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A Comprehensive Analysis of Computer Use Among African Americans

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2015

Abstract

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MBA, Webster University, 2009

BS, University of South Carolina, 2005

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

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Abstract

On average, African Americans receive lower wages in the workplace due to lack of advanced technical skills. The reason for technical deficiency among some African Americans is often lack of exposure to IT resources at an early age. The purpose of this ethnographic study was to identify and explore the factors that contribute to lack of IT resources available to some African Americans to cultivate IT skills. Information literacy theory formed the conceptual framework, which focused on information resources that African American and Caucasians use in the workforce for problem solving and retrieving information. Data were collected by conducting face-to-face and phone interviews using open-ended questions with 20 randomly selected African Americans employed in South Carolina, North Carolina, Florida, and Maryland. Data saturation was reached after interviewing the 20 participants. Data were analyzed for emergent themes, revealing that (a) more computer use yielded higher academic achievement, (b) users with higher income had more access to IT resources, and (c) users who had more technical knowledge received higher wages. The findings of the study may contribute to positive social change by exposing members of the African American community as well as other communities to the importance of advanced computer skills, which are needed to succeed in careers and to compete effectively in the workplace.

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Dedication

This is dedicated to my children, Kamryn and Reggie, Jr. You two are the reason I live to see each day. I love you, and I thank you for being my motivation and inspiration.

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I want to thank my family and friends who supported me throughout this process. I especially want to thank my friend and daughter's godmother, Tamara McNair, for always providing me with encouraging words and moral support. I thank you for being my friend and support system. Sincere thanks to my sorors, Gene McEachin and Clarissa Neely, for also providing me with love and support when I needed it. I will always appreciate your friendship. I also thank my friend, Rodney Young. I also want to acknowledge Imani Richard for her encouragement and support. I also want to thank my special friend, Reggie Tucker. Thank you for being a wonderful dad and being there when we need you. I also want to acknowledge Dr. Bamidele Bankole for her encouragement throughout the process. I could always count on her to check on my progress and motivate me to continue with the process, even when I wanted to give up and quit. Thank you for not allowing me to give up on my goal. I want to extend my appreciation and thanks to my committee members, Dr. Steve Roussas, Dr. Annie Brown, and Dr. Steve Munkeby, for their assistance in the development and reporting of this study. Dr. Roussas, my fullest measure of appreciation for providing unending time, direction, and assistance with this study. Thank you for always being so patient with me and never allowing me to give up. Lastly and most importantly, I would like to thank my mother, Gloria Wilson, for encouraging me to pursue my dreams of furthering my education. Thank you for your love and support.

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Section 1: Foundation of the Study

Minorities whose members tend to possess little or no computer skills are more disadvantaged in the business world than Caucasians, who tend to possess more knowledge of computer resources (Mesch, 2012; Ong, 2011). Anderson and Horn (2012) conducted a study to analyze the use of information technology (IT) among African Americans and Caucasians. The researchers studied the use of technology among community college students planning to transfer to 4-year universities. Anderson and Horn conducted research to determine the educational and technological gains of computer use among the students. In their research, Anderson and Horn included information from community college administrators, instructors, and students. The results of the study indicated a significant relationship between computer use and career success. Choi and DiNitto (2013) analyzed the socioeconomic factors that contribute to computer use among some African Americans. African American households with lesser incomes were less likely to own a computer at home than Caucasian households with higher incomes (Choi & DiNitto, 2013).

Computer literacy can be an advantage for individuals in the business world. Guy and Lownes-Jackson (2010) suggested that computer literacy could contribute to the future career success of individuals. I used a qualitative, ethnographic study to determine the factors that contribute to computer illiteracy among African Americans. Income, race, age, gender, and education were factors included in the study because these are socioeconomic factors among African Americans that contribute to lack of computer use (Daniels, 2012).

Background of the Problem

The term *digital divide* refers to the difference between people who have access to computers and those who do not. Since the year 2000, the digital divide has been described in terms of the amount and nature of IT use rather than the gap in access to computers, based on changes in the economy and technology (Anderson & Horn, 2012). According to U.S. Census Bureau data for 2007, only 34% of African Americans connected to the Internet at home, compared to 56% of Caucasians. Minority families with little or no computer skills have a disadvantage because of their lack of computer resources (Mesch, 2012). A significant gap has remained in the number of African Americans who own computers at home and how individuals use those computers to access information despite the significant increase in the number of African American families who own computers at home (Modarres, 2011).

Researchers have studied the use of computers among different races. Lee (2013) found that Caucasian students use computers for educational purposes, such as word processing and school assignments, more frequently than African American students. The use of computers for educational purposes can lead to a higher level of academic achievement, which can affect the future career success of individuals (Kposowa & Valdez, 2013; Mesch, 2012; Paino & Renzulli, 2013). Collins, Onwuegbuzie, and Jiao (2008) concluded that students with higher reading levels would use computers more frequently than students with lower reading levels. Students with higher reading levels would also improve their academic success rate, and with an increase in computer use,

would improve academic performance and show lower computer illiteracy rates (Fairlie & London, 2012).

As technology evolves, individuals must adapt to remain competitive in the business world. The use of technology could influence the academic, social, and career aspirations of individuals (Appel, 2012; Goode, 2010). Students must learn computer skills because most jobs require basic computing skills and some jobs require advanced computing skills (Appel, 2012; Lee, 2013). Appel (2012) stated that human resources (HR) recruiters have identified computer literacy as a practical skill that is critical for prospective employees. The requirement of computing skills from employers might cause African Americans to be at a disadvantage to in the workplace.

Problem Statement

African Americans earn less than their Caucasian counterparts do (U.S. Department of Labor, 2012). African American males on average earn $653 per week, which is 76% of the average salary of Caucasian men, while African American women on average earn $595 per week, which is 85% of the salary of Caucasian women (U.S. Department of Labor, 2012). Many jobs require highly advanced computing skills, which many African Americans do not possess, and businesses are not able to place skilled workers in available positions (Lee, 2013; Morella, 2013). The general business problem was computer illiteracy that exists among African Americans. The specific business problem was HR and business managers' inability to fill available positions because of the lack of IT resources available to African Americans to enhance their IT work skills (Daniels, 2012).

Purpose Statement

The purpose of this qualitative, ethnographic study was to explore the reasons for the lack of IT resources available to African Americans to enhance their IT skills to enable HR and business managers to fill available positions in businesses. Ethnographers study themes or issues concerning a particular cultural group, such as socialization, learning, cognition, and inequality (LeCompte & Schensul, 1999). To understand the lack of IT resources available to African Americans, I analyzed factors such as motivation, skill, gender, income, race, and geographical location (Tsatsou, 2011). The participants of the study were employees of different businesses in South Carolina, North Carolina, Florida, and Maryland. I chose these areas because I have personal acquaintances who live in these areas, who volunteered to participate in the study. I conducted face-to-face and phone interviews with the participants of the study.

To analyze the digital divide that exists between African Americans and Caucasians, I analyzed the lack of IT resources available to African Americans to enhance their IT skills to fill available positions in businesses. Relevant factors were socioeconomic factors such as education, income, and geographical location. The study could influence social change by providing HR and business managers with information about the importance of providing IT resources to African Americans. African Americans would benefit from an enhanced ability to fill available positions in the technical field and would improve economic growth in doing so.

Nature of the Study

I used the qualitative research method to analyze the lack of IT resources available to African Americans, which contributes to the phenomenon of computer illiteracy in this group. Leedy and Ormrod (2005) recommended that researchers use qualitative research to focus on identifying phenomena and studying phenomena in a natural setting. Researchers also use the qualitative research method to create narrative descriptions to study phenomena (Kelemen & Rumens, 2012).

Leedy and Ormrod (2005) described quantitative research as research that explores the correlations between different variables. The purpose of the study was not to identify a correlation between variables; as a result, I did not use quantitative research. Leedy and Ormrod defined mixed methods research as a research method that combines both qualitative and quantitative research method attributes (Leedy & Ormrod, 2005). I did not collect quantitative data; consequently, I did not use the mixed method.

I chose the qualitative research method over the quantitative and mixed method designs because I used interviews to demonstrate the experiences of the participants of the study. Qualitative studies involve studying a phenomenon by conducting interviews with participants (Leedy & Ormrod, 2005).

Qualitative studies use different types of designs such as case study, narrative, phenomenology, grounded theory, and ethnography to conduct research (Nuttall et al., 2011). Within these qualitative designs, Leedy and Ormrod (2005) identified grounded theory, case studies, phenomenological research, narrative research, and ethnography as useful additional design strategies.

As the researcher in the study, I analyzed the factors that contribute to the lack of IT resources available to African Americans to enhance their IT work skills to fill available positions in businesses. The use of the qualitative research method enabled me to study the experiences of participants in the study. As a result, ethnography was the most appropriate qualitative design to use in this study. Ethnography involves studying the common and cultural practices of a group of individuals (LeCompte & Schensul, 1999). LeCompte and Schensul (1999) contended that human behavior defines ethnography and that behavior is highly adaptable and depends on the geographic location of a group of individuals. Ethnographers can identify predictable patterns in the lived human experiences of participants by prudently observing and studying the behavior of the individuals (Kriyantono, 2012).

Other qualitative research designs are valuable, but researchers use these strategies to collect data in different ways, and these designs would not be appropriate to explore the phenomenon in question. Case study is a strategy of inquiry in which the researcher explores in depth a particular individual, program, or event for a defined length of time (Wahyuni, 2012). Researchers use phenomenological research to explore and explain phenomena related to individuals and groups (Yin, 2014). The narrative approach used in this qualitative study included a description of the ethnographic research. Researchers use narrative research to gain an in-depth understanding of phenomena by allowing participants to deliver detailed information (Kelemen & Rumens, 2012). I used an ethnographic design to evaluate the lack of computer resources

available to African Americans. To conduct research for the study, I interviewed African Americans who had used a computer at some point in their careers.

Research Questions

Socio-graphical information on the African American community helped to determine the social status of each group that does or does not have access to IT resources. For this study, establishing the difference between the *haves*, or individuals who have access to IT resources, and the *have-nots*, or those who do not, was beneficial. I used the central research question below to explore the factors that contribute to the success of African Americans in the business world.

RQ1: What factors contribute to the lack of IT resources available to African Americans to enhance their IT skills to fill available positions in businesses?

