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Perception of African-American Adult Learners Toward Using Technology in Education

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Doctorate of Education Program

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College of Education

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Abstract

The problem this study explored was how do African-American adult learners perceive using technology in higher education to increase their academic success. The purpose of this qualitative study was to explore how African-American adult learners perceive using technology in higher education. This study was important because it provides an understanding of how African-American adult learners use technology in higher education because perceptions plays a significant role in the learning process, as it is the process where individuals interpret things based on their experiences. to further their academic achievement. This study was also significant because it provides a means for educators to help African-American adult learners find meaningful learning experiences through utilizing educational technology to assist them with being successful in college. The framework used to guide this study was a combination of the technological pedagogical content knowledge (TPACK) and constructivism learning theories. The perceptions of using technology in this study were conclusive when technology was used in higher education. Fourteen African-American adult learners participated in this study. The data sources included individual interviews, focus groups, and the researcher's field notes. The individual and focus group interviews were coded to determine the perceptions of African-American adult learners' use of technology in education. The results indicated that African-American adult learners' perceptions of using technology based on their experiences were both positive and negative. The findings of this study indicate African-American adult learners' perceptions of technology for academic purposes had a positive impact on their learning.

Keywords: educational technology, technology, minority, African-American, adult learner, and adult education.

Dedication

This project was dedicated to my beloved family. Thank you for your love and support throughout this dissertation journey. There are no words to express how much I appreciate each of you that have encouraged me through this process. Thank you to my parents, James and Jacqueline Barnes, for always pushing me to excel and never giving up on me. You instilled in me many great values, the value of family, obtaining a good education and most importantly to seek God first and everything else will fall into place. You also taught me that there is no limit to what I could achieve. Achieving this doctorate degree has been a challenge worth it all. I understand what it means to whom much is given much is required.

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Chapter 1: Introduction

Technology is transforming how individuals gain knowledge, communicate, pursue leisure activities, and complete their jobs in this precipitously changing, information-rich society today (DuPuis, Rainwater, & Stahl, 2016). Technology is affecting every facet of our lives, from how people access government services to how individuals connect and acquire information (DuPuis et al., 2016). To be productive in a society impaired by the rapid advancement of new knowledge and communication technologies because it has become a crutch to them, adults should be able to utilize technology effectively (DuPuis et al., 2016). Adult education learners need the opportunity to utilize technology as part of their educational program (Newman, Rosbash, & Sarkisian, 2015). The use of technology in the classroom can increase the ability of adult learners to discover, investigate and assess information. Using technology can also promote problem-solving, decision-making, and communication as students work together and share ideas. Technology allows adult learners to be knowledgeable, reliable, and contributing citizens as they use it in education to learn how to acquire knowledge and keep abreast with the changes in this ever-changing world (Newman et al., 2015). Technology may offer the inspiration that draws into adult education those who may otherwise not participate and enable more profound learning for them (Ginsburg, Sabatini, & Wagner, 2015).

It is necessary to investigate this topic to gain a better understanding of the present state of the African-American and Caucasian achievement gap (National Assessment of Education Progress, 2015). The achievement gap helps support the need for this study to explore how do African-American adult learners perceive using technology in higher education to increase their academic success. In this chapter, an explanation of the background of the study and the statement of the problem will be included. This chapter will explain the purpose of this study, the research

question, and the rationale for the methodology. This section also provides the definition of terms; the assumptions, limitations, and delimitations; and a summary of the chapter.

Background of the Study

The academic achievement gap, also known as the black-white opportunity gap in higher education, is the difference between the grade point average for Caucasian and African-American college students (Johnson-Ahorlu, 2012). The academic achievement gap appears when one ethnic group of students outperforms another ethnic group, and the differentiation in mean "scores for the two groups is statistically different. The disparity in achievement is usually between white and non-white students and the difference can be seen in standardized test scores, grade point average, graduation rates, and college admission data" (Pitre, 2014, p. 209). Many studies show that the academic achievement gap between African-American and Caucasian students exist before these students enter elementary school and continue until the student enters college or reaches adulthood (Williams, 2011).

The differences in the grade point average at the beginning of the first semester during the first year of college as a freshman and have a negative effect on these students when applying for graduate school or seeking employment (Johnson-Ahorlu, 2012). According to Johnson-Ahorlu (2012), African-American college students average a difference of .30 to .50 grade points below Caucasian students. Apprey, Preston-Grimes, Bassett, Lewis, and Rideau (2014) reported the persistent increase in the racial academic achievement gap among higher education students in the United States. This study showed results from the 2011 United States Census data for students achieving college degrees, which reported students 25 years or older (Apprey et al., 2014). According to this study, 19.9% of African-American adult learners obtained a bachelor's degree compared to 34% of Caucasian students (Johnson-Ahorlu, 2012). The achievement gap difference between these two groups in 2011 was 14.1%. Satz (2012) reported 17% of African-American

college students in 2010 over the age of 25 obtained a college degree from a 4-year higher education institution compared to 28% of other ethnic groups. This report also showed that African-American students' chances doubled as these students dropped out of high school before entering college (Satz, 2012). The study also showed the black-white academic achievement gap increases each additional year these students further their education (Satz, 2012).

According to Green, Ammah, Butler-Byrd, Brandon, and McIntosh (2017), African-American undergraduate students are not prepared for college, as a result, their academic performance is lower than Caucasian. This study showed the grade point average of undergraduate African-American college students was lower as 30% of them compared to other groups: Caucasians 20%, Asian 23%, and Hispanics 29% take remedial courses (Green et al., 2017). Thus, the black-white academic achievement gap continues to exist with a 10% difference (Green et al., 2017). This study also revealed, degree completion rates, showing the racial educational disparities in higher education having a 25% difference between African-American and Caucasian college students with grade point averages of 3.0 or better (Green et al., 2017). In the study by Green et al. (2017) which showed African-American college students 15% compared with Caucasian 6% to be three times likely to graduate with a grade point average below 2.5 (Green et al., 2017).

Throughout the history of education, there have been significant differences between the academic achievement gap for African-American and Caucasian learners (Duke, 2017). Many studies report various ways to decrease or eliminate this gap. However, to close the academic attainment gap for African-American adult learners, through using technology in the classroom, students must be able to relate and see the relevance of this as learning (Alhassan, 2012). Then learning is more meaningful through linking their experiences to education (Alhassan, 2012). According to Malcolm Knowles, adults learn different, as such learning for them must make sense,

is relevant, and should include real-life situations (Wuebker, 2013). Adult learners use life experiences to help them relate to learning (Wuebker, 2013). This allows these students the ability to apply knowledge to establish a new construction and find solutions to a given task or activity in the classroom resulting in increased academic attainment as they engage in the learning process (Buckenmeyer, Barczyk, Hixon, Zamojski, & Tomory, 2015).

Educational leaders must address the opportunity differences in higher education to close the academic achievement gap. The differences pertain to equal education for all groups of students. Students must receive an equal opportunity to quality education. The achievement gap may decrease through finding innovative ways to allow access to technology in the classrooms for adult learners to facilitate lifelong learning (Packard, 2016). According to Frantzen (2014), effective technology integration with content produces results just as effective as traditional methods as it shows students learning increased, especially in science. Swanson and Walker (2015) note how "technology provides new innovative opportunities for collaboration and global connections. The effective use of technology can serve to increase student learning, understanding, motivation, and achievement" in higher education (p. 149). According to Rezaei-zadeh, O'Reilly, Cleary, and Murphy (2011), the successful use of technology increases the students' academic performance. Technology use in the classroom enhances the teaching and learning environment, as these students are more motivated to learn which results in overall increased academic performance (Rezaei-zadeh et al., 2011). When adult learners gain access to new technologies and their instructors understand how to use technology in the classroom, the outcome will increase the students' academic performance (Packard, 2016). Therefore, implementing technology into adult education is essential for adult learners as technology has become a means of life in society today (Johnson, 2011). Technology use is a significant component of education, which develops the way individuals function daily. As the role of

technology proliferates, education systems are starting to recognize the real value of technology and its place in education (Johnson, 2011). The implementation of technology in education has proven to be valuable in many discipline fields to include science and math. Using technology in the classroom can enhance adult learners' performance by developing innovative methods of instruction and education (Vassiliou & McAleese, 2014).

For years, there have been constant disparities within the educational system for African-American and minority students in the United States (Boone, Hendricks, & Waller, 2014). The historical implications of the disparities in quality education in the United States have been a continuous struggle for African-American and minority students relative to the Caucasians (Wilson, 2014). Despite Brown v. The Board of Education in Topeka, Kansas, the lack of quality in education for African-American and minority students persists (Wilson, 2014). The problem arises from the various socioeconomic issues that exist such as the lack of education, cultural and religious discrimination, overpopulation, unemployment, and corruption. These socioeconomic issues are negative factors that have an influence on the economic activity of African-American and minority students. The cause of this issue in disparities in quality education has produced concern for individuals living in the United States who encounter limited access to technology or education (Boone et al., 2014). This is due in part to the lack of understanding of the positive benefits as well as life changes technology brings (Boone et al., 2014).

Educational leaders have labeled this gap as the digital divide, the knowledge of education when “consumer disparities in access to information and communication technologies based on age, gender, race, and socio-economic characteristics and geographic location exist” (Boone et al., 2014, p. 2). The digital divide is the gap between those countries that receive information by making effective use of computers and other forms of information technology and those countries that do not socially or economically profit from technological advancements such as the worldwide

communication via the web or e-commerce (Boone et al., 2014). The problems surrounding the digital divide issue includes the lack of computer, lack of proficiency with various technologies, lack of Internet access, and lack in using the Internet for work, school, or social activities (Boone et al., 2014). Although there have been many endeavors to assist with closing the digital gap amongst the various ethnic groups, the problem still exists for the African-American and minority adult learners (Camera, 2015).

There is a dilemma within the education system between African-American and minority students using technology to help promote their academic achievement. Despite major attempts from federal, state, and local government to correct this problem, the differences in the use of various technology across ethnic groups remain (Camera, 2015). There continue to be gaps in academic achievement in higher education amongst racial groups in the areas of access to technology and cost of an education, which denotes a racial divide in society (Wellman, 2017). The main barriers to educational equality combined with policy solutions are minorities' unequal enrollment in community colleges and non-profit colleges, cost of tuition for minority students, and the achievement gap divides the racial groups (Wellman, 2017). According to Wellman (2017), African-American and minority adult learners lagged, behind Caucasians by 8.5% in 1974 in enrollment and degree completion. The same gap between these groups in 2015 showed the gap increasing by 13.7% for African-American and Caucasian students and 20.7% among other minority groups and whites (Wellman, 2017). Therefore, these issues are of great concern because the gaps in education achievement lead to socioeconomic inequalities (Wellman, 2017).

Historically, research has recorded the presence of a racial digital divide in the use of information technology (Wellman, 2017). Despite the fact, racial disparities have declined; African-American adults remain to be less likely amongst other ethnic groups to use the Internet and various forms of technology (Monforti & Marichal, 2014). African-Americans students

lacked technology use due to it being expensive and their lack of interest in it (Fairlie, 2012). Many of these students lacked the knowledge of the positive uses of technology (Fairlie, 2012). African-American students mainly have access to and use technology in the academic environment.

Although many studies report high technology use for African-American and minority adult learners' in social media, disparities remain for these students with access to and understanding how to use various forms of technology to promote learning (Conceição & Martin, 2016). According to the 2012 Pew Research Center Report, African-American adult students only trailed behind Caucasians with access to and use of technology by 17% (Soltan, 2012). This study also revealed technology platforms such as cellular phones aided in declining the gap amongst several ethnic groups because it offered these adult students' access to the Internet (Soltan, 2012).

The digital divide in access and use of technology in the United States higher education institutions amongst adult learners is very complex due to race, gender, and Internet technology (Conceição & Martin, 2016). Conceição and Martin (2016) study results revealed an overall increase in access and Internet technology use among African-American adult learners in college. This study reported a slight difference for African-American adult learners. It showed black adult students fell 7% behind their Caucasian counterparts in using the Internet for educational purposes (Conceição & Martin, 2016). This study also revealed a digital gender divide. According to Conceição and Martin (2016), African-American males managed to spend less time using the Internet and computers other than for playing video games less than any other demographic group even for educational purposes (Conceição & Martin, 2016). Despite the overall use of technology between African-American and Caucasian adult learners, most found technology enhanced their learning, provided interaction among their instructors and fellow classmates, and allowed them to

complete academic research outside of the classroom through the university's online library (Conceição & Martin, 2016).

However, the gaps in technology use for academic success for African-American adult learners do exist. Some of the reasons are due to several factors in the home environment, which extends to other areas as students' lack access to the various forms of technology and lack the skills to efficiently use the computer or lack the knowledge of how to benefit from it. "Technology stands to become a radical equalizer in the realm of education, but it must be implemented in a way that allows every student, teacher, and parent to access everything that is needed during a student's learning journey" (Dotterer, Hedges, & Parker, 2016, p. 4). An educational system that integrates classroom technology can assist with bridging the gap and help facilitate instruction, saving time, and making learning easier for all adult learners and educators (Dotterer et al., 2016). However, if adult learners do not perceive the essential value of using the advances of technology in education today, may result in their ability to compete in this technological world that we live in to facilitate their learning. Today's workplace requires people to use information and communication technologies. Therefore, higher education institutions must be ready to equip this generation of adult learners with the level of skills needed for the college and career ready workforce (Conceição & Martin, 2016).

Statement of the Problem

For many years, the underrepresentation of African-American and minority learners exists in the academic achievement gap amongst other groups. According to Martin, Spenner, and Mustillo (2017), to reduce these gaps would lead to decreases in racial disparities in areas of academic attainment, job earnings, crime, and health. The academic achievement gap points to inequitable levels of student achievement primarily related to personal attributes (Martin et al., 2017). However, the racial-ethnic academic achievement gaps exist at all educational grade levels,

including college. Many studies have focused on this gap by examining the student's standardized test performance, grade point averages (GPA), and college completion (Martin et al., 2017). A contributing factor to the Black-White academic achievement gap in higher education among community college adult learners is the disparity in access to educational technology such as the use of computers and the Internet (Fairlie, 2012). When students have access to technology and computers at home and school may help to decrease the educational disparities for underrepresented students in the United States higher education institutions (Fairlie, 2012).

The problem this study explored was how do African-American adult learners perceive using technology in higher education to increase their academic success. This study examined the way African-American adult learners understood how to use technology to enhance their knowledge of learning. This study explored how these students view using technology to advance in their class and or schoolwork. This was important because perception plays a significant role in the learning process, as it is the process where individuals interpret things based on their experience. A need exists to examine this problem, because of the rapid changes in society that require the use of technology (Miller, 2015). There have been many studies involving the integration of technology and the effect of it closely studied in the K–12 and traditional higher education contexts; however, little research has been conducted to comprehensively evaluate the scope of information and computer technology (ICT) integration in adult education for adult learners (Thompson, 2011, p. 56). There has been a wealth of research on studies involving the millennial adult learners, young adult learners, and older adult learners' perceptions and use of technology but not much on this study's topic has been investigated (Chong, Loh, & Babu, 2015; Jaffee, 2001; Kotrlik & Redmann, 2005; Ngo-ye, 2014; Scerra, 2016). There is little research on the topic on how do African-American adult learners perceive using technology in higher education to increase their academic success.

Purpose of the Study

The purpose of this qualitative study was to explore how do African-American adult learners perceive using technology in higher education to increase their academic success. This study was important because it provides an understanding of how African-American adult learners use technology in higher education to further their academic achievement. This study was significant because it provides a means for educators to help African-American adult learners find positive ways to utilize educational technology to assist with being successful in their college classes.

Research Questions

This study gathers and includes new knowledge to the community of information surrounding adult education using technology in higher education to increase learning for African-American adult learners within their higher education classes. The following question guides this research: How do African-American adult learners perceive the use of technology in higher education to increase their academic success? By attempting to answer this question, the researcher seeks to understand how African-American adult learners perceive using technology integration in higher education to increase their academic performance. This study provides a better understanding of these adult learners' perceptions of using technology to enhance their learning and knowledge in higher education with their college coursework.

Rationale for the Methodology

This study used the qualitative case study approach to explore and understand how African-American adult learners perceive using technology in higher education to increase their academic success (Yin, 2014). Using a qualitative case study design allowed the researcher to pull together a range of methods, which focus on the naturalistic, holistic, ethnographic, phenomenological, and biographic research approaches (Hyett, Kenny, & Dickson-Swift, 2014). The use of qualitative

case study as a design describes the case by its interest in single cases rather than the approaches of inquiry used (Hyett et al., 2014). The researcher used the intrinsic case study methodology. The intrinsic type of case study allows the selection of a case based on its own merits and it is not representative of other cases as it is unique, which is of genuine interest to the researcher (Crowe et al., 2011). Using the intrinsic case study also allows the researcher "to understand a particular circumstance, in this instance, the experiences" of African-American adult learners' perceptions of using technology for academic purposes to increase the performance in their classes (Parker, 2016, p. 223).

The qualitative approach was the appropriate methodology for this study. The design of this study was to provide educators with additional research to help them understand how significant student perspectives are to the teaching and learning process when using technology in a technology-based curriculum. When students view technology positively, they will be motivated to utilize it to promote academic achievement and help facilitate authentic, meaningful learning for African-American adult learners (Miller-First & Ballard, 2017). Most of the research focused on the perspectives of adult students' technology use. This case explored technology use from the students' perspectives through creating student-centered learning environments to study experiences of African-American adult learners. The use of technology in the teaching-learning process is significant to higher education (Bustamante & Moeller, 2013). This approach allows the essence of qualitative research to be best understood using real-life experiences of African-American adult learners, which acquires the viewpoints of the participants (Creswell, 2014).

Research Design

The case study design was used to address the research question. A case study is an empirical inquiry that explores a phenomenon within its real-life context (Yin, 2014). The researcher used the case study to understand how do African-American adult learners perceive

using technology in higher education to increase their academic success (Creswell, 2014). The case study design provides a better understanding and a comprehensive perspective of the African-American adult learners' experience with using technology to increase their learning. The intrinsic case study was employed to learn about a distinctive phenomenon allowing the researcher the ability to define the uniqueness of the phenomenon, which differentiates it from all others (Crowe et al., 2011).

The data collection process for this case study focused on the adult learners' perceptions, in this case, the African-American adult learners' perception of using technology in higher education to increase their academic success. The insight gained from the participants represents a case as "the lessons learned from these cases are assumed to be informative about the experience of the average person or institution" (Yin, 2014, p. 47). The researcher collected the data needed for this study by using the information obtained from the interviews, focus groups, and field notes. The individual interviews were useful in assisting the participants in expressing their perceptions as the researcher seeks to gain insight about their experiences with using technology in their college courses to increase their academic performance (Aborisade, 2013). The focus groups provided in-depth information from the participants in the group regarding their experiences, which illuminates the opinions of the group (Aborisade, 2013). This allowed the participants the opportunity to share and discuss their real-life experiences through their success of using technology in higher education. The field notes provided rich-thick data to be collected from the interviews and focus groups documenting necessary contextualized information (Phillippi & Lauderdale, 2018). Overall, these three data collection methods provide useful information to educators so that they can develop teaching techniques to assist them with providing a quality education for these African-American adult learners with using educational technology to enhance their learning.

Definition of Terms

Educational technology. Educational technology and technology are interchangeable words for this study. Technology is the study and proper method of enabling learning through increasing the student's performance as they use various computer programs to assist with learning (Educational Technology Network, 2016).

Minority. A minority is a group of individuals having similar racial, cultural, or religious background who live in a place where most of the people around them come from a diverse racial, cultural, or religious background but is subordinate to a more influential group (Schuerkens, 2010).

African-American. A black American of African descendant or heritage (Agyemang, Bhopal, & Bruijnzeels, 2017).

Adult learner. The adult learner is an adult who did not follow the traditional pattern of enrolling in college after completing high school. They are a diverse group of adults ranging in age from 25 years or older that come from various educational and cultural backgrounds. They have adult responsibilities and job experiences who are seeking to continue their education (Southern Regional Education Board, 2016).

Adult education. The process through which adults pursue education to further themselves or their society through expanding their skills, knowledge, or developing in these ways. Adult education is continuing education. These adults continue their education using any platform of learning for individuals who are of the age to work, vote, get married, and enlist in the military (Talabi, 2014).

Continuing education student. A continuing education student is an adult learner who is either finishing an incomplete education diploma or continuing in specialized areas after completing high school, such as retraining for workforce or the military participating in adult

education programs and lifelong learning whether formal, informal, or non-formal continuing their education (Merriam & Bierema, 2014).

Curriculum student. A curriculum student is a high school graduate who decides to continue their academic studies on a higher level to obtain a degree such as those students enrolled at the community college, junior college level of higher education or beyond (Kasworm, 2018).

Assumptions, Limitations, and Delimitations

Assumptions. Assumptions are anything assumed true without real evidence by researchers in a study (Abramson, 2015). The researcher assumed that all the participants provided accurate and honest responses to the interview questions within their ability (Simon & Goes, 2013). Another assumption pertains to the phenomenon in this study. The researcher presumed that African-American adult learners lag other groups using technology to increase their educational success.

Limitations. Limitations are issues and circumstances that develop in a study, which is out of the researcher's control (Simon & Goes, 2013). Limitations constrain the strength to which a study can go and sometimes interrupt the end outcomes and conclusions that can be depicted (Simon & Goes, 2013). There are potential limitations to this case study that may be outside the researcher's control, which may cause the research study to be weak. This study was limited to African-American adult learners enrolled in the Continuing Education and Curriculum programs (Chitanana & Museva, 2012). There are several program areas within the scope of Continuing Education and Curriculum programs. The population also encompasses adult learners reentering college trained or retrained for the workforce.

The research sample and size were small. It was limited to 14 participants. This small sample may hinder the ability to generalize across a population. There may be limited time to gather and collect the data in this study. The limitation in the time provided to collect data was an

uncontrollable risk to the internal validity of this case study, which seeks to establish a pivotal relationship whereby reliable conditions lead to other conditions (Pandey & Patnaik, 2014). There are limited resource materials on the topic for this study. The evidence relating to the experience of African-American adult learners use of technology in higher education has inherent limitations compared with data about the behavior of other adult learners with using technology for academic purposes to increase learning. This is due in part to the experience not directly being observed as such the information gathered from the participants depends on their ability to honestly and effectively account their experience to communicate this evidence to the researcher so that meaning can be comprehended and accurately translated or explained.

