. This study found that participants who reported greater levels of comfort with technology were more likely to use a variety of software.

According to the survey results, the most common form of reported computer training by participants was outside or continuing education courses. Carlson, Portman, and Bartlett concluded that as the accelerated pace of technology growth continues, school counselors must also increase their technology use. The author makes suggestions for future counseling practice, such as providing school counselors with the opportunity to work with new software, increasing their use of email and training school counselors in the use of modern technologies. They also suggest that counselor education programs provide training in technology use.

As one considers the need to address school counselor comfort with technology, the American School Counselor Association's School Counselor Competencies (2007) should be taken into account. The ASCA Competencies outline the knowledge, skills and attitudes that are needed by school counselors in order to meet the demands of the profession and the needs of students. The competencies that are specifically applicable to school counselors and technology include:

- I-B-1g. Uses technology effectively and efficiently to plan, organize, implement and evaluate the comprehensive school counseling program

- III-B-1f. Knows, understands and uses a variety of technology in the delivery of guidance curriculum activities

- IV-A-6. Current and emerging technologies such as use of the Internet, Web-based resources and management information systems

- V-B-1f. Uses technology in conducting research and program evaluation

The competencies specific to technology within ASCA's School Counselor Competencies demonstrate the clear need for a better understanding of school counselors' comfort with technology. Without knowing if school counselors know how to utilize different forms of technology, and if they are, how comfortable they feel using it, then some school counselors will not be able to comply with the competencies. ASCA should also consider the ability of school counselors to comply with these competencies if they are not comfortable using technology. As there are few studies that address school counselor comfort with technology, the current study was justified in its examination of middle school counselors' comfort with technology.

This portion of the literature review provided the researcher with the most promise in regards to the research topic for the current study. There is, however, very limited research in the area of school counselor comfort with technology. In a similar nature to earlier sections presented, there exists a great deal of literature involving how school counselors can utilize technology within their work. There are studies involving school counselors' familiarity and levels of confidence with computer technology, their perceived importance of technological competencies, and their technology training and usage. This information does not begin to close the gap in the literature in what we don't know about school counselors' comfort with technology. This topic has been shown little to no attention by researchers, although the information to be gained by filling such a gap is extremely research worthy. The researcher examined the topic of new and veteran middle school counselors' comfort with technology in the hopes to bring attention to a topic that is in much need of being explored by researchers. The data gained by this and future studies in this area may begin to close the gap in how school counselors' comfort with technology may or may not be affecting their ability to incorporate technology into their daily work.

PRECEDENCE IN DEMOGRAPHIC DATA COLLECTION

DEFINING YEARS OF EXPERIENCE

In determining a definition for years of experience of school counselors for the current study, the researcher attempted to ascertain a clear understanding of how current research defines new and veteran school counselors. Limited research was found that defined these variables. Various research studies have been conducted in order to

examine aspects of counselors' work within the counseling and school counseling profession; however, none provide specific definitions of new or veteran school counselors.

Hermann, Leggett, and Remley, Jr. (2008) conducted a study to examine counselors' legal issues. The data for these participants were folded in to four categories in regards to counselors' years of experience: less than four years, four to seven years, eight to twelve years, and more than twelve years. The results indicated that counselors did encounter legal issues in their work. Studies within the realm of school counseling did not provide a clear insight into defining the terms new and veteran school counselor. In a research study organized by Studer and Oberman (2006), they sought to examine the amount of training in the ASCA National Model (2005) that practicing school counselors had received, and if that training was received in supervision. In determining classifications for the breakdown of their results, the authors categorized participants' years of experience as having less than six years of experience or seven or more years of experience. Through a qualitative study, Walsh, Barrett, and DePaul (2007) investigated if urban, newly hired school counselors could engage in best practices and implement new components within the ASCA National Model. Participants' experience levels ranged from one year to five years as school counselors. The authors concluded from the results of this study that newly hired, urban school counselors can effectively implement the ASCA National Model delivery system segments.

While some studies have provided no specific parameters for defining new and veteran school counselors, others have been able to provide a minimal definition for

defining new school counselors. Dollarhide, Gibson, and Saginak (2008) completed a year-long study to learn about the leadership activities of first and second year school counselors over the course of a year. The researchers in this study determined that the participants who embraced their leadership responsibilities found higher levels of success in their goals, roles as counselors and ability for professional growth. In a recent study conducted by Curry and Bickmore (2012), the authors sought to determine how novice school counselors' needs were met, in both the personal and professional realm, through a framework of mattering. The authors defined novice counselors as those school counselors in their first or second year of service or those in their first year in their school setting. The authors suggested that future research in this area may have the ability to encourage novice school counselors to maintain more job satisfaction and longevity in the school counseling profession.

In considering the previously discussed studies, it is known that researchers have defined their participants in varying manners to meet the needs of their research studies. Terms such as 'newly hired' and 'novice' have been used to describe school counselors within the frameworks of these studies. Terms such as new and veteran school counselor have not been defined within any of the previously reviewed literature. Each study provided a different breakdown for the definition of years of experiences. These breakdowns vary from first and second year school counselors to those with six or more, seven or more, and more than twelve years of experience. While there are a variety of breakdowns for years of experience, there is no common thread that creates a rationale for why these studies chose to collapse a school counselor's years of experience in the

previously listed time frames. There is no justification for the breakdown of their participants' years of experience.

For the purposes of this study, new school counselors and veteran school counselors were differentiated by each group's number of years of experience. Due to the limited amount of research in defining the differences in years of experience between new and veteran school counselors, the researcher elected to define the breakdown of participants in the current study as follows: new school counselors were defined as those with five or less years of professional school counseling experience. Veteran school counselors were defined as those with six or more years of professional school counseling experience.

GENDER

In considering the variables to examine in the current study, the researcher determined that there were inconsistencies between studies in regards to gender. Many studies collected data on gender; very few analyzed the collected data. Therefore, the researcher was justified in collecting and analyzing data on gender from the current study's participants.

In 1999, Owen. Jr. completed a study examining computer utilization by school counselors. Demographic data was collected from the study's participants, including gender. The study did not, however, consider gender in its data analysis. In similar form, Korobili, Togia, & Malliari (2010) carried out a study investigating computer anxiety and attitudes in undergraduate students. Gender, semester in college, level of knowledge of

foreign language, and age were among the demographic data collected in the study. The researchers chose not to analyze gender in their study due to the fact that only thirteen percent of the respondents were males.

In considering counseling students' computer competency skills, Edwards, Portman, & Bethea (2002) collected various data from the study's participants. Gender was among the data collected but was not analyzed. Studies completed by Hermann, Leggett, and Remley, Jr. (2008), Walsh, Barrett, and DePaul (2007), Holcomb-McCoy (2005), and Yushau (2006) did not collect any gender data. Carlson, Portman, Bartlett examined school counselors' approaches to technology in a study completed in 2006. Gender was one of the demographic variables collected by the researchers; professional experience was the only one analyzed within the study. Demographic data including gender was collected in a study carried out by Studer and Oberman (2006); gender was not mentioned again in the study's findings. In considering novice school counselors' personal and professional needs, Curry and Bickmore completed a qualitative study in 2012 that collected data on the gender of its participants. This data was not analyzed due to the fact that all seven participants were female. Rainey, McGlothlin, and Guillott Miller (2008) studied school counselors' attitudes, experiences, and competencies involving technology. Although data was collected on gender and race, neither was included in the data analysis for the study.

Gender data collected in many studies is never analyzed beyond a cursory listing of percentages. There are, however, two studies within the Demographic Data Analysis Table (Table One) that analyzed gender within their studies. In 2009, Sabella, Poynton,

and Isaacs collected gender data in their study of school counselors' perceived importance of counseling technological competencies. In addition to the previously mentioned study, Dollarhide, Gibson, and Saginak (2008) collected and analyzed gender data as part of its phenomenological study on new counselors' leadership efforts in school counseling.

In examining current research, it was clear that no consistencies exist between studies in regards to their collection of/lack of collection of data regarding gender. Further, the researcher cannot conclude that studies only collect and do not analyze data on gender. Two of the previously mentioned studies analyzed gender as part of their data analyses. Therefore, it was the determination of the researcher that examining gender as an independent variable was justified.

AGE

Research determined inconsistencies between studies in regards to the variable of age. Many studies collected data on age. Of these studies, almost fifty percent of them analyzed the collected data. Therefore, the researcher was justified in collecting and analyzing data on age from the current study's participants. Owen. Jr. completed a study in 1999 examining computer utilization by school counselors. Demographic data was collected from the study's participants but not included in its data analysis. In 2002 Edwards, Portman, & Bethea examined counseling students' computer competency skills. Age was among the data collected from the study's participants; it was not analyzed. In 2006, Carlson, Portman, Bartlett examined school counselors' approaches to technology. Data was also collected on gender, age, race, and professional experience. Of these

variables, professional experience was the only one analyzed within the study. In 2008, Rainey, McGlothlin, and Guillott Miller examined school counselors' attitudes, experiences, and competencies involving technology. Although data was collected on age, gender and race, none was included in the data analysis for the study.

Data on age is collected in many studies, but is less often analyzed. Studies completed by Holcomb-McCoy (2005), Hermann, Leggett, and Remley, Jr. (2008), Studer and Oberman (2006), and Walsh, Barrett, and DePaul (2007) did not collect any gender data. There were five studies within the Demographic Data Analysis Table (Table One) that analyzed age within their studies. Sabella, Poynton, and Isaacs completed a study in 2009 on school counselors' perceived importance of counseling technological competencies. They collected a variety of demographic data from participants, including age. Korobili, Togia, and Malliari (2010) collected and analyzed data on the ages of their study's participants. Participants' ages were broken down as follows: those below age twenty, ages twenty to twenty two, ages twenty three to twenty five, and those above age twenty five. Age was not found to be a significant correlate of computer anxiety and attitudes towards computer. Curry and Bickmore completed a qualitative study in 2012 that considered novice school counselors' personal and professional needs. This study collected data on the ages of its participants, labeled as 'in her twenties' and 'in her thirties'. Additionally, Dollarhide, Gibson, and Saginak (2008) collected and analyzed age data as part of its phenomenological study on new counselors' leadership efforts in school counseling. In 2006, Yushau examined computer attitude, use, experience, software familiarity and perceived usefulness in mathematics professors. The study

created a breakdown of its participants' age into ranges: twenty three to thirty, thirty one to forty, forty one to fifty, fifty one to fifty five, and more than fifty five.

In examining current research, it was clear that no consistencies exist between studies in regards to their collection of/lack of collection and analysis of data regarding age. Of the five previously mentioned studies that analyzed age as part of their data analyses, there were no consistent definitions for determining a clear breakdown in participants' ages. For the purposes of this study, middle school counselors were differentiated by their ages. Due to the limited amount of research in defining the differences in ages of participants, the researcher elected to define the breakdown of participants in the current study as follows: middle school counselors ages thirty and below, and middle school counselors ages thirty one and older.

TECHNOLOGY TRAINING

For the purposes of this study, technology training was considered in order to examine school counselor comfort with technology. School counselors are not typically required to complete any training (specific training or technology coursework) while completing their school counseling graduate programs. Very few studies exist where technology training is investigated for graduate programs for school counseling. LaTurno Hines (2002) examined a grant program completed by Indiana State University during which school counselor technology was developed for students in its school counseling program. This pilot program created a technology in school counseling course for students who could not provide existing evidence of the necessary technology skills set

forth by the program faculty. The study provided no specific outcome data as to the effectiveness of the technology in school counseling pilot program.

A different pilot program (Edwards, Portman, & Bethea, 2002) examined the technology competency levels of counseling students after completion of a one hour introductory course to technology. Students' technology competency levels increased after completing the course, leading the authors to suggest that graduate programs in counseling offer students the opportunity to take coursework involving technology in counseling. Although both previous studies discuss pilot programs, the researcher did not uncover any generalizeable information for technology training in graduate counseling programs. Current research does not explore how training aspiring school counselors in their graduate programs affects their comfort with technology in the field. Therefore, the current study was justified in examining technology training as a factor in school counselors' comfort with technology.

SUMMARY

While a review of existing literature reflected the growth and need for technology within the work setting, particularly that of a school counselor, it failed to inform the reader of school counselors' comfort with utilizing technology within their work settings. The need for technology in counseling is clear and grows as the profession continues to grow as well. The school counseling profession is continually progressing and evolving. This includes the use of technology within the work setting; technology is rapidly advancing and it has become necessary for school counselors to gain technological skills as a result. The perceptions and attitudes of students, educators, counselors and school counselors in regards to technology use have been measured in various studies.

However, only one study in the previously mentioned literature provides a glimpse into school counselors' comfort with technology. Beyond this study, there are no existing studies found by the researcher that encompass the topic of school counselor comfort with technology.

Research repeatedly provides school counselors with ideas and ways to incorporate technology into their work; it rarely addresses how a school counselor is to do this without a high level of comfort in using those technological skills. There lies a large gap in the literature in regards to school counselor comfort with technology. The utilization of the Computer Attitude Scale has seen little use by the school counseling profession. Studies utilizing such a scale with school counselors may yield a wealth of information about school counselors' comfort with technology. The intent of the current study was to examine the effects of years of experience, technology training, gender, and age on middle school counselors' comfort with technology. The purpose of this study was to begin to present research that speaks of school counselors' actual comfort with technology rather than just the insistence that they use it in their work. The results of this study may provide a much needed preview of how the profession can provide training for school counselors as a means for increasing their comfort levels with technology in their work. The literature reviewed in the previous and current chapter substantiate the absence of studies related to the topic of school counselor comfort with technology. Therefore, conducting a research study in this area was justified.

The following chapter will discuss the research design and methodology used for the current study. Chapter Four will explain the results of the study completed in Chapter

Three. The implications of the current study will be examined in Chapter Five.

CHAPTER THREE

INTRODUCTION

The purpose of the current chapter will be to explain how the researcher intends to examine the effects of years of experience, technology training, gender, and age on middle school counselors' comfort with technology. Therefore, the chapter will include sections on the current study's research design and approach, the setting and sample, information about the instrumentation and materials that will be utilized within the study, the data collection and analysis process, and protective measures used for the participants. The chapter will conclude with a summary and brief overview of the remaining chapters.