Interview Questions

The interview questions, which I used to collect the data, are below:

1. What is your current position with your employer?
2. How long have you been employed with this employer?
3. What is your current salary?
4. What were the technical knowledge requirements for your current and past jobs?
5. At what age were you first exposed to a computer?
6. How did you perform academically in school?
7. Can you explain how the use of a computer has contributed to your academic success?

8. What was the household income of your family during your childhood?
9. What were the educational backgrounds of your parents?
10. What are some of the barriers that prevented you from accessing a computer?
11. What are some of the benefits of having more access to computers?
12. What information would you like to add concerning your experiences in this area?

Conceptual Framework

I used the conceptual framework in this ethnographic study to illustrate ideas from the literature. Molnar (1972) is responsible for introducing the term *computer literacy*. Zurkowski (1974) later introduced computer literacy theory (Pinto, Cordón, & Díaz, 2010). Zurkowski (as cited in Pinto et al., 2010) argued that individuals use information resources in society for problem solving and as learning techniques for accessing information. Information literacy theory describes the conceptual framework perspective from the existing literature on the topic.

Joseph, Boh, Ang, and Slaughter (2012) explored the definition of *digital divide* and examined how the term is related to career success. Joseph et al. (2012) used a quantitative study to determine if individuals with more advanced computer skills would receive higher pay than individuals with less advanced computer skills. Sykes and Venkatesh (2012) and Dostie, Jayaraman, and Trépanier (2010) also studied the digital divide and predicted that workers who were more computer literate would receive higher wages than those who were not as computer literate. Researchers use the digital divide concept to predict phenomena and analyze existing knowledge on the topic.

Badran (2014) posited that socioeconomic factors such as gender, race, ethnicity, age, income, and education contribute to the digital divide in society. Modarres (2011) concluded that African Americans who live in rural areas have the least amount of exposure to computers. Modarres used the qualitative research method to determine the difference in computer use among different socioeconomic groups of African Americans. Mesch (2012) argued that income and education are main socioeconomic factors that contribute to the rate of computer use. Mesch conducted a qualitative study to analyze the importance of computer use among students. Frequent computer use is an influential factor in academic and future job success (Mesch, 2012). Guy and Lownes-Jackson (2010) also stated that computer literacy is critical for individuals to function in the current job market. Guy and Lownes-Jackson used a qualitative research design and used different computer literacy skills as measurement factors for the study.

Definition of Terms

Key terms and phrases defined as used in the study are as follows:

African Americans: African Americans are Americans of African descent (Austin, Middleton, & Yon, 2012).

Computer literacy: Computer literacy is the knowledge, skills, and attitudes needed by all citizens to be able to deal with computer technology in their daily lives (Appel, 2012).

Digital divide: The digital divide is the gap between students who have access to computer resources at home and those who do not (Sun & Metros, 2011).

Human capital theory: According to human capital theory, obtaining a balance between an individual's human capital investment and the job requirements results in higher pay (Joseph et al., 2012).

Information and communication technology (ICT): Information and communication technology is a diverse set of technological tools and resources used to communicate, create, disseminate, store, and manage information (Haddon, Enid, & Loos, 2012).

Information literacy: Information literacy is a student's ability to collect, analyze, and apply information gathered via the use of information technology and to use that information to make effective decisions (Natt, 2013).

Nontraditional student: A nontraditional student is a student over the age of 25, first-generation college enrollees, displaced from their previous careers and seeking additional educational training (Jesnek, 2012).

Power users: Individuals who are computer literate are considered power users (Zhong, 2013).

Assumptions, Limitations, and Delimitations

Assumptions

An assumption is a considered condition (Leedy & Ormrod, 2005). One critical assumption I made was that African Americans receive exposure to IT resources throughout their lives and that African American study participants would be willing to share their experiences. I also assumed that participants would provide fair and unbiased

responses to the interview questions. Another assumption was that the participants would honestly share their experiences and perceptions regarding their use of IT resources.

Based on the conceptual framework of the study, several additional assumptions were made in this study: (a) socioeconomic factors such as gender, race, ethnicity, age, income, and education contributed to the lack of IT resources available to African Americans (Badran, 2014); (b) African Americans who live in rural areas would have the least amount of exposure to computers (Modarres, 2011); and (c) frequent computer use is a significant factor in academic achievement and future job success (Mesch, 2012).

Limitations

The results of the study involved relying on participants' experiences and perceptions of the use of IT resources in the home. I limited the study to include African Americans who were ages 18 and older and had been employed for at least a year. I also intended to limit the study to only individuals who lived in the state of South Carolina. Unfortunately, there were not enough participants who lived in South Carolina and met the criteria to participate in the study; therefore, I had to interview participants in other states such as North Carolina, Florida, and Maryland. Another limitation, which occurred during the data collection process, involved gaining access to the participants to conduct face-to-face interviews. Some of the participants had scheduling conflicts and were not able to meet with me, and others lived too far away to meet face to face. Only one of the interviews took place face to face, and I interviewed the other participants over the phone.

Delimitations

The scope of the study involved conducting interviews using open-ended questions using random sampling to identify individuals who qualified to participate in the study. The participants were African Americans ages 18 and older who had been employed for at least 1 year. Individuals not eligible to participate in the study included individuals of races other than African American, individuals under the age of 18, and individuals who had been employed for less than 1 year.

Significance of the Study

Contribution to Business Practice

Workers who are more computer literate will, on average, receive higher wages than those who are not as computer literate due to the digital divide (Dostie, Jayaraman, & Trépanier, 2010). Researchers have used the digital-divide concept to analyze existing knowledge on the topic and predict future phenomena. For this study, I reported the reasons for the lack of IT resources available to African Americans to enhance their IT skills to fill available positions in businesses (Anderson & Horn, 2012; Castles et al., 2013; Daniels, 2012; Sun & Metros, 2011). I analyzed the factors that contributed to the lack of computer use among African Americans, comparing my findings with existing literature on the topic.

Implications for Social Change

As African American students excel in academics, they become more competitive with their peers of other races (Sun & Metros, 2011). Sun and Metros (2011) revealed that the increased use of technology could enhance the academic performance of

students. Socioeconomic ranking may affect an individual's future career prospects (Sun & Metros, 2011).

The purpose of this study was to explore the factors that contributed to a lack of IT resources available to African Americans to enhance their IT skills. I analyzed the social status of African Americans, as indicated by factors such as income and demographic information, during the research. I defined the success of African Americans based on their academic performance and job placement in the business world. The research problems are significant to HR and business managers who have a goal of positive social change because the purpose of the study was for managers to become aware of factors that contribute to the lack of IT resources available to African Americans to enhance IT skills to fill available positions in businesses. The African American community should have knowledge of the results of advanced computer use relating to future career success among competitors in the workplace.

A Review of the Professional and Academic Literature

The purpose of this qualitative, ethnographic study was to describe the factors that contribute to a lack of IT resources available to African Americans to enhance their IT skills in order to fill available positions in businesses. With the literature review, I reviewed the history of the digital divide and the connection between computer use, academic performance, and future career success. A review of the professional and academic literature indicated that researchers did not take a position on the idea that computer use contributes to the future career success of African Americans. Researchers such as Broadbent and Papadopoulos (2013); Choi and DiNitto (2013); Daniels (2012);

Kobus, Rietveld, and Van Ommeren (2013); Stoilescu and McDougall (2011); and Tsatsou (2011) provided information about the use of ICTs by appraising and reflecting on the need for African Americans to be exposed to computers at an earlier age to be successful academically and in their careers.

Analysis of Digital Divide

As mentioned earlier in the conceptual framework, the use of technology can be beneficial in advancing an individual's career (Joseph et al., 2012). Joseph et al. (2012) stated that the level of pay an individual receives depends on his or her job requirements. The researchers also maintained that individuals with more advanced computer skills would receive more pay than individuals with less computer knowledge. The researchers developed the term *human capital*, which refers to the rewards gained from human capital investment and job requirements.

Joseph et al. (2012) used a quantitative study to examine the career success of 500 individuals who worked in the IT workforce. The data were taken from the National Longitudinal Survey of Youth (NLSY79). Out of the 500 individuals in the study, 173 pursued IT careers, while the remaining 327 individuals had jobs in non IT-related fields. The researchers concluded that the individuals in the non IT-related jobs received less pay than the individuals in IT careers. James (2011) predicted that the digital divide would continue to widen as there continued to be social inequalities among individuals.

Badran (2014) conducted a quantitative study to determine the main factors that contribute to the digital divide. Badran examined past studies and identified some of the socioeconomic factors contributing to the digital divide as gender, wealth, geographic

location, and education. Badran used the ordered probit model to organize the large amount of data collected in the study from a sample of 15,029 individuals between the ages of 10 and 29 years. Data were collected to determine the foundation of disparities in Internet access and usage among young adults. The data used by Badran were collected from the Survey of Young People in Egypt (SYPE) Survey 2009. Badran argued that there is a link between the computer literacy of individuals and economic growth. The ICTs used in the study included Internet access, computers, cell phones, and broadband. Badran contended that the research was critical for economic progress and for individuals to have a better quality of life. Badran concluded from the study that there is an indisputable relationship between urbanization and the digital divide. Abad (2014), on the other hand, posited that the digital divide is more pronounced between individuals of different generations than between individuals of different genders, races, ethnicities, income levels, or levels of education.

Although the gap in access to and use of computers has been minimized, a digital divide still exists between certain demographic groups (Tsatsou, 2011). Tsatsou (2011) analyzed literature and research on the digital divide and observed the new components of the divide. Diffusion theory, which emerged in the 1950s and 1960s, was the initial influence for research on the digital divide (Tsatsou, 2011). Tsatsou suggested that the digital divide had evolved since the 1990s and that the literature related to the topic remains contextual. Tsatsou's goal was to define the digital divide and suggest strategies for dealing with the phenomenon. The researcher reported that preliminary research on the cause of the digital divide had indicated that it was related to socioeconomic and

demographic qualitative attributes among individuals such as gender, income, race, and location. Tsatsou noted that current research on the topic included other factors such as motivation and skill. Tsatsou maintained that research on the digital divide phenomenon is beneficial for the economy and the labor force because it addresses the social inequalities that exist among individuals. Tsatsou, Sanz, and Turlea (2012) conducted a quantitative study and concluded that the digital divide exists because of communication inequalities.

Effect of Computer Ownership

Thompson (2015) conducted a study to determine the factors that contribute to the academic and future career success of students. The study included an evaluation of literacy programs such as the Little Leapers 3.5 Digital Camp, community resources, and technological resources. Thompson first reviewed past research in the study. The most common trends identified in providing services and iniatives to youth included the digital divide, early learning initatives, and the delivery of information to individuals. Thompson stated that children who are exposed to technology at a younger age will perform better in school and will be more successful in life than children who are exposed to technology at an older age. Levy (2011) used the case study research design and included other factors such as families' expectations, the level of personal satisfaction for the participants, and home-school relationships.