Delimitations. The delimitations of a study are the boundaries set and defined by the researcher (Simon & Goes, 2013). "Delimitations are factors that may affect the study but are controlled by the investigator. For example, the beginning and ending dates or the study location" (Abramson, 2015, p. 8). A delimitation of this case study was the start and end dates in this study, which included the collection of data during the summer semester of the 2018 – 2019 academic school year. The delimitation in the selection of adult learners by the researcher's former experience with students and the timing of primary research. All data collection takes place at a 2-year community college located in the Sandhills region of North Carolina. All the adult learners were African-American.

Summary

This chapter provided a foundation for the nature of this qualitative case study. The purpose of this study was to explore how do African-American adult learners perceive the use of technology in higher education to increase their academic success. This case study provides and explains the definitions, limitations, delimitations, and assumptions of this study. This chapter also provides a research question that guided this research. The researcher chose qualitative case study

as it was the most suitable method to capture the essence of the phenomenon of the African-American adult learners' viewpoints for this study. A qualitative case study was the method used when the researcher wanted to explore and understand the meaning of individuals attached to a social or individual dilemma (Yin, 2014). The researcher applied this approach to focus on discovering the meaning and significance of exposing the complexity of a situation (Creswell, 2013). The researcher used a qualitative case study to explore the experiences, viewpoints, and perceptions of the African-American adult learners' use of technology in higher education. The researcher explored how do African-American adult learners perceive the use of technology in higher education to see if technology increases their academic success when used in their studies for their classwork.

As the role of technology procreates, educational systems are beginning to realize the true value it has in education (Johnson, 2011). The use of technology in higher education has shown to be valuable in several subjects. A robust connection maybe gained amongst this generation of adults and technology, thus utilizing technology in the adult education process for African-American and minority adult learners affords them many opportunities. Technology may offer the inspiration and drive that draws into adult education those who may otherwise not partake and facilitate in more profound learning (Ginsburg et al., 2015).

Chapter 2: Literature Review

Introduction

Technology has altered the presentation of education in the classrooms of higher education institutions. Colleges and universities are making sizeable investments in technology and computer-related technologies to improve teaching and learning. "Technology is a catalyst for learning and personal development. Students are growing up with different types of technology such as computers, iPads, cell phones, and mp3 players" (Alawad, 2013, p. 1). Thus, the need for adult learners to utilize technology for school and work is critical because of the significant role technology plays in higher education (Gray, 2014). This has become an essential part of everyday life (Gray, 2014). The use of educational technology, computers, interactive whiteboards, multimedia, and the Internet has progressed very rapidly over the past two decades, in higher education classrooms and will continue to flourish as time progresses (Gray, 2014). Therefore, the effective use of technology is very important as it affects the successful process of using it in school systems. Technology use aims at classroom level teaching with technology to support and develop the standards set by the state or federal government and program goals (Gray, 2014). Technology has transformed the presentation of instruction in the classrooms of higher education institutions across the globe (Gray, 2014). Higher education institutions are making substantial investments in technology and computer-related technologies to enhance teaching and learning while remaining competitive (Gray, 2014).

It is time to move beyond the walls of the traditional classrooms to unite forces with other higher education institutions and societies to invigorate education (Bhasin, 2012). Technology use will greatly influence the needs of the student for learning anywhere at any time (Bhasin, 2012). Adult learners need to see the relevance of using technology in higher education to become motivated to learn with it. "Technology impacts students' daily lives and certainly plays an

important part in developing students' perceptions" (Abdullah, Ziden, Aman, & Mustafa, 2015, p. 339). Thus, the way students perceive the use of technology can affect their performance in the classroom (Abdullah et al., 2015). This chapter provides an explanation of the background of the problem and the conceptual framework. The review of research literature in this area is the use of technology in adult education with an emphasis on African-American adult learners' perception of using technology in school. The researcher made efforts to find conclusive evidence of whether the use of technology promotes teaching and learning in education. The review includes literature on how African-American adult learners perceive the use of technology in higher education to promote their academic success. This literature review included factors that promote the effective use of educational technology in higher education to increase the academic achievement of adult learners. Information regarding the barriers to integrating technology and the effects of using the technological, pedagogical, and content knowledge (TPACK) and constructivist learning theory was also included in this chapter.

Background of the Problem

There have been constant disparities for African-American and minority learners in the United States within the educational system (Boone et al., 2014). The historical repercussions of the inconsistencies in quality education in the United States have been a constant battle for African-American and minority students relative to Caucasian students (Wilson, 2014). The problem stems from the countless socio-economic issues present. The consequences of the problem have produced concern for most people living in the United States who face inadequate access or education when it comes to using computers and or technology and the benefits it brings (Boone et al., 2014). This is due to the lack of understanding of technology and the effective use of it (Boone et al., 2014).

Educators have identified this as the digital divide when consumer inequalities in access to information and communication technologies based on age, gender, race, and socio-economic features and geographical location exist (Boone et al., 2014). The concerns encompassing the digital divide related to the lack of computer, lack of familiarity with using different technologies, lack of Internet access, and lack in using the Internet for work, school, or social activities (Boone et al., 2014). Although there has been much effort to help close the digital gap between African-Americans and other groups since the No Child Left behind Act, the problem still exists (Camera, 2015). African-American adults still use the Internet and technology less than other groups, as there are many difficulties posed by using technology and the integration of technology in education (Zhang, 2014). There is a problem with the education system among African-American and minority students using technology to assist with their academic success. Despite major efforts from federal, state, and local government to improve this problem, the differences in the use of technology across racial groups remain (Camera, 2015). This digital divide has lessened in the racial differences in the use of the Internet and technology (Camera, 2015). African-American adults continue to be less likely amongst the other groups to use the Internet and technology; however, improvement has been seen (Zhang, 2014).

The disparities in academic success for African-American adult learners are due to many factors as well as those involving the home (Dotterer et al., 2016). These disparities spread abroad as students' lack access to the different technologies and lack the skills to effectively use technology or lack the knowledge of the benefits it encompasses (Dotterer et al., 2016). This has caused concern for educators as they strive to find innovative ways to teach, train, or retrain adult learners to meet their educational needs and be able to compete in this technology-savvy workforce. Technology stands to become an essential equalizer in the educational sphere, but integration is required because it allows every student, instructor, and parent to access all that is

necessary during the student's education journey (Dotterer et al., 2016). An educational system that connects classroom technology can help bridge the gap and assist with facilitating lifelong learning, saving time, and making education easier for all adult learners (Dotterer et al., 2016). However, if adult learners do not recognize the fundamental value of using the developments of technology in education to facilitate their learning, may result in their ability to compete in this technological world that we live in today.

Conceptual Framework

Times have changed and the way we share information has changed due to the digital world of technology and the delivery of learning. The evolution of digital content has revolutionized how people use technology in higher education to facilitate teaching and learning. Therefore, higher education leaders must adapt to these changes by using technology in each curriculum program area. When instructors understand the benefits of using technology and receive training on how to use it, then they will know how to shift the design of instruction to incorporate technology into the lessons they create for their students (Sharp, 2018). This helps make learning relevant, authentic, and more meaningful as they prepare adult learners by designing technology-based instruction (Sharp, 2018). Malcolm Knowles' adult learning theory sets a foundational framework for how to teach adult learners (Sharp, 2018). Therefore, incorporating Knowles' adult learning theory along with other educational theories into technology-based instruction allows lessons to tailor to meet the needs of the adult learner (Sharp, 2018).

Higher education institutions can utilize technology in many ways to help meet the challenges of the future trends of digital content to help prepare students to be successful in life through increasing their 21st-century technology skills to become college and career ready (Boden, 2012). Colleges must train instructors to equip students with the technological skills necessary for this 21st century, to achieve effective technology use, which will promote student success in life

(Ramorola, 2013). Using technology in the curricula enhances learning in content areas (Harris, 2016). "In order for technology use to be effective, technology should be a fundamental part of the classroom, allowing students to be able to select technology resources to help them to obtain information in a timely manner, analyze and synthesize" data, and organize it skillfully (Harris, 2016, p. 27). Effective technology use in colleges' curricula has the potential to enhance teaching and learning for students (Harris, 2016). Technology provides structure for material to adult learners as it promotes student and teacher interaction and collaboration sharing with others (Abdullah, 2016). Technology use in higher education is a means of utilizing educational technology to increase the learning process (Abdullah, 2016).

According to Gilakjani, Leong, and Ismail (2013), effective use and implementation of technology into teaching and learning are what makes a difference in reforming a classroom. Successful technology use and implementation is not an easy task (Gilakjani et al., 2013). It is a three-step process, which requires the teacher learning the technology and using the technology in teaching and learning so that student learning is increased (Gilakjani et al., 2013). Technology use in higher education plays a significant role in adult education as it establishes the student-teacher relationship in a meaningful way (Abdullah, 2016). Effectively utilizing technology in the various curriculum areas allow teachers to grow into their roles as leaders and facilitators while students take responsibility for their learning results (Abdullah, 2016). Technology bestows itself as the multidimensional instrument and educational tool that supports that process which assists in making the education process more profound and interesting (Abdullah, 2016).

The conceptual framework for this study was based on research of adult learners that the researcher noticed how historically African-American adult learners lagged in their knowledge of using technology for academic purposes to promote their education. This study attempts to provide a foundation for the educational use of technology. This study strives to change the

perceptions of African-American adult learners about the effective academic uses of technology. Therefore, understanding the perspectives of African-American adult students toward technology use provides a means for educators to serve these students to help in meeting their academic needs (Meehan & Salmun, 2016). As such, there is a need to explore how do African-American adult learners perceive using technology in higher education to increase their academic success. Technology is an integral part of life. Thus, the effective use of technology is a significant and essential element of education. It is important to understand how African-American adult learners can be successful academically using technology. This will help shed light on why black adult students lag with utilizing technology in education. Therefore, possible solutions established may help close the gap between these students and other ethnic groups with technology usage.

The perceptions of adult learners are a significant factor, which affects the teaching and learning process as well as the academic success of these students (Meehan & Salmun, 2016). The students' perceptions were viewed in terms of their level of satisfaction from using various technologies in the classroom (Meehan & Salmun, 2016). The framework used to guide this study was a combination of the technological pedagogical content knowledge (TPACK) and constructivism learning theories. Both theories develop meaningful learning experiences from the perspectives of African-American adult learners and their use of technology to promote their learning in education. Therefore, African-American adult learners construct their own perception and understanding of the world, through their experiences and reflecting on those experiences (Biniecki & Conceigao, 2016). As these adult learners encounter new learning experiences, they must merge that experience with former concepts and experiences by asking questions, exploring, and assessing what they know (Biniecki & Conceigao, 2016).

Constructivist learning paradigm. A constructivist learning paradigm is an approach to learning rooted in the works of Dewey, Brunner, Vygotsky, and Piaget, which holds students as

active participants in the learning process (Huang & Liaw, 2018). This learning theory focuses on real-life application to motivate adult learning (Huang & Liaw, 2018). "Learners actively interact with the real world, applying their knowledge to daily life activities, thus increasing the effectiveness of learning outcomes" (Huang & Liaw, 2018, p. 92). This approach allows African-American adult learners the opportunity to construct new ideas or concepts based upon their current and or past knowledge (Bhattacharjee, 2015).

Constructivist learning theory is a model for learning how individuals learn (Bhattacharjee, 2015). The constructivist learning theory builds on flipped classrooms where students are actively engaged in the learning process as they develop skills and acquire concepts (Bhattacharjee, 2015). This theory encompasses several founding principles of learning for adult learners. "Learners construct their own meaning, new learning builds on prior knowledge, learning is enhanced by social interaction, and meaningful learning develops through authentic tasks" as the learners' activities are chosen to simulate real-life experiences (Bhattacharjee, 2015, pp. 66–67). The constructivist theory allows these adult learners the ability to provide meaning and organization to experiences as the adult student goes beyond the information given.

Higher education teachers must be equipped to meet the needs of 21st-century students. To meet the needs of these students, higher education educators must strive to develop skills and competencies by allowing students to be a part of the learning process (Hussain, 2012). By using the constructivist learning theory approach, educators can prepare and train these students for the future. The constructivist theory accentuates on affording opportunities to learners for making good decisions and interpretations of the condition based on prior knowledge and experience (Hussain, 2012). This theory focuses on active engagement between student and teacher in the education process (Hussain, 2012). Its intentions are at emerging skills amongst learners through presenting activities and projects that are relevant to their subjects and situations. It emerges as a

suitable approach preparing them for assuming social roles and professional obligations successfully in their everyday lives (Hussain, 2012).

According to Hussain (2012), "A constructivist approach is oriented on the construction of knowledge putting students in practical situations under the guidance and tutelage of teachers. The use of a constructivist approach in education has direct effects on students learning" (p. 180). A higher order of thinking significantly affects students' learning when the teacher uses the constructivist approach when using technology to promote learning in education (Chatanash & Miaji, 2014). Using the constructivist approach to teaching has a meaningful effect on student academic achievement. Adult learners are actively engaged in the learning process when the constructivist approach is used which has a positive effect on students' ability to transfer knowledge through different activities (Hussain, 2012). The role of the instructor obviously changes to meet the needs of the students' as the incorporation of technology into the teaching and learning process exist (Amarin & Ghishan, 2013). The instructor becomes the facilitator in the learning process, which helps learners in constructing their own understandings and abilities in carrying out tasks on computer technologies (Amarin & Ghishan, 2013).

Technological pedagogical and content knowledge (TPACK) paradigm. The technological pedagogical and content knowledge (TPACK) model is a learning theory that helps educators integrate technology into the classroom (Dysart & Weckerle, 2015). TPACK learning theory guides student's learning and the instructor's instruction (Koehler, Mishra, & Cain, 2013). TPACK continues to be a viable tool in education for both the plan of instruction and the assessment of the instructors' ability to incorporate technology into the educational practices for students in the most suitable way (Koehler et al., 2013). Student learning increases when teachers use the TPACK model to integrate educational technology lessons. The students have a better

understanding of lessons when the instructor incorporates simulation technology software to apply the TPACK model into the instruction to assist teaching and learning (Chai, Koh, & Tsai, 2013).

This model provides a vibrant photographic framework for experts to understand the knowledge essential for efficient incorporation of technology (Chai et al., 2013). TPACK is one form of highly practical knowledge that combines teachers' concurrent and interdependent curriculum content, general pedagogy and technological understanding (Chai et al., 2013). The TPACK model has seven components that define how educators should adopt technology (Chai et al., 2013). TPACK refers to the synthesized form of knowledge for integrating educational technology into classroom teaching and education (Chai et al., 2013).

The TPACK model was the framework used to promote teaching and learning in higher education as it is a means of transforming learning using technology (Chai et al., 2013). According to Maor and Roberts (2011), using the TPACK model offers a mutual or shared language to discuss the incorporation of technology and obtains awareness as researchers observe educational designs and how employing this for instruction and education increases learning. The usefulness of this model assesses how student education can enhance through synergizing knowledge domains (Maor & Roberts, 2011). The purpose of the training was to merge all types of information to produce a learning environment in which learners continuously disputed each other to be involved in higher order thinking skills and meaningful learning (Maor & Roberts, 2011).

There were several studies reviewed by the researcher on technology use and learning using the constructivist learning theory approach and the TPACK model. Gilakjani et al. (2013), Amarin and Ghishan (2013), Hussain (2012), Byker (2014), and Chai et al. (2013); each of these studies showed positive results when various technologies were used to enhance learning using the constructivist approach and the TPACK model. A higher order of thinking significantly affects students' learning when the teacher uses the constructivist approach when using technology to

promote learning in education (Chatanash & Miaji, 2014). The constructivist and TPACK learning theories together provide a foundation for students and teachers. Teachers become the facilitator of learning and the students take ownership of their learning (Bhattacharjee, 2015). The adult learner becomes an active participant in the learning process while the teacher the facilitator of learning (Bhattacharjee, 2015). This is a student-centered learning environment when teachers modify learning and teaching to meet the needs of the students. Using both the TPACK and constructivist learning theory will provide educators with strategies that address the factors affecting the African-American adult learners' ability to integrate and use technology in their classes to promote their academic success in education. The former educational system designed to teach students no longer meets the needs of today's African-American adult learners, which have altered the direction of educational practices (Flowers, Harper, & Lopez, 2014). African-American adult learners have unique characteristics that challenge the traditional classroom teaching structure, which has forced educators to find innovative ways to educate this new population of adult learners (Flowers et al., 2014).

Review of Research Literature and Methodological Literature

Technology plays an essential role in empowering African-American communities to produce valuable learning environments and enhance their socio-economic conditions (Rideout, Scott, & Clark, 2016). People use technology to enhance their everyday life as well as assist them with their academics, careers, and economic opportunities (Rideout et al., 2016). The use of technology has altered education as it affects how students acquire the knowledge needed to prepare them for their future (Delgado, Wardlow, McKnight, & O'Malley, 2015). Therefore, educational leaders and policymakers have put pressure on schools to ensure that technology is effectively used to promote teaching and learning as well as prepare students for the workforce (Lim, Zhao, Tondeur, Chai, & Tsai, 2013). The selected themes synthesized from the review of the

literature. The researcher found a plethora of literature pertinent to the topic of how African-American adult learners perceive using technology integration in higher education to increase their academic performance. The researcher synthesized the literature exploring themes significant to the research topic that examined the digital divide, perceptions of technology use, academic achievement, technology learning environments, technology use in education, technology integration in adult education, and barriers to technology adoption.

The digital divide. The reviewed literature on the digital divide mainly examined the perceptions of African-American adult learners towards technology use in higher education. Some of the literature reviewed was on the perceptions of older adult learners, which has become more prevalent as these learners prepare to become college and career ready (Matsunaga, Painter, Reyes, & Rosin, 2016). The digital divide or digital inequality initially defined the technology gap as being between the privileged and the underprivileged technology users and nonusers in the United States as well as those who experience unequal access to technology (Pearce & Rice, 2013). It has since expanded to include, age, gender, economic status, and the students and teachers' level of comfort with using technology in the academic environment (Dornisch, 2013). "At the core, the digital divide is more than just an issue about providing citizens with access to computers and the Internet. It is about leveling the playing field regarding information diffusion" (Cohron, 2015, p. 84). Access to technology has become a necessity. It is no longer a privilege, as technology is a requirement for participation in today's education and workforce training opportunities (Matsunaga et al., 2016). It is significant to be able to access learning materials in real-time through connecting online. The digital divide, access, and cost of technology use for African-American and minority adult learners have become a growing concern. Educators must focus on determining what issues influence access to technology and usage to help students understand the value of technology for learning to reduce this digital divide (Goode, 2010).

Many studies show African-American and minorities used technology less than Caucasians and suffered at the college level because of the lack of use and access to technology, which contributed to the digital divide (Goode, 2010). Adult learners with lower levels of technology skills eluded classes with substantial technology components, while the tech-savvy adult learners gained the academic and social benefits, which included time and money of being knowledgeable about technology (Goode, 2010). Goode (2010) notes that African-American and minorities have been deprived or at a disadvantage when faced with technological advancements and using technology before going to college which was the key to success in college.

The cost of technology has proved to be a factor in access to using it for many underrepresented adult learners (Goode, 2010). Attaining access to technology in the underrepresented communities has become scarce. This is due impart to the insufficient means which include the lack of funds to afford technology causing a digital divide (Goode, 2010). Perrin and Duggan (2015) found a digital divide in the use of technology through Internet access by American adults. This study found that there are some racial and ethnic differences in technology use. According to Perrin and Duggan (2015) even though, African-American adults have shown tremendous progress over the last 15 years, this group still lag with using technology. Currently, 78% of African-Americans and 81% of Hispanics utilize the Internet compared to other ethnic groups (Perrin & Duggan, 2015).

Perceptions of technology use. Most of the reviewed literature was on perceptions of technology use claim that there are numerous perceptions of how to utilize technology by students, teachers, and administrators. The following studies report common findings of Abdullah et al. (2015), Harrison and Reed (2016), Machado and Chung (2015), and Marzilli et al. (2014). These studies showed positive results towards the use of integrating technology to promote learning in the classroom with effective implementation. These studies all examined the perception of

attitudes toward technology use in relation to promoting learning in the academic environment. Some of the common factors found about the perceptions of using technology proved to increase academic achievement through technology integration for adult learners. Students showed positive attitudes in their individual discipline field of study when technology is used. Students in the science and arts fields showed a higher level of confidence with utilizing technology than others, which may be a result of their course material requirements as well as the presentation of technology to them (Abdullah et al., 2015). Overall, every field of study, which regularly used technology, students showed positive attitudes and their academic performances increased because the instructors influenced the successful outlook of technology use (Chatanash & Miaji, 2014).

The use of technology in education is on the rise as perceptions change (Machado & Chung, 2015). Successfully incorporating technology into classrooms provides teachers the tools of the 21st- century; however, the energy is only potential waiting to become motive upon incorporation (Machado & Chung, 2015). Countless factors impact technology integration in the classroom. They are the instructor willingness, accessibility of hardware, and professional development training of educators (Machado & Chung, 2015). Taking into consideration these factors, the perception of technology use is set by the attitudes of the administrators and teachers. Educators set the tone for the successful implementation of technology as it has a significant impact on teaching and learning in the classroom.

Machado and Chung (2015), Marzilli et al., (2014), Harrison and Reed (2016), and Chatanash and Miaji (2014) showed teachers and administrators attitudes towards technology use in higher education were positive when the school systems allowed them to implement change meeting the needs of this 21st-century technology-savvy students. "As the paradigm shifts from traditional teaching methods to technology-enabled learning, it is essential that instructors be well prepared to utilize new technologies to meet the needs of all students" (Marzilli et al., 2014, p. 2).

To produce successful 21st-century learning students must be permitted to do new things, in innovative ways, and get a distinctive, and better-quality, education because of effective incorporation of technology.