RESEARCH DESIGN AND APPROACH

For the current study, the researcher has chosen to conduct a study that was quantitative in nature. The study was non-experimental and compared groups of middle school counselors. A causal-comparative and correlational study were completed in order to examine the effects of years of experience, technology training, gender, and age on middle school counselors' comfort with technology. A comparison of these groups may provide insight into school counselors' comfort or lack thereof with technology. As one of the defining characteristics of causal-comparative research is the comparison of existing groups, the application of this type of research was substantiated in its use for the

current study. The researcher did not manipulate any variables, which also lends the use of causal-comparative design to the current study. Due to the consistencies between the current study and the characteristics of causal-comparative and correlational designs, the use of these types of design was justified.

Numerous books have been authored involving the topic of educational research (Orcher, 2005; Gay, Mills, and Airasian, 2006; Fraenkel and Wallen, 2006). In the chapters discussing causal-comparative research, the authors discuss a number of defining characteristics. Causal-comparative research can be considered a type of descriptive research because it describes conditions that already exist. Researchers are attempting to determine the reason for differences between the groups. This type of research involves two or more groups and one independent variable. Individuals who participate in causal comparative studies are not randomly assigned to groups because they were selected to be in groups prior to the start of the study (Gay, Mills, & Airasian, 2006; Fraenkel & Wallen, 2006). Independent variables are not manipulated because it has already occurred. While groups are not randomized in causal-comparative research, this may be considered a weakness due to the possible inequalities between the groups. Causal-comparative research provides a framework from which the researcher can obtain possible differences between groups of middle school counselors in their comfort with technology. This may help to start closing the gap in the lack of literature in this area of research.

Correlational research involves an examination of the relationship between variables (Orcher, 2005). In determining the degree of these relationships, insight may be

gained into the nature of the differing variables. One of the defining characteristics of correlational studies is that they cannot determine the cause of relationships, only suggest them. In similar fashion to causal comparative research, correlational research describes existing relationships between variables (Fraenkel & Wall, 2006). An advantage to utilizing correlational research is the researcher's ability to collect a lot of information from numerous subjects at one time. Additionally, the researcher has the ability to study a wide range of variables and their relationships (Gay, Mills, & Airasian, 2006).

This study could additionally be considered utilizing a qualitative framework. The researcher could choose to interview a small number of middle school counselors in order to gain insight into their reasoning for having or lacking comfort with technology. The qualitative study could consist of a series of individual interviews and focus groups for the middle school counselor participants, both separate and together. Data collection and analysis would consist of coding the responses of the participants and determining common themes from their responses. By doing this, the researcher would be able to consider the respondents' perspectives about their comfort with technology. While these results would not be generalizeable to the general population of middle school counselors, valuable insight would be gained in understanding the group members' reasoning for their comfort or lack of comfort with technology.

Although the merits of completing this study through the lens of a qualitative researcher could be beneficial, the scope of a qualitative study is too limited for the information to be gained by the current study. The intent to gain information from a wide range of participants is attainable with a quantitative study. The findings from the current

study can be more generalizeable and more conclusive by utilizing a quantitative perspective rather than a qualitative one. In order to begin invoking change within the school counseling profession, the voices of many school counselors must be heard. The current study will begin to make those numerous voices heard, albeit on a smaller scale, yet with still a bigger representation than that of a qualitative study with a limited number of participants.

SETTING AND SAMPLE

Population

The targeted population for the current study will include practicing middle school counselors within the state of South Carolina. These school counselors will be those working in school settings with students in grades six through eight. The demographics of the potential participants will vary in years of experience, technology training, ethnicity, gender, age, highest degree earned, work setting, and location. Geographically, the potential participants will be located from within most if not all of the school districts located in South Carolina.

Sampling Method

Research participants were drawn from a purposive sample. This method was used due to the fact that the researcher drew possible participants from all middle school counselors in South Carolina that were given permission to participate (Agresti & Finley, 2009).

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Sample Size

In completing a power analysis to determine sample size, the researcher utilized the SPSS analysis software system to calculate the sample size for the current study. The POWER Procedure was used to conduct the power analysis, and the hypotheses were examined to assess the sample size needed to detect a main effect on comfort with technology due to years of experience. The minimum number of participants needed was found to be one hundred fifty six. There are currently two hundred four middle schools in South Carolina serving students in grades six through eight. The approximate number of middle school counselors in South Carolina is four hundred fifty six. After requesting participation from all school districts in the state, a total of two hundred eighty six middle school counselors were given permission to participate in the current study. Of these counselors, a total of one hundred sixty middle school counselors completed and returned the survey to the researcher. This number of responses yielded the researcher enough data to detect a significant main effect due to years of experience with seventy percent power.

Eligibility Criteria

The eligibility criteria for study participation will require participants to be currently employed in a public school setting in a middle school. For the purposes of this study, a middle school setting will include those school serving students in grades six through eight. Potential participants will be identified based on a stratified random sampling from a listing of all South Carolina middle schools obtained from the South

Carolina Department of Education. Data received from any respondents not meeting this criterion will be excluded from the study.

Characteristics of Sample

South Carolina currently houses eighty three school districts and one thousand, two hundred thirty five public schools (South Carolina Department of Education, 2012). Of the total number of public schools, two hundred and four middle schools meet the criteria of serving students in grades six through eight. Surveys were mailed to those school counselors whose principals and or superintendents provided permission for participation. While there are different leveling criteria for the state of South Carolina, the researcher will consider only middle schools that serve students in grades six through eight for the current study. All geographic areas will be considered for the sample, including urban, suburban, and rural. Both male and female school counselors will be requested as possible participants, and school counselors of every age will be considered for participation. The current study will differentiate between two levels of years of experience in the sample- those with five or less years of experience and those having six or more years of experience. Gender will be classified as male and female. Additionally, the current study will separate ages of participants into two levels. These levels will consist of middle school counselors ages thirty years of age and under and thirty one years of age and older.

INSTRUMENTATION AND MATERIALS

In considering how to survey individuals about their thoughts, feelings, perceptions, liking, confidence and/or comfort with technology, researchers have created various surveys to examine them (LaTurno Hines, 2002; Holcomb-McCoy, 2005; Carlson, Portman, & Bartlett, 2006; Korobili, Togia, & Malliari, 2010; Sabella, Poynton, & Isaacs, 2010) . Some of these surveys have been examined in order to test their validity, while others have been created by researchers without any testing measures to qualify the survey as valid. Several researchers have created scales to measure varying areas of individuals' attitudes and perceptions about computers, such as the Computer Anxiety Rating Scale (CARS) created by Heinssen, Glass, and Knight and the Computer Attitude Scale (CAS) created by Loyd and Gressard. For the purposes of the current study, the researcher has chosen to survey middle school counselors using the CAS by Loyd and Gressard. The CAS contains four subscales measuring an individual's anxiety, confidence, liking, and usefulness in regards to computers. In measuring these areas in middle school counselors, the researcher hoped to uncover insightful data that will begin to build the literature in regards to school counselors' comfort with technology.

The Computer Attitude Scale has proven useful to researchers both inside and outside the areas of counseling. In 2006, Yushau examined the attitudes of math professors towards computers. Participants in this study were forty one faculty members in the Mathematics Department at King Faud University of Petroleum & Minerals. They were asked to complete two computer attitude scales: the Computer Attitude Scale (CAS) by Loyd and Gressard and a modified section of the Computer Attitude Scale for

Teachers (CAST) by Yuen and Ma. This study found that participants exhibited positive attitudes towards computers in general and towards computers in their academic activities. Yushau concluded that a positive attitude towards computers in not enough of an indicator that it will be used in the classroom. Some of the weaknesses of the study include the author's self report that the study did not consider the issue of computer ownership. Yashau also stated that exploring computer ownership by the participants may have influenced the participants' attitudes towards computers. As Yashau administered the CAS to math professors in Saudi Arabia, the results of the study are not applicable to the current research being conducted. The combination of the results for two different attitude scales may have also skewed the results of the study; the subscale results from one attitude scale may not necessarily have been generalizeable into the results of the other attitude scale.

The Computer Attitude Scale has seen limited use within the counseling profession. A study conducted by Rainey, McGlothlin, and Guillot-Miller (2008) explored school counselors' attitudes and experiences with technology. Participants were six hundred forty school counselors who were also members of the American School Counselor Association. They were mailed the Computer Attitude Scale (CAS) along with a researcher created scale to complete in a survey format. Participants reported positive attitudes towards computers, regardless of their age. Of the subscales, respondents rated highest on the computer usefulness scale. As respondents' amount of experience with specific aspects of technology increased their perception of confidence increased as well. The authors suggested school counselors build on their positive attitudes about computers and remain updated about competencies related to technology.

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Weaknesses of the study involved the limitations of participants; they were all professional members of ASCA. School counselors who were not members of the organization were not asked to participate; therefore, their voices were not heard. Additionally, the study explored school counselors' attitudes toward technology. The current study seeks to examine school counselors' comfort with technology, which is a different measure than attitude.

The use of the Computer Attitude Scale in research has provided valuable information about the attitudes of individuals regarding computer use. It has been used in both educational and collegial settings in order to gain insight into the ways that groups such as professors, college students, and school counselors may benefit from understanding more about their attitudes regarding computers. Both of the previously mentioned studies involving the CAS found that participants had positive attitudes towards computers. While a researcher may infer that comfort is indicated by one's attitude about computers, the current researcher's belief is that attitudes toward computers and comfort with technology are two different variables to be measured.

While the Computer Attitude Scale has been exploited in various studies, it has not been utilized often in studies involving school counselors. Limited research exists that measures school counselors' involvement with technology in terms of attitude, perceptions, or comfort. There are limited studies that use the CAS with school counselors, limited literature surrounding school counselor and their comfort with technology. The researcher found no existing studies that measure school counselors' comfort with technology by utilizing the CAS. No studies were found that focused on the

population of middle school counselors' comfort with technology. Therefore, the current study will complete a survey with new and veteran middle school counselors by utilizing the Computer Attitude Scale by Loyd and Gressard as a means for examining their levels of comfort with technology.

The Computer Attitude Scale is a forty item survey consisting of a four-point Likert scale (Strongly Agree, Slightly Agree, Slightly Disagree, and Strongly Disagree). In addition to an overall score, the CAS consists of four subscales, including computer anxiety, computer confidence, computer liking, and computer usefulness. The current study will compare two groups (new middle school counselors and veteran middle school counselors). The CAS is composed of four possible responses, which range from (1) Strongly Disagree at one end to (4) Strongly Agree at the other. The responses follow a logical sequence and will be assigned a numerical score to each response (from 1 to 4). The researcher will compute a mean and standard deviation for each group. The Computer Attitude Scale contains both negatively and positively skewed questions. Therefore, an item analysis was conducted and presented in two tables illustrating the results from the positively and negatively skewed questions. Agreement with the positively skewed questions equates to a more positive attitude and disagreement with negatively skewed questions.

In considering the reliability and validity of the Computer Attitude Scale, several studies were found that supported the use of this scale in the current study. Although the CAS was created in 1986, Christensen and Knezek (2000) found in their study that the subscales of the CAS were strong in their original use and have maintained their

reliability over time. The CAS was found to have an internal consistency reliability of

.86 reported in 1986, and an average alpha of .75 in 1995-96. Woodrow (1991) and Loyd

and Gressard (1984) also found high levels of reliability in their studies, with reliability

alpha coefficients ranging from .82 (computer usefulness) to .90 (computer anxiety) and

an overall reliability estimated at .95. The validity of the CAS was also found to be

acceptable (Gardner, Discenza, & Dukes, 1993).

In addition to completing the CAS, participants will also be asked to complete

demographic data and questions regarding their comfort levels with the four ASCA

technology competencies. Demographic data collection will include regarding

participants' gender, age, years of experience working as a school counselor, race,

highest earned degree, and work setting. Participants were are asked to disclose the grade

levels in their current work setting in order to eliminate any respondents who do not meet

the criteria of working in a school serving students in grades six through eight. An

additional question in the data collection asks respondents if their program adequately

prepared them for the ASCA technology competency standards for school counselors. A

final sheet in the survey packets asks respondents to rate their comfort levels with the

four ASCA technology competencies on a Likert scale ranging from 1 (Very

Uncomfortable) to 5 (Very Comfortable):

1. Use technology effectively and efficiently to plan, organize, implement and
   evaluate the comprehensive school counseling program

2. Knows, understands and uses a variety of technology in the delivery of guidance
   curriculum activities.

3. Uses current and emerging technologies such as use of the Internet, Web-based resources and management information systems.

4. Uses technology in conducting research and program evaluation.

In order to complete the Computer Attitude Scale, demographics data collection, and ASCA Technology Competencies questions, participants will need to have a valid mailing address at which to receive the mailed survey. The survey will be mailed along with a cover letter explaining the purpose of the study and instructions for completing and returning the survey. Each participant will need to have the time to read these and complete the survey, which should take between twenty to thirty minutes. No stamp will be necessary for returning the survey as a self-addressed stamped envelope will be included in the survey mailing.

DATA COLLECTION

The data collection procedures used by the researcher consisted of a forty question survey. The survey was mailed to potential participants in South Carolina. Information collected from the surveys were stored in a locked box in the researcher's private residence. The length of time to complete the survey should be no more than fifteen minutes. In addition to the 40 question survey, participants were asked to complete a demographic section asking their gender, age, technology training, ethnicity, highest degree earned, work setting (urban, suburban, or rural), and years of experience. In considering the demographic data to collect, the researcher considered the studies reviewed in the previous chapter.

Table One includes the data collected from these studies as well as the data that were analyzed for these studies. The only variable that was consistently analyzed in these studies was the number of years of experience of the participants. The current study already considered years of experience to be an independent variable, so it was analyzed during the study. Other demographic data collected in these studies, such as gender and age, were not consistently analyzed between studies. Of the thirteen studies included in the Demographic Data Analysis Chart, fifteen percent of those studies conducted analyses based on gender. The other studies collected gender data and did not analyze it, or they did not collect any information on gender. Sabella, Poynton, & Isaacs (2010) did not find gender to have a significant effect on school counselors' perceived importance of technological competencies. Dollarhide, Gibson, & Saginak (2008) analyzed gender as part of their phenomenological study on new school counselors' leadership efforts. Of the thirteen studies in the Chart, thirty nine percent of those studies conducted analyses based on age. Sixty nine percent of the studies collected age data but did not analyze it. Korobili, Togia, & Malliari (2010) did not find age to be a significant factor in participants' computer anxiety levels towards computers. Sabella, Poynton, & Isaacs (2010) found a weak, but significant correlation between age and school counselors' perceived importance of technological competencies. Dollarhide, Gibson, & Saginak (2008) considered the role of age in their study and found that the age of its participants might have impacted the results of the study. Curry & Bickmore (2012) analyzed the ages of their participants but did not find any significant data about their ages. Yushau (2006) found no significant influence of participants' ages on their attitudes towards computers.