Thompson (2015) argued that students who have more access to computers are more likely to have higher academic achievement than those who do not. Thompson conducted a pilot study by opening a lab to be used for the creation of digital video and

audio, graphic design, and electronic publishing. The lab contained a 3D printer, which would be used for students to design and generate product prototypes. The researcher concluded that a more technically educated population would be better prepared to transform and face the tasks of the 21st century. Wong, Ho, Chen, Gu, and Donghui (2015) as well as Shank and Cotten (2014) also maintained that children from low-income families had less exposure to computer resources and would receive fewer career opportunities.

Wainer, Vieira, and Melguizo (2015) noted that students who have more access to computers and the Internet will perform better academically than students with less access. The researchers conducted a quantitative study using the results of standardized tests from more than 7 million fifth and ninth grade students. Wainer et al. (2015) obtained data from the *Prova Brasil* standardized test for the years 2007, 2009, and 2011. To conduct the research, the researchers analyzed socioeconomic factors such as the educational level of parents, gender, age, and attitude toward learning. The results of the study showed that students who had access to a computer and the Internet received higher grades on the standardized test than students who did not have access to a computer or the Internet.

Ortiz, Green, and Lim (2011) conducted a study to examine the importance of computer use among students. The researchers sent surveys to parents with children enrolled in Grades K through 6 in a public school. The researchers examined socioeconomic factors such as household income, educational level of parents, parents' perceptions of computer use, and parents' attitudes toward their children's computer use.

Ortiz et al. distributed a survey containing 24 questions to an entire school population of 957 students. The survey consisted of six questions that asked parents about their perceptions of computer use and nine questions about the parents' attitudes toward their children's computer use. The results of the study showed that 71.3% (425) of the parents had attended college and that 18.8% (112) of the parents had completed postgraduate work. The annual income of 55% of these parents ranged from $46,000 to more than $60,000. Almost all the respondents (97.5%) agreed that computer use is important for students to obtain a successful job in the future (Ortiz, Green, & Lim, 2011).

Socioeconomic Groups of the Digital Divide

The digital divide refers to the socioeconomic differences among users of ICTs (Broadbent & Papadopoulos, 2013). Broadbent and Papadopoulos (2013) alleged that low-income families have less access to IT resources than higher income families do. To test the hypothesis of the study, the researchers used data from the Wired Community @ Collingwood project. The project is used to implement ICTs such as the Internet and email access for residents throughout the community. The ICTs are used to develop skills and improve education while helping to strengthen communication skills in order for individuals to obtain better access to community services and employment opportunities. The researchers used the mixed research method and collected qualitative data for the first year of the study. During this time, Broadbent and Papadopoulos used the case study design to connect with the participants to get them to narrate their stories of how the use of ICTs had affected them either positively or negatively. The researchers concluded from the research that individuals who live in the most underprivileged

communities are most impacted by the digital divide (Broadbent & Papadopoulos, 2013). Daniels (2012) also analyzed the use of Internet activity within different groups of African Americans. The researcher compared the computer illiteracy of African Americans in groups within the race rather than in relation to other races. Daniels used theoretical perspectives from Hall (1997) and DuBois (2003) to evaluate race and the structure of the Internet. Daniels studied information obtained from the Pew Research Center's Internet and American Life Project to assess the digital divide among African Americans and Caucasians. The study showed that 64% of African Americans accessed the Internet from a laptop or mobile phone, as compared to 87% of Caucasians.

Choi and DiNitto (2013) conducted a study to analyze the socioeconomic factors that contribute to lack of computer use in African American households. The researchers wrote that 95% of the participants were Black and had lower incomes than Caucasians. Choi and DiNitto also concluded that minorities have less exposure to computers and IT resources due to lack of financial resources. Branch and Hanley (2014) conducted a quantitative study to analyze the influence of socioeconomic factors and accessibility of technological resources on the digital divide. Branch and Hanley used data drawn from the Integrated Public Use Microdata Series (IPUMS) for 1970, 1980, 1990, and 2000. Branch and Hanley recommended that researchers study socioeconomic factors such as education, occupation, race, and gender to determine the factors that affect the digital divide. Branch and Hanley stated that increasing exposure to technical jobs for African Americans could significantly contribute to the growth of the labor force and the educational training of individuals. Although African Americans may possess the same

educational qualifications and work in the same professions and industries as Caucasians do, they receive lower wages, on average, than their Caucasian counterparts (Branch & Hanley, 2014). Branch and Hanley believed that African Americans are more exposed to bad jobs and hazardous employment than Caucasians. Based on their research, it was determined that from 1970 to 2000, both African Americans and Caucasians received higher wages, but that their incomes increased at different rates. Caucasians' earnings increased progressively through the period, whereas African Americans saw hourly-wage increases slow down considerably during the 1990s. Immobility of earnings eventually led to deteriorating economic status for African Americans (Branch & Hanley, 2014).

Kobus et al. (2013) stated that household income, gender, immigrant status, and household type (e.g., single parent) have statistically important effects on ICT ownership. Kobus et al. argued that the use of ICTs is important for individuals to enjoy a higher quality of life and education. Among households earning an average salary of $655 per month, 83.8% have full access to a computer, compared to only 12.5% of households earning an average of $585 per month (Kobus et al., 2013). Kobus et al. also contended that the use of ICTs is related to higher national productivity development. In November 2011, the researchers administered online surveys to 3,132 students at a Dutch university. The researchers used econometric modeling to test the extent to which socioeconomic factors such as income, age, study type, education, and immigrant status affect computer ownership. As a result, the researchers determined that lower income households were less likely to own ICTs.

Stoilescu and McDougall (2011) analyzed the effects of social inequalities in computer use. Stoilescu and McDougall defined the term *digital divide* and explored different levels of the divide, including physical access to computers, delivery of computer-based instruction, and the influence of students' cultures and backgrounds in developing activities involving and perceptions toward the use of computers. Stoilescu and McDougall explored the differences and challenges that both male and female students experience in undergraduate computer science programs. The researchers used the qualitative method and included more than 1,000 students with majors and minors in computer science. They also included over 20 instructors in their study, observing seven undergraduate computer science courses from the first to the third year. The researchers gave the participants interviews and surveys by e-mail and asked questions to determine whether students believed that instructors treated males and females equally in the computer science courses. Stoilescu and McDougall also asked the participants to identify the ratio of male to female students enrolled in the program and the way in which students of both genders performed in class. Female students experienced more isolation, had less confidence, and underperformed in computer-related careers (Stoilescu & McDougall, 2011).

Race and Computer Use

Mitchell, Godoy, Shabazz, and Horn (2014) conducted a study to determine whether race influenced the use of the Internet among African Americans. Household income was also an important predictor of computer use among the students (Mitchell et al., 2014). The researchers administered surveys to the parents of children ages 1-12 in

Washington, DC. The population of the study included 302 African American mothers. Out of the 302 mothers, 47.7% had more than a high school diploma and earned over $25,000 per year (Mitchell et al., 2014). Internet access was more prevalent among the participants with higher income. Among the participants with higher income, 86% were more likely to use the Internet at home, as opposed to only 66.9% of participants of lower income families. Chesley and Fox (2012) conducted a similar study and found that gender is also a major factor that contributes to the use of the Internet. Women are more likely than men to use the Internet (Chesley & Fox, 2012).

Van Deursen and Van Dijk (2014) used data collected in September 2011 by PanelClix in the Netherlands for their study. Participants were recruited from the researchers' online panel, which consisted of 108,000 individuals. The participants received incentives such as a few cents for every survey in which they participated for the study. Van Deursen and Van Dijk randomly selected 1,200 participants for the study. The researchers believed that individuals with low levels of education use the Internet more hours per day than higher educated and employed individuals. Van Deursen and Van Dijk examined several socioeconomic factors such as age, income, and Internet experience. To ensure validity of the study, the researchers used software for the online survey to check for missing responses and prompt the participants to answer the questions. Van Deursen and Van Dijk revealed and confirmed from the results of the study that although individuals with low levels of education use the Internet more regularly and for more hours per day than individuals with high levels of education, low-

educated people seemed to use the Internet for less educational purposes, such as social interaction and gaming.

Pearce and Rice (2013) stated that *digital divide* is an expression used to describe the gap between advantaged and the disadvantaged computer users. The researchers conducted a study using multistage area probability sampling to determine how individuals access the Internet, the different uses of ICTs, the extent of the use of ICTs, and the different uses of the Internet. Pearce and Rice used data obtained from 1,420 adult residents in Armenia during January and February 2011. The researchers administered face-to-face surveys to the participants and asked questions about Internet access and sociodemographic information. Pearce and Rice established that the digital divide was mainly influenced by sociodemographic variables such as gender, education, age, and income. Sein and Furuholt (2012) concluded that although the number of Internet users is increasing, a digital divide still exists among users who have access to computers.

Appel (2012) conducted a study to analyze the concept of computer literacy. The researcher described computer literacy as the computer knowledge an individual needs to function in everyday life. Appel believed that individuals will have to be computer literate to be employable by the year 2020 and hypothesized that computer use is linked to higher computer literacy and a decrease in computer anxiety. Literacy was referred to in the last decades as familiarity with reading and writing, but it is now referred to as familiarity with audiovisual media (Appel, 2012). Computer literacy involves the ability to use several applications such as Microsoft Word, Microsoft Internet Explorer, and

Microsoft Excel for tasks (Appel, 2012). Appel conducted a cross-sectional study to determine if the amount of social media use was related to computer anxiety. Appel (2012) included 200 adolescents, with 58% including females, aged 16-19 to participate in the study. The participants were asked to provide how much time they spent on the computer and how much time was spent playing video games or on a mobile phone. The participants were also asked to explain the different purposes for using computers on a five-point scale (1=never; 5=often). Appel concluded from the study that females experience more anxiety using the computer than males. Although females experienced more anxiety, they used the computer for more educational purposes such as homework and e-mail. Armenta, Serrano, Cabrera, and Conte (2012) believed more users could have access to ICTs by providing more wireless and broadband technologies to lower income communities.