According to Brooks (2016), students' perception of technology use in the classroom to enhance learning varied some. "Students think that technology contributes to their engagement with instructors, with other students; enriches their learning experiences, and empowers them to be better students" (Brooks, 2016, p. 24). Brooks (2016) notes African-American and Hispanic adult learners have considerably more positive outlooks and viewpoints than white students have with using technology more immensely. African-American and Hispanic adult learners also utilized mobile devices more often than other groups for educational and recreational purposes (Brooks, 2016). Brooks (2016) founds students also looked at online settings as opportunities to overcome conventional obstacles of race, as this may provide an explanation for the reasons why African-American and Hispanic students displayed a more positive attitude toward technology than white students (Brooks, 2016). Examining the overall perception of adult learners in terms of their attitude towards the use of technology varied.

Academic achievement. Some of the literature reviewed showed adult learners academics increased through using technology. The proliferated employment of technology will enhance students' knowledge of content and progress of skills in such areas as logical reasoning, problem-solving, information evaluation, and creative thinking (Al-Hariri & Al-Hattami, 2017). To better prepare adult learners for the future and help them learn how to critically think, learn, and increase diverse viewpoints, technology integration in the classroom is critical (Eyyam & Yaratan, 2014). Eyyam and Yaratan (2014) found the effective use of technology in the academic environment has a positive impact on the academic achievement of students. Utilizing technology in the classroom provides instructors with immediate feedback to learners and motivates active learning,

collaboration, and support as well as provide educators with personalized learning opportunities and flexibility for learners (Eyyam & Yaratan, 2014). Eyyam and Yaratan (2014) note utilizing technology provides the students with meaningful learning experiences, which enhances their academic performance in every area. Studies show significant academic achievement for students in math, science, reading, arts, and writing when technology was used in instruction effectively (Delgado et al., 2015).

In the past few years, the second-generation technologies and the Internet have further restructured traditional teaching and learning paradigms (Davidson & Santorelli, 2010). Research studies show students learn when the successful implementation of technology into the curriculum is incorporated. According to Styron and Styron (2011), technology has proven to be effective in increasing student academic achievement. "When utilized properly, quality integration of technology in daily instruction has been documented to have a positive effect on student achievement" (Styron & Styron, 2011, p. 8). Styron and Styron (2011) found students were successful in math, reading, and writing as the test scores increased in these areas after integrating technology into the curriculum (Styron & Styron, 2011).

Technology learning environments. Most of the literature reviewed was about the use of technology involved in changing the learning environments. Some of the literature examined was on technology-enhanced learning environments, which showed positive results. A learning environment is a classroom environment, setting or atmosphere with a teacher leading and engaging learners in an organized lesson (Zaragoza & Fraser, 2017). Ashong and Commander (2012) examined the impact of culture and gender perceptions of online learning environments. This study specifically investigated African-American students' perceptions of online learning compared to other ethnic groups (Ashong & Commander, 2012). The participants in this study completed a survey that examined nine dissimilar elements of the online learning environment:

technology use, teacher support, student collaboration, and amusement, and coexistence (Ashong & Commander, 2012). African-American and Caucasian students had inclusive optimistic interpretations of online learning, but African-Americans stated notably less optimistic interpretations concerning the quality of coexistence (Ashong & Commander, 2012). Females had more optimistic perceptions than males on teacher support, student collaborations and communication, personal significance, authentic learning, and student autonomy. This research study finding revealed that gender and ethnicity autonomously influence students' perceptions of online learning.

Rockinson-Szapkiw, Dunn, and David (2010) conducted a quantitative study to investigate technology-learning platforms through facilitating online learning to help close the academic achievement gap amongst African-American and Caucasian college students. Higher educational leaders sought to understand various ways to increase and promote online learning for students but most specifically African-American students. Educational leaders hoped to bridge the gap amongst the ethnic groups that currently exist. The results from this study did not find any significant differences based on the ethnic groups in terms of the students' social, cognitive, and teaching presence as well as no difference in their perceptions (Rockinson-Szapkiw et al., 2010).

Technology use in education. According to Abdullah (2016), technologies become precedence in our life through the incorporation of it into many subjects to include our everyday life. Technology is also included in the learning process (Abdullah, 2016); it plays a significant role in higher education today, as incorporating technology into the curriculum becomes precedent. However, technology incorporation is not as an isolated subject, but as a tool to foster learning study skills every day in the curriculum (Abdullah, 2016). The challenge here is in finding the effective ways to incorporate technology in education and assist students with using it, that do not take time away from essential subjects (Abdullah, 2016). This study discussed effective

technology implementation in education (Abdullah, 2016). The study noted that educational goals for students and the various ways of incorporating technology into the teaching and learning process helped improve the quality of education (Abdullah, 2016).

Brooks (2016) conducted a study for the Educause Center for Analysis and Research on the significance of technology to students. The study noted that students have robust optimistic natures toward technology and own numerous digital devices (Brooks, 2016). This study showed the student scores on their measures of technology disposition, attitude, and usage of the data collected since 2014 (Brooks, 2016). The study found almost every student owned a laptop or a smartphone and practically no students did not just own a single technological device (Brooks, 2016). Brooks (2016) noted that the student ownership of digital devices continues to increase even though the impending market saturation for laptops and smartphones. The study showed that there was an increase in smartphone ownership by 92% to 96% from 2015 to 2016 and laptop ownership also increased from 91% to 93%.

This study also showed the ownership of tablets continues to level off, but wearable technology ownership more than doubled in the past year (Brooks, 2016). The researcher found that technology device ownership increased tremendously amongst students than the public (Brooks, 2016). Brooks (2016) mentioned that over half of students owned a laptop, a tablet, and a smartphone, compared with a third of the American public. This study also showed that only 1% of students do not own any type of technological devices, while 16% of the adults in the United States reported having no digital devices. Brooks (2016) noted that students used their devices extensively and viewed them as significant to their academic success. However, laptops remain to be an academic mainstay for students. Brooks (2016) found that academic usage of smartphones by students improved by 9% since 2015 while the use of tablets is continually declining.

Technology integration in adult education. The reviewed literature was about technology integration in adult education. Technology integration is a significant aspect of the education systems because it acts as an efficient tool for the delivery of instruction to students (Al-Alwani, 2014). Many educational institutions are adapting their information systems to stay abreast of the technological changes in society to provide quality education (Al-Alwani, 2014). Hussain (2012) notes the importance of the constructivist approach in higher education institutions towards technology integration. This study observed the effects of social learning of students. Hussain (2012) demonstrated through teaching a qualitative research method course for three years to three classes using the constructivist method and constructed activities to engage students in the learning process. According to Hussain (2012), students love working collaboratively with one another on various class projects and tasks when technology was integrating using the constructivist approach. Hussain (2012) notes that the constructivist method plays an essential role in the education learning process in erecting knowledge (Hussain, 2012).

Benham, Carvalho, and Cassens (2014) conducted a study, which described the perceptions of students toward the use and adoption of mobile technological devices in the classroom affected their learning. This study examined the college of business students' opinions regarding the possible implementation of using their own technological device in the classroom known as bring your own device (BYOD). The findings of this study were positive. Benham et al. (2014), was able to demonstrate in this study that students already own the essential technological devices necessary to make a BYOD policy effective. This study also presenting the various reasons why students do not currently bring BYOD devices to class, which did not present a significant hindrance to the implementation of a BYOD policy as it allowed for creativity in teaching to meet the needs of the students (Benham et al., 2014). Benham et al. (2014) found that these students already understand the benefits of utilizing mobile technological devices in the classroom and

desire to use them more in the future. Benham et al. (2014) concluded that they were able to construct a positive relationship between student wants and academic preparation, with the benefits of using mobile technological devices in the classroom as well as demonstrated a connection between increased advantages and the engagement level of students. Integrating BYOD into the teaching and learning environment leads to more involved students (Benham et al., 2014).

Barriers to technology adoption. The reviewed literature mentioned some obstacles or barriers to integrating technology. Although most studies indicated when implemented correctly, technology enhances the teaching and learning process (Chien, 2013). Effective integration of technology into education may present some challenges and obstacles. According to Chien (2013), barriers restricted teachers' use of educational technology, and instructors' approach and pedagogical attitude toward developing technology, which represents one of the most serious problems facing educators. However, instructors must provide quality education experiences (Chien, 2013). The barriers educators face when implementing technology are financial resources, instructors' knowledge and skills, and instructors' attitudes and viewpoints (Chien, 2013). Chien (2013) discovered four types of concerns: individual conflict, fear of the unknown, administrative support, and administrative incompatibility. One of the barriers to technology is that it is too expensive. This study notes this as the greatest barriers and not properly trained teachers for using technology and implementing it into the lesson (Williams, Warner, Flowers, & Croom, 2014). Although the numbers are increasing of educators incorporating technology into the curriculum, some remain hesitant to use educational technology to promote teaching and learning (Gilakjani et al., 2013). According to Davidson & Santorelli (2010), “several barriers to more robust adoption and utilization” of technology by educators are present (p. 28). This study showed that the lack of training, lack of technical support, lack of supportive software, and organizational barriers were challenges to the successful implementation of technology.

Review of Methodological Issues

There were several methodological issues and procedures explored to ensure high-quality literature was reviewed on the perception of African-American adult learners toward using technology to enhance learning in education. An initial comprehensive search was conducted through examining various peer reviewed journal articles and books, which were based on a wide range of key terms pertinent to the perceptions of technology use implementing technology and integrating technology into higher education classes to promote learning for adult learners and African-American adult learners. The search process revealed numerous peer reviewed journal articles or books published between the years of 2012–2019.

The literature reviewed also discussed research methods for conducting educational research. There were three methodological approaches reviewed in the literature to gain an understanding of the perceptions of African-American adult learners toward technology use in education. The quantitative research method was a means for investigating unbiased theories by assessing the relationship amongst variables (Creswell, 2014). There were several studies relevant to this research that used the quantitative research method. Abdullah, Ziden, Aman, and Mustafa (2015) conducted a quantitative study with a survey design, which sought to find out the essential factors of attitudes towards technology use and academic performance of students. This study used self-developed questionnaires, which examined three areas; affection, behavior, and belief. A Likert scale was utilized as the research design to gather information about the attitudes of the college students (Abdullah, Ziden, Aman, & Mustafa, 2015). Questionnaires were used as the research procedures and data analysis that was distributed to higher education students in the arts and science fields of study. The data analysis used in this study was the Principal Component Analysis (PCA) technique, which was applied to examine the construct of the attitudes of the students toward technology usage based on the information gathered from the respondents

(Abdullah, Ziden, Aman, & Mustafa, 2015). Brooks (2016) conducted a quantitative study on undergraduate students and technology use. This study used surveys to gather information. A stratified random sample of students and higher education college and university sites were used to validate the claims. This study revealed students' attitudes toward technology use, student usage of technology, and student disposition toward technology (Brooks, 2016).

Another methodological approach reviewed was on the qualitative research method. The qualitative research method was a method for investigating and comprehending the meaning people or groups attribute to a social or individual problem (Creswell, 2014). The process of inquiry comprises developing questions and procedures, information normally gathered in the participant's setting, information probe inductively building from specifics to general themes, and the researcher making interpretations of the meaning of the information (Creswell, 2014). Several studies were examined during the review of literature that used qualitative research studies. Hussain (2012) conducted a qualitative study to determine the quality of education, which was directly connected to the quality of instruction through applying the constructivist pedagogy to teaching higher education students in the graduate education program. This study used observations to note or record the observations on the readiness of the college students to constructivism (Hussain, 2012). Activities were generated to actively engage students in the learning process, which developed skills of applying qualitative research methods in practical situations. This study assigned participants to groups; homogeneous male to male and female to female or heterogeneous male to female groups (Hussain, 2012).

The mixed method research was another methodological research approach reviewed in the literature. This method of inquiry was a combination of quantitative and qualitative research methods (Creswell, 2014). This mixed approach was comprised of philosophical assumptions through the mixing of both qualitative and quantitative methods in a study examining the strengths

(Creswell, 2014). Machado and Chung (2015) conducted a mixed method research study, which focused mainly on ethnographies, surveys, and interviews. This research used a mixture of phenomenological study from the participant group's attitudes, quantitative surveys of various data, qualitative short answer questions and interviews to conduct this study. They investigated the attitudes of principals towards implementing technology use in education to promote learning (Machado & Chung, 2015).

Byker (2014) conducted a mixed method research study to describe and analyze the integration of educational technology into a social studies classroom instruction for elementary education program curriculum at a Mid-Western University. The data sources and analysis used in this study was a quantitative source using a Likert scale survey of participants (Byker, 2014). The survey instrument addressed elements evaluating the development of TPACK in pre-service teachers. The survey instrument was designed to identify the perception of technology use, skills, knowledge, pedagogical practice, and depth of the content learned (Byker, 2014). The quantitative analysis was at a descriptive level. This study used four qualitative data sources; field notes, artifact collection, Likert surveys, and large group interviews (Byker, 2014). The qualitative research methods were used to analyze the various information gathered. The information compared and contrasted data to find similarities, differences, and frequencies within the information obtained (Byker, 2014). Meta-matrices were also created to allow for further analysis of the information to find additional probing themes (Byker, 2014).

Every method used from various literature reviewed and examined helped to determine the best methodology to utilize to conduct this present research study. However, all three research methods had numerous strengths but depending on the information the researcher seeks to investigate in a study each may present a few limitations. There were some strengths and limitations noted from the various literature reviewed. Whether using qualitative, quantitative, or

mixed method research there are some features that are necessary when conducting research that may be common in each research approach. Some of the common qualities are the trustworthiness to which the researcher was conducting research. The researcher must take note to the way information is collected to prevent any ethical issues. The researcher must also understand the limitations within the scope of the research to avoid any bias in the findings or results.

Synthesis of Research Findings

Technology plays an essential role in empowering African-American communities to produce valuable learning environments and enhance their socio-economic conditions (Rideout, Scott, & Clark, 2016). People use technology to enhance their everyday life as well as assist them with their academics, careers, and economic opportunities (Rideout et al., 2016). The use of technology has altered education as it affects how students acquire the knowledge needed to prepare them for their future (Delgado, Wardlow, McKnight, & O'Malley, 2015). The literature reviewed has been synthesized of selected themes. A plethora of literature pertinent to the topic of the perception of African-American adult learners toward technology use in higher education to increase their academic success was reviewed. The literature was synthesized around themes explored significant to the research topic that examined the perceptions of technology use by students and educators, technology use in relation to academic achievement of adult learners, technology use using the constructivist learning theory and the TPACK model.

Critique of Previous Research

There was a plethora of previous literature reviewed and critiqued to help support this study. There were studies by Machado and Chung's (2015), Abdullah, Ziden, Aman, and Mustafa (2015), and Harrison and Reed (2016) that impacted and supported the present study. However, none of the studies reviewed examined the perception of African-American adult learners use of

technology and how they use technology to increase their academic success in higher education. The few studies that did observed elementary and high school African-American students.

Machado and Chung (2015) concentrated on the principals' and administrators' perception of technology. Their perception was important, but the students' perception is significant as well. When schools consider integrating technology all stakeholders' perspectives must be taken into consideration. Machado and Chung (2015) also used a phenomenological approach to gather the perceptions from a group of four K–12 schools. This present study used case study approach because the researcher had an intrinsic interest in a case on African-American adult learners. Most of the literature reviewed in this present study examined K–12 because there were few studies on perception of technology use for African-American adult learners at the higher education level.

Machado and Chung (2015) addressed integrating technology into the curriculum from the leader's viewpoint and the effect of utilizing technology in the classroom. The authors researched numerous paths for further investigating technology use in education. Most educational leaders were positive about new creative and innovative ways to make learning more realistic and meaningful through providing instructor coaches and faculty coaching programs to train teachers as well as increase learning. Machado and Chung (2015) examined how effective such programs would be. The authors investigated various paths of principals to see if their strategic plans incorporated creativity, innovation, and technology to increase technology integration in education (Machado & Chung, 2015). This study explained the integration of technology in schools focusing on the perception of the administrator's attitude towards implementing the use of technology in the school system (Machado & Chung, 2015). Machado and Chung (2015) studied the current perspectives of principals pertaining to computer integration in schools and the attitudes of the instructors about implementing technology as well as the various challenges that may hinder the successful integration.

Even though, Abdullah, Ziden, Aman, and Mustafa (2015) study focused on higher education college students' perception and use of technology, it did not view the perception of African-American students. Abdullah et al. used quantitative approach. The present study viewed the student perceptions of technology use from a qualitative approach. Abdullah et al. measured academic achievement of students by discipline area and not as a whole. Abdullah et al. focused on the students' attitudes towards information technology and the relationship with the academic achievement of the students. This research addressed the primary factors of attitudes towards technology use and how it relates to academic performance. The authors found a positive correlation between technology and science and educational success. The purpose of the study these authors focused on was the adult learners' perception of information technology and the relationship with their academic performance by the different discipline of study. These authors provided insight into the nature of the students' perceptions towards technology and academic success in education (Abdullah, Ziden, Aman, & Mustafa, 2015). Their study concentrated on the underlying dimensions of attitudes toward information technology by the various disciplines to determine the correlation between the academic achievement (Abdullah, Ziden, Aman, & Mustafa, 2015). Abdullah et al. found three common elements of the students' attitudes towards information technology namely students' affection, behavior, and belief towards technology were measured. The authors concluded that when technology was utilized in education that students showed positive attitudes as their optimistic perceptions reflected which led to academic success (Abdullah, Ziden, Aman, & Mustafa, 2015).

Although, Harrison and Reed (2016) study examined the perceptions of adult learners and high school students' technology use, it did not examine the effect of technology use on academic achievement of African-American adult learners. Their study used a comparison approach

focusing on the descriptive views of the adult education and high school students' perspectives from the North Carolina Department of Public Instruction Technology Education Programs in that state. However, it does impact and support this present study in examining perceptions of technology use by students in education. The present study focused on the needs of the African-American adult learning with being successful in college through using technology. Harrison and Reed (2016) addressed the perceptions of technology through a comparison between adult learners and high school students. The authors strived to find out if there were differences amongst the perceptions of adult learners and high school students with regards to using technology in an academic environment (Harrison & Reed, 2016). This study showed a significant difference between the groups surveyed for this research. The authors examined gender and ethnicity groups of students to validate this research by analyzing the different perceptions of technology use by each group (Harrison & Reed, 2016). Previous literature has been reviewed and critiqued to help validate this research. Technology has many factors that can assist in the successfulness of the African-American adult learner whether using it for school, work, or fun. Many studies have been conducted on the K–12 level but few studies have been done on the college level for African-American adult learners and their perception of technology use in higher education.

Chapter 2 Summary

Based on the literature reviewed by the researcher, this chapter establishes the foundation for the need to gain further insight into the effective use of technology in higher education classrooms by African-American adult learners. As discussed in the literature reviewed by the researcher in this chapter, utilizing technology is essential to the academic success of adult learners because it is required in every aspect of their life. This chapter also summarizes the perceptions of African-American adult learners toward using technology to promote learning in higher education. Chapter 2 provides the conceptual framework for this study and gives insight into the academic

achievement of students through technology use. This chapter discusses the barriers as well as the benefits of technology use through the TPACK and constructivist learning theory models. This chapter also reviews research and methodological literature as well as methodological issues, synthesizes research and analyzes reviewed literature.

Technology alters the way instructors teach, offering educator's effective ways to reach diverse groups of learners and assess their comprehension through multiple means (Abdullah, 2016). Using technology to enhance learning helps non-traditional working adult learners meet their educational needs by offering other methods of learning through hybrid and online (Abdullah, 2016). The successful use of technology in the various discipline areas provides the instructors with opportunities to grow into their perspective roles as facilitators of learning (Abdullah, 2016). This allows the students to be more accountable for their educational outcomes, as technology bestows itself as the multidimensional tool that supports this process (Abdullah, 2016).

Chapter 3: Methodology

Introduction

The purpose of this qualitative case study was to gain an understanding of how do African-American adult learners perceive using technology in higher education to increase their academic success. The researcher used an intrinsic case study for this qualitative research. "Intrinsic case studies only aim at acquiring a better understanding of a particular case of interest" (Baskarada, 2014, p. 5). The intrinsic case study allowed the researcher to understand a distinct circumstance, in this instance, the experiences of African-American adult learners' perceptions of using technology for educational purposes to enhance their performance in their college classes (Parker, 2016).

The significance of this study lies in the fact that it provides educators an insight into how African-American adult learners perceive the use of technology in higher education classes. This can help educators promote an environment that may reduce the gap in African-American achievement of academic success and the growing failure of African-American adult learners to thrive in an ever-increasing technological society (Bailey, Dziko, Bergeson, & Davidson, 2008). This study helps shed light on some of the reasons why the perceptions may vary among African-American adult learners compared to other ethnic groups. This chapter provides an explanation of the purpose, the overview of the methodological design, and the research question for this study. This section provides an explanation of the data collection process, which includes the sources of data and instrumentation as well as the data analysis procedures. This chapter provides an explanation of the limitations of this research design, validation of this study, the ethical issues, and a chapter summary.

Research Question

This study focused on the perceptions of African-American adult learners toward using technology in the community college. This study strived to answer the research question through this qualitative case study. The research question that guided this study was:

RQ. How do African-American adult learners perceive the use of technology in higher education to increase their academic success?

Through endeavoring to answer the research question, the researcher strives to uncover whether the use of technology is helpful to the African-American adult learners' success in higher education. This means is using technology to complete coursework beneficial to the academic achievement of African-American adult learners in college. This allows for a better understanding of these adult learners' perceptions of using technology to increase their learning and knowledge in higher education classes.

Purpose and Methodological Design of the Study

The purpose of this research study was to explore how do African-American adult learners perceive using technology in higher education to increase their academic success. This study was significant because it provides insight into how African-American adult learners use technology in higher education to promote their academic success. This research can help teachers present technology in a way that increases lifelong learning.