DATA ANALYSIS

The current study utilized the SPSS statistical software system in order to perform a descriptive analysis to answer the research question. Each of the variables was analyzed and the findings will be reported. After the surveys were collected, an ANOVA was conducted in order to examine the main and interaction effects of years of experience, technology training, gender, and age on middle school counselors' comfort with technology. The use of an ANOVA was justified in the current study as the researcher assessed the main and interaction effects for each subscale score on the Computer Attitude Scale (Agresti & Finlay, 2009). The mean and standard deviation were also calculated for each variable. The calculations disclosed how middle school counselors responded to the survey items. The demographic data were analyzed using a Chi-Square test for independence and the Spearman's Rho correlation coefficient.

The current study hoped to answer the following research question: What are the effects of years of experience, technology training, gender, and age on middle school counselors' comfort with technology? While investigating these differences consideration should be given to the following hypotheses from the subscales of the Computer Attitude Scale:

1. There will be a significant main effect for years of experience, but no main or interaction effect for technology training, age, or gender, on the computer anxiety subscale of the CAS.

2. There will be a significant main effect for years of experience, but no main or interaction effect for technology training, age, or gender, on the computer confidence subscale of the CAS.

3. There will be a significant main effect for years of experience, but no main or interaction effect for technology training, age, or gender, on the computer liking subscale of the CAS.

4. There will be a significant main effect for years of experience, but no main or interaction effect for technology training, age, or gender, on the computer usefulness subscale of the CAS.

In addition to considering the subscales of the CAS, an analysis of the demographic data and ASCA technology competency standards will be conducted utilizing the following hypotheses:

1. H_o= There is no association between gender and level of comfort with technology.

    H_a= There is an association between gender and level of comfort with technology.

2. H_o= There is no association between age and level of comfort with technology.

    H_a= There is an association between age and level of comfort with technology.

3. H_o= There is no association between years of experience and level of comfort with technology.

   H_a= There is an association between years of experience and level of comfort with technology.

4. H_o= There is no association between race and level of comfort with technology.

   H_a= There is an association between race and level of comfort with technology.

5. H_o= There is no association between highest earned degree and level of comfort with technology.

   H_a= There is an association between highest earned degree and level of comfort with technology.

6. H_o= There is no association between work setting and level of comfort with technology.

   H_a= There is an association between work setting and level of comfort with technology.

7. H_o= There is no association between graduate program preparation and level of comfort with technology.

   H_a= There is an association between graduate program preparation and level of comfort with technology.

The current study used an ANOVA to compare the means of the groups of middle

school counselors and their comfort with technology (Heppner & Heppner, 2004).

Additionally, a Chi-Square test for independence and Spearman's Rho correlation

coefficient were used to determine any relationships between the independent variables.

PARTICIPANTS' RIGHTS

Protective Measures

Potential participants for the current study were invited to participate in a mailed survey.

The mailing also included a letter of consent and participants had the opportunity to

either participate or decline participation without undue influence. Participants were

considered to give their consent by completing and returning the survey in the self-

addressed stamped envelope. Any non-respondents were considered to have declined

participation in the study. To minimize any risk of undue influence, the survey did not

hold any identifiable information for any participants. The demographics section of the

survey did not request any identifiable information from the participants. Therefore, the

researcher did not have any knowledge of which potential participants will complete the

survey. There was no possibility of the researcher linking any participant's identities

with any completed surveys.

Risks and Benefits/IRB

No risks to participants were expected due to the nature of the data collection.

The survey topic and questions did not pose any major risk to participants. Any potential

discomforts for participants were minor, aside from the time taken to complete the

survey. As a means for minimizing risks, no identifiable information was provided by the participants. Before the current study began, an application was submitted to the University of South Carolina's review board. The letter of invitation for participants included a statement of approval from the IRB. While the study provided no compensation for participants, the possible benefits to the current study included the opportunity for practicing school counselors to provide their thoughts and feelings about their comfort levels with technology. The information gained from this study hoped to serve as the beginning groundwork for exhibiting the need for continuing technological training for practicing school counselors in South Carolina.

SUMMARY

The intent of the current study was to examine the effects of years of experience, technology training, gender, and age on middle school counselors in their comfort with technology. The causal-comparative design of the study had been justified as this study aims to compare existing groups of middle school counselors. The sample anticipated gaining information from a variety of middle school counselors in South Carolina who serve in a sixth through eighth grade public school setting. The researcher mailed the Computer Attitude Scale to potential participants along with a letter of consent. Surveys were returned by participants by using a self-addressed stamped envelope provided by the researcher. Data received through the current study were analyzed using descriptive statistics.

The following chapter will present a summary of the findings of the study, and the final chapter will discuss the implications of this study regarding future research for school counselors and technology.

CHAPTER FOUR

RESULTS

The intent of the current study was to examine the effects of years of experience, technology training, gender, and age on middle school counselors in their comfort with technology. This study also examined middle school counselor comfort with the current ASCA technology competency standards. Additionally, the current study included an exploration of middle school counselors' feelings of technology preparation through their graduate program. A data analysis was conducted using the Statistical Package for the Social Sciences (SPSS) Version 19. Statistical analyses were conducted to test all hypotheses. To organize the findings, this chapter will present a descriptive sample analysis and a statistical analysis of each of the research hypotheses examined in the study.

SAMPLE ANALYSIS

Participants for the current study were drawn from a purposive sample consisting of middle school counselors in the state of South Carolina. School districts were contacted in order to obtain to permission to mail the survey to potential participants. A total of two hundred eighty six, or approximately sixty two percent of the four hundred fifty six middle school counselors in South Carolina were given permission to participate by their school districts or principals. Of these potential participants, a total of one

hundred sixty middle school counselors returned a completed survey to the researcher,

yielding the researcher a fifty six percent response rate from the two hundred eighty six

middle school counselors given permission to participate in the current study. Study

participants were enlisted by mailing an invitation letter and survey via the United States

Postal Service to middle school counselors whose districts provided permission for their

middle school counselors to participate. In order to participate, participants completed

the survey and returned it in the provided self-addressed, stamped envelope. Preliminary

results of the data analyses were assessed for accuracy of data entry and missing data.

Frequency tables were utilized for analyzing demographic variables.

DEMOGRAPHICS

Participants of the current study were current middle school counselors in South

Carolina. The analyses included data from one hundred sixty participants. As shown in

Table 4.1, 87.5% of participants identified themselves as female, while the remaining

12.5% identified themselves as male.

Table 4.1 Frequencies of Participants by Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	140	87.5	87.5	87.5
	Male	20	12.5	12.5	100.0
	Total	160	100.0	100.0	

Ages of participants ranged from age twenty six to age sixty four. Table 4.2 provides a

breakdown of the ages, with the mean age of participants at 42.71. In considering the

categorization of participants into those ages thirty and under and those ages thirty one and above, 11.8 % of the participants fell into the thirty and under category. The remaining 88.2% of participants were identified as being thirty one years old or above (See Table 4.2).

Table 4.2 Frequencies of Participants by Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<31	19	11.8	11.8	11.8
	>30	141	88.2	88.2	100.0
	Total	160	100.0	100.0	

Years of experience as a professional school counselor ranged from zero (first year counselor) to thirty two. In reference to the ANOVA hypotheses which sought to examine years of experience in relation to other variables, years of experience were categorized into those participants with five or less years of experience and those participants with six or more years of experience. 29.4%% of participants reported having five or less years of experience, while 70.6% reported having six or more years of experience as a professional school counselor (See Table 4.3).

Table 4.3 Frequencies of Participants by Years of Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<6	47	29.4	29.4	29.4
	>5	113	70.6	70.6	100.0
	Total	160	100.0	100.0	

Among racial group identification, the majority of respondents (72.5%) identified their

race as Caucasian. Other participants reported their racial group identification as African

American (26.3%), and Other (1.3%). No participants identified their race as

Latino/Hispanic or Native American/Alaskan Native (See Table 4.4).

Table 4.4 Frequencies of Participants by Race

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	African American	42	26.3	26.3	26.3
	Caucasian	116	72.5	72.5	98.8
	Other	2	1.3	1.3	100.0
	Total	160	100.0	100.0	

As illustrated in Table 4.5, study participants reported their highest earned degree.

Participants reported having earned either a Bachelors degree, Masters degree,

Educational Specialist degree, or Doctorate degree. According to the responses, one

participant (.6%) reported earning a Bachelor degree, while 58.1% stated a Masters

degree as their highest degree earned. A smaller percentage (39.4%) reported an

Educational Specialist degree as their highest earned degree, while a very small

percentage (1.3%) reported earning a doctorate degree (See Table 4.5).

Table 4.5 Frequencies of Participants by Highest Earned Degree

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	BS	1	.6	.6	.6
	M	93	58.1	58.5	59.1
	M+30	63	39.4	39.6	98.7
	PhD	3	1.9	1.9	100.0
	Total	160	100.0	100.0	
Total		160	100.0		

In describing their current work setting participants selected from the following choices: Rural, Urban, or Suburban. As shown in Table 4.6, over half of middle school counselor respondents (51.9%) reported working in a Rural setting. While 28.8% of participants described their work setting as Suburban, only 19.4% reported working in an Urban work setting.

Table 4.6 Frequencies of Participants by Work Setting

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Rural	83	51.9	51.9	51.9
	Suburban	46	28.8	28.8	80.6
	Urban	31	19.4	19.4	100.0
	Total	160	100.0	100.0	

In answering the survey question regarding program preparation for ASCA technology competency expectations for school counselors, participants were given the choice of a yes or no response. Table 4.7 illustrates the breakdown of participants' choices.

Approximately 43.1% of participants replied feeling adequately prepared by their graduate programs. However, 56.9% reported not being prepared by their program.

Table 4.7 Frequencies of Participants by ASCA Program Preparation Question

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	91	56.9	56.9	56.9
	Yes	69	43.1	43.1	100.0
	Total	160	100.0	100.0	

ASCA TECHNOLOGY COMPETENCY STANDARDS

Participants responded to four questions regarding their comfort levels with each of the ASCA Technology Competencies. A Likert scale ranging from 1 to 5 was utilized to indicate respondents' levels of comfort for each of the four questions: 1 (Very Uncomfortable), 2 (Uncomfortable), 3 (Somewhat Comfortable), 4 (Comfortable), and 5 (Very Comfortable). The frequencies for each of the four ASCA questions are discussed below.

For Question One of the ASCA Technology Competency Standards, the majority of participants (84.4%) responded they were somewhat to very comfortable with using technology to effectively and efficiently plan, organize, implement and evaluate their comprehensive school counseling programs. The remaining 15.6% reported feeling uncomfortable to very uncomfortable with their comfort levels (See Table 4.8).

Table 4.8 Frequencies of Participants by ASCA Technology Competency

Standards Question One

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	6	3.8	3.8	3.8
	2	19	11.9	11.9	15.6
	3	40	25.0	25.0	40.6
	4	50	31.3	31.3	71.9
	5	45	28.1	28.1	100.0
	Total	160	100.0	100.0	

In examining Question Two, approximately 27.5% of participants felt very comfortable with the competency standard of knowing, understanding, and using a variety of technology in the delivery of their guidance curriculum standards. The largest percentage of respondents (36.3%) felt comfortable with this standard, while the remaining 36.3% felt somewhat comfortable to very uncomfortable with the technology competency standard.

Table 4.9 Frequencies of Participants by ASCA Technology Competency Standards

Question Two

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	6	3.8	3.8	3.8
	2	17	10.6	10.6	14.4
	3	35	21.9	21.9	36.3
	4	58	36.3	36.3	72.5
	5	44	27.5	27.5	100.0
	Total	160	100.0	100.0	

For Question Three, participants reported their comfort levels with using current and emerging technologies such as the Internet, Web-based resources and management information systems. Only 15% of respondents reported feeling uncomfortable to very uncomfortable with this standard. Approximately 18.1% reported feeling somewhat comfortable, while 66.9% felt comfortable to very comfortable with the standard.

Table 4.10 Frequencies of Participants by ASCA Technology Competency Standards
Question Three

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	7	4.4	4.4	4.4
	2	17	10.6	10.6	15.0
	3	29	18.1	18.1	33.1
	4	50	31.3	31.3	64.4
	5	57	35.6	35.6	100.0
	Total	160	100.0	100.0	

In response to Question Four, approximately one-third of participants (34.4%) reported feeling comfortable with using technology in conducting research and program evaluation. 25% reported feeling very comfortable with this standard. However, approximately 40.7% percent of respondents reported feeling somewhat comfortable to very uncomfortable with the standard.

Table 4.11 Frequencies of Participants by ASCA Technology Competency Standards

Question Four

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	7	4.4	4.4	4.4
	2	22	13.8	13.8	18.1
	3	36	22.5	22.5	40.6
	4	55	34.4	34.4	75.0
	5	40	25.0	25.0	100.0
	Total	160	100.0	100.0	

RESEARCH HYPOTHESES ANALYSIS

The Computer Attitude Scale (Loyd & Gressard, 1984) and questions determining

comfort levels with American School Counselor Association Technology Competencies

(ASCA, 2007) were utilized to analyze the variables in the current study. These

questions were all compiled into one survey and administered via paper format.

In regards to the Computer Attitude Scale, ANOVAs were conducted in order to analyze

Hypotheses One through Four. A summary score was not collected for data analysis as

the subscale scores were the focus of the current study. Participants' responses were

assembled on a Likert scale from 1-4 with numbers representing participants' comfort

level with technology with defined levels: 1 (Strongly Agree), 2 (Slightly Agree), 3

(Slightly Disagree), and 4 (Strongly Disagree). For each of the four subscales (anxiety,

confidence, liking, and usefulness), predictors were tested for both main and interaction

effects with a level of statistical significance set at .05 for all analyses. The first ANOVA

for each subscale results assess the main effects due to the predictors; the second

ANOVA results examine possible interaction effects.