The Use of Computers and Academic Performance

Fairlie and London (2012) revealed, as of 2008, 38% of households in the U.S. do not have computers with Internet access at home. FAirlie and London found that only 46% of those households with an income less than $50,000 had access to a computer with Internet access compared to 87% of households with an income of more than $50,000. Fairlie and London believed this large disproportion could contribute to education inequality. Fairlie and London (2012) used a qualitative study to determine if access to a computer could have an effect on the educational outcomes of students (Fairlie & London, 2012). To conduct the study, the researchers included 286 participants. Fairlie and London randomly selected the participants from a group of students entering a

community college in Northern California and received financial aid. The researchers chose to include students from the community college because they believed that community colleges provide workforce training and basic skills education. Many low-income and minority students attend community colleges, and these are the students less likely to have access to a home computer (Fairlie & London, 2012). Out of the 286 participants, and the researchers provided 141 of the students free computers and monitored them for two years.

For the purpose of the study, Fairlie and London collected data such as the educational goals of the students as well as background information, which included gender, race/ethnicity, educational level of parents, and household income. Fairlie and London (2012) evaluated how many hours the students who did and did not own a home computer spent on the computer each week. The researchers then evaluated the grades earned by the students in each course. Based on the results of the study, Fairlie and London concluded that students who have a computer at home have better educational outcomes than students who do not own a computer at home. Heeks (2012) also analyzed the use of IT resources by lower income users and concluded that lower income families have less access to IT resources than higher income families.

Anderson and Horn (2012) also attempted to establish a correlation between information technology (IT) use and academic performance. The results of the study indicated a significant relationship between computer use and career success. The researchers concluded the study by suggesting ways to close the gap of the digital divide. DiSalvo and Bruckman (2011) presented a study based on a project developed by

Bruckman and the dissertation work of DiSalvo. DiSalvo and Bruckman developed the Glitch program, which included 25 African American male high school students. The program was designed to encourage a higher number of minorities to enter into computer science (CS) because the current recruitment in CS only includes 35% of the U.S. population (DiSalvo & Bruckman, 2011). The researchers believed that for the U.S. company leaders to fill jobs and compete with global competitors, more students, particularly minorities, must go into CS field. Casey, Layte, Lyons, and Silles (2012) conducted a similar study using regression analysis and found that students who have access to computers perform better academically than students who do not have access to computers.

Castles et al. (2013) conducted a study to explore the link between pre-school children's computer use and academic success. In the United States, 70% of children aged 4-6 have used a computer, and 56% of those children have used the computer by themselves (Castles et al., 2013). The study conducted by Castles et al. comprised of 1539 participants with an average age of 4 years old including 779 pre-school boys and 760 girls. The data for the study was collected from the Early Language in Victoria Study (ELVS) in which researchers included factors for the study such as home literacy experiences, socio-economic status, nonverbal IQ, language and phonological awareness, as well as contact to other types of electronic media such as television. Castles et al. administered questionnaires and face-to-face assessments to the participants and the parents of the participants. The questionnaires included questions for the parents asking how often do they read to their children and how often do they help their children read

letters and words with (0) representing never and (4) representing very often. The questions related to computer use of the children included questions asking parents if their child has access to a computer at home and how many hours and how many days of the week does the child use the computer with (1) representing less than one hour and (4) representing five or more hours. The researchers revealed from the results of the study that 53% of children used a computer to some extent on a weekly basis, and less than 1% of children did not watch television on a weekly basis. Sixty one percent of the children who had not used a computer at all could not identify the letters of the alphabet. Sun and Metros (2011) also found that computer use plays a role in the academic performance outcome of students.

Sang, Brescia, and Kissinger (2009) conducted a study to analyze how computer use relates to students' test scores in math and reading. The researchers included factors such as socioeconomic status, home computer access, and parental involvement. The participants of the study included 7,196 high school sophomores, which consisted of 65% Caucasians and 10% African Americans. To conduct research, the researchers used dependent variables, such as math test scores, reading test scores, math teachers' evaluations, and English teachers' evaluations to conduct research. The independent variables used in the study included socioeconomic status, home computer use, parental involvement, and academic expectations. The results of the study indicated that students who used the computer for one hour per day had significantly better reading and math test scores. Larkin and Finger (2011) conducted a study in seven classrooms and analyzed the findings of the study. The researchers conducted the study over a period of

four years, and during those four years, the researchers provided the students with netbook computers. Increased access to the netbook computers resulted in increased computer use by the students (Larkin & Finger, 2011). The results of the study also indicated that increased computer use by students led to increased media literacy, improved writing, and increased standardized test scores. Other benefits for the students included increased motivation, improved engagement, decreased disciplinary problems and improved school attendance. Students who used the netbooks were more organized in school and more independent than the students who did not use notebooks (Larkin & Finger, 2011).

Khan (2009) used a study to determine if computer use contributes to the learning process of students. The researcher analyzed a study that included 640 students enrolled in community colleges in the United States. Khan included surveys created by the Centre for the Study of Learning and Performance (CSLP) of Concordia University. The participants included students enrolled at Los Angeles Community College District and Long Beach Community College district. Khan randomly chose participants from 14 classrooms in each college district (Khan, 2009). Out of the 640 students, 75% of the students either agreed or strongly agreed that IT helped them to be more engaged in learning. Also in the study, 72% of the students agreed or strongly agreed that it was easier to understand the material in school with the use of computers. Khan explained how the use of computers prepares provides college graduates with the technological skills needed for employment.

Ahmad, Abiddin, Badusah, and Pang (2009) illustrated the difference in computer use among adults in rural areas. Ahmad et al. (2009) used the computer literacy program, developed by Ministry of Rural Development, to analyze the effects of the program on adult learners. The purpose of the program was to help adults in rural areas learn to use computers to apply the learned knowledge in careers and increase their income and better the community. Other objectives of the program were to increase the income level of rural communities by 80%, establish a knowledgeable skillful society, enhance the livelihood of rural residents, and to quicken the execution of the integrated growth and perception program. The program included 120 adults, which included 42 males and 78 females from age groups of 16-20, 31-40, 41-50, and 51-65. The average monthly income for 67% of the participants ranged from $00-$900, and 32.5% of the participants ranged from $901-$1500. Ahmad et al. gave the participants surveys using the 5-point Likert scale to measure the achievement in the computer literacy program. The participants agreed that they understood the information, and they disagreed that they were still unable to power on a computer. The program did help to improve the participants' knowledge in computer use (Ahmad et al., 2009).

Zyromski, Bryant, Deese, and Gerler (2008) used a qualitative study to analyze the Succeeding in School (SIS) program. The program is an Internet-based initiative designed to help students recognize the factors, which contribute to academic and career success. Zyromski et al. (2008) conducted the SIS program over ten weeks, and participants of the study included fourth and fifth-grade students from ages 10 to 11 years old who attended an elementary school in southeastern North Carolina. The study

included 77 fourth graders, both male and female, 62 fifth graders, both male and female of 139 participants. participants were asked to provide information such as (a) what they thought makes a person successful, (b) the name of someone who was successful, (c) how to tell if that person is successful, (d) why they might want to be like that person, (e) a list of qualities they might need to do to be as successful as that person; and (f) to tell why they expect to have success in their lives. As a result, the students recognized characteristics such as hard work, a positive mindset and attitude, focus, good listening skills, determination, and a strong belief in self as factors that could lead to academic success.

Bowers and Berland (2013) believed that computer use is positively associated with academic achievement. The researchers used a quantitative study to determine if the use of computers for fun activities such video gaming and social media could be a positive influence on student learning (Bowers & Berland, 2013). Bowers and Berland believed that using computers for different purposes could affect academic achievement in different ways. The researchers based the research on data collected by the National Center for Education Statistics (NCES) in 2002. The NCES surveyed 15,400 students who were in grades 10 in 2002 and resurveyed the same students again in 2004. The study included students from 750 high schools in the United States. The survey included factors such as student attitudes, gender, ethnicity, background, and demographics, and NCES standardized test results. Bowers and Berland determined that a low to moderate correlation between students who use the computer for fun to play video games for 1-2 hours per day and reading and mathematical scores. Although the correlation was low to

moderate for fun activity, Bowers and Berland found that students who used a computer for academic purposes such as completing homework and conducting research scored higher in math and reading.

Navarro, Aguilar, Marchena, Ruiz, Menacho, and Van Luit (2012) believed socio-demographic factors such as education of parents, parents' occupation, number of family members in household, birth order of siblings, number of computers at home, frequency of teacher visits, number of hours watching television, and number of books at home can affect a student's mathematical competency. To conduct research for the study, the researchers randomly selected a sample of 127 students from three elementary schools, including 64 females and 63 males. The average age of the participants was 5 years old and the students were evaluated using the Early Numeracy Test (ENT) and then divided into achievers groups of high, middle, and low. The students were evaluated once at 5 years old then later again one year later. The ENT was administered to all the participants corresponding assessments (Measurements 1, 2, and 3) and the ENT included 40 items that measured eight characteristics of the mathematical aptitude of young children. The aspects of the ENT included concepts for comparing quantitative and qualitative objects, classification of objects in classes, correspondence of one-to-one relationships, series of objects in classes, structured counting, counting words, forwards and backwards, resulted counting, as well as general knowledge of numbers. Navarro et al. (2012) concluded that the ENT scores improved as children got older.

Traditional and Nontraditional Learning

Jesnek (2012) contributed the rise of nontraditional student enrollment at community colleges to the rise in unemployment rates, the current economic crisis, and employer demand for computer-literate employees. Jesnek suggested that these nontraditional students have a hard time adjusting to the college curriculum because of the digital divide that exists among traditional and nontraditional students. The nontraditional students did not receive exposure to computers at an earlier age, and the nonexposure causes the digital divide among the students. San Jose State University conducted a study and revealed that two common factors that contributed to the lack of academic success for students included a privation of experience with technology and a deficiency of support systems for online learners (Jesnek, 2012). The factors that contribute to the digital divide include the current economic recession, global outsourcing, and the aging Baby Boom generation (Jesnek, 2012). Jesnek believed that computer literacy is a compulsory part of the college curriculum, and a student's academic performance will indubitably suffer without it. Colleges and universities administer computer competency placement exams upon admission so students can receive adequate assistance with using computers during their academic career (Jesnek, 2012).