The methodological approach for this study was qualitative research. The case study design allowed the researcher the opportunity to investigate significant topics not easily revealed by other research methods (Yin, 2014). The case study design also allowed the researcher the ability to gain a better understanding of the situation, phenomenon or experience (Yin, 2014). Qualitative researchers usually adopt shared experiences from real-life situations of people because they interpret and contextualize meanings from the individual’s beliefs, customs, and traditions

(Baskarada, 2014). Using qualitative case study design affords the researcher the chance to organize a range of approaches, which aim at the naturalistic, holistic, ethnographic, phenomenological, and biographical research methods (Hyett et al., 2014). The use of a qualitative case study design illustrates the case by its interest in a single case, which labels the case rather than the methods of inquiry used (Hyett et al., 2014). As such, the researcher used the intrinsic case study approach. The intrinsic case study design allowed the choice of a case based on its own distinctions and it is not demonstrative of other cases as it is rare (Hyett et al., 2014).

Research Population and Sampling Method

The research population was a significant component of this qualitative research because it allows the researcher to generalize the population (Bogopane, 2013). The study population for this case study was a homogeneous combination of African-American adult learners available to the researcher. The researcher used a diverse student population from a local community college setting located in North Carolina.

The research sample was a small representation of the whole population (Bogopane, 2013). In this case, the sample was comprised of African-American adult learners enrolled in two classes at the community college. The community college served approximately 24,000 students for the 2018–2019 school year, and of those only 300 of them enrolled in one Introduction to Computer class or one Introduction to Psychology class who currently or previously enrolled in a computer class. For this research study, students at this local community college are designated curriculum students or continuing education students. Curriculum students are high school graduates continuing their education on a higher education level or degree-seeking students. Continuing education students are adult learners seeking to obtain a diploma or further their professional education to prepare for college or the workforce. These students are lifelong learners. The continuing education students may not have a high school diploma or may have it and need to be

retrained for the workforce. The curriculum student participants already have a high school diploma and are pursuing a college degree. The researcher selected the population and the sample for this case study based on the following criteria: (a) access to the community college, (b) student population of adult learners at the community college taking introductory level courses, (c) adult students within three age demographic and one racial-ethnic group of interest (Millennials: ages 18 to 34, Generation Xers: ages 35 to 50, and Baby Boomers: ages 51 to 69), (d) ethnic group (African-American). Additional criteria needed (e) gender, (f) employment status, (g) marital status, and (h) highest level of education.

Sampling method. The sampling method was the procedure for selecting or examining situations, environments, perspectives, and or participants of the phenomenon of interest (Moser & Korstjens, 2018). The sampling explains how the participants in research are selected (Moser & Korstjens, 2018). The researcher used a purposeful sampling method to select the sample size in this case study to gain insight and understand the nature of this case (Griffith, 2013). According to Griffith (2013) when selecting purposeful samples certain criteria requires authentication, which reflects the focus of the study. In qualitative research, the sample is deliberate and not random (Moser & Korstjens, 2018). The sample, in this case, was the participants in this study (Moser & Korstjens, 2018). The sample reflected the inclusion criteria for this case study, which includes African-American adult learners between the ages of 18 to 69 years old currently or previously enrolled in these two classes at this local community college (Robinson, 2014). In qualitative research, Creswell (2013) recommended including five to 25 people who have experienced the topic being researched. The sample for this case comprised of 14 African-American adult learners.

Using the student database system for the data collection site prevented biases because the institution's system purposefully selected the students for the researcher. To maintain the trustworthiness of this study, the researcher used a purposeful sampling technique to focus on the

participants meeting the criteria outlined that are purposefully accessible since the researcher works in the academic study environment at a local community college in the Sandhill region of North Carolina (Etikan, Musa, & Alkassim, 2016). A purposeful sampling strategy allowed the researcher to invite the participation of participants who have specific characteristics to make up the research sample from a diverse population such as those adult learners enrolled in introductory level classes at the college or have a specific academic trajectory (Etikan et al., 2016). The purposeful sampling strategy assisted the researcher in selecting the research sample population because of the location of the researcher and subjects, which were easy to access (Etikan et al., 2016). The researcher utilized this sampling technique because it allowed the researcher to identify and select rich-thick information from the participants pertaining to the phenomenon of interest.

Instrumentation

The instrumentation was the process used to collect the data in this research study (Creswell, 2013). There were several different types of instruments used to collect and measure qualitative data (Creswell, 2013). The researcher used semistructured interviews, focus groups, and field notes to understand the perceptions of African-American adult learners use toward technology in education to increase their learning in education in this study. These instruments allowed the researcher the ability to gain an understanding of the phenomenon being investigated from the perspectives of the participants in this study. This also allowed for a triangulation of the data to assist with valid and reliable results for this study (Zohrabi, 2013).

Sources of data. The sources of data collected for this case study research required the researcher to concentrate on the African-American adult learners' perceptions of using technology in higher education. This was done using interviews, focus groups, and the researcher's field notes to provide a clearer understanding of the problem (Guion, Diehl, & McDonald, 2011). The

collection of data for this case study research requires the researcher to concentrate on African-American adult learners' perceptions of using technology in higher education. This provided the researcher with a clearer understanding of the problem (Guion et al., 2011).

Before any data collection began, permission was granted by the institution site, a community college. The community college's student database system identified 40 adult learners from two introductory level classes as meeting the criteria for this study. An initial email was sent to only those 40 African-American adult learners inviting them to participate in this study and it explained the nature of the study (see Appendix C). Once the potential students responded to the initial email stating their interest in participation, another email was sent with a consent form allowing a three-day turnaround. The first 14 African-American adult learner participants' responding to the initial email were selected to participate in this study.

The researcher then assigned each participant a pseudonym to ensure the safety of the information and identity of the participants in this study was maintained. The researcher used the pseudonyms P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12, P13, and P14 to distinguish each participant in this study as the researcher's primary obligation was to protect the information provided by the participants in this study of a phenomenon in a real-life environment. This responsibility involved special and ethical consideration of the human participants, particularly getting informed consent from every participant who was a part of this case study, through informing them to the nature of this case study and formally soliciting their volunteer participation (Yin, 2014).

Data were collected from the individual interviews and focus groups face-to-face using a semistructured design. The researcher took field notes throughout the entire data collection process. Maintaining consistency in well-structured interviews and focus group questions for each participant ensured reliability (Yin, 2014). The semistructured interviews and focus groups

allowed the researcher the ability to be more flexible in understanding the viewpoints of the participants' perceptions. Semistructured interviews and focus groups also allowed the researcher the opportunity to refocus questions or probe participants for more information if something intriguing emerged (Baskarada, 2014). The participants answered the interview questions (see Appendix E) and focus group questions (see Appendix F) listed in the protocol guides.

Interviews. The researcher conducted semistructured interviews using a case study approach as a means of exploring viewpoints, experiences, beliefs, and motivations of the participants (Jamshed, 2014). "Due to the semistructured nature of the interviews, the researcher had the flexibility of sequencing and rephrasing the questions according to the data obtained in each interview" (Saxena, 2017, p. 318). Every interview shed some light on how African-American adult learners perceived using technology to increase their academic performance in education. The participants answered every question to the best of their ability based on their experiences with using technology. The interviews guided the conversations that were the most important sources of data used in this case study evidence (Baskarada, 2014). The interviews took place in an office on the main campus at the local community college as an agreed upon location free from distractions so that the participants felt comfortable sharing information (Seidman, 2013). The individual interviews lasted approximately 45 minutes per session.

The researcher used an interview protocol guide (see Appendix E) to assist with interviewing the participants from two introductory level classes at a local community college recording an accurate detail description of their responses to each question for each individual interview using field notes and an audio recording device (Sutton & Austin, 2015). Member checking was used immediately after each interview session. The researcher emailed a copy of the typed transcripts to each participant for them to review, make corrections if necessary, and check as this ensures the researcher maintains accuracy. Member checking was also used to substantiate

credibility and validity because it allowed the researcher to interpret the individual interviews and provide an email copy of the transcribed data to the participants to confirm the information obtained, which adds credibility to the data collected (Boblin et al., 2013).

The researcher used a general interview approach to conduct the individual interviews, to ensure the interviews covered every area of concentration (Turner, 2010). This approach allowed the researcher to be flexible, maintaining the focus on the intent of the interview was met (Turner, 2010). Using data collected from the interviews based on the responses of the participants from the first section of the interview protocol guide, the researcher collected demographic information from each participant as well as each participant responded to two open-ended questions (see Appendix E). Then, the participants answered questions for the remaining sections of the interview protocol guide, questions 1 through 15, which were formed as a questionnaire to determine the participants' perceptions of using technology in higher education (see Appendix E).

Following each individual interview, all the data collected from the interview sessions were transcribed, evaluated, and coded. The process of coding qualitative data was a means of analyzing text-based data to construct meaning from descriptive or inferential data collected during this case study (Hamed-Hilal & Alabri, 2013). The researcher examined the data from the individual interviews searching for related words or phrases mentioned by the participants. These words or phrases were combined to understand the connection between them (Hamed-Hilal & Alabri, 2013). The researcher used a first and second cycle coding system as suggested by Saldaña (2015) to connect the participants' responses from the individual interviews to the research question, how do African-American adult learners perceive the use of technology in higher education to increase their academic success? The following steps were used to code and interpret the data, which included the first read and coding data, reducing the data, the emergence of patterns, second coding and connection, and final coding. The researcher used the assigned

pseudonyms to identify the participants in this study. This maintains the safety of their identity in the sharing of information pertaining to this study.

Focus groups. The focus groups followed the individual interviews. The focus groups were used in this study to interview groups of participants to gather high-quality data in its social context, which helped the researcher to understand the perceptions of using technology by the participants (Dilshad & Latif, 2013). The researcher used focus groups to further explore the perceptions of African-American adult learners' use of technology in an academic setting and find the reasons for the participants' specific rationale of thinking because of the lack of substantiating data about this topic (Dilshad & Latif, 2013). Focus groups provided the researcher with in-depth perspectives from the focus group participants.

The researcher used two focus groups as a source of data in this study from volunteer participants from two introductory level classes as identified by their instructor as meeting the inclusion criteria for this study. The participants were purposefully divided into two focus groups according to their availability, which included six participants in each group. One focus group (see Appendix L) included all females and the other focus group (see Appendix K) included a mixture of male and female, six continuing education and six curriculum students equally divided between the groups. There were three continuing education and three curriculum students per focus group. The focus group sessions were approximately 90 minutes due to the class time schedule at the community college and were held in the multi-purpose room on the main campus (Sagoe, 2012). Both sessions were audio recorded using a digital recording device. The researcher labeled the focus group as focus group 1 and focus group 2 to distinguish the groups. Focus Group 1 was comprised of participants P2, P3, P5, P6, P7, and P8 (see Appendix K). Focus Group 2 included participants P1, P9, P10, P11, P12, and P13 (see Appendix L). The focus group participants were

previously assigned pseudonyms to securely distinguish the participants to protect their identity in the sharing of information about this study.

The researcher generated a focus group protocol to guide the group interview discussions ensuring that the groups stayed on task as well as provided the necessary guidelines for the group interviews for this study (see Appendix F). The protocol guide comprised of 11 open-ended questions, which focused on answering the overarching research question for this study. Each of the focus group participants was asked the same questions at different group session times (see Appendix E). The researcher notified all focus group participants via email and provided them with details of the study prior to conducting the focus group interview sessions (Dilshad & Latif, 2013). The focus groups allowed the researcher to have a combination of unstructured and semistructured discussions with the participants from each group to gain insight into their experiences with technology use in higher education (Fusch & Ness, 2015). The focus groups allowed the researcher to use an exploratory approach as an innovative means of collecting data to discover new information or ideas about the topic of interest, which generates new knowledge, and ideas in research (Sagoe, 2012).

Following the focus group sessions, the researcher assessed, transcribed, and coded the data from the focus group discussions after each session. The researcher used a first and second cycle coding system to connect the focus group discussion responses from each group session to the research question (Saldaña, 2015). The same procedure was followed for coding the information as the interviews. The researcher interpreted the data using the following steps; the first read and coding data, reducing the data, emergence of patterns, second coding and connection, and final coding (Saldaña, 2015). This process continued until saturation and there was no new information to be found from the groups (Sagoe, 2012). The researcher also emailed a copy of the transcribed data to the participants in both focus groups after each session. This allowed for each focus group

to member check for accuracy. The data were coded using In Vivo codes to capture the experience by the participants in each focus group. The researcher documented the information by frequency and consolidated the data. The researcher used In Vivo codes to extract the data to capture the participants' perspectives from the focus groups on their overall experiences with using technology (see Appendices M).

Field notes. The researcher used field notes throughout this study to collect information from the participants. Field notes were used as a source of data because it allowed the researcher to comprise narrative depictions of individuals, places, and human and natural events, patterns of interaction, reports of value and belief, and the chronological context in which the preceding takes place (Muswazi & Nhamo, 2013). To record the use of technology in higher education by African-American adult learners, the researcher used field notes to document accurate accounts of the experiences shared by each student participant. The researcher used field notes to assist in constructing the rich-thick descriptions of the study context, experiences, interviews, and focus groups to document relevant contextual data based on the participants' responses (Phillippi & Lauderdale, 2018). Field notes helped contextualize the research study and provide viewpoints from the participants' experiences that was useful when looking at the data in the future or examining perceptions across time.

The researcher took notes during and immediately after the interviews and focus group sessions. The field notes were unedited in their original form to capture the essence of the experiences about technology use from the perspectives of the African-American adult learners participating in this study. "Good field notes should be descriptive to include verbal portraits of the participants, a reconstruction of the dialogue, and a description of the physical setting as well as accounts of particular descriptions of the" participant's attitude towards using technology in school (Muswazi & Nhamo, 2013, p. 13). The field notes provided rich-thick detailed accounts to

include reflective methods of the data collection, analysis, reflection of ethical issues and conflict (Muswazi & Nhamo, 2013). Field notes allowed the researcher the opportunity to produce meaning and understanding of the phenomenon in this study. The researcher ensured that all information obtained in the field notes was secure in a locked file cabinet because of the sensitivity of the information that was significant to this research (Sutton & Austin, 2015).

Data Collection Process

The data collection process was the methods the researcher used in collecting the data through interviews, focus groups, field notes, and unobtrusive measures such as documents to support the nature of the study (Brooks & Normore, 2015). The researcher used primary sources of data to collect information from the participants in this study (Creswell, 2012). According to Renz, Carrington, and Badger (2018), qualitative research frequently encompasses the collection of information through extensive interviews, note-taking, tape recording, and the use of field notes that capture the researcher's observations of the phenomena under study.

The data collection process comprised of data from individual interviews, focus group discussions, and researcher's field notes. The data collected in this case study focused on the African-American adult learners' perspectives based on their perceptions from their experiences toward using technology in higher education to increase their academic success. The researcher provided every participant with a copy of the informed consent letters, the approval letter, and a cover letter explaining the purpose of this study, the benefit of the study, any potential risks involved, and their rights for voluntary participation in this study (Cozby & Bates, 2015). This happened before any data was collected for this study.

Identification of Attributes

The attributes that defined this qualitative intrinsic case study were educational technology, technology use in higher education, minority, African-American perceptions of technology use,

adult learners use of technology, technology teaching methods, lifelong learning, student experiences with using technology, adult education, and student attitudes, behaviors, and perceptions. African-American adult learners perceive using technology in many ways than other groups from their individual experiences with using it for learning. The goal was to explore how African-American adult learners perceive using technology in higher education to promote their academic success in college.

The counter-narrative from the African-American adult learners in this study provides a picture from their experiences with using technology to increase their learning (Smith, 2016). These adult learners shared their experiences with educational technology from their perspectives. African-American adult learners' perceptions are significant to the teaching and learning process because it affects how these adult students "make sense of their experiences and organize their learning, which is pivotal for the understanding of their learning motivation" (Lasagabaster & Doiz, 2016, p. 111). Therefore, the way a student perceives something may have a lasting effect on the way they learn.

Data Analysis Procedures

The data analysis procedures entailed the researcher checking the notes from the individual interviews and focus groups. Then, the researcher started the process of coding the data for categorization. The process of analyzing qualitative data entails understanding how to make sense of the information collected so that the researcher can form answers to the research questions (Creswell, 2012). The researcher interpreted the phenomenon to grasp an understanding of the relationships between the information to glean from the different sources of data once the analysis of qualitative data had been collected (Sutton & Austin, 2015). The researcher organized the information to make sense of it, continuously reading the data collected from the individual interviews, focus group interviews, and other documentation notes highlighting keywords or

phrases (Dierckx de Casterle, Gastmans, Bryon, & Denier, 2012). This allowed the researcher to achieve a holistic understanding of the participants' experience and the qualitative data can be organized (Dierckx de Casterle et al., 2012). Then, the researcher searched for and identified common themes and codes after transcribing and checking all the research information (Sargeant, 2012).

Limitations of the Research Design

There were some limitations to this qualitative research design noted by the researcher. Every research study has limitations (Simon & Goes, 2013). "Limitations are matters and occurrences that arise in a study which is out of the researcher's control. They limit the intensity to which a study can go and sometimes affect the end results and conclusions that can be drawn" (Simon & Goes, 2013, p.1). There were possible limitations to this study that may be beyond the researcher's control, which may cause the research study to be weak such as the research sample. The sample size was limited to 14 participants which made the size very small and limited to about 14 participants. This small population may impede the ability to generalize across a population. This was an intrinsic case study because the researcher had an intrinsic interest in the perceptions of African-American adult learners' use of technology. Therefore, this design was limited to only those adult learners (Chitanana & Museva, 2012). There may be time constraints due to the short time frame to gather and collect the data. The evidence pertaining to the experience of people has inherent limitations compared with data about the behavior of people. This is due in part to the experience not directly being observed as such the data collected from the participants depends on their ability to accurately and effectively account their experience to transfer this information to the researcher so that meaning can be understood from it and not construed.

Validation

The researcher used validation measurements in line with the qualitative research paradigm to validate this study. The core of qualitative research is to make sense of and identify patterns among words to develop a meaningful depiction without compromising its richness and dimensionality (Leung, 2015). However, qualitative research handles non-numerical data and their phenomenological explanation, which intricately connected with human sense and subjectivity (Leung, 2015). Thus, the researcher confirmed data was accurate ensuring the appropriate procedures met and the instruments used helped validate this qualitative research. This ensured that the research question was effective for the anticipated outcome. The choice of methodology for this study was suitable for answering the research questions and the design was effective for the methodology used (Leung, 2015). Validation of qualitative study means that the sampling and data analysis was suitable, the outcomes, and conclusions were valid for the sample and context (Leung, 2015).

Validation of any qualitative study is essential; thus, the researcher ensured the reliability of this study through the careful examination of the trustworthiness of the information. The researcher used a triangulation approach to evaluation as a means of ensuring the validity, reliability, and credibility of this study to control any bias as well as establish valid propositions (Zohrabi, 2013). The use of triangulation strengthens the qualitative study by combining various evaluation methods to validate the research (Zohrabi, 2013). The triangulation technique involved the researcher using multiple methods or data sources in qualitative research to establish a comprehensive understanding of the phenomenon for this study (Campbell, Goodman-Williams, Feeney, & Fehler-Cabral, 2018). Many researchers use triangulation to test validity through the convergence of data from different sources such as method triangulation, investigator triangulation, theory triangulation, and data source triangulation (Zohrabi, 2013).

Expected Findings

The expected findings in this intrinsic case study uncovered the real-life experiences from the perspectives of the African-American adult learners and their experiences with using technology. The researcher expects to find ways to assist future studies in understanding the perceptions and attitudes of African-American adult learners towards the use of technology that can enhance learning academically for all adults. The researcher also expects to discover some reasons why African-American adult learners lag, behind with using technology to enhance their education. This allows the researcher the opportunity to make suggestions for future research as to how to help African-American adult learners better understand the value and benefit of using technology to increase learning as well as assist with career and leisure learning. This may consist of new knowledge discovered through this study that should fill in the gaps in the literature.

Ethical Issues

There were numerous ethical issues to consider that may present itself in the study. However, the most significant ones the researcher considered in this qualitative study were those that deal with anonymity, confidentiality, and informed consent (Sanjari, Bahramnezhad, Fomani, Shoghi, & Cheraghi, 2014). The researcher ensured that the possibility of intrusion into the autonomy of the study participants' data through securing all information pertaining to this study by any means necessary in a locked file cabinet (Sanjari et al., 2014). The researcher used all ethical measures, which included safely securing documents because this research study included human participants. The participants were required to sign a written consent to participate in this study. The participants in this study comprised of African-American adult learners 18 years of age or older. The participants in this study were adult community college students willing to participate in this study and or were interested in learning more about the various uses of technology that enhance learning.

The researcher considered all possible risks involved in this study and took the necessary measurements in the event of an unforeseen risk that may have occurred to deal with any such risks. There were no potential risks foreseen physical, mental, or social beyond conducting the normal activities of an adult. The researcher also got prior approval from the appropriate community college board members, department chairs, and other organizational leaders before collecting data or any information for this study and ensured that the identity of each volunteer participant remained undisclosed. The researcher provided identification numbers to all participants to assist with this process. This was for those students who gave their permission to participate in this study. The researcher followed the ethical guidelines outlined by the Concordia University–Portland Institutional Review Board (IRB).

Chapter 3 Summary

In this chapter, the researcher described the method of organization for this qualitative case study conducted. This chapter sought to answer questions about the perceptions of community college African-American adult learners toward the use of technology in education. The research question sought to discover how do African-American adult learners perceive using technology in higher education to increase their academic success. The questions for this study provided answers from participants' experiences using individual interviews, focus groups, and field notes. The researcher selected qualitative case study because it was the most appropriate method to collect and analyze the data as it captured the essence of the phenomenon of this study. This chapter provided an outline of the methods and procedures used for this case study. This section provided an in-depth explanation of the overall research design and the procedures for this study.

This chapter provided the criteria for selecting the study population and data collection process. The sources of data for this case study provided the type of instruments used to ensure the dependability, trustworthiness, and rigor of this study (Creswell, 2012). A data triangulation

strategy ensures the validity, reliability, and credibility of this study is met (Guion et al., 2011). The triangulation strategy helps to boost confidence in the data for this case study (Guion et al., 2011). This allowed the creation of innovative ways to form to understand the phenomenon as it exposes unique findings (Guion et al., 2011). The researcher provided examples of the interview and focus group questions in Chapter 4. The analysis of the information collected from the interviews and focus groups upon completion demonstrates the presentation of the results. The researcher presented the findings from this study by displaying the compiled information and other calculations to present findings in Chapter 4.