Hypothesis One

Hypothesis One stated there would be a significant main effect for years of experience,

but no main or interaction effect for technology training, age or gender, on the computer

anxiety subscale of the CAS. Two ANOVAS were utilized to perform a test for any main

effects of the predictors of age, years of experience, gender, and technology training on

the anxiety subscale by themselves. In the first ANOVA (See Table 4.12), results

indicate a significant main effect for technology training with a p-value of 0.013. No

significant main effect was found for years of experience (F=.020, p=.887).

Table 4.12 ANOVA- Anxiety Subscale Main Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	21.238[a]	4	5.309	2.133	.079	.052
Intercept	3109.815	1	3109.815	1249.610	.000	.890
AGE	4.104	1	4.104	1.649	.201	.011
YRS.EXP	.050	1	.050	.020	.887	.000
GENDER	.107	1	.107	.043	.836	.000
PROG.PREP	15.777	1	15.777	6.340	.013	.039
Error	385.737	155	2.489			
Total	89804.000	160				
Corrected Total	406.975	159				

a. R Squared = .052 (Adjusted R Squared = .028)

Table 4.13 presents results from the second ANOVA, which performed tests for

interaction effects of the predictors for the anxiety subscale of the CAS with all possible

two-way interactions included. Results indicated a significant interaction between age

and years of experience with a p-value of 0.029.

Table 4.13 ANOVA- Anxiety Subscale Interaction Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	42.478[a]	10	4.248	1.736	.078	.104
Intercept	24502.816	1	24502.816	10016.310	.000	.985
AgeCenter	1.884	1	1.884	.770	.382	.005
ExpCenter	1.944	1	1.944	.795	.374	.005
GENDER	.678	1	.678	.277	.599	.002
PROG.PREP	.001	1	.001	.000	.987	.000
AgeCenter * ExpCenter	11.821	1	11.821	4.832	.029	.031
GENDER * AgeCenter	6.687	1	6.687	2.733	.100	.018
PROG.PREP * AgeCenter	.020	1	.020	.008	.928	.000
GENDER * ExpCenter	.838	1	.838	.343	.559	.002
PROG.PREP * ExpCenter	2.280	1	2.280	.932	.336	.006
GENDER * PROG.PREP	4.877	1	4.877	1.993	.160	.013
Error	364.497	149	2.446			
Total	89804.000	160				
Corrected Total	406.975	159				

a. R Squared = .104 (Adjusted R Squared = .044)

Hypothesis One stated there would be a significant main effect for years of experience. Due to a lack of main effect found for years of experience, Hypothesis One was not supported.

Hypothesis Two

Hypothesis Two posited there would be a significant main effect for years of experience, but no main or interaction effect for technology training, age or gender, on the computer confidence subscale of the CAS. Two ANOVAS were utilized to perform a test for any main effects of the predictors of age, years of experience, gender, and technology training

on the confidence subscale by themselves. In the first ANOVA (See Table 4.14), results

indicate that there were no significant main effects for any of the predictors. Specifically,

no significant main effect was found for years of experience (F=.837, p=.362).

Table 4.14 ANOVA- Confidence Subscale Main Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	9.555[a]	4	2.389	.585	.674	.015
Intercept	3773.693	1	3773.693	924.210	.000	.856
AGE	.753	1	.753	.184	.668	.001
YRS.EXP	3.417	1	3.417	.837	.362	.005
GENDER	.001	1	.001	.000	.986	.000
PROG.PREP	6.663	1	6.663	1.632	.203	.010
Error	632.889	155	4.083			
Total	98801.000	160				
Corrected Total	642.444	159				

a. R Squared = .015 (Adjusted R Squared = -.011)

Table 4.15 presents results from the second ANOVA, which performed tests for

interaction effects of the predictors for the confidence subscale of the CAS with all

possible two-way interactions included. Results indicated a significant interaction

between gender and age with a p-value of .039.

Table 4.15 ANOVA- Confidence Subscale Interaction Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	48.632[a]	10	4.863	1.220	.282	.076
Intercept	26831.722	1	26831.722	6732.649	.000	.978
AgeCenter	16.348	1	16.348	4.102	.045	.027
ExpCenter	14.629	1	14.629	3.671	.057	.024
GENDER	.020	1	.020	.005	.944	.000
PROG.PREP	4.144	1	4.144	1.040	.310	.007
AgeCenter * ExpCenter	1.416	1	1.416	.355	.552	.002
GENDER * AgeCenter	17.227	1	17.227	4.323	.039	.028
PROG.PREP * AgeCenter	.640	1	.640	.161	.689	.001
GENDER * ExpCenter	12.778	1	12.778	3.206	.075	.021
PROG.PREP * ExpCenter	5.121	1	5.121	1.285	.259	.009
GENDER * PROG.PREP	15.487	1	15.487	3.886	.051	.025
Error	593.812	149	3.985			
Total	98801.000	160				
Corrected Total	642.444	159				

a. R Squared = .076 (Adjusted R Squared = .014)

Hypothesis Two stated there would be a significant main effect for years of experience. Due to a lack of main effect found for years of experience, as well as an interaction effect between gender and age, Hypothesis Two was not supported.

Hypothesis Three

Hypothesis Three proposed there would be a significant main effect for years of experience, but no main or interaction effect for technology training, age or gender, on

the computer liking subscale of the CAS. Two ANOVAS were utilized to perform a test

for any main effects of the predictors of age, years of experience, gender, and technology

training on the liking subscale by themselves. In the first ANOVA (See Table 4.16),

results indicate there were no significant main effects for technology training for any of

the predictors. No significant main effect was found for years of experience ($F=.183$,

$p=.669$).

Table 4.16 ANOVA- Liking Subscale Main Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	2.737[a]	4	.684	.159	.959	.004
Intercept	3469.733	1	3469.733	805.999	.000	.839
AGE	2.405	1	2.405	.559	.456	.004
YRS.EXP	.788	1	.788	.183	.669	.001
GENDER	.003	1	.003	.001	.981	.000
PROG.PREP	.498	1	.498	.116	.734	.001
Error	667.257	155	4.305			
Total	96759.000	160				
Corrected Total	669.994	159				

a. R Squared = .004 (Adjusted R Squared = -.022)

Table 4.17 presents results from the second ANOVA, which performed tests for

interaction effects of the predictors for the liking subscale of the CAS with all possible

two-way interactions included. Results indicated there were no significant interaction

effects for any of the predictors.

Table 4.17 ANOVA- Liking Subscale Interaction Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	20.150[a]	10	2.015	.462	.912	.030
Intercept	25411.692	1	25411.692	5826.539	.000	.975
AgeCenter	4.193	1	4.193	.961	.328	.006
ExpCenter	11.959	1	11.959	2.742	.100	.018
GENDER	1.795	1	1.795	.412	.522	.003
PROG.PREP	.012	1	.012	.003	.958	.000
AgeCenter * ExpCenter	1.838	1	1.838	.421	.517	.003
GENDER * AgeCenter	1.518	1	1.518	.348	.556	.002
PROG.PREP * AgeCenter	.097	1	.097	.022	.881	.000
GENDER * ExpCenter	9.705	1	9.705	2.225	.138	.015
PROG.PREP * ExpCenter	1.598	1	1.598	.366	.546	.002
GENDER * PROG.PREP	.000	1	.000	.000	.997	.000
Error	649.844	149	4.361			
Total	96759.000	160				
Corrected Total	669.994	159				

a. R Squared = .030 (Adjusted R Squared = -.035)

Hypothesis Three stated there would be a significant main effect for years of experience. Due to a lack of main effect found for years of experience, Hypothesis Three was not supported.

Hypothesis Four

Hypothesis Four stated there would be a significant main effect for years of experience, but no main or interaction effect for technology training, age or gender, on the computer

usefulness subscale of the CAS. Two ANOVAS were utilized to perform a test for any

main effects of the predictors of age, years of experience, gender, and technology training

on the usefulness subscale by themselves. In the first ANOVA (See Table 4.18), results

found no significant main effects for any of the predictors. No significant main effect

was found for years of experience (F=.560, p=.456).

Table 4.18 ANOVA- Usefulness Subscale Main Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	12.427[a]	4	3.107	1.013	.403	.025
Intercept	3744.995	1	3744.995	1220.979	.000	.887
AGE	.143	1	.143	.047	.830	.000
YRS.EXP	1.716	1	1.716	.560	.456	.004
GENDER	.562	1	.562	.183	.669	.001
PROG.PREP	4.570	1	4.570	1.490	.224	.010
Error	475.417	155	3.067			
Total	96283.000	160				
Corrected Total	487.844	159				

a. R Squared = .025 (Adjusted R Squared = .000)

Table 4.19 presents results from the second ANOVA, which performed tests for

interaction effects of the predictors for the usefulness subscale of the CAS with all

possible two-way interactions included. Results indicated a significant interaction

between technology training and age with a p-value of .007. Additionally, results found a

significant interaction effect between technology training and years of experience with a

p-value of .019.

Table 4.19 ANOVA- Usefulness Subscale Interaction Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	43.280[a]	10	4.328	1.451	.164	.089
Intercept	25523.289	1	25523.289	8554.378	.000	.983
AgeCenter	8.681	1	8.681	2.909	.090	.019
ExpCenter	.007	1	.007	.002	.962	.000
GENDER	2.904	1	2.904	.973	.325	.006
PROG.PREP	1.299	1	1.299	.435	.510	.003
AgeCenter * ExpCenter	.001	1	.001	.000	.983	.000
GENDER * AgeCenter	7.410	1	7.410	2.483	.117	.016
PROG.PREP * AgeCenter	22.701	1	22.701	7.608	.007	.049
GENDER * ExpCenter	.372	1	.372	.125	.724	.001
PROG.PREP * ExpCenter	16.878	1	16.878	5.657	.019	.037
GENDER * PROG.PREP	5.404	1	5.404	1.811	.180	.012
Error	444.564	149	2.984			
Total	96283.000	160				
Corrected Total	487.844	159				

a. R Squared = .089 (Adjusted R Squared = .028)

Hypothesis Four stated there would be a significant main effect for years of experience. Due to a lack of main effect found for years of experience, along with interaction effects for technology training and age and technology training and years of experience, Hypothesis Four was not supported.

In order to analyze the second set of hypotheses involving demographic data and the four ASCA Technology Competency Standards questions, responses were analyzed using

Chi-Square tests for independence and the Spearman's Rho correlation coefficient with a level of statistical significance set at .05 for all analyses. For each of these seven hypotheses, each of the four ASCA questions will be addressed. To address Hypotheses One, Four, Five, Six and Seven, Chi-Square tests for independence were conducted due to each of those hypotheses examining categorical variables. Hypotheses Two and Three examined ordinal variables and were analyzed using Spearman's Rho correlations.

Hypothesis One

Hypothesis One proposed there would be no association between gender and level of comfort with technology. In considering Question One from the ASCA Technology Competency Standards Questions answered by participants, a potential association with gender was evaluated. Results reported a p-value of .314, indicating no association between gender and participants' comfort with using technology to effectively and efficiently to plan, organize, implement and evaluate the comprehensive school counseling program.

Table 4.20 Chi-Square Test-Hypothesis One, Question One

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.753[a]	4	.314
Likelihood Ratio	5.635	4	.228
N of Valid Cases	160		

a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is .75.

In evaluating Question Two from the ASCA Technology Competency Standards Questions answered by participants, a potential association with gender was evaluated.

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Results reported a p-value of .201, indicating no association between gender and participants' comfort with knowing, understanding, and using a variety of technology in the delivery of guidance curriculum activities.

Table 4.21 Chi-Square Test-Hypothesis One, Question Two

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.969[a]	4	.201
Likelihood Ratio	7.801	4	.099
N of Valid Cases	160		

a. 3 cells (30.0%) have expected count less than 5. The minimum expected count is .75.

In evaluating Question Three from the ASCA Technology Competency Standards Questions answered by participants, a potential association with gender was evaluated. Results reported a p-value of .542, indicating no association between gender and participants' comfort with using current and emerging technologies such as the Internet, Web-based resources and management information systems.

Table 4.22 Chi-Square Test-Hypothesis One, Question Three

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.094[a]	4	.542
Likelihood Ratio	3.990	4	.407
N of Valid Cases	160		

a. 3 cells (30.0%) have expected count less than 5. The minimum expected count is .88.

In examining Question Four from the ASCA Technology Competency Standards Questions answered by participants, a potential association with gender was evaluated.

Results reported a p-value of .499, indicating no association between gender and participants' comfort with using technology in conducting research and program evaluation.

Table 4.23 Chi-Square Test-Hypothesis One, Question Four

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.007[a]	4	.199
Likelihood Ratio	6.063	4	.194
N of Valid Cases	160		

a. 3 cells (30.0%) have expected count less than 5. The minimum expected count is .88.

In conclusion for Hypothesis One, all four ASCA questions supported the hypothesis of no association between gender and comfort with technology.

Hypothesis Two

Hypothesis Two stated there would be no association between age and level of comfort with technology. As the variable of age is ordinal, this hypothesis was conducted using Spearman's Rho correlations. In considering each of the four ASCA Technology Competency Standards questions, all four were found to have a negative correlation. These findings suggest that for some school counselors, as their age increases, their levels of comfort in using technology go down. Therefore, the null hypothesis of there being no association between age and comfort with technology is not supported.

Table 4.24 Spearman's Rho Correlation- Hypothesis Two

			AGE	ASCA1	ASCA2	ASCA3	ASCA4
Spearman's rho	AGE	Correlation Coefficient	1.000	-.168*	-.171*	-.207**	-.207**
		Sig. (2-tailed)	.	.034	.030	.009	.009
		N	160	160	160	160	160
	ASCA1	Correlation Coefficient	-.168*	1.000	.832**	.742**	.719**
		Sig. (2-tailed)	.034	.	.000	.000	.000
		N	160	160	160	160	160
	ASCA2	Correlation Coefficient	-.171*	.832**	1.000	.777**	.707**
		Sig. (2-tailed)	.030	.000	.	.000	.000
		N	160	160	160	160	160
	ASCA3	Correlation Coefficient	-.207**	.742**	.777**	1.000	.775**
		Sig. (2-tailed)	.009	.000	.000	.	.000
		N	160	160	160	160	160
	ASCA4	Correlation Coefficient	-.207**	.719**	.707**	.775**	1.000
		Sig. (2-tailed)	.009	.000	.000	.000	.
		N	160	160	160	160	160

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Hypothesis Three

Hypothesis Three posited there would be no association between years of experience and level of comfort with technology. As the variable of years of experience is ordinal, this hypothesis was conducted using Spearman's Rho correlations. In considering each of the four ASCA Technology Competency Standards questions, all four were found to have a

negative correlation. These findings suggest that for some school counselors, as their years of experience increase, their levels of comfort in using technology go down. Therefore, the null hypothesis of there being no association between years of experience and comfort with technology is not supported.