The number of students attending at least one full-time online course from an accredited university in the United States has grown considerably between 2005 and 2015 (Ashong & Commander, 2012). Ashong and Commander conducted a quantitative study to analyze the influence of ethnicity and gender on opinions of online learning. The

researchers believed there is a higher demand in 2015 for more flexible and convenient methods for attaining a higher education (Ashong & Commander, 2012). To test their theory, Ashong and Commander conducted a survey to gather data from African American and Caucasian students about their perceptions of online learning. Some of the questions on the survey were related to computer use, teacher support, student interaction and collaboration, personal relevance, authentic learning, student autonomy, equity, enjoyment, and synchronicity. Ashong and Commander determined that female students had more positive perceptions than males on teacher support, student interaction and collaboration, personal relevance, authentic learning, and student autonomy. Ashong and Commander also determined that gender and ethnicity individually effect student's perceptions of online learning.

Current Technology Programs for Lower Income Communities

Salovey et al. (2009) presented information about the history of computer ownership among African Americans and Caucasians. Salovey et al. stated that more than 61% of Americans households owned a computer as of 2003, and in 2007, 71% of adults used computers to access the Internet. Although a large number of individuals have access to the Internet, the researchers believed that a digital divide still exists among individuals in certain populations including ethnic minorities. Salovey et al. stated that 73% of Caucasians are Internet users compared to 62% of African Americans. To bridge the gap, the researchers discussed the creation of the Community Technology Centers (CTCs), which are public computer facilities in lower income neighborhoods. The centers contribute free access to computers and Internet resources. One program that

Salovey et al. have executed in the center includes teaching African Americans and Latino children to use the computer to access resources. The researchers presented the program to 120 parents and other community residents who received a free, refurbished, Internet-ready computer after completion of the program. Training the program included topics such as computer hardware, an introduction to Windows operating system, using computer programs, an introduction to the Internet, fundamentals of e-mail, and setting up a computer at home.

Ward, Kester, and Kouzekanani (2009) examined the influence of teachers who deliver instruction of keyboard/computer skills to at-risk minority students. The participants included students enrolled in an alternative high school, in an urban district of South Texas. To conduct the research, the researchers developed a curriculum that included ten one-hour long sessions twice a week for five weeks. Ward, Kester, and Kouzekanani randomly selected 20 participants from 36 total students enrolled at the school. Ward et al. (2009) randomly selected ten teachers from the 14 teachers enrolled in the field-based course to include in the study. The researchers assigned each teacher to teach two of the students the curriculum from the keyboard and computer skills courses. The researchers used a 25-item survey questionnaire to measure the outcome measures. The results of the study indicated that personal, individualized training offered by the teachers could positively affect the educational training of disadvantaged students.

Students who live in poverty-stricken communities usually have less academic achievement than students who live in urban areas (Banister & Reinhart, 2011). The reasons for the identified achievement gap include lack of technological resources and

inexperienced teachers (Banister & Reinhart, 2011). To close the gap, an urban middle school implemented a reform effort called Gaining Early Awareness and Readiness for Undergraduate Programs (GEARUP). Banister and Reinhart (2011) conducted a quantitative study to analyze the effectiveness of the program relating to the teachers' influence on the digital divide. The researchers examined the relationship between the classroom practices of the experienced instructors with the integration of technology (Banister & Reinhart, 2011). Banister and Reinhart collected survey data from teachers, students, and parents over a five-year period. The researchers distributed the surveys to determine the level of satisfaction with the GEARUP program. Researchers also visited the classrooms of 23 teachers and completed three to four observations for each teacher in 43-minute intervals. Banister and Reinhart completed the observations, and the observations took place in a random order, and six to eight observations each week. The researchers also evaluated the state standardized tests and attendance records of the students to determine the level of student achievement and participation in the program. Banister and Reinhart established that there is a correlation between the lesson plans, propositional and procedural knowledge of the teachers, communicative interaction between students and teachers, student and teacher relationships, culture, social justice, and technology.

Computer Use and Future Career Success

Mesch (2012) conducted a study to demonstrate the importance of computer use. Mesch proposed that the use of computers was a determining factor for academic achievement and future job success. Mesch also suggested Caucasian families are more

likely to own a computer than African American families. The researcher also suggested that the contributing socioeconomic factors to this difference included income and education.

Guy and Lownes-Jackson (2010) suggested that computer literacy is essential for individuals to function in the job market. The researchers included skills, such as creating and editing documents, preparing spreadsheets and class presentations, and database management, a central computer literacy skill. Guy and Lownes-Jackson conducted a 3-year study from fall 2007 through spring 2009. For the study, the researchers included 156 participants enrolled in two historically Black universities in the southern area of the United States. The students enrolled at Fayetteville State University (FSU) included a student population of 6,072, which consisted of 75% African Americans, 17% Caucasians, and 4% Hispanics. Students enrolled at Tennessee State University (TSU) included a student population of 8,254 of which 74% were African American, 22% Caucasian and 4% were of a different race. The participants were students enrolled in Microcomputer Application courses, in the College of Business. The researchers of the study observed the grade distribution for each of the computer software programs, such as Microsoft Word, Excel, PowerPoint, and Access. To conduct the research, Guy and Lownes-Jackson used the five-point Likert scale to rate the students' knowledge and skill level of each software application. The researchers recognized that 6% of the students thought that their knowledge and skills could be considered "extremely poor" when using Microsoft Word, 10.5% believed the same while using Microsoft Excel, 5.2% while using PowerPoint, and 24% while using Access. On the

contrary, 28.4% reported that the considered their knowledge and skills excellent while using Microsoft Word, 5.2% while using Excel, 15.6% using PowerPoint, and 1.3% using Access.

Tun and Lachman (2010) also conducted a study to determine the effects of computer use in adults as related to cognitive abilities and the future success in computer training. The researchers hypothesized that more extensive computer use and a higher level of cognitive performance in adulthood were associated. Tun and Lachman included factors in the study, such as age, sex, education, and health status. The participants of the study included 4,175 adults from ages 32 to 84. The researchers conducted telephone interviews. Tun and Lachman also administered cognitive tests and computer questions to the participants. The surveys included questions about demographic information and computer use. The results of the study indicated that individuals who use the computer more frequently scored higher than those individuals who seldom use the computer, which suggested that frequent computer use contributes to good cognitive function.

Pucillo (2011) believed that education on technological resources could contribute to preparing individuals for better employment opportunities. Pucillo discussed a program in a tech school to assist students with learning technological skills to use to search for employment. To help students learn the job search skills, the program consisted of six parts. Those skills included developing a cover letter, résumé, portfolio, interview skills, and a follow-up letter. Pucillo also believed that educators in technology should incorporate job search skills and training in the curriculum to produce a successful workforce.

Employees who use computers receive higher wages than those who do not use computers in the workplace (Spitz-Oener, 2008). Spitz-Oener (2008) believed that computer use has contributed to the changes in the wage structure. The researcher also wrote that the use of technology has changed job requirements for employees. Employees who use computers at work are receiving higher wages because of more advanced computer use (Spitz-Oener, 2008). Employers are rewarding the employees for those computer skills. Spitz-Oener believed that employers monetarily reward employees for computer skills and tasks corresponding to functions performed by computers. The researcher used a quantitative study to gather data to test this theory. Spitz-Oener included variables in the study such as employee activities at the workplace, functions performed by the computer such as analytical and interactive nonroutine task, and office tools other than computers, which included the use of pencils and other noncomputer tools. The data collected from the more than 20,000 employees included monthly earnings, the current occupation of the employees, educational qualifications, workplace and company characteristics, marital status, ethnicity, and gender. Spitz-Oener demonstrated, with the results of the study that computer use decreased by more than 20% based on characteristics such as the level of education of the employees, work experience, tenure, gender, marital status, and residency in a city. The results also indicated that employees who use computers earn about 8% higher wages than employees who do not use computers.

Wheeler (2009) discussed the influence of computer use on labor wages in different industries. The researcher of the study analyzed the difference in wages based

on the size of the workplaces. The findings suggested that larger size workplaces use more advanced technologies than smaller size workplaces. Wheeler stated that larger size workplaces used technologies such as computer-aided design and engineering, as well as lasers and robotics. The researcher discussed how education and experience are significant factors in the determination of wages for employees, technological knowledge is also prominent in some markets. Wheeler (2009) showed that workplace computer use contributed to a 10% increase in hourly wages, in U.S. manufacturing.

Individuals who use computers more frequently than others receive almost 4% higher wage premiums (Dostie et al., 2010). Dostie et al. (2010) believed that changes in the use of technology are the main reason for the large gap in wage disparities in the United States. To determine if computer use affects the wages of workers, Dostie et al. conducted a quantitative study using the covariance model, which is similar to research conducted in 1999 by Abowd and Kramarz. Dostie et al. used the data set based on the Canadian Workplace and Employee Survey (WES) to collect data for the study. To collect data for the study, Dostie et al. used a mixed model and observed the same workers over time. The researchers randomly selected the employees from an employee list that the selected workplaces provided. Dostie et al. selected a maximum number of 24 employees from each workplace, and the researchers selected all employees to participate from workplaces with fewer than four employees. The researchers included variables such as user interest, race, gender, education, work experience, and experience with computers. Dostie et al. found that there is a correlation between computer use and wage differential among employees. The researchers discovered that substantial returns

associated with computer experience were equivalent to 13% of average computer users and nonusers.

Workers who use computers earn higher wages (Borghans & Weel, 2011). 74.9% of U.S. workers with a college degree used a computer, compared to only 38.6% of workers with a high school diploma (Borghans & Weel, 2011). Borghans and Weel believed the explanation for this difference in computer use was because of the level of skill needed for workers to use computers. The researchers also stated that employers increase skill requirements for jobs requiring the use of computers. Borghans and Weel discussed the three main components, which determine the wages paid to workers, which included tasks and skills. The researchers used the Skills Survey of Employed British Workforce to conduct a qualitative study. Borghans and Weel wanted to determine if employers are paying more for using high-skilled, high-wage workers than using lower skilled, low-wage workers regarding cost and productivity. To conduct the study, the researchers used 2,467 participants. These participants included employees in Britain from age 18 to 60 years old. The researchers asked the participants several questions during the face-to-face interviews. Borghans and Weel related questions to the importance of computer use and the job duties of workers. The response scale included responses such as "essential," "very important," "fairly important," "not very important," and "not at all important or does not apply." The sample size included 69.1% of workers as computer users. Borghans and Weel developed an estimation model to determine the computer use of employees. The model included factors such as age, gender, marital status, and wage amount. The researchers determined that the skillset of a worker was

not a prime determinant of computer use, but wage level and job duties are predictors of computer use in the workplace.