Chapter 4: Data Analysis and Results

Introduction

The purpose of this qualitative case study was to explore how do African-American adult learners perceive using technology in higher education to increase their academic success. The experiences of 14 African-American adult learners' perceptions of using technology in their higher education courses were explored from the students' perspectives. This study used adult learners from two introductory level courses, Introduction to Computers and Introduction to Psychology. The African-American students from these two courses participated in this study. This allowed for the exploration of the students' perceptions, as their insights are a significant variable in the learning process. The African-American adult learners' perceptions may be viewed in terms of their level of satisfaction or attitudes toward using various technologies in the classroom (Meehan & Salmun, 2016).

The framework used to guide this study was a combination of technological pedagogical content knowledge (TPACK) and constructivist learning theories. Both theories develop meaningful learning experiences from the perspectives of African-American adult learners and their use of technology to increase their learning in higher education. Using these theories allows all age groups to construct knowledge and describe their learning experiences. Therefore, these adult learners construct their own perception and understanding of the world, through their experiences and reflecting on those experiences (Biniecki & Conceigao, 2016). As these African-American adult learners encounter new learning experiences, they must combine that experience with previous concepts and experiences through asking questions, discovering, and evaluating what they know (Biniecki & Conceigao, 2016).

This chapter will discuss the in-depth description of the participants in this study including background and demographic information. This chapter focuses on the findings for this study on

the perception of African-American adult learners towards the use of technology at a community college located in the Sandhills of North Carolina. This case study explores technology use from the experiences of African-American adult students' perspectives enrolled in higher education classes. The use of technology in the teaching-learning environment is important in higher education (Bustamante & Moeller, 2013). The findings in this qualitative intrinsic case study were relevant in answering the research question: How do African-American adult learners perceive the use of technology in higher education to promote their academic success?

Chapter 4 discusses the description of the sample followed by the research methodology and analysis. This chapter provided a summary of the findings, the presentation of the data, and an explanation of the results. Chapter 4 also discussed the organization of the results as it pertains to the nature of this qualitative research study's overarching question for this intrinsic case study and the chapter summary. This chapter provided illustrations of the themes displayed throughout the chapter supporting the participants' statements pertaining to the research questions in the interviews and focus group discussions.

Description of the Sample

The sample selection for this qualitative case study came from one higher education institution only: a community college located in North Carolina. The participants were selected for this study using a purposeful sampling technique (Etikan, Musa, & Alkassim, 2016). The participant selection was deliberate and purposefully selected to provide rich information from the individual interviews, focus groups, field notes, and other sources (Palinkas et al., 2015). According to Creswell (2013), when conducting qualitative research, it is recommended to include five to 25 individuals with experience on the topic being investigated. Using the college's student database system to recruit adult learners who met the criteria, 14 participants agreed to participate

in this study. The sample for this case study reflects the inclusion criteria: African-American adult learners who are currently or previously enrolled in Introduction to Computers or Introduction to Psychology with previous computer courses taken at this community college. The adult learners in this study ranged from 18-69. The researcher used these courses because they were the only courses provided by the data collection site meeting the inclusion criteria for this study.

An initial email was sent to both the introductory computer and psychology classes to invite students meeting the criteria who volunteered to participate in this study (see Appendix D). The community college's student database system identified 40 adult learners from the two classes as meeting the criteria for this study. The initial email was sent to only those 40 African-American adult learners inviting them to participate in this study. Once potential students responded to the initial email stating their interest in participation, another email was sent with a consent form allowing a three-day turnaround (see Appendix C). Thirty students responded to participate in this study, for a response rate of 75%. The first 14 African-American adult learner participants meeting the inclusion criteria as previously outlined responding to the initial email was selected to participate. Then, interviews were scheduled during October and November 2018.

Once the consent forms were returned, another email was sent with the interview questions for the participants to review. This provided the participants with the type of questions they would be answering during their face-to-face interview session, and it helped put their mind at ease, as they would feel comfortable sharing information. The sample for the individual interviews comprised of 14 participants who varied in age, gender, educational experience, and technology use. This allowed comparisons of perspectives from both groups of students to determine any differences. Using the data collected from the individual interviews and focus group discussions, the researcher sought to answer the research question for this study.

Participants. The researcher collected demographic information from each group to analyze it to develop commonalities and differences. The participants in this study were all African-American adult learners enrolled as a continuing education or curriculum student working towards an associate degree. There were 14 adult learners participating in this study. The ages of the participants ranged from 18 to 69 years old. Only two out of the 14 participants worked while going to college part-time. However, those working participants did not have access to technology at work. All 14 participants had access to technology at school, while 12 participants had access at home and school. There were six participants enrolled as continuing education students retraining for the workforce or military, including two male ages 18 to 34 and four female, one ages 18 to 34 and three ages 51 to 69. There were eight participants enrolled as curriculum students working on their associate degree. There were two male participants ages 35 to 50. There were four male participants ages 35 to 50, and one female curriculum participant ages 18 to 34.

The participants' ages varied, which included six participants ages 35 to 50 years old. The other age groups represented in this study were evenly distributed between four participants in the 18 to 34 years old age group and four in the 51 to 69 years old age group. Most of the participants in this study were female. There were 10 female and four male participants. Twelve of the participants were full-time and two of them were part-time enrolled. There were six of the continuing education students' military or being retrained to reenter the workforce.

Appendix G provides a detail explanation of the individual interview participants' demographic information who met the criteria to participate in this study. Appendix G also explains the demographic age grouping initially used for this study as described by the Pew Research Center (Doherty, Kiley, & Jameson, 2015). Although, the researcher acknowledges the age labeling has changed slightly since conducting this study. It does not impact this research study because this study is not solely about the age of participants. Figure 1 displays the slight

difference in the age groupings of the participants in this study arranged at the initial start of this study compared to the new report age grouping. Table 15 and 16 provides an explanation of the two focus groups demographic data for this study (see Appendices I and J).

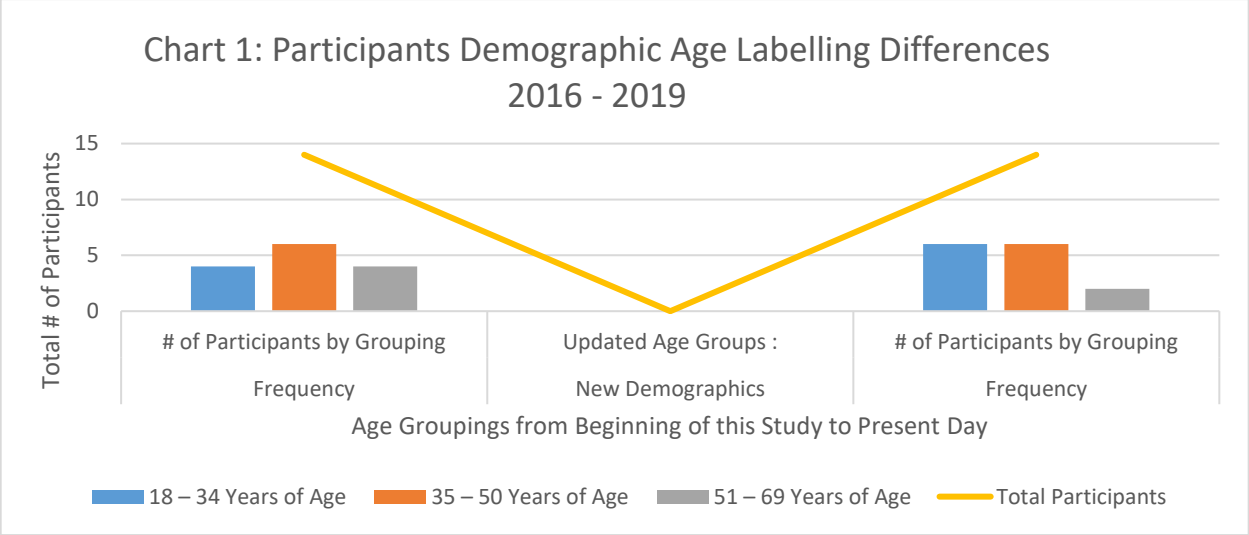

Figure 1. Participant's demographic age labeling differences, 2016–2019.

Interviews. Fourteen individual participant interviews were conducted using 15 interview questions to understand the perceptions of African-American adult learners' use of technology (see Appendix E). The individual interviews were face-to-face. The interviews took place in the researcher's office on the main campus at the local community college. All interviews were recorded using a digital recording audio device with the participants' consent. The individual interviews lasted approximately 45 minutes each individual interview. The interviews conducted totaled about 6.22 total hours. All data collected was kept in the researcher's office in a locked file cabinet to ensure confidentiality and only available to the researcher. To ensure the identity of the participants, assigning pseudonyms was essential to protect their identity and information shared. The researcher used the pseudonym P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12, P13, and P14 to distinguish each participant in this study. The participants were explained of their rights to participate in this research study. They were also made aware of their right to withdraw from

participating in this study. The participants received a copy of their signature copy consent form as well as an explanation of the nature of this study.

Immediately following each individual interview, the information was evaluated, transcribed, and coded using Microsoft Office Word and Excel. The researcher used a 4-point Likert type scale to evaluate, transcribe, and code questions 1 to 3 (see Table 1 through 3) and a 5-point Likert-type scale for questions 4 to 15 (see Appendix I) to quantify qualitative data involving the participants' perception of using technology in higher education. Likert-type scales were used in this qualitative research to examine the perceptions and attitudes of the participants because these constructs are significant for relating to individuals' perceptions (Ho, 2017). According to Ho (2017), "Likert-type scales are one of the most commonly used psychometric scales for examining perceptions and attitudes" (p. 676). Using Likert-type scales to examine the perceptions and attitudes of these participants allowed the researcher ease of statistical analyses and comparisons across groups. The collective analysis of the data gathered from the individual interviews provided insight to answer the research question. Using the researcher's field notes to add to the analysis of data collected from the participants' individual interview assisted with this process.

Focus group. Following the interviews, the researcher conducted two focus group sessions. The focus group sessions were conducted on separate dates during the fall semester in October and November. The focus group sessions were held in the multi-purpose room located on the main campus at the community college. Each focus group session lasted about 90 minutes. Both sessions were audio recorded using a digital recording device. The participants were purposefully divided into two focus groups, which included six participants in each group. One focus group included all females and the second focus group included a mixture of male and

female, six continuing education and six curriculum students evenly divided. This was done comparing the differences in the perceptions amongst the two focus groups.

The focus groups were identified as Focus Group 1 and Focus Group 2. Focus Group 1 was comprised of participants P2, P3, P5, P6, P7, and P8 (see Appendix I). Focus Group 2 comprised of the following participants P1, P9, P10, P11, P12, and P13 (see Appendix J). P4 and P14 were unable to participate in the focus group sessions due to a scheduling conflict.

The researcher used the focus group protocol guide, which included 11 semistructured open-ended questions that focused on answering the research question to guide the group discussions (see Appendix F). The researcher moderated the sessions to help the groups stay on task. The sessions were both recorded using a digital audio recording device to document the sessions. A copy of the transcript was emailed to each group member for member checking to ensure the accuracy of the sessions was maintained. Immediately following the focus group sessions, the researcher evaluated, transcribed, and coded the data. The researcher did not use any outside agency to code and analyze the data for this study. The collective analysis of the data gathered from both focus group discussion sessions provided insight to answer the research question. Using the field notes to add to the analysis of information collected from the focus group sessions from the participants' helped with this process.

Research Methodology and Analysis

The researcher applied Yin's (2014) model for analyzing qualitative data to this study. Yin's model required the researcher to find patterns in the data, matching the data, and linking the data to propositions (Yin, 2014). Then, the researcher provides an explanation and builds upon the data through making sense of it. The data was converged through time-series and synthesized repeatedly to find alternate explanations of the phenomenon under investigation. The process of analyzing qualitative data is a science in which sound findings depends on the sound design and

case study research is no exception to this (Yazan, 2015). A case study draws from various lines of evidence for triangulating purposes and aims itself of previous development of theoretical plans to guide data collection and analysis (Yazan, 2015). The process of analyzing data was defined "as a matter of giving meaning to first impressions as well as to final compilations which essentially means taking our impressions and our observations apart" (Yazan, 2015, p. 144–145). Thus, the complexity of a single case, coming to understand its activity within significant environments or situations analyzed to construct meaning from the raw data. This was an intrinsic case study, as the researcher had an intrinsic interest in how African-American adult learners perceived the use of technology to increase their academic success in higher education. When using the intrinsic case study, the primary task is to understand the case (Yazan, 2015).

After the completion of each of the 14 individual participant interviews and the two focus groups, the researcher transcribed, evaluated, and coded the data. All individual interviews and focus groups were recorded using a digital recording device. The data analysis process began after the completion of transcribing participants' interviews and focus group discussions. Below is an explanation outlining the steps and the process the researcher used in the data analysis and coding process for this study. The coding and analysis process included; the first read and coding data, reducing the data, emergence of patterns, second coding and connection, and final coding.

First read and code. The first step in analyzing the data is reading it, trying to make sense or comprehending the data collected to construct meaning. This involved highlighting, underlining, and grouping relevant information pertaining to the study from the individual interviews and focus groups. According to Saldaña (2015), coding involves the researcher to wear their analytical lens. In the first cycle coding, the researcher analyzed the data collected and assigned codes to the data. This is part of the first cycle coding when the researcher used initial and In Vivo coding to code the data (Saldaña, 2015). This provided a starting point for sorting

through examining the data for similarities or differences in perceptions of technology uses by African-American adult learners looking line by line at the transcripts. An analysis of the individual interviews allowed the researcher the opportunity to review the data thoroughly (Shosha, 2012). This helped to gain a basic idea of the participants' phenomenon experiences as to each participants' perception toward using technology in higher education (Shosha, 2012). The In Vivo coding allowed for the verbatim of the participants' interview and focus group conversations to capture their actual words to be coded (Saldaña, 2015). This allowed for the identification of patterns to emerge forming themes and sub-categories (See Appendix K).

Reducing data. Next, some of the data required a reduction to eliminate duplicate or similar statements (Saldaña, 2015). The process of organizing the data reduction began as the researcher reduced and organized data into various groups. The researcher continued to reorganize, recode and decode the data to understand the overall essence of the experiences.

Emergence of patterns. Then, patterns emerged from the transcribed data in the form of coded and recorded data as shown in Appendix L using Microsoft Word computer-based and or software-based coding program (Shosha, 2012). These patterns established themes and sub-categories, which produced qualitative data (Shosha, 2012). The researcher continued this process until data saturation.

Second coding and connection. The Second Cycle coding process began with reexamining and reorganizing the data discovered in the First Cycle coding using patterned coding to make connections (Saldaña, 2015). The second cycle coding process, which required the researcher to pose more analytical skills to classify, integrate, and synthesize the data allowed the process of organizing the data reduction which began producing various themes and sub-categories (Saldaña, 2015). The process of organizing the data reduction to connect the information to the study produced more themes and sub-categories. This allowed the grouping of similarly coded

data to reduce the number of initial codes developed through sorting and re-labeling coded data into concrete categories or themes (Saldaña, 2015).

Final coding. The researcher continued to read all the data collected. After completing the first and second cycles of coding, the coded data yielded approximately 200 codes of perceptions toward using technology based on the participants' attitude responses. The participants had positive and negative perceptions based on their attitude of using technology from the various experiences each shared. The researcher coded 150 positive attitudes and perceptions comments, and 45 negative attitudes and perceptions comments toward using technology (see Appendix M). The participants shared other experiences of technology use from the data collected based on their perceptions of using it for academic purposes, factors affecting their technology use, barriers, comfort level, and helpful tools for using technology for school. Once, the researcher was confident that there would not be any new codes found in the data as such achieving data saturation. Final coding of the data was done. This allowed the researcher the opportunity to follow-up with the participants if necessary, to discuss the research findings as this was a means of validating the study findings using the member checking technique demonstrating trustworthiness, adding rigor, and strength to the study (Shosha, 2012).

Triangulation. The researcher used a triangulation of approach for the data from the researcher's field notes, the individual interviews, and focus group discussions to preserve trustworthiness. According to Yin (2014), to avoid and address any problems in validity and reliability in qualitative case studies, researchers must use three principles of collecting data. First, they must use a questionnaire and multiple sources of evidence to examine the same phenomenon (Yin, 2014). The researcher used questionnaire type and open-ended questions in the interview protocol to guide the interviews in a semistructured way. The participants provided multiple sources of evidence during the individual interviews and two focus groups. Second, the researcher

must maintain a chain of evidence. The researcher collected and crosschecked chains of evidence to help validate the study. Finally, a repository of evidence must be used to keep and store evidence (Yin, 2014). The evidence collected from the participants was securely stored in a locked file cabinet and all computers were password protected to ensure the safety of information gathered from the participants. The researcher considered the themes, which emerged from the data collected and connected similar sub-categories to the overarching research question. There were four themes and six sub-categories that emerged from the data collected from the individual interviews, focus groups, and field notes (see Appendix L). Figure 2 displays the process of triangulation.

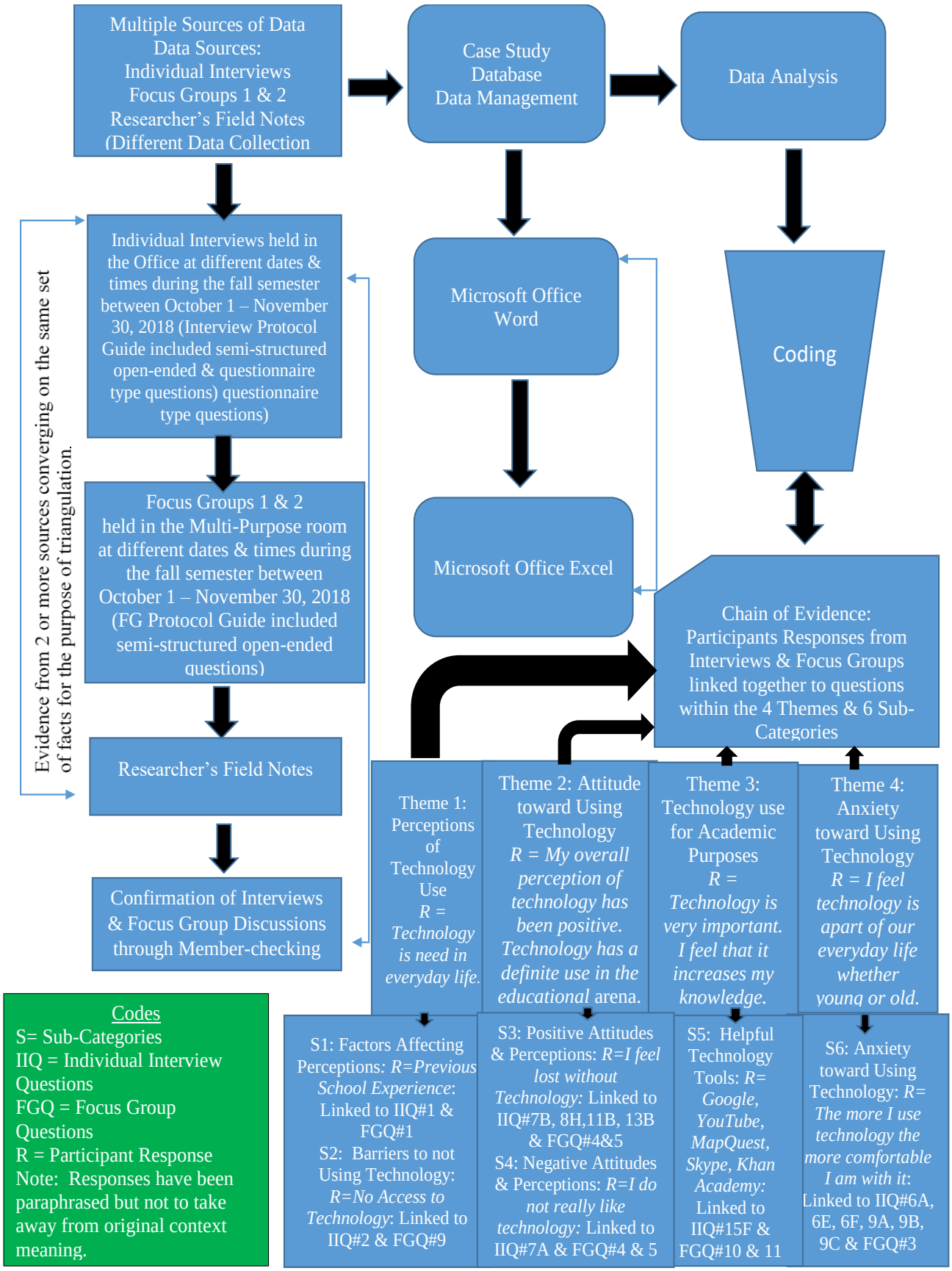

Figure 2. Triangulation

Summary of the Findings

The summary of the findings for this study revealed from the three elements of gathering data were from individual interviews, focus groups, and field notes. The researcher was able to disaggregate the information collected from the participant's experiences during the interviews and focus groups by consolidating the data into general themes and subcategories that emerged from the participants' responses based on their experiences. The four themes were perceptions of technology use, attitude toward technology use, technology use for academic purposes, and anxiety toward using technology. The six subcategories were factors affecting perceptions, barriers to not using technology, positive attitudes and perceptions, negative attitudes and perceptions, helpful technology tools, and comfort level with using technology.

Theme 1 revealed how the participants felt about technology integration. Almost all of the participants shared that they think integrating technology into the curriculum was necessary to increase learning. This theme also exposed how the participants felt about using technology. Most of the participants discussed that they believe technology has many benefits. The entire group of participants talked about how they used the computer and some type of technology. Almost all of the participants shared that it was important to know how to use technology for school and work. Sub-category 1 and 2 uncovered some factors affecting perceptions and barriers to using technology. Most of the participants shared some barriers to not using technology. Many of the participants discussed how when students do not use technology it hinders them from being successful in their college classes. Some of the participants also discussed a few key factors that affect student perceptions about technology.