Table 4.25 Spearman's Rho Correlation- Hypothesis Three

			YEARS OF EX- PERIENCE	ASCA 1	ASCA 2	ASCA 3	ASCA 4
Spearman's rho	YEARS OF EX- PERIENCE	Corre- lation Co- efficient	1.000	-.279**	-.240**	-.281**	-.258**
		Sig. (2- tailed)	.	.000	.002	.000	.001
		N	160	160	160	160	160
	ASCA1	Corre- lation Co- efficient	-.279**	1.000	.832**	.742**	.719**
		Sig. (2- tailed)	.000	.	.000	.000	.000
		N	160	160	160	160	160
	ASCA2	Corre- lation Co- efficient	-.240**	.832**	1.000	.777**	.707**
		Sig. (2- tailed)	.002	.000	.	.000	.000
		N	160	160	160	160	160
	ASCA3	Corre- lation Co- efficient	-.281**	.742**	.777**	1.000	.775**
		Sig. (2- tailed)	.000	.000	.000	.	.000
		N	160	160	160	160	160
	ASCA4	Corre- lation Co- efficient	-.258**	.719**	.707**	.775**	1.000
		Sig. (2- tailed)	.001	.000	.000	.000	.
		N	160	160	160	160	160

**. Correlation is significant at the 0.01 level (2-tailed).

Hypothesis Four

Hypothesis Four stated there would be no association between race and level of comfort with technology. In considering Question One from the ASCA Technology Competency Standards Questions answered by participants, a potential association with race was evaluated. Results reported a p-value of .003, indicating a significant association between race and participants' comfort with using technology to effectively and efficiently to plan, organize, implement and evaluate the comprehensive school counseling program.

Table 4.26 Chi-Square Test-Hypothesis Four, Question One

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	23.728[a]	8	.003
Likelihood Ratio	17.574	8	.025
N of Valid Cases	160		

a. 8 cells (53.3%) have expected count less than 5. The minimum expected count is .08.

In evaluating Question Two from the ASCA Technology Competency Standards Questions answered by participants, a potential association with race was evaluated. Results reported a p-value of .219, indicating no association between race and participants' comfort with knowing, understanding, and using a variety of technology in the delivery of guidance curriculum activities.

Table 4.27 Chi-Square Test-Hypothesis Four, Question Two

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.710^a	8	.219
Likelihood Ratio	10.707	8	.219
N of Valid Cases	160		

a. 8 cells (53.3%) have expected count less than 5. The minimum
expected count is .08.

In evaluating Question Three from the ASCA Technology Competency Standards

Questions answered by participants, a potential association with race was evaluated.

Results reported a p-value of .003, indicating a signification association between race and

participants' comfort with using current and emerging technologies such as the Internet,

Web-based resources and management information systems.

Table 4.28 Chi-Square Test-Hypothesis Four, Question Three

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	27.013^a	8	.001
Likelihood Ratio	19.175	8	.014
N of Valid Cases	160		

a. 7 cells (46.7%) have expected count less than 5. The minimum
expected count is .09.

In examining Question Four from the ASCA Technology Competency Standards

Questions answered by participants, a potential association with race was evaluated.

Results reported a p-value of .075, indicating no association between race and

participants' comfort with using technology in conducting research and program

evaluation.

Table 4.29 Chi-Square Test-Hypothesis Four, Question Four

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.278[a]	8	.075
Likelihood Ratio	9.706	8	.286
N of Valid Cases	160		

a. 6 cells (40.0%) have expected count less than 5. The minimum expected count is .09.

In conclusion, results from ASCA Technology Competency Standards Questions Two and Four supported the hypothesis of no association between race and level of comfort with technology. However, results from Questions One and Three failed to support the null hypothesis.

Hypothesis Five

Hypothesis Five stated there would be no association between highest earned degree and level of comfort with technology. Hypothesis Five proposed there would be no association between gender and level of comfort with technology. In considering Question One from the ASCA Technology Competency Standards Questions answered by participants, a potential association with highest earned degree was evaluated. Results reported a p-value of .772, indicating no association between highest degree earned and participants' comfort with using technology to effectively and efficiently to plan, organize, implement and evaluate the comprehensive school counseling program.

Table 4.30 Chi-Square Test-Hypothesis Five, Question One

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.172[a]	12	.772
Likelihood Ratio	9.098	12	.695
Linear-by-Linear Association	2.015	1	.156
N of Valid Cases	159		

a. 12 cells (60.0%) have expected count less than 5. The minimum expected count is .04.

In evaluating Question Two from the ASCA Technology Competency Standards Questions answered by participants, a potential association with highest earned degree was evaluated. Results reported a p-value of .772, indicating no association between highest earned degree and participants' comfort with knowing, understanding, and using a variety of technology in the delivery of guidance curriculum activities.

Table 4.31 Chi-Square Test-Hypothesis Five, Question Two

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.103[a]	12	.911
Likelihood Ratio	6.790	12	.871
Linear-by-Linear Association	.186	1	.667
N of Valid Cases	159		

a. 12 cells (60.0%) have expected count less than 5. The minimum expected count is .04.

In evaluating Question Three from the ASCA Technology Competency Standards Questions answered by participants, a potential association with highest earned degree was evaluated. Results reported a p-value of .975, indicating no association between

highest earned degree and participants' comfort with using current and emerging

technologies such as the Internet, Web-based resources and management information

systems.

Table 4.32 Chi-Square Test-Hypothesis Five, Question Three

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.394[a]	12	.975
Likelihood Ratio	5.283	12	.948
Linear-by-Linear Association	.295	1	.587
N of Valid Cases	159		

a. 12 cells (60.0%) have expected count less than 5. The minimum expected count is .04.

In examining Question Four from the ASCA Technology Competency Standards

Questions answered by participants, a potential association with highest earned degree

was evaluated. Results reported a p-value of .840, indicating no association between

highest earned degree and participants' comfort with using technology in conducting

research and program evaluation.

Table 4.33 Chi-Square Test-Hypothesis Five, Question Four

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.264[a]	12	.840
Likelihood Ratio	7.999	12	.785
Linear-by-Linear Association	.325	1	.569
N of Valid Cases	159		

a. 12 cells (60.0%) have expected count less than 5. The minimum expected count is .04.

In conclusion for Hypothesis Five, all four ASCA questions supported the hypothesis of no association between highest earned degree and comfort with technology

Hypothesis Six

Hypothesis Six reported there would be no association between work setting and level of comfort with technology. In considering Question One from the ASCA Technology Competency Standards Questions answered by participants, a potential association with work setting was evaluated. Results reported a p-value of .025, indicating a significant association between work setting and participants' comfort with using technology to effectively and efficiently to plan, organize, implement and evaluate the comprehensive school counseling program.

Table 4.34 Chi-Square Test-Hypothesis Six, Question One

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	17.584[a]	8	.025
Likelihood Ratio	18.064	8	.021
N of Valid Cases	160		

a. 4 cells (26.7%) have expected count less than 5. The minimum expected count is 1.16.

In evaluating Question Two from the ASCA Technology Competency Standards Questions answered by participants, a potential association with work setting was evaluated. Results reported a p-value of .416, indicating no association between work setting and participants' comfort with knowing, understanding, and using a variety of technology in the delivery of guidance curriculum activities.

Table 4.35 Chi-Square Test-Hypothesis Six, Question Two

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.183[a]	8	.416
Likelihood Ratio	8.264	8	.408
N of Valid Cases	160		

a. 5 cells (33.3%) have expected count less than 5. The minimum expected count is 1.16.

In evaluating Question Three from the ASCA Technology Competency Standards

Questions answered by participants, a potential association with work setting was

evaluated. Results reported a p-value of .384, indicating no association between work

setting and participants' comfort with using current and emerging technologies such as

the Internet, Web-based resources and management information systems.

Table 4.36 Chi-Square Test-Hypothesis Six, Question Three

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.525[a]	8	.384
Likelihood Ratio	8.169	8	.417
N of Valid Cases	160		

a. 5 cells (33.3%) have expected count less than 5. The minimum expected count is 1.36.

In examining Question Four from the ASCA Technology Competency Standards

Questions answered by participants, a potential association with work setting was

evaluated. Results reported a p-value of .022, indicating a significant association

between work setting and participants' comfort with using technology in conducting

research and program evaluation.

Table 4.37 Chi-Square Test-Hypothesis Six, Question Four

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	17.893[a]	8	.022
Likelihood Ratio	19.466	8	.013
N of Valid Cases	160		

a. 4 cells (26.7%) have expected count less than 5. The minimum expected count is 1.36.

In conclusion, results from ASCA Technology Competency Standards Questions Two and Three supported the hypothesis of no association between work setting and level of comfort with technology. However, results from Questions One and Four failed to support the null hypothesis.

Hypothesis Seven

Hypothesis Seven proposed there would be no association between technology training and level of comfort with technology. In considering Question One from the ASCA Technology Competency Standards Questions answered by participants, a potential association with technology training was evaluated. Results reported a p-value of .000, indicating a significant association between technology training and participants' comfort with using technology to effectively and efficiently to plan, organize, implement and evaluate the comprehensive school counseling program.

Table 4.38 Chi-Square Test-Hypothesis Seven, Question One

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	25.699[a]	4	.000
Likelihood Ratio	26.943	4	.000
N of Valid Cases	160		

a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is 2.59.

In evaluating Question Two from the ASCA Technology Competency Standards

Questions answered by participants, a potential association with technology training was

evaluated. Results reported a p-value of .000, indicating a significant association

between technology training and participants' comfort with knowing, understanding, and

using a variety of technology in the delivery of guidance curriculum activities.

Table 4.39 Chi-Square Test-Hypothesis Seven, Question Two

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	22.208[a]	4	.000
Likelihood Ratio	22.947	4	.000
N of Valid Cases	160		

a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is 2.59.

In evaluating Question Three from the ASCA Technology Competency Standards

Questions answered by participants, a potential association with technology training was

evaluated. Results reported a p-value of .022, indicating a significant association

between technology training and participants' comfort with using current and emerging

technologies such as the Internet, Web-based resources and management information

systems.

Table 4.40 Chi-Square Test-Hypothesis Seven, Question Three

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.395[a]	4	.022
Likelihood Ratio	11.667	4	.020
N of Valid Cases	160		

a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is 3.02.

In examining Question Four from the ASCA Technology Competency Standards Questions answered by participants, a potential association with technology training was evaluated. Results reported a p-value of .116, indicating no association between technology training and participants' comfort with using technology in conducting research and program evaluation.

Table 4.41 Chi-Square Test-Hypothesis Seven, Question Four

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.402[a]	4	.116
Likelihood Ratio	7.473	4	.113
N of Valid Cases	160		

a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is 3.02.

In conclusion, results from ASCA Technology Competency Standards Question Four supported the hypothesis of no association between technology training and level of comfort with technology. However, results from Questions One, Two, and Three failed to support the null hypothesis.

SUMMARY

The intent of the statistical analyses performed for the current study was to determine the effects of years of experience, technology training, gender, and age on middle school counselors' comfort with technology. A total of eleven hypotheses were used to structure the study. Survey data was collected from one hundred sixty middle school counselors in South Carolina. To analyze the data, ANOVAs, Chi-Square tests for independence, and Spearman's Rho were employed by the researcher. In reviewing results from the ANOVAs conducted for the current study, all four hypotheses were not supported. An examination of the Chi-Square tests for independence resulted in a support of Hypotheses One and Five. Hypotheses Four, Six, and Seven were not supported. Neither of the Spearman's Rho hypotheses (Hypotheses Two and Three) was supported. Chapter Five will examine the results within the framework of the existing literature. Implications for future research and practice will also be explored.

CHAPTER FIVE

DISCUSSION

This chapter provides a summary of the study and interpretation of the research findings. Limitations are defined by the researcher, as well as conclusions concerning each of the hypotheses. Implications for future practice and research are also discussed.

OVERVIEW

The current study endeavored to explore the effects of years of experience, gender, technology training, and age on middle school counselors' comfort with technology. ANOVAs were performed in order to compare the computer anxiety, computer confidence, computer liking, and computer usefulness subscales on the Computer Anxiety Scale. Chi-square tests for independence were utilized as a means for examining the relationships between the following independent variables: gender, highest degree earned, work setting, race, and technology training. Spearman's Rho was used to determine levels of correlation for age and years of experience with levels of technology comfort.

In reviewing results from the ANOVAs conducted for the current study, all four hypotheses were not supported. The intent in using the Computer Attitude Scale was to examine the effects of the study's variables on each of the instrument's subscales. With

none of the subscales reporting any levels of significance above .05, results concluded that there was no main effect for years of experience for any of the subscales of the CAS. Although all of the ANOVA Hypotheses were looking for significant main effects of years of experience, the Anxiety subscale did discover a significant main effect for technology training (.013). In considering interaction effects, the ANOVA hypotheses proposed there would be no interaction effects for technology training, age, or gender. Results, however, reported interaction effects for differing variables. While there were no significant interaction effects for the Liking subscale of the CAS, the three remaining subscales exhibited varying interaction effects. Although the CAS subscales were not testing for interaction effects between age and years of experience, the Anxiety subscale found a significant interaction effect for age and years of experience (.029). On the Confidence subscale of the CAS, a significant interaction effect (.039) was noted for gender and age. The Usefulness subscale of the CAS reported significant interactions in two areas: technology training and age (.007) and technology training and years of experience (.019).

An examination of the Chi-Square tests for independence resulted in a support of Hypotheses One and Five. Each hypothesis was examined in relation to each of the four ASCA Technology Competency Standard questions regarding participants' technology comfort levels. In examining the relationship between gender and level of comfort with technology in Hypothesis One, no significant associations were found for each of the four ASCA questions (.314, .201, .542, .499). Hypothesis Five found no association between highest earned degree and level of comfort with technology for each of the four ASCA Technology Competency Standards questions (.772, .911, .975, .840). These were the

only hypotheses to find no association between level of technology comfort and the categorical variable it examined.