Transition and Summary

Section 1 of the study included the background for the study as well as the problem statement and significance of the study. I introduced the nature of the study, which outlined the qualitative research method and ethnographical strategy, which I used to conduct research. I presented a definition of terms along with the assumptions, limitations, and delimitations of the study. I also identified the gaps that exist in the literature as well as implications for social change. Dostie et al. (2010) presented literature related to this study, which stated workers who are more computer literate would receive higher income wages than those not as computer literate. I used the existing literature to present further research on the issue.

In Section 2, I reemphasize the purpose statement along with the research method and design that I used to collect the data. I also discuss the data collection process. I indicated the instruments that I used for data collection, along with the data collection techniques. Section 3 includes a presentation of the findings of the study as well as the applicability of the findings with as it applied to the professional practice of business, implications for social change, and recommendations for action. I disseminate the results in Section 3, and I make recommendations for further study as well as reflections on my experience during the research process.

Section 2: The Project

Purpose Statement

For the purpose of this qualitative, ethnographic study, I described the factors that contribute to the lack of IT resources available to African Americans to enhance their IT skills in order to fill available positions in businesses. I interviewed 20 participants for the study, who were African Americans who had been employed for at least a year in South Carolina, North Carolina, Florida, or Maryland. LeCompte and Schensul (1999) recommended an average sample size of 20-30 participants for an ethnographic study. This study may be beneficial in promoting social change because the results may help to bring awareness to the African American community of the importance of the use of IT at an early age. African Americans need to be aware of the results of using computers and the Internet, and people of other races need to be informed about the digital divide that still exists between races.

Role of the Researcher

The problem of interest in this study was that African Americans who do not have access to IT resources at an early age will receive lower paying jobs than their peers who had access to computers and the Internet at an earlier age. In the ethnographic study, I included the statements and experiences of participants. As the researcher, I was responsible for collecting the data to study in depth the lack of IT resources available to African Americans to enhance their IT skills to fill available positions in businesses. A researcher is accountable for gathering data in the search for new information (Seidman, 2013). Seidman (2013) explained that the researcher in a qualitative research study

should collect data by examining documents, observing behavior, and conducting interviews. I executed the study by conducting face-to-face and phone interviews with African Americans who had been employed for at least a year.

I worked as an IT instructor at a for-profit college in which the student body was predominantly African American. In many of my classes, I noticed that the African American students were not as familiar with the computer and technology resources as the Caucasian students were. The African American students did not perform as well in the classes as students of other races, and they did not receive as many job offers as the other students who had access to computers at an earlier age. As a former instructor, I did not include any past or present students in the doctoral research study to provide background information for the audience to eliminate any biased opinions (Leedy & Ormrod, 2005).

Participants

The participants play an essential role in a qualitative study (Seidman, 2013). The intended participants of this study were African American employees. The study included 20 participants, including individuals employed in South Carolina, North Carolina, Florida, and Maryland. I contacted each participant, explained the research I was conducting for the study, and asked permission to conduct an interview. Once I received consent from the participants to proceed with the research, I set up a day and time to conduct the interview with each participant.

Ethnography involves the study of populations of people (LeCompte & Schensul, 1999). LeCompte and Schensul (1999) suggested a researcher refer to the population of

the individuals in which a researcher is interested in studying to determine which participants to include in the population for a study. A researcher must first determine the reason the participants should be selected and the criteria for selecting the participants (Seidman, 2013). A researcher should also consider the selection criteria, which include logistical, definitional, and conceptual considerations (LeCompte & Schensul, 1999). I considered each criterion while selecting participants for the study.

Logistical criteria are based on the resources available for the study, and the purpose statement and research question determine how the researcher selects the group and who is included in the group. Conceptual criteria address issues of saturation, which involve determining if the study group includes a sufficient number of participants (LeCompte & Schensul, 1999). While considering each criterion, a researcher can determine the sample size for the study. Based on the research questions for the study and the participant sample size of 20 as outlined by Walden University (2012) for ethnographic studies, I used a sample size of 20 participants in the study. I used purposeful sampling to conduct research for the study. In purposeful sampling, the researcher selects individuals who can provide the most information that is beneficial to the study (Leedy & Ormrod, 2005). The demographic criteria I applied for the study included employees who had worked in South Carolina, North Carolina, Florida, or Maryland for at least a year. I established a working relationship with participants by contacting them by phone and corresponding through e-mail messages. During the phone calls and through messaging, I emphasized to the participants the importance of speaking freely about their experiences.

Researchers are responsible for protecting the anonymity of participants and organizations involved in a study (Kelemen & Rumens, 2012). I gave the participants written consent forms to participate in the study (see Appendix A). The consent form explained the nature of the study and my plans for using the results. I kept the interview notes and other electronic data on a personal computer with password protection, to which only I have access. I am maintaining the collected data and retaining the data in a secured, locked safe for 5 years to protect the rights of the participants. After 5 years, I will destroy the electronic data by using software that removes hard-drive data, such as WipeDrive5, and I will shred the hard copies of files.

Research Method and Design

Research Method

A variety of research methods is available to conduct qualitative research (Thamhain, 2014). Kelemen and Rumens (2012) presented the concept of qualitative research in which a researcher studies a phenomenon that exists within a cultural group. In this study, I used the qualitative method to conduct research about the lack of resources available to African Americans to enhance their IT skills.

Qualitative researchers often involve themselves in a study while creating a dialog with the participants (Seidman, 2013). Researchers use the qualitative research method to determine and describe what is happening or has happened in the past to determine events that have hindered or enriched the success of participants' exertions (LeCompte & Schensul, 1999; Thamhain, 2014). Researchers also use the qualitative research method to study the lived experiences of individuals while using quantitative studies to study the

correlation among different variables (Thamhain, 2014). I chose the qualitative method rather than quantitative and mixed methods because I intended to explore the lack of IT resources available to African Americans to enhance their IT skills in order to fill available positions in businesses. Interviews offer a chance to understand the lived experiences of the participants that only qualitative research can provide. I used the study to explore the factors that could contribute to the lack of IT resources available to African Americans.

To research the factors that contribute to the lack of IT resources available to African Americans to enhance their IT skills in order to fill available positions in businesses, I used the qualitative research method to collect and analyze data. The qualitative method was the best choice because I was attempting to analyze the factors that contribute to the lack of IT resources avaiable to African Americans to enhance their IT skills in order to fill available positions in businesses. The study included interviews with participants.

Research Design

There are several different design methods used for conduct qualitative research (Leedy & Ormrod, 2005). Richards and Morse (2013) identified the different research designs as case study, ethnography, phenomenology, and grounded theory. Researchers use case studies to study individual cases by investigating how an individual or program changes over time (Seidman, 2013). Mariotto, Pintozanni, and De Moraes (2014) used a case study design to perform a narrative-style study on a particular event for a defined period. Ethnography involves using research to solve a problem in a community or

institution (LeCompte & Schensul, 1999). Phenomenological research also uses the narrative approach to explore participants' lived experiences of a specific phenomenon (Yin, 2014). For this study, I chose a qualitative method and an ethnographic design.

Wolcott (1999) noted that researchers using ethnographic research design may employ open-ended questions, interviews, and observational data. LeCompte and Schensul (1999) stated that a researcher should use ethnography to conduct empirical, selective investigation of topics and to conduct interviews with individuals. Characteristics of ethnographic research include observing participants in natural settings to structure the research and avoiding manipulation of the variables of the study (LeCompte & Goetz, 1982; Leedy & Ormrod, 2005). I chose to use the ethnographic research design because I sought to include the viewpoints of participants to explore the factors that contributed to the lack of IT resources available to African Americans (Kelemen & Rumens, 2012).

Population and Sampling

Researchers use the ethnographic strategy in qualitative studies to conduct research on cultural groups of individuals (Prior & Miller, 2012). The population of this study included participants from different companies in South Carolina, North Carolina, Florida, and Maryland. The sample size was 20 participants. I conducted interviews with each of the participants to collect qualitative research data on the cultural groups in this study. LeCompte and Schensul (1999) asserted that a sample size of 20 is sufficient for an ethnographic study. I selected employees to participate in the study using a purposeful sampling method, and the information provided by these participants was

beneficial to the study (Leedy & Ormrod, 2005). The interviews took place in a quiet area at a mutually agreed-upon private place to eliminate any distractions or disturbances (LeCompte & Schensul, 1999; Leedy & Ormrod, 2005). During the interviews, I took notes and recorded the interviews using a recording device. I chose the geographic areas of South Carolina, North Carolina, Florida, and Maryland because I had many acquaintances who lived in these areas who were willing to participate in the study. Different companies in South Carolina, North Carolina, Florida, and Maryland employed the participants.

Ethical Research

Researchers are responsible for protecting the participants of studies against conditions that could be harmful to them physically, financially, emotionally, or in regard to their reputation (LeCompte & Schensul, 1999; Seidman, 2013). A researcher should consider both generic and specific ethical issues that could arise in conducting a research study. One ethical issue to consider was the problem of obtaining approval from subjects involved in the research study. Some of the participants were hesitant to provide confidential information regarding their employment and salary information. To avoid this ethical issue, I assured the participants of confidentiality and gave them written consent forms to participate in the study after they had agreed for me to conduct interviews (see Appendix A). The consent form explained the nature of the study and my plans for using the results of the study. Kelemen and Rumens (2012) suggested that a researcher protect the anonymity of individuals, roles, and incidents in a project. Therefore, to protect the anonymity of individuals and organizations, I did not use the

names of the individuals or organizations. The participants could verbally withdraw from the study during the interviews. After the interviews had been completed, the participants could submit in writing a request to withdraw from the study at any time. To protect the rights of the participants, I will maintain the collected data in a secured, locked safe for 5 years. The participants were required to a sign a consent form to participate in the study (see Appendix A). The consent form was an invitation for the participant to take part in the research study, and the participant's signature indicated informed consent. The participants signed the consent form on company letterhead. I did not use any incentives for this study.

Data Collection

Data Collection Instruments

The purpose of collecting data for an ethnographic study is to determine a pattern or variation in the attitudes, knowledge, perceptions, demographic information, and behaviors of participants (LeCompte & Schensul, 1999). For the study, I was the primary data collection instrument, and I used a digital recording device to interview 20 participants, including employees of different companies in South Carolina, North Carolina, Florida, and Maryland. I conducted the interviews by using a technique similar to that described by Rowley (2012). During the interviews, I analyzed the concepts during the data collection process to determine factors that contribute to computer illiteracy among African Americans and its potential effects on their future success based on early exposure to IT resources. To collect data from the participants, I conducted face-to-face and phone interviews using open-ended questions. In an ethnographic study,

the experiences of the participants are necessary for the researcher to collect the data (LeCompte & Schensul, 1999). Therefore, I explained to the participants that it was imperative for them to be honest during the interview. For the purpose of this study, I produced detailed transcripts of each recorded interview. I assured the accuracy of the transcripts and my interpretation of the participants' information by using member checking.