Theme 2 uncovered the participants' attitudes and behaviors toward using technology in college. Overall the findings revealed that most of the participants were interested in learning more about computers and technology. The participants discussed and shared how important it

was to know how to use the computer if you want a good job. Sub-category 3 and 4 exposed some positive and negative attitudes the participants shared when technology was used.

Theme 3 findings revealed how the participants felt about technology use for academic purposes. The participants shared that they use their knowledge of technology in many ways as students. They discussed how they felt in regards to technology being a worthwhile and necessary skill for students in college to know. Sub-category 5 uncovered some helpful technology resource tools students may use to help them with being successful in college. Most of the participants discussed the various helpful technology tools they used that assisted them with gaining a better understanding of concepts or lessons taught in college that they needed more help with.

Theme 4 results exposed the participants' anxiety level toward using technology. Most of the participants in this study shared that when using technology, it does not make them feel uncomfortable, anxious, or intimidated. Subcategory 6 revealed the participants comfort level with using technology. Almost all of the participants shared that they did not feel any anxiety whenever they used the computer or technology. They felt comfortable the more they used technology.

Presentation of Data and Results

In this section, the presentation of data describes the emergent themes, sub-categories, and the synthesized results as it pertains to the overarching research question. The researcher collected data from the perspectives of the participants in this study from their experiences with using technology in an academic environment through their responses to questions asked during the individual interviews and focus group discussions. The data was transcribed, organized, evaluated, and coded to present the information discovered from the collection of data, which focused on answering the primary research question for this study.

Research question. How do African-American adult learners perceive the use of technology in higher education to promote their academic success? To answer this question, individual and focus group interviews were conducted along with using field notes. African-American adult learners perceive using technology in higher education in many ways based on their experiences. The responses were summarized by questions, themes, and sub-categories from the interviews and focus groups to obtain the overall perspectives of how African-American adult learners perceive using technology in higher education to increase their academic success.

The individual interview results were presented as experienced by the participants in this study. "Life experiences make the difference in learning, in what they contribute to the practice of social interaction and more preeminently, they may be traced in the way an individual regards the world and oneself" (Nicolaescu, 2017, p. 110). To this extent, the presentation of data starts with an analysis of the participant interviews. The researcher analyzed the responses from the participants about their preference for taking college courses or continuing education courses. This was done to gain an understanding of how the participants viewed technology in terms of them taking college classes. This provided the researcher with insight into the participants' real-life experiences with using technology in higher education. Seven of the 14 participants preferred taking their courses face-to-face the traditional way. The other seven remaining participants preferred taking their courses as blended or combination meaning face-to-face with an online component. These participants' course preferences of technology were evenly distributed. Table 1 below displays the participants' responses from using technology through the delivery of course preferences.

Table 1

Participant Course Preferences from the Interview Responses

Course Preference	# of Participants	Percentage
Online	0	0%
Face-to-Face/Traditional	7	50%
Blended/Combination (Online & Face-to-Face)	7	50%
No Preference	0	0%
Total Number of Participants (*n*)	14	100%

The researcher wanted to know how often the participants used technology for homework assignments, playing video games, and the types of software they used to gain insight into the participants' technology experiences and how familiar they were with the computer. Nine of the participants stated they frequently used technology to complete their homework or schoolwork assignments. The responses were even for the participants' leisure use of technology, which the results indicated four of them occasionally used technology for leisure hobbies, four of the participants often used technology for leisure interest, four of them never used technology for leisure activities, and two of the participants frequently used technology for leisure pastimes. Five of the participants' responses revealed that they used technology for social media.

Throughout this process, the researcher sought to answer the research question making connections from the participants' experiences through their responses. The participants responded to how often they used Microsoft Office Word, Access, Excel, PowerPoint, and Desktop Publisher. This helped to determine the perceptions by the various technology software the participants were familiar with using. Eight of the participants responded that they frequently used Microsoft Office Word, five of them have often used Access, seven of the participants have never used Excel, five of them have never used PowerPoint, and seven of them have never used Desktop Publisher. This showed the researcher how familiar these participants were with using the

various types of technology software. See Table 2 below for a detailed explanation of these results.

Table 2

Participant Responses from Interview Question 2 Frequency of Technology Use

Uses of Technology	# of Occasional Use	# of Often Use	# of Frequent Use	# of Never Use	Highest % of Use
To do homework, projects, & other school assignments.	2	3	9	0	64% Frequent Use
For leisure activities (Playing video & Computer games).	5	4	2	3	36% Occasional Use
Social media (Facebook, YouTube, Twitter, & Periscope).	2	4	5	3	36% Frequent Use
Word Processor (Microsoft Office Word or Google Docs).	4	1	8	1	57% Frequent Use
Database software (Microsoft Office Access).	4	1	5	4	36% Frequent Use
Spreadsheet software (Microsoft Office Excel).	3	0	4	7	50% Never Use
Presentation software (Microsoft Office PowerPoint Presentation).	4	3	2	5	36% Never Use
Desktop Publishing software (Microsoft Office Publisher).	5	0	2	7	50% Never Use

The researcher continued working to answer the research question throughout the data analysis process. The participants responded whether they had access to technology. They also stated what type of technology they had access to use. This helped the researcher to get a view of the participants' technology experience and use from a different angle. All 14 participants stated that they owned a cellphone. Nine of the participants responded that they owned a desktop computer and 12 of them owned a laptop computer. Only two of the participants answered that they did not own a laptop computer and three of them stated that they did not own a desktop computer. Ten of the participants responded that they owned a tablet and four of them answered that they did not own a tablet.

These results were in line with previous studies conducted by Brooks (2016) who found a significant increase in access to technology through the student ownership of smartphones, iPhones, iPads, tablets, and laptops. Brooks (2016) found that academic use of technology increased the students' academic achievement. According to Brooks (2016), students believed technology contributed to their active engagement in the classroom with their teachers and classmates as technology enhanced their complete learning experiences while encouraging them to be better students. Table 3 displays the results from the participants' responses to technology access in this present study.

Table 3

Participant Responses from Interview Question 3 Technology Access

Type of Technology	# of Participants Who Own	% of Participants Who Own	# of Participants Who Do Not Own	% of Participant Who Do Not Own
Cell Phone (Smart Phone, iPhone, etc.)	14 of 14	100%	0 of 14	0%
Desktop Computer	9 of 14	64%	5 of 14	36%
Laptop Computer	12 of 14	86%	2 of 14	14%
Tablet (E-Reader, Nook, iPad, etc.)	10 of 14	71%	4 of 14	29%

The researcher asked several questionnaire type questions during the interviews, which required the researcher to measure the participants' perceptions using a Likert-type scale to code the data (see Appendix E). The researcher organized the data as such emergent themes and sub-categories continued to develop. The organization of the information developed using Microsoft Office Word forming descriptive statistics such as frequency and percentage to measure the perceptions of the participants in this study. Using a Likert-type scale helped the researcher measure the qualitative data connecting the participants' perceptions of using technology in higher education to the research question.

Theme 1: Perception of technology use. The theme perceptions of technology use emerged from the data collected during the individual interviews based on the perspectives of the participants in this study. Perceptions play a significant part in how African-American adult learners view the use of technology from their experiences, which create a lens for interpreting and understanding the phenomenon (Ho, 2017). Through the participants' responses, the researcher sought to answer the overarching research question for this study. The researcher presented the findings based on the collective participants' responses to questions asked during the data collection about their perceptions of technology use. Each participant responded by explaining how they felt about using technology. The researcher combined the participants' responses to the questions 4A, 4B, 4C, 4D, 5D, 8C, 8E, 8F, 10C, and 10D, which this theme addressed to gain an understanding of the perceptions of the participants about using technology in higher education (see Appendix E). A 5-point Likert-type scale was used to measure the perceptions by strongly agree, agree, not sure, strongly disagree, and disagree. This helped to obtain the inclusive perceptions of the African-American adult learners participating in this study.

The researcher applied the constructivist learning theory to analyze the participants' responses as this provided the framework for analyzing the participants' responses in this theme to construct meaning from the information shared as this theory states that the learner constructs knowledge using prior experiences (Hussain, 2012). The participants used prior knowledge to respond and answer the interview and focus group questions. Disaggregating the participants' responses by themes, allowed the researcher to understand the perceptions of the participants according to the statements they answered based on how they felt about using technology as it related to the overarching research question. Over half of the participants answered that they strongly agreed or agreed that technology makes the world a better place. They stated that integrating technology into the curriculum is necessary to increase learning in all subjects. The

researcher also applied the TPACK model to analyze the participants' responses to the interview questions. The TPACK model provided the researcher with innovative ways to view the participants' responses to analyze the effective uses of technology shared from their experiences (Byker, 2014). The results indicated that most of the participants' stated that they strongly agreed or agreed that everyone needs technology. Many of the participants responded that they agreed or strongly agreed that technology was important in life. More than half of the participants stated that technology has many benefits.

The findings showed that the participants responded that they strongly agreed or agreed that they know how to use a computer. Some of the participants' responded that they disagreed or strongly disagreed to the statement about knowing how to use a computer. Many of the participants stated that they strongly agreed or agreed it was significant to learn about technology because it will help you succeed in life. These findings were in line with previous studies conducted by Rideout et al. (2016). According to Rideout et al., when individuals utilize technology it has proved to increase their everyday life in many ways.

The results from this present study also revealed that half of the participants responded they strongly agreed or agreed with the statement that they really enjoyed using the computer and Internet to learn new things. A small percentage of the participants answered that they disagreed or strongly disagreed with the statement of enjoying using the computer and Internet to learn new things. Most of the participants responded that they strongly agreed or agreed that they liked using technology to complete their schoolwork. Only a small percentage of the participants answered that they were unsure about that statement. The following table provides a collective view of the perceptions of technology use for the first theme by the participants in this study. Appendix Hprovides a detailed explanation of theme 1 from the results for the participants' responses.

Table 4

Theme 1: Perceptions of Technology Use

Response Options	Frequency	%
Strongly Agree	7	50
Agree	4	29
Not Sure	1	7
Strongly Disagree	1	7
Disagree	1	7

Sub-category 1: Factors affecting perceptions. This sub-category emerged from the collected data from the opening interview questions. The researcher constantly transcribed, evaluated, and coded all information obtained from each participant in this study. Most of the participants mentioned there were some factors that caused them not to want to use technology. Twelve of the participants stated that they strongly agreed and two of them agreed when students do not receive help from their teachers or they had bad experiences from their previous school, as misconceptions offset their thinking about the Millennials knowing more than the other age groups of adult learners. This may have a lasting effect on their overall perception of using technology. The collective perspectives from the participants based on their perceptions of using technology, and the determining factors that affect their perceptions about using technology as displayed in the table below. Appendix H provides an overall explanation of sub-category 1 as provided by the participants in this study.

These results from this study were in line with previous studies findings by Meehan and Salmun (2016) who conducted research on integrating technology in today's undergraduate classrooms. According to Meehan and Salmun (2016), students' perceptions are an important factor, which affects teaching and learning as such it ultimately affected the success of the students. This study was also in line with another earlier study conducted by Machado and Chung (2015) who found several factors that affect students' perceptions. They found out when

technology was used in the classroom the teachers must be willing to use it in instruction as the teachers set the tone for learning through utilizing technology.

Table 5

Sub-category 1: Factors Affecting Technology Use

Response Options	Frequency	%
Strongly Agree	12	86
Agree	2	14
Not Sure	0	0
Strongly Disagree	0	0
Disagree	0	0

Sub-category 2: Barriers to not using technology. This sub-category emerged from the collection of data from the participants responding to the opening questions in the interviews. The participants responded by explaining some barriers or obstacles students face from not using technology in college. The results indicated six of the participants responded that they strongly agreed and six of them agreed with the statement about not using technology hindered them from accessing their grades, communicating with their teachers through emails, and it prevented them from completing their assignments. These participants also commented that not having access to a computer or Internet outside of school and not having the proper training to use the various technology devices would pose a problem for many African-American adult learners or hinder them from being successful in college. Two of the participants stated that they were not sure whether they agreed or disagreed with the statements asked about the barriers that prevent students from being successful in college. A detailed description of the results for sub-category 2 from the data collected during the individual interviews may be found in Appendix H.

These study results were in line with previous study findings conducted by Chien (2013). Chien (2013) study found some barriers that may prevent the effective use of technology in the classroom. According to Chien (2013), technology cost too much, fear of the unknown, overall

access to it, and not having the proper training to use technology. The results from this study were also in line with earlier studies by Williams et al. (2014), who conducted a study about teaching with technology at North Carolina Agriculture. Their study identified several barriers to not using technology in higher education. According to Williams et al. (2014), some barriers to students and teachers not using technology in higher education were not having the proper training to effectively use technology.

Table 6

Sub-category 2: Barriers to not Using Technology

Response Options	Frequency	%
Strongly Agree	6	43
Agree	6	43
Not Sure	2	14
Strongly Disagree	0	0
Disagree	0	0

Theme 2: Attitudes toward technology use. The theme attitude toward technology use emerged from the data collected during the interviews based on the views of the participants in this study. The researcher strived to answer the central research question for this study. The researcher presented the findings based on the combined participants' responses to questions asked during the data collection about their attitudes toward using technology. Each participant responded by describing their attitude toward using technology in school. The researcher linked the participants' responses to the questions 7B, 8H, 11B, and 13B, which addressed this theme to gain an understanding of the perceptions of the participants about how they felt when using technology in higher education (see Appendix E). Using a 5-point Likert-type scale allowed the researcher to measure the perceptions of the participants.

The results indicated six of the participants stated that they strongly agreed and five of them agreed with the questions addressing attitudes toward using technology. The findings

revealed the participants were interested in learning more about computers and technology. The results showed that participants like using and enjoy working with technology. The findings revealed most of the participants answered that they strongly agreed or agreed with the statement that it was important to know how to use the computer if you want a good job. The results showed many of these African-American adult learners stated that they were interested in learning the various benefits of using technology to increase their academic achievement. One of the participants responded that they were not sure, one of them disagreed, and one of the participants strongly disagreed with the attitudes toward technology use statements. See AppendixH for a thorough description of data collected by the participants for theme 2.

Table 7

Theme 2: Attitude toward Using Technology

Response Options	Frequency	%
Strongly Agree	6	43
Agree	5	36
Not Sure	1	7
Strongly Disagree	1	7
Disagree	1	7

Sub-category 3: Positive Attitudes and Perceptions. This sub-category developed from the comments the participants made during the interviews based on the questions 4G, 7C, 7D, 9D, 11C, and 12C they responded to that addressed the positive attitudes and perceptions African-American students have toward using technology (see Appendix E). Five of the participants answered that they strongly agreed and five of them responded that they agreed that they enjoyed watching TV, the movies, and playing videos online. They also stated that they enjoyed surfing the Internet. Most of the participants responded that they loved using the computer and Internet for social media or playing video games. Many of the participants expressed once they start using technology, they find it hard to stop. Most of the participants responded that they could do more

when they use the computer. Many of the participants answered that they love using Blackboard or Edmodo for schoolwork. One of the participants responded that they strongly disagreed, one of them disagreed and two of the participants were unsure about the statements addressing the positive attitudes and perceptions of using technology. A comprehensive explanation of sub-category 3 as provided in Appendix H.

The results from this study were in line with previous studies by Chatanash and Miaji (2014) who conducted a study about technology in higher education focusing on student attitudes toward using laptop computers. According to Chatanash and Miaji (2014), students showed positive attitudes when technology was used as it proved to enhance learning. The students felt confident in their ability to learn through using laptop computer technology.

Table 8

Sub-category 3: Positive Attitudes and Perceptions

Response Options	Frequency	%
Strongly Agree	5	36
Agree	5	36
Not Sure	2	14
Strongly Disagree	1	7
Disagree	1	7

Sub-category 4: Negative attitudes and perceptions. This sub-category materialized from the comments the participants made during the interviews based on the questions 6E, 7A, 10A, 11A, and 13E they responded to that addressed the negative attitudes and perceptions African-American adult learners have toward using technology (see Appendix E). Five of the participants answered that they strongly disagreed and five of them disagreed with the statements, which this sub-category addressed. Most of the participants answered that they did not perceive computers as being difficult and frustrating to work with for many people. They responded that they did not think the computer and technology were boring. Many of the participants stated that

they disagreed with the statement about being tired of using the computer. Most of them responded that they do not agree with the statement about not having lessons involving technology and using the computer to complete their classwork. These participants stated that students should have lessons, which required students to use some type of technology to complete their class assignments. One of the participants responded they strongly agreed, two of them agreed, and one of the participants were not sure about the statements addressed in this sub-category. The following table below explains the collective perspectives of the participants who responded to the questions addressed in sub-category 4. Please see a thorough explanation of sub-category 4 in Appendix H.

Table 9

Sub-category 4: Negative Attitudes and Perceptions, Technology Use Level

Response Options	Frequency	%
Strongly Agree	1	7
Agree	2	14
Not Sure	1	7
Strongly Disagree	5	36
Disagree	5	36

Theme 3: Technology use for academic purposes. This theme developed from the data collected during the interviews. The presentation of the findings indicated the results of technology use for academic purposes shown from the participants' responses to the interview questions 9G, 10B, 11D, 11E, 11G, 11H, 12A, 12B, 13F, and 13G, which focused on the participants' perceptions of using technology for academic purposes (see Appendix E). Seven of the participants stated that they strongly agreed and four of them agreed with the statements about them using their knowledge of technology in many ways as a student. Most of them replied that they believe learning about technology was worthwhile and a necessary skill for all students today.

The participants also answered that they think technology allows them many opportunities to increase their knowledge. Many of them responded that they feel that teachers should integrate technology into their class assignments. They stated that when teachers used technology students are more interested in learning and they think that technology improves their overall academic performance. Most of the participants answered that they believe technology was the key that unlocks the doors to new opportunities. The participants stated that teachers should use the Internet more to enhance learning to complete assignments or study topics covered in class. Several of the participants responded that the email system was a good way to communicate with the teacher and student about coursework. Many of the participants responded that using technology in the classroom makes the students feel more engaged in the learning process. Almost every participant answered that there should be more classes on how to use technology for school and work. One of the participants strongly disagreed, one of them disagreed, and one of the participants were not sure about the statements addressing technology use for academic purposes. The following table below provides the shared perspectives of these participants in this study. A comprehensive explanation of theme 3 may be found in Appendix H.

The results in this study were in line with earlier studies conducted by Eyyam and Yaratan (2014) who conducted research on the impact of using technology in a mathematics class on student achievement and attitudes. According to Eyyam and Yaratan (2014), the students' academic performance increased in every subject area when technology was used to promote learning. The results from this study were also in line with previous studies conducted by Delgado et al. (2015) who conducted a study on educational technology use. According to Delgado et al., when teachers utilized technology in the classrooms, the students' academic achievement improved significantly because they felt a part of the teaching and learning process.

Table 10

Theme 3: Technology Use for Academic Purposes, Technology Use Level

Response Options	Frequency	%
Strongly Agree	7	50
Agree	4	29
Not Sure	1	7
Strongly Disagree	1	7
Disagree	1	7

Sub-category 5: Helpful technology tools. This sub-category materialized from the comments the participants made during the interviews based on the questions 15D, 15E, 15F, and the open-ended questions they responded to that focused on the helpful technology tools that African-American adult learners' use, which has assisted in them being successful in college (see Appendix E). The results indicated eight of the participants stated that they strongly agreed and four of them agreed with the statement about the Internet being a resource tool that allows students access in real-time to their grades. Most of the participants responded that downloading lectures for the class was useful and using the Internet was useful to access their school and work resources. These African-American adult learners participating in this study mentioned some helpful technology tools that promote learning. They stated that YouTube, Google, MapQuest, Xoom, Skype, Khan Academy, and Blackboard were helpful. These participants stated that these technology tools further assisted them as adult learners in developing the skills needed in any subject area. One of the participants stated that they strongly disagreed and one of them responded that they were not sure about the statements from sub-category 5. The following table below shows the collective perspectives from the participants based on their responses addressed in this sub-category. A complete explanation of sub-category 5 may be viewed in Appendix H.

Table 11

Sub-category 5: Helpful Technology Tools, Technology Use Level

Response Options	Frequency	%
Strongly Agree	8	57
Agree	4	29
Not Sure	1	7
Strongly Disagree	1	7
Disagree	0	0

Theme 4: Anxiety toward using technology. The theme of anxiety toward using technology emerged from the data collected during the interviews based on the perspectives of the participants in this study. The participants' responses helped the researcher seek to answer the overarching research question for this study. The researcher presented the results based on the combined participants' responses to questions asked during the data collection about their anxiety level when they used technology. Each participant responded by describing their anxiety level when they used technology for school. The researcher linked the participants' responses to the questions 5H, 6F, 8D, 9B, and 9C, which this theme addressed to gain an understanding of the perceptions of the participants about how they felt whenever they used technology for school (see Appendix E). Using a 5-point Likert-type scale assisted the researcher with measuring the perceptions of the participants.

The findings presented in this theme indicated that most of the participants stated that they did not experience feeling any anxiety when using technology in higher education. When these participants responded to the statements, which addressed their level of anxiety whenever they used technology five of the participants stated that they strongly disagreed and three of them disagreed with the statements. These participants stated that they do not feel any anxiety when they use a computer or technology. One participant stated they were not sure how they felt when they used technology in school. Three of the participants responded that they strongly agreed and

two of them agreed with the statement about feeling anxiety when they had to use the computer to do their schoolwork. The collective perspectives of the participants as gleaned from their responses to the questions, which addressed anxiety levels when they used technology as explained in the table below. A more thorough explanation of theme 4 may be viewed in Appendix H.