Hypotheses Four, Six, and Seven were not supported due to significant associations that were found among the variables and ASCA Technology Competency Standards questions. In an examination of the relationship between race and level of comfort with technology in Hypothesis Four, results found a significant association (.003) between race and participants' comfort level with using technology to effectively and efficiently plan, organize, implement and evaluate their comprehensive school counseling program. Additionally, a significant association (.001) between participants' race and their level of comfort with using current and emerging technologies such as the Internet, Web-Based resources and management information systems was discovered. Hypothesis Six reported significant associations in two of the four ASCA questions.

Participants' work setting and their comfort level with using technology to effectively and efficiently plan, organize, implement and evaluate their comprehensive school counseling program were found to have a significant association (.025). Furthermore, a significant association (.022) between participants' work setting and their level of comfort with using technology in conducting research and program evaluation was found. In an examination of the relationship between technology training and level of comfort with technology in Hypothesis Seven, results found a significant association (.000) between technology training and participants' comfort level with using technology to effectively and efficiently plan, organize, implement and evaluate their comprehensive school counseling program. Additionally, a significant association (.000) between participants' technology training and their level of comfort with knowing, understanding,

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and using a variety of technology in the delivery of guidance curriculum activities was found. Finally, a significant association (.022) was discovered between participants' technology training and their comfort level with using current and emerging technologies such as the Internet, Web-Based resources and management information systems.

Neither of the Spearman's Rho hypotheses (Hypotheses Two and Three) was supported. Results indicated a significant association between age and level of comfort with the ASCA Technology Competency Standards questions. A negative correlation was found between age and all four ASCA questions (-.168, -.171, -.207, -.207) and therefore the hypothesis could not be supported. It could be considered that as age goes up, participants' levels of comfort with the ASCA Technology Competencies Standards goes down. In considering the association between years of experience and the ASCA questions, all four of the questions revealed negative correlations (-.279, -.240, -.281, -.258). As years of experience increase, participants' level of comfort with the ASCA Standards goes down.

The following section will offer a more detailed discussion of the findings within the context of the previously reviewed literature.

HYPOTHESES DISCUSSION

For the current study's statistical analysis of the data, the SPSS analysis software system was utilized. Causal comparative and correlational approaches allowed the researcher to examine the comfort levels of new and veteran school counselors. An ANOVA research design was utilized in order to determine school counselors' comfort with technology by analyzing their responses to a Computer Attitude Scale (CAS). In keeping with previous

research, employing a quantitative approach and ANOVA design were appropriate for use with the current study. In considering the relationship between the study's categorical variables- gender, race, work setting, and the yes/no program preparation question- the chi-square test for independence was employed. As each of the Chi-Square hypotheses included four questions from each of the ASCA Technology Competency Standards, an acceptance or rejection for each Hypothesis was based on a compilation of the four ASCA questions. If all four questions did not support the null hypothesis, that particular Hypothesis was not accepted. Spearman's Rho correlation coefficient was used to determine a possible correlation with participants' age and years of experience with levels of technology comfort.

ANOVA- Hypothesis One

Hypothesis One stated that there would be a significant main effect for years of experience, but no main or interaction effect for technology training, age or gender, on the computer anxiety subscale of the CAS. The results of the ANOVA did not support this hypothesis. As years of experience was not found to show a significant main effect on the computer anxiety subscale of the CAS, one cannot assume that a school counselor's years of experience has a significant impact on his or her computer anxiety levels in working with technology. Results of this study were consistent with previous research that found very weak correlations between years of experience and the subscales of the School counselors and Technology Survey (Sabella, Poynton, & Isaacs, 2010). In considering the interaction of computer anxiety and the study's variables, results exhibit

the lack of any significant effects of computer anxiety on participants' comfort with technology.

While results indicated no main effects for technology training, age or gender, a significant interaction effect was present between age and years of experience. Although this finding was not part of this hypothesis, it is noteworthy as this data provides us with a glimpse of the breakdown of participants' years of experience. Over 70% of respondents reported having more than five years of experience as professional school counselors. While these findings did not result in an uncovering of high anxiety levels in school counselors' comfort with technology, the interaction of years of experience and computer anxiety may still be considered for future examination in technology comfort research.

ANOVA- Hypothesis Two

Hypothesis Two stated that there would be a significant main effect for years of experience, but no main or interaction effect for technology training, age or gender, on the computer confidence subscale of the CAS. The results of the ANOVA did not support this hypothesis. As years of experience was not found to show a significant main effect on the computer confidence subscale of the CAS, one cannot assume that a school counselor's years of experience has a significant impact on his or her confidence levels in working with technology. These results are inconsistent with the research findings of a previous study (Rainey, McGlothlin, & Guillott Miller, 2008) that suggested that school counselors had greater confidence levels in their perceived technology competence as their experience increased.

While results indicated no main effects for technology training, age or gender, a significant interaction effect was present between gender and age. This interaction could be due to the high amount of female participants (87.5%) and the higher age levels of the majority of the participants. 88.2% of participants in the current study reported their ages as above thirty years old. The differences between this hypothesis's results and previous research are worth considering and should be investigated further to determine the reasons for the difference in school counselors' years of experience in relation to their comfort with technology.

ANOVA- Hypothesis Three

Hypothesis Three stated that there would be a significant main effect for years of experience, but no main or interaction effect for technology training, age or gender, on the computer liking subscale of the CAS. The results of the ANOVA did not support this hypothesis. As years of experience was not found to show a significant main effect on the computer liking subscale of the CAS, one cannot assume that a school counselor's years of experience as a school counselor has a significant impact on his or her computer liking in working with technology. Results also indicated no significant main or interaction effects for technology training, age or gender on the computer liking subscale of the CAS.

Results of this hypothesis were consistent with previous research that found positive attitudes and liking towards computers, regardless of other factors (Rainey, McGlothlin, & Guillott Miller, 2008; Korobili, Togia, & Malliari, 2010). Additional studies supported school counselors' general liking towards technology (Stone & Turba, 1999; Holcomb-McCoy, 2005; Owen, 1999). However, these previous studies tend to

agree that increased levels of knowledge and skills would increase school counselors' competency and comfort with utilizing technology in the work setting.

ANOVA- Hypothesis Four

Hypothesis Four stated that there would be a significant main effect for years of experience, but no main or interaction effect for technology training, age or gender, on the computer usefulness subscale of the CAS. The results of the ANOVA did not support this hypothesis. As years of experience was not found to show a significant main effect on the computer usefulness subscale of the CAS, one cannot assume that a school counselor's years of experience has a significant impact on his or her feelings of computer usefulness in working with technology.

While results indicated no main effects for technology training, age or gender, a significant interaction effect was present in two areas: technology training and age, and technology training and years of experience. Therefore, in the current study it is clear that the amount of technology training participants had created an interaction with their age or years of experience. Results of this hypothesis were inconsistent with previous research that found no affect of age on a school counselor's perceived importance of school counseling technology (Sabella, Poynton, & Isaacs, 2010). Although this inconsistency may be due to the interaction of participants' technology training, the overarching result is the consistency of previous research regarding the usefulness of technology for school counselors. Prior research supports the current study's findings of strong agreement in the usefulness of technology on the CAS computer usefulness subscale (Carlson, Agahe Portman, & Bartlett, 2006; Rainey, McGlothlin, & Guillott Miller, 2008; Korobili, Togia, & Malliari, 2010; Owen, 1999; Stone & Turba, 1999).

While it may be apparent that school counselors agree with the usefulness of technology, there is still a need to examine how these perceptions may change due to other factors such as a school counselor's age or years of experience.

Chi-Square Hypothesis One

The Chi-Square Hypothesis One proposed there would be no association between gender and level of comfort with technology. Each of the four ASCA Technology Competency Standards questions reported no levels of significance (.314, .201, .542, .499); Hypothesis One was supported. As no association was discovered between gender and level of comfort with technology, one cannot assume that a school counselor's gender has a significant impact on his or her levels of comfort with technology. In accordance with the results of this hypothesis, Sabella, Poynton, & Isaacs (2010) found similar results in their examination of school counselors' gender and their perceived importance of school counseling technology competencies. They found no significant differences between their female and male participants' responses.

While numerous studies (Carlson, Agahe Portman, & Bartlett, 2006; Rainey, McGlothlin, & Guillott Miller, 2008; Korobili, Togia, & Malliari, 2010) have collected demographic information as part of their data collection, the variable of gender does not often get analyzed within this type of study's data analysis. While the current study's results suggest a lack of association between gender and comfort with technology, there stands to reason a need to analyze this variable in future studies due to its lack of thorough investigation in previous studies.

Spearman's Rho Hypothesis Two

Hypothesis Two stated there would be no association between age and level of comfort with technology. In considering the significance levels of each of the four ASCA Technology Competency Standard questions, varying levels of significance were present. Question One found a negative correlation (-.168) between participants' age and their comfort with using technology effectively and efficiently to plan, organize, implement and evaluate their comprehensive school counseling program. Question Two found a negative correlation (-.171) between respondents' age and their comfort with knowing, understanding and using a variety of technology in the delivery of guidance curriculum activities. Question Three reported a negative correlation (-.207) between participants' age and their comfort with using current and emerging technologies such as use of the Internet, Web-based resources and management information systems. Finally, Question Four found a negative correlation (-.207) between participants' age and their comfort with using technology in conducting research and program evaluation.

As there was a significant association between age and level of comfort with technology in Questions One, Two, Three, and Four, Hypothesis Two was not supported. These findings suggest that for some school counselors, as their age increases, their levels of comfort in using technology go down. Although some previous research reported results consistent of those in the current study (Sabella, Poynton, & Isaacs, 2010), they are also inconsistent with other previous research findings that suggest age had no significant correlation to levels of comfort with technology (Yushau, 2006; Rainey, McGlothlin, & Guillott Miller, 2008; Korobili, Togia, & Malliari, 2010). A potential

explanation may be associated with the age ranges of participants. Some previous studies included younger participants (Yushua, 2006; Korobili, Togia, & Malliari, 2010) in their data collection, which may have resulted in inconsistencies between studies' results. The current study included participants from ages twenty six to sixty four, and the mean age of the group was 42.71 (SD=10.66), which was not the same age range as other studies. The findings of this hypothesis may be considered for further investigation in school counseling research.

Spearman's Rho Hypothesis Three

Hypothesis Three posited there would be no association between years of experience and level of comfort with technology. In considering the significance levels of each of the four ASCA Technology Competency Standard questions, varying levels of significance were present. Question One found a negative correlation (-.279) between participants' years of experience and their comfort with using technology effectively and efficiently to plan, organize, implement and evaluate their comprehensive school counseling program. Question Two found a negative correlation (-.240) between respondents' years of experience and their comfort with knowing, understanding and using a variety of technology in the delivery of guidance curriculum activities. Question Three reported a negative correlation (-.281) between participants' years of experience and their comfort with using current and emerging technologies such as use of the Internet, Web-based resources and management information systems. Finally, Question Four found a negative correlation (-.258) between participants' years of experience and their comfort with using technology in conducting research and program evaluation.

As there was a significant association between years of experience and level of comfort with technology in Questions One, Two, Three, and Four, Hypothesis Three was not supported. These findings suggest that for some school counselors, as their years of experience increase, their levels of comfort in using technology go down. Results for this hypothesis were met with mixed results based on previous studies. While some previous research suggests a significant correlation between years of experience and comfort with technology (Sabella, Poynton, & Isaacs, 2010), other prior research suggests no significance to participants' years of experience and their levels of comfort with technology (Yushua, 2006). These results may be due to other variables such as the location of the study; one study was conducted in Saudi Arabia while the current study's location was South Carolina in the United States. The findings from the current study warrant future examination of years of experience and levels of comfort with technology in future school counseling research.

Chi-Square Hypothesis Four

Hypothesis Four stated there would be no association between race and level of comfort with technology. In considering the significance levels of each of the four ASCA Technology Competency Standard questions, varying levels of significance were present. Question One found a significant association (.003) between participants' race and their comfort with using technology effectively and efficiently to plan, organize, implement and evaluate their comprehensive school counseling program. Question Two found no association (.219) between respondents' race and their comfort with knowing, understanding and using a variety of technology in the delivery of guidance curriculum

activities. Question Three reported a significant association (.001) between participants'

race and their comfort with using current and emerging technologies such as use of the

Internet, Web-based resources and management information systems. Finally, Question

Four found no significant association (.075) between participants' race and their comfort

with using technology in conducting research and program evaluation.

As there was a significant association between race and level of comfort with

technology in Questions One and Three, Hypothesis Four was not supported. These

findings suggest that some school counselors, depending on their race, tend to have

higher levels of comfort in using technology for more day to day uses such as researching

and delivering regular activities. However, these same school counselors lack the same

comfort levels in using technology for larger scale technology uses such as evaluating

their programs and trying to incorporate newer technologies into their work. In similar

fashion to Hypothesis One, previous research has often collected demographic data but

not analyzed it in their studies. In this case, race has been collected in studies that

examined school counselors and technology (Rainey, McGlothlin, & Guillott Miller,

2008; Holcomb-McCoy, 2005; Carlson, Agahe Portman, & Bartlett, 2006). However,

race was not analyzed in these studies. One cannot assume that the isolated results of a

couple of studies are generalizeable to all school counselors.

Chi-Square Hypothesis Five

Hypothesis Five stated there would be no association between highest earned degree and

level of comfort with technology. Each of the four ASCA Technology Competency

Standards questions reported no levels of significance (.772, .911, .975, .840). Therefore,

Hypothesis Five was supported. As no association was discovered between highest

earned degree and level of comfort with technology, one cannot assume that a school counselor's degree level has a significant impact on his or her levels of comfort with technology. While previous research has collected and sometimes analyzed for similar demographic variables found in the current study, none collected or analyzed data regarding participants' highest earned degree.

In analyzing this variable in the current study, no association was found between degree and any comfort levels and the ASCA Technology Competency Standards. In considering these results along with the lack of prior research with regards to highest earned degree and technology comfort, the current study's results may substantiate the exclusion of this variable in future studies. However, the current study may have other variables that were responsible for the lack of association between highest earned degree and level of comfort with technology. Therefore, it may be useful to consider further examination of this variable in future studies in order to determine whether or not a school counselor's highest earned degree is significant in considering his or her comfort with technology.