With the purpose of ensuring the reliability and validity of the data collection instrument, I examined the internal and external threats to the study. Internal validity of a study is indicated when the researcher can draw an accurate conclusion from the data collected for the study based on the design of the study (Leedy & Ormrod, 2005). The external validity of a study is evident when other researchers can apply the results of the study to other business problems (Leedy & Ormrod, 2005). One potential internal threat to validity was the participant selection process. I selected participants who had certain characteristics to discuss the factors that contribute to the lack of IT resources available to African Americans to enhance their IT skills in order to fill available positions in businesses. To avoid this internal threat to validity, I randomly selected participants to obtain evenly distributed participants with certain characteristics throughout the study. I used purposeful sampling to select 20 participants from different companies to participate in the study.

To ensure the reliability and validity of the data collection and analysis procedures, I assured the validity of the findings from the interviews through data triangulation. I used the strategy of data triangulation to identify facts and phenomena

while crosschecking the accuracy of the data from the different participants (Seidman, 2013; Yin, 2014). Seidman (2013) suggested using data triangulation to gather data on a variety of people. I used data triangulation to assure the validity of this study's findings.

Data Collection Technique

I obtained permission from the participants to collect data for the study. I also obtained a signed consent form from each participant prior to participation in the study. The consent form gave the informed consent of the participant (see Appendix A). The first part of the data collection process included speaking with the potential participants of the study to determine which individuals were eligible to participate. I asked the participants to sign a consent form, which gave me permission to conduct the research using the information. The second part of the data collection process involved conducting face-to-face and phone interviews with the participants. Seidman (2013) suggested that researchers use interview questions to allow participants to share their experiences. I included open-ended questions relating to the educational and social backgrounds of the participants to determine the factors that contribute to the lack of IT resources available to African Americans. LeCompte and Schensul (1999) also suggested that researchers take notes during interviews and base interview questions on the research questions of the study. I took notes during the interviews to capture information about the body language of the participants, as well as any additional information the participants offered. I also asked the participants to suggest ways to increase the number of households that own computers.

Data Organization Techniques

I documented each interview question, and each participant's response in a research log. I sorted the logs while grouping them by interview question (LeCompte & Schensul, 1999). The open-ended responses from the participants formed the basis for interpreting the data while analyzing the interview transcripts (Corbin & Strauss, 2008; Seidman, 2013). Seidman (2013) suggested a concept called *categorizing* in which the data were grouped based on a particularly developed theme.

Common ideas and shared experiences among the answers established themes (Leedy & Ormrod, 2005). I used the data analysis software NVivo10™ to discover and establish themes for the study by collecting, organizing, and analyzing the participants' interview responses (Davidson & Jacobs, 2012). I used the software to store, divide, and organize field notes to make patterns easier to find in the data (Leedy & Ormrod, 2005; Yin, 2014). I also organized interview responses according to the recognized themes of the study, and I color coded the themes accordingly (Seidman, 2013). This type of analytic technique, which Yin (2014) defined as *pattern matching*, was helpful to strengthen the internal validity of the study. The participant transcriptions were assigned numbers, as identifiers of the participants in the study in to protect the confidentiality of the participants (LeCompte & Schensul, 1999). I secured the electronic data, including the interview notes, on a personal computer with password protection, which only I have access. I will retain the data for a minimum of 5 years, and I will have it locked in a secured, locked safe (Walden University, 2012). After 5 years, I will dispose of

electronic data by using software that removes hard drive data, such as WipeDrive5, and I will shred the hard copy files.

Data Analysis

I used the interview questions below to conduct research for the study:

1. What is your current position with your employer?
2. How long have you been employed with this employer?
3. What is your current salary?
4. What were the technical knowledge requirements for your current and past jobs?
5. At what age were you first exposed to a computer?
6. How did you perform academically in school?
7. Can you explain how the use of a computer has contributed to your academic success?
8. What was the household income of your family during your childhood?
9. What were the educational backgrounds of your parents?
10. What are some of the barriers that prevented you from accessing a computer?
11. What are some of the benefits of having more access to computers?
12. What information would you like to add concerning your experiences in this area?

As in ethnographical research, I organized the data in a logical, chronological order (Bergin, 2011; Leedy & Ormrod, 2005). Data are stored and organized for qualitative studies using computer database programs to help a researcher identify

patterns in the notes (Leedy & Ormrod, 2005). I used the computer-assisted data analysis software NVivo10™ to discover and establish themes for the study by collecting, organizing, and analyzing the participants' interview responses (Davidson & Jacobs, 2012). During the data analysis stage of research, the researcher categorizes the data according to the meaning and identifies patterns and themes (Leedy & Ormrod, 2005). For the purpose of the qualitative study, I collected the data during the interviews with the participants, and the data were collected using a research log, and the participants' responses were grouped based on the lived experiences and ideas. I grouped the categories and themes that emerged during the interviews according to the participants' responses to the interview questions. The researcher is involved because, in a logical, rational procedure, patterns emerge (LeCompte & Schensul, 1999). I used the conceptual framework of the study to explore the lack of IT resources available to African Americans to enhance their IT skills to fill available positions in businesses. I compared the results from the data analysis to the literature and concluded that the results of the data analysis are similar, to those in the existing literature (Leedy & Ormrod, 2005; Yin 2014).

Reliability and Validity

Reliability

With the reliability and validity of a study, the researcher ensures that a reader can form an independent opinion of information based on the analysis of the data (Yin, 2014). Researchers present the data of a study in an objective manner, including both supporting and refuting evidence (Yin, 2014). I established the reliability of my data by recording

the interviews conducted with the participants. I transcribed the interviews, and I compared the transcripts to the recorded interviews to ensure accuracy. I established the reliability of the interview questions by educating the participants of the purpose of the study and emphasizing the importance of honesty in the responses. This process also contributed to avoiding any biased opinions in the study.

Validity

The reliability and validity in ethnographic research are dependent on both internal and external validity. Validity involves ensuring the accuracy of scientific findings (LeCompte & Goetz, 1982). A researcher uses internal validity to refer to the authenticity of the scientific observations on a realistic level of measurement (LeCompte & Goetz, 1982). I used the strategy of data triangulation to identify and compared themes from different participants' responses to interview questions. For the study, I used the data triangulation strategy to recognize and address any threats to study validity. Researchers use external validity to address the extent to which they could use the scientific observations to make comparisons among groups (LeCompte & Goetz, 1982). I also used data triangulation to enable other researchers to assess external validity of the study by clearly describing participants such as African American in alignment with the purpose of the study.

Transition and Summary

Section 2 of the study restated the purpose of the study, and my role as the researcher, and the participants. I expounded on the research method and design, which outlined the qualitative research method and ethnographical strategy to conduct research.

I described the population and sampling method of participants in the study and the data collection process. I provided a description of the instruments and tools to collect the data, as well as the reliability and validity of these tools. I also discussed the data collection and organization techniques, the gaps that exist in the literature as well as implications for social change. In Section 3, I provide an overview of the study along with a presentation of the findings from the study. I discuss the applications of professional practice, and recommendations for action and further study. Section 3 includes reflections from the researcher as well as a summary and conclusion of the study.

Section 3: Application to Professional Practice and Implications for Change

Introduction

The purpose of this ethnographic study was to explore the lack of IT resources available to African Americans to enhance their IT skills in order to fill available positions in businesses. To analyze the data, I included factors such as academic performance, income, race, and geographical location (Anderson & Horn, 2012; Castles et al., 2013; Fairlie & London, 2012; Heeks, 2012; Tsatsou, 2011). LeCompte and Schensul (1999) stated that the average sample size for an ethnographic study is 20-30 participants. The sample for the study consisted of 20 participants, all of whom were African Americans who were employed by companies within the states of South Carolina, North Carolina, Florida, and Maryland. I identified the participants of the study by numbering them from 1 to 20. I conducted face-to-face and phone interviews with the participants using a technique similar to that described by Rowley (2012). Each interview lasted between 10 and 20 minutes. I digitally recorded the interviews and took notes during the interviews to obtain precise and complete information. With the purpose of exploring the lack of IT resources available to African Americans at an early age, I analyzed factors such as education, income, and geographical information. The results of the study showed that individuals who had access to IT resources and were exposed to a computer at an early age could develop better computer skills, resulting in a higher paying job.

Presentation of the Findings

I used the research question below to explore the IT knowledge and skills that contribute to the success of African Americans in the business world.

RQ1: What factors contribute to the lack of IT resources available to African Americans to enhance their IT skills in order to fill available positions in businesses?

During the interview process, several themes emerged from the data collected. These themes included academic achievement, financial availability, and technical knowledge. I did not interview more than 20 participants, as I was not getting any more new information and had reached saturation once I finished interviewing the 20th participant.

Academic Achievement

Students who had more access to computers and the Internet perform better academically than students who had less access to computers (Fairlie & London, 2012; Levy, 2011; Sun & Metros, 2011; Wainer et al., 2015). Participant 1 stated, "If I had a computer in college to use on a daily basis, I could have used software to help with math work or for writing research papers." Participant 6 also expressed that he used the computer mostly for research purposes while in grade school. Participant 7 indicated that access to a computer contributed to her academic success. Participant 20 said, "I always excelled in school because of my knowledge of computers. I was able to conduct research in a more organized and timely manner."

Twelve out of 20 participants in the study acknowledged that they were honor students and had received high grades while in primary school. These participants had been exposed to computers as early as middle school or as late as high school and made $40,000 to $100,000 per year. Participant 3 had gained exposure to a computer at the age of 8 and identified herself as an honor student while in grade school. She also stated that she mostly used the computer in her household for study purposes. Eight out of 20 participants stated they had not performed well in school and identified themselves as average students in grade school. These participants had not been exposed to a computer until high school and earned between $20,000 and $50,000 per year. Many of the participants in the study also articulated that they had not been exposed to a computer at an early age because of constraints on finances.

Financial Availability

Low-income families have less access to IT resources than higher income families do (Broadbent & Papadopoulos, 2013; James, 2011; Tsatsou, 2011; Wong et al., 2015). Participant 4 claimed that she had not previously owned a computer due to lack of financial availability. Participant 12 also articulated financial constraints on using a computer because of lack of transportation while growing up in a single-parent household.