Table 12

Theme 4: Anxiety toward Using Technology, Technology Use Level

Response Options	Frequency	%
Strongly Agree	3	21
Agree	2	14
Not Sure	1	7
Strongly Disagree	5	36
Disagree	3	21

Sub-category 6: Comfort level with using technology. This sub-category emerged from the comments the participants made during the interviews based on the questions 5B, 6B, 8G, and 9A they responded to that addressed the level of comfort with using technology for these African-American adult learners participating in this study. Three of the participants responded that they strongly disagreed and five of the participants disagreed with the statements in this sub-category. Over half of the participants in this study stated they do not feel uncomfortable using technology. These participants also stated they know how to use technology and feel comfortable using it. They responded that they felt very comfortable using technology. These participants indicated that technology does not intimidate them in any way. Most of the participants answered that they did not feel out of place using technology nor did they feel any discomfort when using the computer or any type of technological devices. Although, three of the participants responded that they strongly agreed and two of them agreed with the statement about how using technology makes them feel uncomfortable because they did not understand how to use it. These participants answered they did not feel confident with their ability to learn about technology. They also responded that they felt anxious and uncomfortable when they used technology. One of the participants stated they

were not sure how they felt whenever they used technology in school. The table below shows the results from the participants' responses to the questions addressed in sub-category 6. A more thorough explanation of sub-category 6 may be viewed in Appendix H.

Table 13

Sub-category 6: Comfort Level with Using Technology, Technology Use Level

Response Options	Frequency	%
Strongly Agree	3	21
Agree	2	14
Not Sure	1	7
Strongly Disagree	3	21
Disagree	5	36

Presentation of Focus Groups Results

The researcher continued to evaluate, analyze, and code the data from the participants' responses from the two focus groups. The participants in each focus group responded to 11 open-ended questions by presenting counter-narratives of their experiences in their focus group sessions. The organization of the questions and responses were according to the themes and sub-categories. There were four main themes and six sub-categories extracted from the data. The researcher sought to answer the overarching research question from the collected data. The researcher summarized the information to gain inclusive perspectives from each focus group. The data were coded using In Vivo codes used to capture the experience by the participants in each focus group. The researcher documented the information by themes and sub-categories to gain an understanding from the perspectives of the participants about their perceptions of technology use in higher education to increase their academic success.

Theme 1: Perceptions of technology use. The researcher evaluated the data responses from the participants as they gave a counter-narrative of their experiences about their perceptions of using technology during the focus group discussions as the groups responded to the open-ended

questions. Theme 1 emerged from the data collected during both focus group sessions. The researcher organized the data by the participants' responses from the focus group questions, which addressed the inclusive perspectives of the participants about their perception of using technology. Both focus groups were asked to respond to what is your overall perspective of the topic of this study on how do African-American adult learners perceive the use of technology in higher education to promote their academic success. What is your experience with using technology? P2 from Focus Group 1 started this discussion. P2 stated:

> African-American adult learners in general, we really need to be technology bound. Now for me, I really believe that African-American students need to know how to use technology. Adult learners need to know everything about technology and how to use it.

P6 added to this focus group discussion by stating:

> Technology has been around for a long time and we really actually need to have or be knowledgeable of using some type of technology. Everything is technology. Kids nowadays know how to use smartphones, laptops, and computers better than we do as the parents.

P8 concluded the discussion by saying:

> But as far as technology, in a sense for me being an African-American working student with a family, we truly need to know how to use technology not just for ourselves but to be able to help our children do their homework assignments. Technology is not going anywhere as it continues to advance. Therefore, African-American students need to keep up with technology. P8 mentioned using technology at work and at school every day. P8 continues by mentioning that it was imperative that people understand how to use technology because they need it for work and school to conduct research as well as complete their Blackboard assignments.

P9 from Focus Group 2 led the discussion for this group by saying:

> I feel that African-American adult learners need technology today to keep up with the youth. Technology keeps me youthful and more knowledgeable. The youth or the millennials are more knowledgeable about using a computer or a laptop or our smartphones. Most children now already know how to use smartphones, computers, and other technology as if it is nothing. From my experience with technology my age group has been a challenge because my age group has not been exposed to technology growing up. Therefore, my age group was not exposed to using technology until reentering college to be retrained for work. Technology is used in many ways and I learned how to use Google, MapQuest, listen to music, and so much more to help with school.

P1 added to this group's response by saying:

> I feel African-American adult learners perceive the use of technology in different ways some adult learners are willing to learn how to use technology while other adult learners are not willing to learn. Technology has become commonly used now, as it is needed in society today how they use technology more for school as a college student.

Then P10 concluded by saying:

> Since I really did not like using technology until I started college. As for me, I feel that African-Americans in general, we really must be more technology savvy. My children are millennials. They help me out a lot with learning how to use different types of technology, especially since. I have to use technology to complete my schoolwork. Technology continues to advance. There is no way to get around not using technology for anyone in college. Everyone needs to know how to use some type of technology to complete their classwork or to do most jobs today. I believe as an African-American adult learner that I

need to know how to use technology to be more knowledgeable and to do my assignments for school.

A thorough explanation of the focus group participants' responses to the questions from the discussion sessions for both groups was provided in Appendix L. The researcher also viewed the overall perceptions of technology use based on the focus groups participants' responses. Sub-category 1 shows the factors affecting perceptions and sub-category 2 displays the barriers to not using technology developed from the data responses to the questions addressed in theme 1.

Sub-category 1: Factors affecting perceptions. Next, the researcher analyzed the data from the focus group responses to the questions. This sub-category materialized from the data collected when the researcher asked what are some factors that may affect your perceptions toward using technology to promote your academic success**.**

P5 began the discussion for Focus Group 1. P5 responded by saying:

> A determining factor that may affect the perceptions of African-American adult learners from using technology is the time it takes to learn the effective process of using it for most students my age. Many students in my age group, the first time we use technology it takes us so much time just to get a basic understanding of how to effectively use it. Especially, since people my age do not have the time it takes to put into technology and because of that, we waste valuable time trying to figure out the effective process of how to use technology to get anything done with it. Although, we realize once we learn how to use it, we can get things done much faster and easier. Where the Millennials grew up knowing how to use technology but for my age group most would rather do it the old way.

P2 added to the discussion by saying:

> Another factor determining factor that may affect the perceptions is the first impression when first introduced to technology. A perception is that adult learners are not

knowledgeable about technology. They did not have a computer, technology, or education in a school like the youth of today. Many people believe that African-American adult learners cannot learn how to use technology like the younger adult learners.

P8 ends the discussion by saying:

> That is not true because many can. Some just need a little more help than most millennial college students need. Some adult learners feel intimidated when using today is technology. Many older adult learners want to continue doing things the old way without using technology but today people must use technology to do the simple things.

P1 stated:

> Factors that may affect African-American adult learners' perceptions toward using technology to promote their academic success would be when your teachers do not help you understand how to use technology because of their dislike for using it or maybe they have not been properly trained" to utilize technology. Many instructors play a big part in how their adult learners perceive learning anything whether it be technology or something else. However, I have a good perception of using technology because I was exposed to technology early in elementary school. I had excellent teachers and I believe that is why my experience with using technology has been good. The teachers I had taught me how to use technology as such it has helped me learn many things. I know how to use the Internet to go online and get tutoring in my math and other subjects when I need more assistance. I have a positive perception of using technology. Although, I know some people who do not use technology in a positive way. They use it negatively to bully other people on social media. I believe that there are pluses and minuses to using technology like anything else. My overall perception of utilizing technology is positive, as technology has helped me better myself academically. My view of technology is that it does not matter whether you

are an African-American adult learner or not that everybody needs to know how to use technology for school and work. Many jobs require its employees to use the computer to be able to do your job and that is a good reason people should know how to use it.

P13 added to this discussion by saying:

Some determining factors that may affect adult learners' perceptions toward using technology would be fear of making a mistake or error in the usage of the keyboard making them reticent to engage. It is their overall lack of exposure to technology and the age gap. Most of the elderly lack a basic understanding of how to use technology for general things.

Sub-category 2: Barriers to not using technology. This sub-category developed from the responses of the participants in the focus groups. Both focus groups were asked, what are some obstacles or barriers that may hinder African-American adult learners and adult learners from using technology in school to increase your academic achievements?

P6 started the discussion for Focus Group 1. P6 mentioned:

Some barriers that African-American adult learners may have been the fact that they may not have the proper technology at home. Many students cannot afford to buy a computer and not having access to one at home can hinder them from getting their work done ultimately being successful in college. I think a barrier would be not having a computer at home, which will prevent most adult learners from being successful in college. Most students only have access to technology at school. Many students may only use technology when they come to school because they cannot afford it at home. Most students do not have access to the Internet at home; as a result, it may hinder them from being able to use technology to be successful in college.

P7 added to this discussion by saying:

> The major obstacle would be marketing yourself to possible career opportunities. Many of today's jobs have a degree of, if not totally based upon, working with technology. The rest of this group agreed with what the members of this group had said and no one else had anything new to add to this discussion.

P13 from Focus Group 2 commented:

> An obstacle that may hinder African-American adult learners from not using the computer is the fact that some students may not have the proper training to use it. Not all 18 to 34 years old students like using the computer. For the most part, many of the students like me love technology and know how to use it for more than just social media. Ummah, I would say not having access to the computer or the Internet at home can hinder you from using it.

P12 added to this discussion by mentioning:

> Not having access to technology outside of school is an obstacle. This can hinder me from getting my schoolwork done on time. Looking at this in light of students as a whole there are a few obstacles that may hinder African-American adult learners from not using the computer. Some students may not have the proper training to use technology effectively. This may hinder them from being successful in college.

P10 concluded this discussion by saying:

> I agree with the group, not having access to technology would be an obstacle for students. I think not having a computer at home can be an obstacle for many students being successful in school. Some students only have access to a laptop or computer at school. Some adult learners may only use technology when they are on campus because they cannot afford a laptop or desktop computer at home. They also may not have the Internet

in their home and that can hinder them from using technology to increase their academic success.

A sub-category emerged from the coding of the data in the perceptions of technology use, barriers to not using technology. The researcher viewed the overall perceptions of technology use based on barriers or challenges of technology use from the focus groups participants' responses. The diagram displays the focus group questions and participants' responses from the focus groups for this section (see Appendix K).

Theme 2: **Attitudes toward technology use**. The researcher continued to analyze the data responses from the participants as they provided a counter-narrative of their experiences about their attitudes toward using technology in the focus group discussions as the groups responded to the open-ended questions. Theme 2 emerged from the focus group participants responses. Both groups were asked, what your attitude toward using technology for school is, explain your perspective. How do you perceive using technology to increase your knowledge? How well do you use technology to complete classwork? Do you frequently have to ask for assistance with using technology to complete assignments?

P7 from Focus Group 1 stated:

> My attitude is that technology is very much needed today. We need it for just about everything. I am familiar with using technology to do my classwork. I mainly use Microsoft Office Word, Excel, and PowerPoint as well as the Internet. After taking a basic computer course, I do not need much assistance with using technology because of taking that class.

P6 concluded this discussion by saying:

> My attitude has changed about technology once I learned how to use it, I was ok with it. Then I started using it more. I found the more I used technology I got comfortable with it.

> Like using the icons and software. I am still experiencing things and learning how to use it for school and work. I use technology for many things such as doing my schoolwork, paying my bills, listening, and downloading music online. I feel like technology has increased my knowledge. I do not need any assistance using technology to complete my assignments now as before. Once I learn how to do something on the computer one time, I got it because I catch on quick.

P11 from Focus Group 2 stated:

> I feel technology is very important. I feel that using technology to increase your knowledge is very important. There are many things that you want to know and now it is so much easier to look it up with technology. When it is put in front of you, there is no stopping you from learning all that you can learn when you use technology. I love how you can learn new things when you use technology. I found that students who use technology learn so much from it. I think some way or another that technology increases your knowledge. That is why I believe it is very important to know how to use it. Most of the time, I do not need any assistance using technology to do my assignments, which require me to use technology.

P12 concluded this discussion by saying:

> My attitude about technology is that I feel that technology increases my knowledge in many ways. I believe it is important to know how to use especial as a college student today. I think whether you are in college or a working student that everyone needs to know and understand how to effectively use some type of technology.

The researcher viewed the perceptions of technology use based on the attitudes toward technology use from the focus groups participants' responses resulted in sub-categories 3 and 4.

The diagram displays the focus group questions for this section and the participants' responses from the focus groups (see Appendix K).

Sub-category 3: Positive attitudes and perceptions. This sub-category developed from theme 2, which addressed the perceptions of African-American adult learners in terms of their attitude and perception toward using technology in college. Some of the students had positive and negative attitudes and perceptions of using technology in school. Both focus groups were asked described some experiences you have with using technology for school. Think back to the first time you experienced using technology, how did you feel about it?

P8 from Focus Group 1 started this discussion. P8 said:

> Ummah, my positive experience with using technology was in elementary school. My first time ever using a computer was in elementary school. It was for a keyboarding class. We had to know how to use the keyboard to type and we learned the home-row keys. We learned how to use technology in my keyboarding class. At that time, I did not think it was necessary to learn how to use the computer because I did not think I would ever use it past school. Since I am older and have started going to college, I realize that I need it. I am in a computer class like the one I had in elementary school. I realize now that I really need to know how to use technology. Now that I am pursuing my degree, I see the value and benefit of technology. Technology is constantly advancing as such we really need to know how to use it.

P13 from Focus Group 2 began the group discussion by saying:

> Oh my God, thinking back to some positive experiences with using the technology was in elementary school. This was the first time I used a computer was in elementary school. I felt dumbfounded using it back then and I feel the same way now because I still do not have a clue. Although I know how to use a few technological devices, I still do not feel

comfortable because technology constantly changes. I feel like I can never keep up with it. When I used the computer for the first time, I felt overwhelmed and intimidated by it as anything else new when you use it for the first time. However, as time passed and I continued using the computer, I have become comfortable with using it. My first impression of technology was that I did not perceive it to be of any use to me, but I have since learned the benefit of it for school and work.

Sub-category 4: Negative attitudes and perceptions. Both focus groups responded as lifelong learners, do you feel adult learners use technology for school more than the millennials. Why or why not?

P3 from Focus Group 1 responded to this question by saying:

> As a lifelong learner, I use technology for more than social media, playing games, or recreational use. I feel like I use it now just as much as the millennials. I pretty much use technology a lot to shop, pay my bills, go on Facebook, play some games, for work, and school. I am extra careful about how I use technology. I believe the millennials use technology more than other age groups but for recreational use. The older age groups use technology for more productive things because they are more focused than millennials. This is because we are more focused as such; we use technology more productively for things like school and work.

P6 added to this discussion by saying:

> There are so many young students who get on the computer or the Internet to do negative things now because they are curious or bored. Most of them do things that are not productive such as going on social media to do negative things like bullying people. Although, for the most part, technology is used in a positive way because many students

learn and gain access to knowledge worldwide using the Internet. However, like anything else technology has positives and negatives to using it. People must use it productively.

P10 from Focus Group 2 began the discussion for this group by saying:

> As lifelong learners, I feel that adult learners like myself use technology for more than recreational use than the millennials because we are much, older and our focus is more structured. We want to use technology to learn and go on the Internet to explore more things to gain knowledge. We use social media to keep up with family or friends whereas most of the millennials just want to play on the computer. I believe my generation use technology to get their classwork done or for their jobs whereas the millennials do not have the responsibility that my age has, and they do not always use it productively as my age. The Millennials use technology more for recreational purposes because they do not have the responsibility as my age group does and they just want to have fun all the time.

P12 added to this discussion by saying:

> Most of the adult students try to use technology more for work and academic purposes than the Millennials because most jobs today demand that people know how to use technology, which forces them to be more skilled in their total use of technology. The bad side to this is the fact that technology provides criminally-minded people with the capability to perform cybercrimes on the computer such as identity theft. Overall technology is a wonderful creation to assist individuals with learning many things in life that they may not have otherwise**.**

Theme 3: Technology use for academic purposes. The researcher continued to assess the data responses from the participants as they presented a counter-narrative of their experiences about using technology for academic purposes during the focus group discussions as the groups answered the open-ended questions. This theme materialized as the researcher continued

analyzing, transcribing, and coding the data collected from the focus group sessions. Both groups responded to what is your view regarding using technology. Do you feel the use of technology in school is increasing or decreasing your academic success?

P3 from Focus Group 1 started the discussion by saying:

> I feel that students use the computer at work and school. I use technology for the school. I think that you must know how to use a computer and technology today for almost everything. I believe that the use of technology increases students overall academic success in school.

P5 concluded the discussion by saying:

> I believe the recent use of technology in college has helped improve my knowledge. I can do more now with the computer than before. I can get my reports done much faster and my research for my papers too. I can do so much more with technology.

P12 from Focus Group 2 began this discussion by responding for this group. P12 said:

> I am not too fond of technology because I don't know how to use it well. Although, I need to know how to use it for school. Yes, I feel that technology use in school is increasing my academic success. Once someone shows me how to use certain technologies such as the computer and the Internet, I got it and able to explore new things on my own.

P11 added to this discussion by saying:

> Technology is very much needed. I feel that the students in school need to know how to use a computer. I know my children, when they went to Sandy Grove Elementary, were using the computer in the first and second grades. The school taught them how to use an Apple iPad. The children and most people, in general, need technology because everything now requires technology.

No other group members had anything to add to the discussion. The researcher reviewed the responses from both discussion groups. Then, both focus groups were asked as adult learners, do you feel prepared for the challenges of this information age in higher education as a student? Why or why not?

P2 from Focus Group 1 led this discussion. P2 stated:

> Oh no I do not feel prepared. It is too much for my mindset to comprehend at one time. I think it is too much information thrown at you and it is too much for a person like me to consume. Maybe for the millennials, they can but not me. I just think it's' too much information on the computer" to keep abreast to this new world as far as the Millennials they are prepared to handle the challenges more so than I am. I will get there but I am not there yet. This is the age of technology and it is a period where the Millennials relate to technology more than I can. I feel as though the millennials have been exposed to technology from birth and that is one of the reasons why I feel they use technology more and feel more comfortable using it than my generation.

P5 mentioned:

> The Millennials are better prepared for the challenges of this information age because it is all I have been taught since elementary school. I personally have had a computer and cell phone since I was seven years old. Now that I am a college student, I faithfully use technology every day. There is not a day that goes by that I do not use some type of technology. I got to have it everywhere I go because I feel so lost without technology.

P7 said:

> Yes, I feel that I am prepared for the challenges of this information age because technology has opened the doors as a way to expand my knowledge on almost every subject and class I ever had. Technology is a way of life.

P12 led this group discussion for Focus Group 2. P12 said:

> Well, I am not a Millennial, but I do use the computer often. I believe that I am just as prepared as the millennials to meet the challenges of this information age because of my training. I use technology for work as well as school. That's why I feel prepared for college and the workforce because this is the era of technology.

P9 mentioned:

> I feel like a person can never be too prepared for the challenges of this information age because things are constantly changing. As a Baby Boomer, most of the people my age, do not want to learn nothing about the computer. However, because I am a college student as well as have grandchildren, I want to learn more. This way I am able to keep up with my grandchildren and schoolwork. I can use technology to learn things going on in this world. I use the Internet and Google whatever I want to know. Although, I am constantly learning new things every day. I try to use technology more. I believe the younger generations use technology more so than my age group and are more prepared to meet the demands of this information age because it is easier for them to keep up with the continuous change technology brings.

P13 mentioned:

> I feel just as prepared for the challenges of this information age because I have learned to appreciate the benefits technology has to offer. I can do many things on the computer for school than I could before. Technology allows me to learn new things at my own pace. So yes, I feel prepared.

Sub-category 5: Helpful technology tools. This sub-category emerged from the data responses provided by the participants from the focus groups in this study. The focus groups were

asked *what types of technologies adult learners have found helpful in a higher education setting.*P3 from Focus Group 1 started the discussion by saying:

> I feel that students use the computer at work and school. I use technology for the school. I think that you must know how to use a computer and technology today for almost everything. I believe that the use of technology increases students overall academic success in school.

P5 concluded the discussion by saying:

> I believe the recent use of technology in college has helped improve my knowledge. I can do more now with the computer than before. I can get my reports done much faster and my research for my papers too. I can do so much more with technology.

P12 from Focus Group 2 began this discussion by responding for this group. P12 said:

> I am not too fond of technology because I don't know how to use it well. Although, I need to know how to use it for school. Yes, I feel that technology use in school is increasing my academic success. Once someone shows me how to use certain technologies such as the computer and the Internet, I got it and able to explore new things on my own.

P11 added to this discussion by saying:

> Technology is very much needed. I feel that the students in school need to know how to use a computer. I know my children, when they went to Sandy Grove Elementary, were using the computer in the first and second grades. The school taught them how to use an Apple iPad. The children and most people, in general, need technology because everything now requires technology.

No other group members had anything to add to the discussion. The researcher reviewed the responses from both discussion groups. Then, both focus groups were asked a*s adult learners,*

do you feel prepared for the challenges of this information age in higher education as a student? Why or why not?

P2 from Focus Group 1 led this discussion. P2 stated:

> Oh no I do not feel prepared. It is too much for my mindset to comprehend at one time. I think it is too much information thrown at you and it is too much for a person like me to consume. Maybe for the millennials, they can but not me. I just think it's' too much information on the computer" to keep abreast to this new world as far as the Millennials they are prepared to handle the challenges more so than I am. I will get there but I am not there yet. This is the age of technology and it is a period where the Millennials relate to technology more than I can. I feel as though the millennials have been exposed to technology from birth and that is one of the reasons why I feel they use technology more and feel more comfortable using it than my generation.

P5 mentioned:

> The Millennials are better prepared for the challenges of this information age because it is all I have been taught since elementary school. I personally have had a computer and cell phone since I was seven years old. Now that I am a college student, I faithfully use technology every day. There is not a day that goes by that I do not use some type of technology. I got to have it everywhere I go because I feel so lost without technology.

P7 said:

> Yes, I feel that I am prepared for the challenges of this information age because technology has opened the doors as a way to expand my knowledge on almost every subject and class I ever had. Technology is a way of life.

P12 began this group discussion for Focus Group 2. P12 said:

> Well, I am not a Millennial, but I do use the computer often. I believe that I am just as prepared as the millennials to meet the challenges of this information age because of my training. I use technology for work as well as school. That's why I feel prepared for college and the workforce because this is the era of technology.

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> I feel like a person can never be too prepared for the challenges of this information age because things are constantly changing. As a Baby Boomer, most of the people my age, do not want to learn nothing about the computer. However, because I am a college student as well as have grandchildren, I want to learn more. This way I am able to keep up with my grandchildren and schoolwork. I can use technology to learn things going on in this world. I use the Internet and Google whatever I want to know. Although, I am constantly learning new things every day. I try to use technology more. I believe the younger generations use technology more so than my age group and are more prepared to meet the demands of this information age because it is easier for them to keep up with the continuous change technology brings.