Chi-Square Hypothesis Six

Hypothesis Six reported there would be no association between work setting (rural, urban, suburban) and level of comfort with technology. In considering the significance levels of each of the four ASCA Technology Competency Standard questions, varying levels of significance were present. Question One found a significant association (.025) between participants' work setting and their comfort with using technology effectively and efficiently to plan, organize, implement and evaluate their comprehensive school

counseling program. Question Two found no association (.416) between respondents' work setting and their comfort with knowing, understanding and using a variety of technology in the delivery of guidance curriculum activities. Question Three reported no significant association (.384) between participants' work setting and their comfort with using current and emerging technologies such as use of the Internet, Web-based resources and management information systems. Finally, Question Four found a significant association (.022) between participants' work setting and their comfort with using technology in conducting research and program evaluation. As there was a significant association between work setting and level of comfort with technology in Questions One and Four, Hypothesis Six was not supported.

These finding suggest that some school counselors, depending on their work setting, exhibit a lack of comfort in using technology to plan, organize, research and complete evaluations of their counseling programs. In considering work setting, this lack of comfort could be due to varying funding levels, and therefore, access to technology, for different school counselors.   Results of this study are consistent with previous research that validates the differences between school counselors' comfort with technology and their work setting (Holcomb-McCoy, 2005). While the current study identified middle school counselors across the entire state of South Carolina, most previous research was more specifically aimed at a particular setting that was smaller in scale (Korobili, Togia, & Malliari, 2010) or accomplished through a mass mailing/emailing (Sabella, Poynton, & Isaacs, 2010; Carlson, Agahe Portman, & Bartlett, 2006; Rainey, McGlothlin, & Guillott Miller, 2008). An investigation of participants' work settings may have yielded different results to these studies.

Chi-Square Hypothesis Seven

Hypothesis Seven stated there would be no association between graduate program preparation and level of comfort with technology. As an association was discovered between program preparation and level of comfort with technology, one may assume that a school counselor's graduate program preparation may have a significant impact on his or her levels of comfort with technology as a practicing school counselor. In considering the significance levels of each of the four ASCA Technology Competency Standard questions, varying levels of significance were present. Question One found a significant association (.000) between participants' program preparation and their comfort with using technology effectively and efficiently to plan, organize, implement and evaluate their comprehensive school counseling program. Question Two found a significant association (.000) between respondents' program preparation and their comfort with knowing, understanding and using a variety of technology in the delivery of guidance curriculum activities. Question Three reported a significant association (.022) between participants' program preparation and their comfort with using current and emerging technologies such as use of the Internet, Web-based resources and management information systems. Finally, Question Four found no significant association (.116) between participants' program preparation and their comfort with using technology in conducting research and program evaluation.

As there was a significant association between program preparation and level of comfort with technology in Questions One, Two and Three, Hypothesis Seven was not supported. These findings suggest that a great deal of school counselors' lack of comfort

with the ASCA Technology Competency Standards may be attributed in part to their graduate programs' lack of preparation for adhering to these standards. Previous research studies have confirmed that school counselors report having little to no technology training in their graduate programs (Holcomb-McCoy, 2005; LaTurno Hines, 2002; Edwards, Agahe Portman, & Bethea, 2002). While there are numerous other variables that may have been attributable as well, these results help to provide a better understanding of the skill and comfort levels that school counselors are feeling in regards to their technology training in their graduate programs.

IMPLICATIONS

The intent of the current study was to determine the effects of years of experience, technology training, gender, and age on middle school counselors' comfort with technology. Based on the review of the eleven hypotheses, the significant findings were:

1. None of the four ANOVA hypotheses were supported. As stated in Hypotheses One through Four, no main effect was found for years of experience on any of the subscales (computer anxiety, computer confidence, computer liking, and computer usefulness) of the Computer Attitude Scale.

2. For the Chi-Square tests for independence, the null Hypotheses for Four, Six, and Seven were not supported. A data analysis of these factors found a significant association between race, work setting, and graduate program preparation and level of comfort with technology.

3. Neither null hypothesis for the Spearman's Rho hypotheses was supported. An analysis of the data found a significant association between age and years of experience on level of comfort with technology.

Nonsignificant findings from this research in terms of understanding middle school counselors' comfort with technology were found as well. Based on the results of an analysis of the data for Hypotheses One and Five, there was no association between gender and highest earned degree on level of comfort with technology.

Results from the current study provide implications for practicing and future school counseling professionals, along with future research in school counseling. These implications are relevant for practicing school counselors, school districts, counselor education programs, and future school counselors.

IMPLICATIONS FOR FUTURE PRACTICE

Based on the outcomes of the current study, future aims of the school counseling profession should include finding ways to continue increasing the efficacy of its counselors by supporting their efforts to gain additional technological knowledge (Sabella & Booker, 2003; VanHorn & Myrick, 2001; Gerler, 1995; D'Andrea, 1995). The school counseling profession has a responsibility to meet the continuing needs of its counselors. One of the findings indicated by the survey is the clear need for gaining a better understanding of the needs of school counselors in regards to comfort with technology, specifically in regards to counselors' age, gender, race, highest earned degree, and work setting. Therefore, school districts can provide technology training to

all of their school counselors, be they new or veteran school counselors. All school counselors, regardless of years of experience, technology training, gender, or age may benefit from the opportunity to receive technology training (Carlson, Agahe Portman & Bartlett, 2006).

Professional school counselors adhere to particular standards and competencies set forth by the American School Counselor Association (ASCA, 2007). While the expectation for adhering to the ASCA technology competency standards is upheld, the profession must be cognizant of the need to provide practicing school counselors with opportunities for trainings and/or workshops. This may include presenting technology workshops at annual conferences and technology training sessions each year that are aimed at increasing school counselors' technological knowledge and skills (Rainey, McGlothlin, & Guillott Miller, 2008; Sabella & Booker, 2003). A beneficial undertaking for school counselors currently practicing in the field may include further professional development on how technology can be utilized to enhance the overall effectiveness of the school's comprehensive counseling program (Sabella, Poynton, & Isaacs, 2010; Gerler, 1995; D'Andrea, 1995). This professional development may occur within the school counselor's district, or on a statewide level. The design of the professional development could include training for school counselors that enables them to use technology to benefit their counseling programs.

As the school counseling profession begins to explore ways to increase school counselor comfort with technology, so must school counselor preparation programs consider their approaches to technology training for their students (Wilczenski &

Coomey, 2006; Gerler, 1995). Results of the current study show that over half of the

participants (56.9%) reported that their graduate program did not adequately prepare

them for the ASCA technology competency expectations for school counselors.

Graduate programs for school counseling should consider the possibility of adding a

computer technology training course or component to the program's curriculum (Carlson,

Agahe Portman, & Bartlett, 2006; Edwards, Agahe Portman, & Bethea, 2002)). Doing so

may serve to increase the preparation and potential comfort level of school counselors in

their technology use.

If school counselors are not comfortable with using technology, it will be more

difficult to adhere to the competencies. School counselors can provide data from the

current study to their school districts in order to request additional technological training.

The knowledge gained by this study has the potential to encourage additional training for

all K-12 school counselors who are experiencing lower levels of computer comfort. This

training may serve to increase school counselors' comfort levels with technology in their

work (Stone & Turba, 1999). Additionally, this research may have the possibility of

being applied to school counselors beyond South Carolina. The results of the current

study may help school counselors around the United States begin to advocate for

additional technology training that school counselors may receive in future years.

IMPLICATIONS FOR FUTURE RESEARCH

Challenges exist for school counselors as they work to integrate technology skills

into their daily work. They must use these skills to meet the demands of both the school

counseling program and the needs of the students. As school counselors work to increase

their technology use, they must have a strong understanding, comfort, and ability level in regards to technology in order for this to happen. The results of the current study propose implications for practicing school counselors and counselor education programs.

The current study found significant results in regards to the ways in which a school counselor's age, gender, race, highest earned degree, and work setting interacted with the levels of technology comfort. These results exemplify the need for future research into school counselor comfort with technology. Although the current study sought to ask one specific research question, additional studies may serve to answer other questions that are related to the original question regarding middle school counselor comfort with technology.

The results of the current study added additional levels of inquiry into school counselor comfort with technology, such as: How do middle school counselors' comfort with technology compare to that of elementary and high school counselors? How does South Carolina middle school counselors' comfort with technology compare with middle school counselors throughout the United States? What types of professional development opportunities are currently available for school counselors in technology training? What are practicing school counselors specifically lacking in technology training? What types of technology preparation are being required by school counseling graduate programs? What types of access to technology do school counselors have in their work setting? These questions, along with many others, may serve to increase the school counseling profession's general understanding of how to begin increasing school counselors' comfort with technology.

One area of consideration for future research is how the ASCA technology competency standards can be incorporated into the South Carolina Comprehensive Developmental Guidance and Counseling Program Model. While the South Carolina model infuses the ASCA's standards into its framework, there lacks a clear incorporation of these standards into the routine practice of school counselors in the field or school counselors in training. The results of the current study show that fifteen to twenty percent of the middle school counselors surveyed in South Carolina reported their lower levels of comfort with the ASCA technology competency standards. There are no substantial consistencies between the ASCA technology competency standards and the day to day expectations of practicing school counselors. These inconsistencies may be researched in order to discover more effective ways to integrate these standards into practice.

Further research into post graduation training in technology may be of significant value to practicing school counselors. Results from this type of research may help school counselors to request additional technology training (Rainey, McGlothlin, & Guillott Miller, 2008; Stone & Turba, 1999). Previous research has stated the need for more technology training opportunities for school counselors (Carlson, Agahe Portman, & Bartlett, 2006; Owen, 1999), but has not explored what types of training may already be taking place. Research that explores which existing continuing education training is being provided to school counselors once they are out in the field may provide useful in aiding practicing school counselors in their pursuit for additional training. Having a better awareness of what types of technologies are being utilized may assist school

counselors in knowing what areas they may need to ask for in technology training (Sabella, Poynton, & Isaacs, 2010; Holcomb-McCoy, 2005; Owen, 1999).

While the current study does not focus solely on the preparation of school counselors in their graduate programs, the results of the survey in regards to the ASCA technology competencies present a clear need to further research what graduate programs in school counseling are doing to prepare their future counselors to be competent in practicing the ASCA Technology Competency Standards (Sabella, Poynton, & Isaacs, 2010). The current study found that almost sixty percent of the participants did not feel prepared to adhere to the ASCA Technology Competency Standards that are in place for practicing school counselors. In determining the extent to which counselor education programs are preparing their counselors for utilizing technology, these programs might gain a better understanding of the need to incorporate technology training into their curriculum (Edwards, Agahe Portman, & Bethea, 2002; Owen, 1999). While counselor education programs are already full of necessary coursework for students to complete, future research into school counselors' lack of comfort with technology may provide counselor education programs with the means for justifying the need to include technology training in their programs (LaTurno Hines, 2002).

LIMITATIONS

The current study included limitations that must be taken into consideration when examining the results. In considering the results of the data, there are limitations to parts of the research design employed for the current study. Correlational research results are limited to inferences; these results cannot be used to establish any causality. Although all

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possible cautionary measures were utilized in order to complete the study, any generalizations of the current study's results should be made with caution.

The researcher's choice of instrumentation for the survey may be considered a limitation. While the Computer Attitude Scale has shown consistent validity and reliability, the instrument was created in 1984. The subscales of the CAS reported on survey respondents' computer anxiety, confidence, liking and usefulness. Although these subscales can infer one's comfort with technology, the scale did not specifically measure 'comfort with technology'. A different survey instrument may have yielded the researcher with a diverse set of data results. Further, the additional information gathered from participants and analyzed may have been a limitation of the study. The order in which participants filled out their survey information may have yielded differing results if presented in a different order. Participants first answered a question asking if their program adequately prepared them for the ASCA technology competency expectations for school counselors. The following page of the survey listed the four ASCA Technology Competency Standards and asked participants comfort level with each. It is possible that some participants may not have known what the specific ASCA standards were before replying to the technology training question. If participants had answered the four ASCA questions first, thus providing those with a better understanding of what the standards are, it is possible that they may have responded differently to the technology training question afterwards.

A particular limitation to the current study was the selection of participants. While all middle school counselors in South Carolina were initially considered as

potential participants for the current study, the researcher was limited in the permission granted by both school districts and principals to allow their middle school counselors to participate in the survey. The selection was purposive in nature and was dependent on the middle school counselors who chose to participate and mail in their responses. The participants of the current study may be different than that of the larger population of middle school counselors in South Carolina. This could include varying important aspects of the population including race, gender, work setting, school district resources, highest degree earned, age, and years of experience. Therefore, the purposive sample used to obtain the results of the current study may not be representative of all of the middle school counselors in South Carolina or in the United States. This purposive selection should be taken into account when considering the generalizability of the result of this study.

The data included in the responses from participants was self-reported. While school counselors are generally viewed as honest and ethical, the results of the survey respondents could be disputed due to issues such as participants' honesty in their responses, social desirability, and their general understanding of the directions for completing the survey. Many school counselors may not be comfortable with their technology use, but would like to be perceived as having said comfort. These school counselors may not have responded as honestly as their peers due to their desire to enhance their social desirability. Additionally, it is possible that some respondents did not completely understand the written directions for completing the survey. These participants may have assumed understanding and provided responses that were not truly reflective of their comfort with technology.

CONCLUSION

The current study examined technology comfort levels for middle school counselors in South Carolina. This study investigated middle school counselors' subscale scores for computer anxiety, computer confidence, computer liking, and computer usefulness on the Computer Attitude Scale. Further, middle school counselors reported their levels of comfort with the four American School Counselor Association Technology Competency Standards. Finally, school counselors conveyed their demographic information, including gender, age, race, highest earned degree, work setting, and whether or not they felt that their graduate program adequately prepared them for the ASCA Technology Competency expectations for school counselors. Results of the current study indicated:

1. There was a significant main effect for technology training on the anxiety subscale of the CAS.

2. There was a significant interaction effect for age and years of experience on the anxiety subscale of the CAS.

3. There was a significant interaction effect for gender and age on the confidence subscale of the CAS.

4. There were significant interactions effects for both technology training and age and technology training and years of experience.

5. There were significant associations between race and Questions One and Three of the ASCA Technology Competency Standards.

6. There were significant associations between work setting and Questions One and Four of the ASCA Technology Competency Standards.