Wong et al. (2015) believed that lack of IT resources could result in individuals having fewer career and developmental opportunities. Participant 7 expressed the need for more IT resources to be available to African Americans:

> There should be a grant out there for low-income families or income based for African Americans so they can provide their children with education because that is one thing that we lack in our community because of finances and things we have to overcome to be successful because we can't afford it.

Ortiz et al. (2011) found that many of the students who had access to a computer lived in households in which income ranged from $46,000 to more than $60,000 per year. During my research, I found that 13 out of the 20 participants grew up in a household where the income was less than $40,000 per year. These participants did not have the financial resources to purchase a computer for home use and did not gain exposure to a computer until as early as high school or as late as adulthood. Participant 4 explained, "I just purchased my first computer 2 years ago."

The salary for the participants who had not gained exposure to a computer until as early as high school or as late as adulthood ranged from $40,000 to $90,000 per year. Other researchers have confirmed that employees who have more advanced computer skills will earn higher wages than employees who have basic computer skills (Dostie et al., 2010; Peng & Eunni, 2011). Participant 5 stated, "One of the benefits of having access to computers is that there is no limit to my income." Participant 5 expressed how important it is for more African Americans to use IT resources to receive better job opportunities.

Technical Knowledge

Computer literacy is a factor in career success (Ferro et al., 2011; Morella, 2013; Shank & Cotten, 2014). Participant 13 stated that he had always had access to a

computer and that having more access to a computer can help an individual to obtain more job offers than an individual who has less access to a computer. Participant 3 reported, "The computer has contributed tremendously to my career." Participant 1 stated, "With the field that I work in, I use a computer every day for everything." Participant 17 also stated, "I think the earlier that kids are introduced to computers and technology, it gives them a learning curve for where the future is headed." Participant 3 explained, "For me being an African American woman, it is important for me to stay on the cusp of things and to use the computer helps with that." Participant 8 described the challenges of African Americans not being exposed to a computer at an early age:

> Being an African American and being from a status where I did not always have access to a computer, I feel behind my counterparts. Some of them have a jump start on some of the things that I didn't have a jump start with even though I went to college because most of the jump start was before attending college.

Participant 12 also expressed concern about being behind other races in terms of the use of IT resources. Participant 10 conveyed that it is important for individuals to have access to computers to survive in today's society. Participant 12 explained the advantages of computer use:

> If I didn't know how to use the computer, it would have definitely held me back because the field that I'm in now, everything is done in Excel, and you're probably on the computer 6 out of 8 hours each day.

Each of the 20 participants disclosed that they had been required to have some technical knowledge for their current and past jobs. Technical knowledge requirements

included experience with ICTs such as Microsoft Office Suite©, Internet, e-mail, proprietary company software, Adobe©, telecommunication tools, computer networking, home automation software, and computer hardware. Participant 6 specified the importance of African Americans being exposed to computers at an early age:

> Having the experience with computers early on, it made me a lot more comfortable to dive into new stuff without feeling nervous about it. There are many older people I work with who are nervous about using computers because they were not exposed to computers until later on in life.

Participant 13 also admitted to having a higher comfort level with using the computer because of being exposed to the computer at an earlier age. Participant 13 added, "it taught me how the computer works and how it can be used. It made me not afraid of the technology." The participants who used the more advanced ICTs such as telecommunication tools, computer networking, and home automation software earned annual salaries from $40,000 to $90,000. The participants who used the more basic IT resources such as Microsoft Office software, Internet, and e-mail earned annual salaries ranging from $20,000 to $60,000. Participant 3 stated, "In my field of work, being tech savvy will make me such an attribute that I will be promoted."

I used the conceptual framework in this study to illustrate the ideas from the literature on which the research was established. Information literacy theory describes the conceptual framework perspective from the literature (Lee, & Huang, 2014; Molnar, 1972; Pinto et al., 2010; Simonson et al., 1987; Thompson, 2014; Zurkowski, 1974). Based on the results of this study, the conceptual framework was supported by proving

that socioeconomic factors such as gender, race, ethnicity, age, income, and education contributed to the lack of IT resources available to African Americans (Badran, 2014; Pouchieu et al., 2015). I also concluded that frequent computer use is a significant factor for academic achievement and future job success (Mesch, 2012).

To conduct research on the topic, I analyzed socioeconomic factors such as race, income, and education (Badran, 2014; Mesch, 2012). The results indicated that individuals who have more access to IT resources were more likely to receive higher wages than individuals who have less exposure (Dostie et al., 2010; Joseph et al., 2012). The results of the study confirmed that IT resources and computer literacy are critical for individuals to function in the job market (Guy & Lownes-Jackson, 2010; Mesch, 2012).

Applications to Professional Practice

The findings of this study are relevant to improved business practice because the research may provide managers with knowledge of the importance of providing IT resources to individuals. For a business to be successful and profitable, employees should have an understanding of IT resources and how the use of these resources can contribute to the success of the business. Many HR managers seek individuals who are knowledgeable about IT resources to fill available positions, and many African Americans are not able to fill these positions because they do not have the IT resources to enhance their IT skills (Guy & Lownes-Jackson, 2010; Nayak, Mohanty, & Soni, 2011). Many African Americans are not able to fill these positions simply because they do not gain access to IT resources at an early age and they later do not possess the necessary IT skills as adults (Daniels, 2012). It is important for the African American community, as

well as business leaders, to be aware of this issue in order for the digital divide to dissipate and eventually disappear.

Implications for Social Change

I present several different implications for social change based on the findings of this study. During my research, I found that students who perform well academically have a better chance of succeeding in the business world than those who do not perform well (Casey et al., 2012; Sun & Metros, 2011; Wainer et al., 2015). Because of performing well in school, students can enter higher paying careers. Students must also be exposed to IT resources at an earlier age because researchers have shown that students who are exposed to technology at an earlier age have higher paying jobs than those who are exposed to technology at an older age (Stoilescu & McDougall, 2011; Sun & Metros, 2011; Tsatsou, 2011; Wong et al., 2015). The concept of exposing individuals to IT resources at an early age is specifically important in the African American community because African American students often lack access to IT resources because of their socioeconomic status (Badran, 2014). In support of previous research on the topic, I confirmed that socioeconomic classification does affect one's future career prospects (Ferro et al., 2011; Morella, 2013; Ortiz et al., 2011; Shank & Cotten, 2014; Sun & Metros, 2011; Weiner & Puniello, 2014).

Recommendations for Action

The findings of the study and existing literature about the lack of IT resources available to African Americans emphasize the need for African Americans to be exposed to IT resources at an early age so that they are more likely to be successful in their future

careers. I recommend that more grade schools in predominantly Black neighborhoods implement ICT training within their curricula. Parents, educators, business managers, and community leaders should use the results of this study to implement effective policies for African Americans to receive more exposure to IT resources. I will disseminate the results of this study via conferences, educational training, and local town hall meetings by presenting the findings to the public.

Recommendations for Further Study

I recommend that other researchers conduct further studies about the lack of IT resources available to individuals, especially African Americans. It is important that researchers inform parents, educators, and business managers of the significance of computer use among African Americans. New research should also include analysis of the differences in pay between individuals who receive more exposure to IT resources and those who receive less exposure. Managers must train individuals to use IT resources at an early age to achieve improved business practices.

Reflections

My experience within the DBA doctoral study process has been positive and insightful. At the beginning of the DBA process, I had the preconceived idea that African Americans received less exposure to IT resources at an early age than other races. During my research, I learned that it is not only African Americans, but also other minority races that receive less exposure than Caucasians do. I had a personal bias about the lack of IT resources available to African Americans because I am a member of a minority group who was not exposed to IT resources at an early age. Therefore, it was

difficult for me to receive a high-paying job. I had to attend additional IT training and further my formal education to obtain a higher salary. Although I had preconceived ideas and biases while researching the lack of IT resources available to African Americans to enhance their IT skills in order to fill available positions in businesses, my bias did not affect the participants of the study or my thinking after completing the study.

Summary and Study Conclusions

I used the research question of this study to explore the IT-related factors that contribute to the success of African Americans in the business world. I identified the lack of IT resources available to African Americans to enhance their IT skills in order to fill available positions in businesses as the specific business problem. I interviewed 20 African Americans employed by companies in South Carolina, North Carolina, Florida, and Maryland, analyzing socioeconomic factors such as education, income, and geographic location while collecting data. The results of the study may influence social change by educating parents, community leaders, human resource managers, and other managers about the importance of providing IT resources to African Americans. Providing these resources to African Americans at an early age could ultimately enable leaders to fill available positions in the technical field and improve economic growth. Researchers should inform the African American community, as well as business leaders, of the impact of advanced computer use on future career success among competitors in the workplace. The research for this study generated valuable information to promote the inclusion of a diverse group of individuals in the field of IT, providing a blueprint for positive social change.

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Appendix A: Confidentiality/Consent Form

You are invited to take part in a research study of computer use among African-Americans. The researcher is inviting individuals who are 18 years of age or older and employed for over one year to be in the study. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named Kandice Smith, who is a doctoral student at Walden University.

Background Information:
The purpose of this study is to explore the lack of IT resources available to African Americans to enhance their IT skills to fill available positions in businesses.

Procedures:
If you agree to be in this study, you will be asked to:

- Answer interview questions while being tape recorded
    - The interview will last for 30-45 minutes

Here are some sample questions:
At what age were you first exposed to a computer?
In what capacity and how much is the computer used in your current and past jobs?
What were the technical knowledge requirements for your current and past jobs?
What do you feel were some of the barriers that prevented you from accessing a computer?

Voluntary Nature of the Study:
This study is voluntary. Everyone will respect your decision of whether or not you choose to be in the study. No one at your place of employment will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind during or after the study. You may stop at any time.

Risks and Benefits of Being in the Study:
Being in this study would not pose risk to your safety or wellbeing.

This study is beneficial because it helps to educate readers on the importance of providing IT resources to individuals at an early age to contribute to future career success and economic growth.

Payment:
Thank you messages will be sent to participants via e-mail after the study is completed.

Privacy:
Any information you provide will be kept confidential. The researcher will not use your personal information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in the study reports. Electronic data will be kept secure by securing the data with password protection on a computer. The interview notes will be kept securely in a locked container. Data will be kept for a period of at least 5 years, as required by the university.

Statement of Consent:

I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By signing below, I understand that I am agreeing to the terms described above.

Printed Name of Participant _____

Date of consent _____

Participant's Signature _____

Researcher's Signature _____