7. There were significant associations between program preparation and Questions One, Two, and Three of the ASCA Technology Competency Standards.

8. There were negative correlations between age and level of comfort with technology for all four ASCA Technology Competency Standards questions.

9. There were negative correlations between years of experience and level of comfort with technology for all four ASCA Technology Competency Standards questions.

Computer technology has changed the ways in which school counselors fulfill their roles in the school setting. This current study has highlighted the importance of the associations between school counselors and their comfort levels with technology. The hope of the researcher is for the results of the current study to be utilized by school counselors, counselor educators, and school districts to gain a better understanding of the comfort levels of middle school counselors with technology. This may allow them to make more informed decisions about the future professional development opportunities and training needs of practicing school counselors as well as those in graduate training programs. As society increases its trend toward a deeper reliance on technology, the need for school counselors to increase their use of technology will continue as well. High levels of comfort with technology will allow school counselors the opportunity to strengthen their use of technology in delivering a comprehensive school counseling

program.   The researcher's hope is that this will serve not only the professional needs of

school counselors, but the needs of their students as well.

APPENDIX

A.1 Demographic Data Analysis

Article Title	Author	Year	Demographic Data Collected	Demographic Data Analyzed in Study
Computer utilization by school counselors	Owen	1999	- Gender - Age	- No - No
Computer anxiety and attitudes among undergraduate students in Greece	Korobili, Togia, & Malliari	2010	- Gender - Semester in college - Age - Level of knowledge of foreign languages	- Yes - Yes - Yes - Yes
Counseling student competency skills: Effects of technology course in training	Edwards, Portman, & Bethea	2002	- Gender - Age - Full-time student status - Graduate program enrollment	- No - No - No - No
An examination of urban and suburban school counselors' familiarity with and usage of computer technology	Holcomb-McCoy	2005	- School community - School level - Years of experience - Educational level - Ethnicity - Gender	- Yes - No - No - No - No - No
School counselors perceived importance of counseling technology competencies	Sabella, Poynton, & Isaacs	2010	- Age - Gender - Years of experience - Position	- Yes - Yes - Yes - Yes
Professional school	Carlson, Portman, &	2006	- Age - Gender	- No - No

counselors' approaches to technology	Bartlett		- Race - Years of experience	- No - Yes
A study of counselors' legal challenges and their perceptions of their ability to respond	Hermann, Leggett, & Remley	2008	- Ethnicity - Years of experience - Course in ethics - Continuing education in ethics - State licensing status - NBCC certification - Highest degree earned - Work setting	- No - Yes - Yes - Yes - Yes - Yes - Yes - Yes
The use of the ASCA National Model in supervision	Studer & Oberman	2006	- Gender - Highest degree earned - Years of experience - Credentials - Years taught - Work setting	- No - No - Yes - No - No - Yes
Day-to-day activities of school counselors: Alignment with new directions in the field and the ASCA National Model	Walsh, Barrett, & DePaul	2007	- Years of experience	- Yes
New school counselors' leadership efforts in school counseling: Themes from a	Dollarhide, Gibson, & Saginak	2008	- Gender - Age - Location - Leadership training - Years of	- No - No - No - Yes - Yes - No

			experience	- Yes
			- Work setting	- Yes
			- Goal of leadership	
			- Status of goal at end of study	
School counselor induction and the importance of mattering	Curry & Bickmore	2012	- Years of experience - Gender - Age	- Yes - No - No
Computer attitude, use, experience, software familiarity and perceived pedagogical usefulness: The case of mathematics professors	Yashau	2006	- Age - Computer experience	- Yes - Yes
Technology: School counselor attitudes, experiences and competency	Rainey, McGlothlin, & Guillot-Miller	2008	- Gender - Ethnicity - Age	- No - No - No

Table A.2 Computer Attitude Scale

Computer Attitude Scale

The purpose of this survey is to gather information concerning people's attitudes toward learning and working with computers. It should take about five minutes to complete this survey. All responses are kept confidential.

Below are a series of statements. There are no correct answers to these statements. They are designed to permit you to indicate the extent to which you agree or disagree with the ideas expressed. Place a check under the label which is closest to your agreement or disagreement with the statements.

Strongly Agree	Slightly Agree	Slightly Disagree	Strongly Disagree	
				1. Computers do not scare me at all.
				2. I'm no good with computers.
				3. I would like working with computers.
				4. I will use computers many ways in my life.
				5. Working with a computer would make me very nervous.
				6. Generally, I would feel OK about trying a new problem on the computer.
				7. The challenge of solving problems with computers does not appeal to me.
				8. Learning about computers is a waste of time.
				9. I do not feel threatened when others talk about computers.
				10. I don't think I would do advanced computer work.

				11. I think working with computers would be enjoyable and stimulating.
				12. Learning about computers is worthwhile.
				13. I feel aggressive and hostile toward computers.
				14. I am sure I could do work with computers.
				15. Figuring out computer problems does not appeal to me.
				16. I'll need a firm mastery of computers for my future work.
				17. It wouldn't bother me at all to take computer courses.
				18. I'm not the type to do well with computers.
				19. When there is a problem with a computer that I can't immediately solve, I would stick with it until I have the answer.
				20. I expect to have little use for computers in my daily life.
				21. Computers make me feel uncomfortable.
				22. I am sure I could learn a computer language.
				23. I don't understand how some people can spend so much time working with computers and seem to enjoy it.

				24. I can't think of any way that I will use computers in my career.
				25. I would feel at ease in a computer class.
				26. I think using a computer would be very hard for me.
				27. Once I start to work with the computer, I would find it hard to stop.
				28. Knowing how to work with computers will increase my job possibilities.
				29. I get a sinking feeling when I think of trying to use a computer.
				30. I could get good grades in computer courses.
				31. I will do as little work with computers as possible.
				32. Anything that a computer can be used for, I can do just as well some other way.
				33. I would feel comfortable working with a computer.
				34. I do not think I could handle a computer course.
				35. If a problem is left unsolved in a computer class, I would continue to think about it afterward.
				36. It is important to me to do well in computer classes.
				37. Computers make me feel uneasy

				and confused.
				38. I have a lot of self–confidence when it comes to working with computers.
				39. I do not enjoy talking with others about computers.
				40. Working with computers will not be important to me in my life's work.

Table A.3 Demographic Data for Survey

Demographic Data

Please fill in the answer or circle your answer(s) for each question. Circle all that apply.

--What is your gender?   Male   Female

--What grade levels are in your current school setting?

    K   1   2   3   4   5   6   7   8   9   10   11   12

--What is your age? _____

--How many years of experience do you have as a professional school counselor? _____

--What is your race?   Caucasian   African American

Latino/Hispanic   Native American/Alaskan Native   Other

--What is your highest earned degree? _____

--What is your current work setting (rural, urban, or suburban)? _____

--Did your program adequately prepare you for the ASCA technology competency expectations for school counselors?   Yes   No

Table A.4 American School Counselor Association Technology Competencies Questions for Survey

American School Counselor Association (ASCA)

Technology Competencies

Please circle the number that best describes your comfort level for each technology competency.

1. Use technology effectively and efficiently to plan, organize, implement and evaluate the comprehensive school counseling program

1	2	3	4	5
Very Uncomfortable		Somewhat Comfortable		Very Comfortable

2. Knows, understands and uses a variety of technology in the delivery of guidance curriculum activities.

1	2	3	4	5
Very Uncomfortable		Somewhat Comfortable		Very Comfortable

3. Uses current and emerging technologies such as use of the Internet, Web-based resources and management information systems.

1	2	3	4	5
Very Uncomfortable		Somewhat Comfortable		Very Comfortable

4. Uses technology in conducting research and program evaluation.

1	2	3	4	5
Very Uncomfortable		Somewhat Comfortable		Very Comfortable

REFERENCES

Agresti, L., & Finlay, B. (2009). *Statistical methods for the social sciences,* (4th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.

American School Counselor Association. (2005). *The ASCA national model: A framework for school counseling programs* (2nd ed.). Alexandria, VA: Author.

American School Counselor Association School. (2007). School counselor competencies. Retrieved from http://www.schoolcounselor.org/files/SCCompetencies.pdf

Bauman, S., & Tatum, T. (2009). Web sites for young children: Gateway to online social networking? *Professional School Counseling, 13*, 1, 1-10.

Carlson, L., Agahe Portman, T., & Bartlett, J. (2006). Professional school counselors' approaches to technology. *Professional School Counseling, 9*, 3, 252-256.

Chibbaro, J. (2007). School counselors and the cyberbully: Interventions and implications. *Professional School Counseling, 11,* 1, 65-68.

Christensen, R., & Knezek, G. (2000). Internal consistency reliabilities for 14 computer Attitude scales. *Journal of Technology and Teacher Education, 8*, 327-336.

Curry, J., & Bickmore, D. (2012). School counselor induction and the importance of mattering. *Professional School Counseling, 15*, 3, 110-122.

D'Andrea, M. (1995). Using computer technology to promote multicultural awareness among elementary school-age students. *Elementary School Guidance and Counseling, 30*, 45-54.

Dollarhide, C., Gibson, D., & Saginak, K. (2008). New counselors' leadership efforts in school counseling: Themes from a year-long qualitative study. *Professional School Counseling, 11,* 4, 262-271.

Edwards, Y., Portman, T., & Bethea, J. (2002). Counseling student computer competency skills: Effects of a technology course in training. *Journal of Technology in Counseling, 2*(2). Retrieved February 3, 2011 from http://jtc.colstate.edu/vol2_2/index.htm

Fraenkel, J., & Wallen, N. (2006). *How to design and evaluate research in education*. (7th ed.). New York, NY: McGraw-Hill.

Gardner, D., Discenza, R., & Dukes, R. (1993). The measurement of computer attitudes: An empirical comparison of available scales. *Journal of Educational Computing Research, 9*, 487-507.

Gay, L. R., Mills, G. E., & Airasian, P. (2006). *Educational research: Competencies for analysis and applications* (8th ed.). Upper Saddle River, NJ: Pearson Education, Inc.

Gerler, E. (1995). Advancing elementary and middle school counseling through computer technology. *Elementary School Guidance & Counseling, 30*, 1, 8-15.

Glosoff, H. (2009). The counseling profession: Historical perspectives and current issues and trends. In Capuzzi & Gross (Eds.), *Introduction to the Counseling Profession* (pp.1- 81). Columbus, OH: Pearson/Merrill.

Granello, P. (2000). Historical context: The relationship of computer technologies and counseling. (ERIC Document Reproduction Service # EDO-CG-00-10)

Heppner, P., & Heppner, M. (2004). *Writing and publishing your thesis, dissertation & research: A guide for students in the helping professions.* Belmont, CA: Brooks/Cole-Thomson Learning.

Hermann, A., Leggett, D., & Remley, Jr., T. (2008). A study of counselors' legal challenges and their perceptions of their ability to respond. *International Journal of Education Policy & Leadership*, 3, 5, 1-11.

Holcomb-McCoy, C. (2005). An examination of urban and suburban school counselors; familiarity with and usage of computer technology. *Journal of Technology in Counseling, 4*(1). Retrieved February 5, 2011 from: http://jtc.columbusstate.edu/Vol4_1/Holcomb/Holcomb.htm

Korobili, S., Togia, A., Malliari, A. (2010). Computer anxiety and attitudes among undergraduate students in Greece, *Computers in Human Behavior, 26*, 3, 399-405.

LaTurno Hines, P. (2002). Student technology competencies for school counseling programs. *Journal of Technology in Counseling, 2*(2). Retrieved February 5, 2011 from: http://jtc.columbusstate.edu/vol2_2/hines/hines.htm

Loyd, B., & Gressard, C. (1984). Reliability and factorial validity of computer attitude scales. *Educational and Psychological Measurement, 44*, 501-505.

Orcher, L. (2005). *Conducting Research: Social and behavioral science methods*. Glendale: CA. Pyrczak Publishing.

Owen, Jr., D. (1999). Computer utilization by school counselors. *Professional School Counseling, 2*, 179-182.

Rainey, S., McGlothlin, J., & Guillott Miller, L. (2008). Technology: School Counselor

Attitudes, Experiences and Competency. *Journal of Technology in Counseling, 5*(1). Retrieved February 3, 2011 from:
http://jtc.columbusstate.edu/Vol5_1/Rainey2.htm

Sabella, R. A., & Booker, B. L. (2003). Using technology to promote your guidance and counseling program among stakeholders. *Professional School Counseling, 6*, 206–213.

Sabella, R., Poynton, T., & Isaacs, M. (2010). School counselors perceived importance of counseling technology competencies. *Computers in Human Behavior 26*, 4, 609-617.

South Carolina Department of Education. (2012). *School Directory.* Retrieved from http://www.ed.sc.gov/schools/

Stone, C. B., & Turba, R. (1999). School counselors using technology for advocacy. *Journal of Technology in Counseling*, 1(1). *Journal of Technology in Counseling, 4*(1). Retrieved February 3, 2011 from: http://jtc.colstate.edu/vol1_1/advocacy.htm

Studer, J., & Oberman, A. (2006). The use of the ASCA model in supervision. *Professional School Counseling, 10*, 1, 82-87.

The South Carolina Comprehensive Developmental Guidance and Counseling Program Model. (2008). Retrieved from http://www.ed.sc.gov/agency/programs-services/14/documents/SCCompDevGuidCounselPprogModel06-23-08Final.pdf

Van Horn, S., & Myrick, R. D. (2001). Computer technology and the 21st century school counselor. *Professional School Counseling, 5,* 124-131.

Walsh, M., Barrett, J., & DePaul, J. (2007). Day-to-day activities of school counselors: Alignment with new directions in the field and the ASCA national model. *Professional School Counseling, 10,* 4, 370-378.

Wilczenski, F., & Coomey, S. (2006). Cyber-communication: Finding its place in school counseling practice, education, and professional development. *Professional School Counseling, 9*, 4, 327-331.

Wingfield, R., Reese, R., & West-Olatunji, C. (2010). Counselors as leaders in schools. *Florida Journal of Educational Administration & Policy, 4*, 1, 114-130.

Woodrow, J. (1991). A comparison of four computer scales. *Journal of Educational Computing Research, 7*, 165-187.

Yushau, B. (2006). Computer attitude, use, experience, software familiarity and

perceived pedagogical usefulness: The case of the mathematics professors. *Eurasia Journal of Mathematics, Science and Technology Education, 2*, 3, 1-17.