P13 stated:

> I feel just as prepared for the challenges of this information age because I have learned to appreciate the benefits technology has to offer. I can do many things on the computer for school than I could before. Technology allows me to learn new things at my own pace. So yes, I feel prepared.

Sub-category 5: Helpful technology tools. This sub-category emerged from the data responses provided by the participants from the focus groups in this study. The focus groups were asked *what types of technologies adult learners have found helpful in a higher education setting.* P7 led this discussion for Focus Group 1. P7 stated:

What I found to be most helpful to me is Google. I can use Google to find just about anything that I need to know on the computer. I just Google it and I get my answer. If I need to find out how to drive somewhere, I can just go to Google Maps or MapQuest or use Siri and it tells me step-by-step instructions on how to get to wherever you need to go. It provides you with instant and quick access to knowledge about anything you need to know. The thing that I found most helpful about these technology tools is the fact that all adult learners can use Google and MapQuest to find directions or any information.

P8 said:

Like P7 stated you can find whatever you need right away. I use the Internet to find recipes because I like to cook and sometimes, I do not have the recipe in my cookbook. I can just go on the Internet and Google the recipes to find out how to cook it. I can use this app from my smartphone. These are the technology tools that I have found most helpful. What I found most helpful was You-Tube. I can learn how to do algebra or other subjects on YouTube. YouTube teaches you all you do not get from your teacher. You can get a better understand of it on YouTube.

P10 from Focus Group 2 began this discussion. P10 said:

All around just knowing how to navigate on the computer or the Internet is useful. Just the ability to be well rounded in technology is helpful especially when you are in college because you must navigate through Blackboard and other technology to do your schoolwork. I found most helpful is the smartphones. As adult learners, you can download the app on your smartphone to help you learn or assist you with whatever you need to know. Taking online classes has been most helpful for many students who work because they can still go to school and work at the same time. I agree with my group members. Google and Siri have been most helpful to me because I can use my iPhone to look up

things. I am also able to complete my homework assignments on the go when I download the different apps on my smartphone or iPad.

P9 stated:

> I found Skype helpful when my family deployed overseas, I was able to Skype them and communicate with them on my computer using the Internet. It helped make the time go by because I was able to see them and talk to my family as often as I wanted.

P1 mentioned:

> I found Xoom helpful. I was able to pay my tuition and other bills using my cell phone and Internet without leaving my home. Xoom allowed me to take care of school business without having to go to the finance office and stand in those long lines to pay my tuition.

Next, the researcher asked both focus groups to respond to *what are some technology techniques or approaches that have helped African-American adult learners and adult learners in school.*

P6 led the discussion for Focus Group 1. P6 stated:

> Just knowing how to navigate the internet and computer to ask Google for help has been most helpful. Everything that I want to know from the weather to travel to vacation spots or the news can be found using different apps on the computer to get the information you need. I can stay connected to my instructors.

P13 from Focus Group 2 started the discussion for this group. P13 said:

> I would have to say the all-around word is Google. Just Google it or YouTube it to figure out whatever I am doing. It is just easier to just Google your questions to learn what you need to know. Basic computer classes have adult learners successfully used technology. The use of Skype or Zoom has assisted many adult learners with being successful with

using technology whenever they have questions and need to know something, they can just use Google to find the answer.

P11 concluded this discussion by saying:

> Yes, I agree. Google is a resourceful tool for college students to use to assist them with learning. Google allows them to gain a better understanding of any topic and subject that they need help in. Skype is another helpful technology tool that allows people to use their computer to connect with family or friends from anywhere in the world.

A detailed explanation of the participants' responses from the focus groups as displayed in Appendix L. Using coding that allowed for verbatim of what was being said helped the researcher to separate the data as the participants' responses told their counter-narrative from their experiences with using technology. The researcher viewed the overall perceptions of technology use from both focus groups participants' responses.

Theme 4: Anxiety toward using technology. The researcher continued examining the data responses from the participants as they gave a counter-narrative of their encounters about their level of anxiety toward using technology in the focus group discussions as the groups responded to the open-ended questions. Both groups responded to *what their view of technology used by each age group was. Do you perceive the millennials using technology more than other age groups for school? Describe your level of frustration with using technology to complete class assignments. What is your overall attitude toward using the computer to complete classwork, use social media or gaming?*

P6 started this discussion for Focus Group 1. P6 stated:

> In the past, my generation was not that into technology because they believed that it was not really, necessary or it was a fad and that it would fade out soon. In the past, you know

the older generations were not exposed as much nor did they even have a computer or technology. The older generations did not see the need to know how to use technology. Their parents thought technology was just a fad back then that would soon fade away. Many people years ago, did not think that technology was going to be as widespread as it is now. However, technology is still around, and we need it for just about everything.

P7 concludes this discussion. P7 said:

I feel that the millennials do use technology more than other generations for school and work because many millennials have been exposed to it at such an early age. Technology is going to always be needed. I feel that my generation, the millennials use it more so than other generations. I feel that schools need technology and children all ages should know how to use or be knowledgeable of technology. I use technology for almost everything daily. The way things are going now, everything has to do with technology. Therefore, I feel that people need to know how to use it.

P12 began the discussion for Focus Group 2. P12 said:

Yeah, the millennials know how to use technology more than other generations. You know as adults we are still learning. We want to learn now so we know how to use this stuff and get a better knowledge of technology. As far as the millennials, they pick up things real, quick.

P13 concludes this discussion. P13 states:

My children can do so much on the computer. They always help me with my schoolwork, and I am in college. Like everyone else said, these Millennials use technology much more than we do. The Millennials use technology to take pictures of their assignments, share, and upload them to the computer. They use technology much more than myself because it takes me forever to just complete one assignment because I simply just do not know how to

use the computer that well. I get my children to help me to complete my assignments. After, they teach me how to do something on the computer I got it because I catch on fast. Although, I am very slow. I can get my schoolwork done.

Another sub-category developed from the collected data comfort level with using technology. A thorough explanation of this theme and sub-category as shown in Appendix M for the collective data for both focus groups.

Chapter 4 Summary

In this chapter, the presentation of findings that developed through the collection and analysis of data were explained. This intrinsic case study provided a discussion of the elements according to the themes and sub-categories as it related to the perceptions of using technology in an academic setting. The themes and sub-categories were revealed through the data collection phases: individual interviews, focus groups, and field notes. This allowed the participants to share their real-life experiences from their perspectives of using technology. This case study focused on the perceptions of African-American adult learners' use of technology in higher education to promote their academic success. Previous studies as reviewed by the researcher from the literature were included throughout this chapter, which notes explicit perceptions when the utilization of technology in education took place as they helped to support the findings in this present study. A summary of the findings was reported. The data was presented and explained. A discussion of the new perspectives from this study is explained in Chapter 5.

Chapter 5: Discussion and Conclusions

Introduction

All through the history of education, there have been substantial differences amongst the academic achievement gap and the digital divide for African-Americans and their counterparts (Duke, 2017). Throughout history, African-American and minority learners have been underprivileged in education to include technology also known as the digital divide (Pearce & Rice, 2013). Numerous studies report different ways to decrease this gap or digital divide but few reports on how to close it. This gap, the digital divide has extended to comprise of age, gender, economic status, and the students and teachers' level of comfort with utilizing technology in the educational arena (Dornisch, 2013). The digital divide is more than just providing people with access to technology. It is about leveling the playing field concerning data infusion, as it is a necessity to have access and be able to use technology (Cohron, 2015). African-American adult learners and all college students must be able to utilize technology effectively to participate in today's education and workforce training opportunities (Matsunaga et al., 2016). Therefore, African-American adult learners need the opportunity to use technology as part of their educational program to gain a better understanding of its benefits (Newman, Rosbash, & Sarkisian, 2015).

Educational theorist Malcolm Knowles discovered that adults learn differently, as such learning for adult learners must be relevant and it must include real-life experiences (Wuebker, 2013). This helps adult learners to connect learning to their everyday life experiences to gain a better understanding of the subject taught to them. According to Buckenmeyer et al. (2015), adult learners apply knowledge to create new meaning and find solutions to a given task or classroom activity, which results in increased academic achievement as these students engage in the learning process. African-American adult learners need the opportunity to use technology and incorporate it into their educational programs (Newman et al., 2015). Utilizing technology in the classroom

could increase these adult learners' ability to discover, investigate, and assess information. The use of technology in the classroom might also foster problem-solving, decision-making, and communication as adult learners work together and share ideas. Technology allows African-American adult learners the opportunity to be well informed, reliable, and contributing as they use it in higher education to learn how to obtain knowledge and keep up to date with the technological advances (Newman et al., 2015). Technology can provide the inspiration that draws African-American adult learners into adult education that might not participate otherwise, and it helps to facilitate a meaningful learning experience for these students (Ginsburg et al., 2015).

Educators must address the opportunity differences in higher education for African-American adult learners and minority students amongst other groups to close the academic achievement gap and the digital divide. This gap may decrease by finding innovative ways to provide access to technology in higher education classrooms, which helps facilitate lifelong learning for adult learners (Packard, 2016). When successful technology implementation is present with content, it produces outcomes just as effective as traditional practices because the students learning improved (Frantzen, 2014). Therefore, when African-American adult learners obtain access to new technologies and their teachers understand how to utilize technology in the classroom, the results will enhance these students' academic performance (Packard, 2016).

The purpose of this qualitative intrinsic case study was to explore how African-American adult learners perceive using technology in higher education to increase their academic performance. This study provides educators with a better understanding of African-American adult learners, how they learn, and perceive using technology to enhance their learning and knowledge in their higher education classes through these adult learner participants viewpoints and experiences with using technology. This study also provides insight into how African-American adult learners use technology in higher education to increase their academic achievement through

the counter-narratives presented by these adult learners as they shared their experiences with using educational technology. One of the key purposes of technology in higher education is to deal with the uniqueness of users (Flowers et al., 2014). Technology provides many distinctive forms of learning experiences, and students become aware of, which form best matches their learning styles and needs (Flowers et al., 2014). Therefore, this study provides a method for teachers to understand African-American adult learners' perceptions of using technology in higher education. This study can help educators' present technology in a way that promotes lifelong learning.

This study successfully answers the research question purported, and the findings add to the limited body of knowledge that exists pertaining to African-American adult learners' perceptions of using technology in higher education to increase their academic achievement. The results from this study help to raise awareness into the need to provide effective use of technology in higher education for African-American adult learners and educators to assist with making students, college and career ready. The findings from this study also leave room for additional investigation by close analysis of the information, the dialogue and counter-narratives from the participants in this study on how to use technology in the academic environment to encourage and increase learning. This study collects and incorporates new knowledge to the community of information encompassing adult education using technology into the curriculum to improve learning for African-American adult learners within higher education. This study adds to the body of knowledge essential to addressing the continuous need for understanding African-American adult learners amongst educational leaders and instructors in higher education.

Research reviewed for this present study in the review of literature, showed that there have been limited studies exploring the perceptions of African-American adult learners toward using technology in higher education. Much of the literature has covered African-American students using technology in K–12 education. Since conducting this study, there have been few seminal

works found from reviewing literature closely related to this present research. Yu-Chun (2018) conducted similar research to this study. Yu-Chun's (2018) research was a quantitative exploratory study of minority students' technology usage and perceptions of technology: nontraditional adult students in technology-based environments. Yu-Chun's study examined African-American and minority students' perceptions of using technology in continuing education online and face-to-face classes (Yu-Chun, 2018). The present study is significant to existing literature because it provides future researchers with information that enlightens educational leaders and educators about the perceptions of only African-American adult learners in continuing education and curriculum programs use of technology and how these students' perceptions of using technology in higher education affect their learning. Therefore, it was significant to understand how African-American adult learners can be successful in higher education through their perceptions of using technology. The experiences of the African-American adult learners in this study provided counter-narratives of their perspectives as they shared their experiences with using technology. This revealed how these adult learners' perceptions play an integral part in how these African-American adult students learn, accept technological change in education as being beneficial to their academic needs, and value or see the relevance of using technology to be successful in college.

Chapter 5 has a detailed discussion of the introduction of the study to provide a recap of the nature of this study and the findings and summary of the results. This chapter also has a thorough discussion of the results in relation to the literature. However, there was little to no known existing literature about African-American adult learners' perceptions toward using technology in higher education. An extensive discussion of the factors that influence the perceptions of African-American adult learners toward utilizing technology to promote their academic success in higher education and a comparison of the findings from this research to the results reported in some of the

literature reviewed in this study will be explained. This chapter will provide concluding thoughts from the findings in this study and will also discuss some implications of the results in terms of theoretical implications, practical implications, and future implications. The researcher will explain the strengths and weaknesses of this study. There are some recommendations for future research in this chapter.

Summary of the Results

The present study was a qualitative intrinsic case study designed as a means of understanding African-American adult learners' perceptions of using technology in higher education and how these adult learners' perceptions and experiences affect their academic success in college. This study was conducted at a local community college in the Sandhill of North Carolina. The target population comprised of only African-American adult learners enrolled in introductory level courses at the community college to participate in this study as these students were the focus population of interest. They were from continuing education and curriculum programs. These participants enrolled in the Introduction to Computers or Introduction to Psychology classes. This study comprised of only those adult learners meeting the inclusion criteria for this research, which included students ranging in ages between 18 to 69 years old. There were 14 African-American adult learners who participated in this study. Data were collected using semistructured individual interviews, focus groups, and the researcher's field notes. There were 14 individual interviews conducted and two focus groups with six participants in each group.

The content of the data sources from the individual interviews, focus groups, and the researcher's field notes were analyzed, transcribed, and coded for this intrinsic case study. Member checking allowed the researcher to check for accuracy through participant reviews and digital recording device. According to Yin (2014), case study research must rely on using multiple

sources of evidence with data needing to come together in a triangulating manner. A data triangulation approach was used to help support and validate the study using the information collected from each participant in this study. This allowed the researcher to gain a better understanding of the phenomena from the participants' viewpoints and experiences with using technology. The information shared from the individual interviews, focus groups, and researcher's field notes helped to answer the research question. This allowed the researcher the opportunity to extract from a larger scope of information. Then, the data were categorized by themes and sub-categories. There were four themes and six sub-categories identified in this study. They were perceptions of technology use, attitudes toward technology use, technology use for academic purposes, and technology use for anxiety and comfort level. The six sub-categories were factors affecting perceptions, barriers to not using technology, positive attitudes and perceptions, negative attitudes and perceptions, helpful technology tools, and comfort level with using technology. A plethora of information was produced from the participants in this case study.

This case study explored how do African-American adult learners perceive the use of technology in higher education to promote their academic success. The framework used to guide this study was a combination of the technological pedagogical content knowledge (TPACK) and constructivism learning theories. The perceptions of African-American adult learners are an important factor, which influence teaching and learning in the classroom as well as the academic achievement of these students. Thus, African-American adult learners construct their own perceptions and comprehension of the world, through their experiences and reflecting on those experiences (Biniecki & Conceigao, 2016). As these students confront new learning experiences, they must integrate those experiences with previous concepts and experiences by asking questions, investigating, and evaluating or reviewing what they know (Biniecki & Conceigao, 2016). Therefore, it was significant to understand how African-American adult learners can be successful

in higher education through their perceptions of using technology. The experiences of the African-American adult learners in this study provided counter-narratives of their perspectives as they shared their experiences with using technology. This revealed how these adult learners' perceptions played an integral part in how these African-American adult students learn, accept technological change in education as being beneficial to their academic needs, and value or see the relevance of using technology to be successful in college.

Discussion of the Results

This qualitative intrinsic case study was designed to provide educational leaders and instructors with additional research to assist them with understanding the importance of African-American adult learners' perceptions to teaching and learning when using technology in higher education. The researcher provided an analysis of the results in Chapter 4 from this study as it pertained to the overarching research question. The research question was designed to explore the perceptions of the experiences of African-American adult learners' use of technology in college. The data from the individual interviews, focus groups, and researcher's field notes were used to answer this research question of:

> RQ: How do African-American adult learners perceive the use of technology in higher education to promote their academic success?

To address the limited research information on the perceptions of African-American adult learners' use of technology in higher education the researcher collected data from the individual interviews, focus groups, and researcher's field notes and related the findings to known literature on K–12 studies of student perceptions of using technology in education. The participants in this study shared their personal counter-narratives from their experiences with using technology for academic and work purposes. These perceptions were categorized by themes and sub-categories.

Theme 1: Perception of technology use. The results of this present study are confirmatory and revelatory. This study revealed and confirmed new knowledge about African-American adult learners' perceptions of technology use in higher education and it confirms what the profession has long perceived from the K–12 studies. Research showed that technology has the potential to be an influential learning tool for increasing access to learning for African-American adult learners as well as all students in higher education today when using technology in the teaching and learning environment. It allows students the opportunity to create individualized pathways to support the various learning differences amongst students. Technology opens the world of digital information and resources that form the entryway to today's job market (Banit, Theis, & Van Leeuwe, 2013). The results from this present study confirm previous studies by Harrison and Reed (2016), Abdullah et al. (2015), Machado and Chung (2015), and Marzilli et al. (2014) on the perceptions of students toward technology use in education.

The results from this present study were also in line with previous study findings by Abdullah (2016) who conducted a study on integrating technology into the curriculum as an effective teaching strategy. According to Abdullah (2016), using technology to promote learning assists working adult learners to meet their learning needs by offering other approaches to learning such as hybrid and online (Abdullah, 2016). The effective use of technology in the various subject areas provides the teachers with opportunities to develop into their perspective roles as facilitators of learning (Abdullah, 2016).

The present study supports the notion that the perceptions of African-American adult learners are essential when using technology in higher education as it is an integral part of their everyday life experiences and is, essentially, related to several effective educational practices as well as the academic achievement of these adult learners. The African-American adult learners in this present study discovered numerous times that they used technology daily for just about

everything they did for school and work. Most mentioned having positive perceptions of technology. This was because of the positive experiences provided by the teachers these participants had previously in school or before enrolling in college. This is what helped them explore technology in a way to gain a positive perception of using it for school. The participants in this present study recognize the significance of technology in their lives. They also realize the importance of technology for students to be able to utilize it to be successful in college.

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This study revealed that there were no significant differences in the perceptions between those continuing education and curriculum African-American adult learner participants when using technology in higher education. The results from this present study indicated that there were no significant differences between the participants in the three age groups: 18 to 34 years old, 35 to 50 years old, and 51 to 69 years old regarding their perceptions toward using technology in higher education. The only difference found was the fact that the older age groups (51 to 69 years old) were slow to grasp how to use technology initially and had less exposure to technology than the 18

to 34 years old participants in this study had. In addition, those participants in two of the age groups 35 to 50 years old and 51 to 69 years old mentioned that they valued technology more than the 18 to 34 years old participants did because they were older, more mature, and wiser in their understanding the value of using technology in a meaningful way to learn.

These participants in this study mentioned that the 18 to 34 years old participants did not have the responsibilities as those participants 35 to 69 years old. They felt because of that they (35 to 69 years old) valued using technology more for learning. There were no significant differences reported between the 18 to 69 years old continuing education and curriculum African-American adult learners' participants' perceptions of technology.

The perceptions of technology use were viewed in terms of age and course preference as well as age and access. This breakdown was done to see if there were any significant differences in perceptions based on access and course preferences between the three age groups. Most of the 51 to 69 years old participants prefer taking their courses face-to-face the traditional way. The 35 to 50 years old participants were evenly distributed. Half of this age group preferred the traditional face-to-face and the other half preferred blended and or combination of online and face-to-face course learning with technology. When the researcher broke down the perceptions of the participants based on age and technology access, the 35 to 50 years old participants showed more access to technology than the other age groups. This was because there were more participants from this age group participating in this study. There were six participants participating in this study from this age grouping. The other two age groupings had four participants in each group. However, all the age groups of the participants' perceptions based on age and technology access were the same according to the findings in this study. Therefore, overall there were no significant differences in perceptions found in this study based on access and age groups. Figures 3 and 4 display perceptions based on the participants in this study.

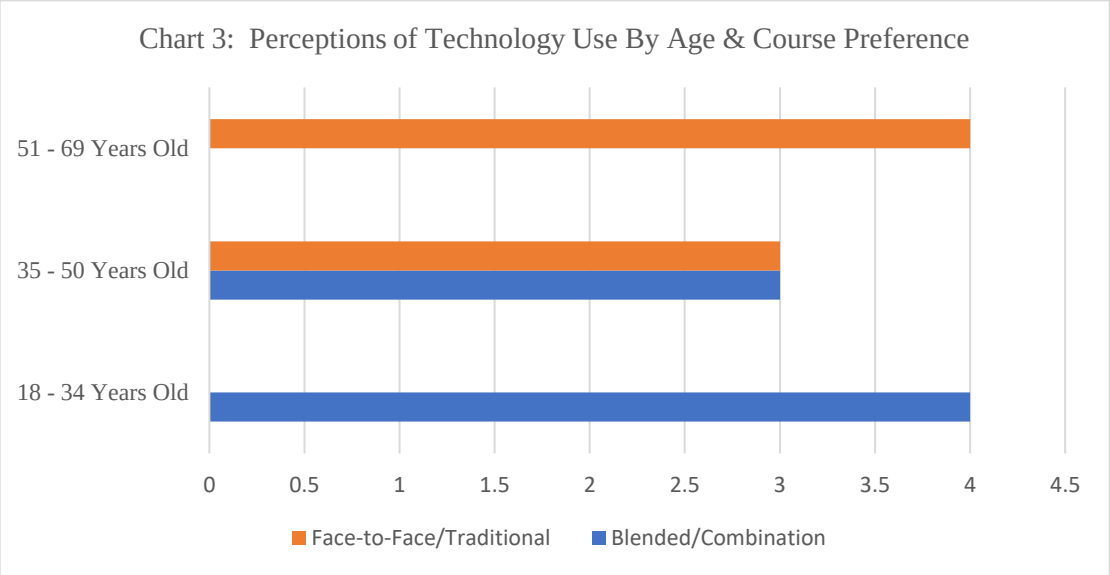

Figure 3. Perceptions of technology use by age and course preference

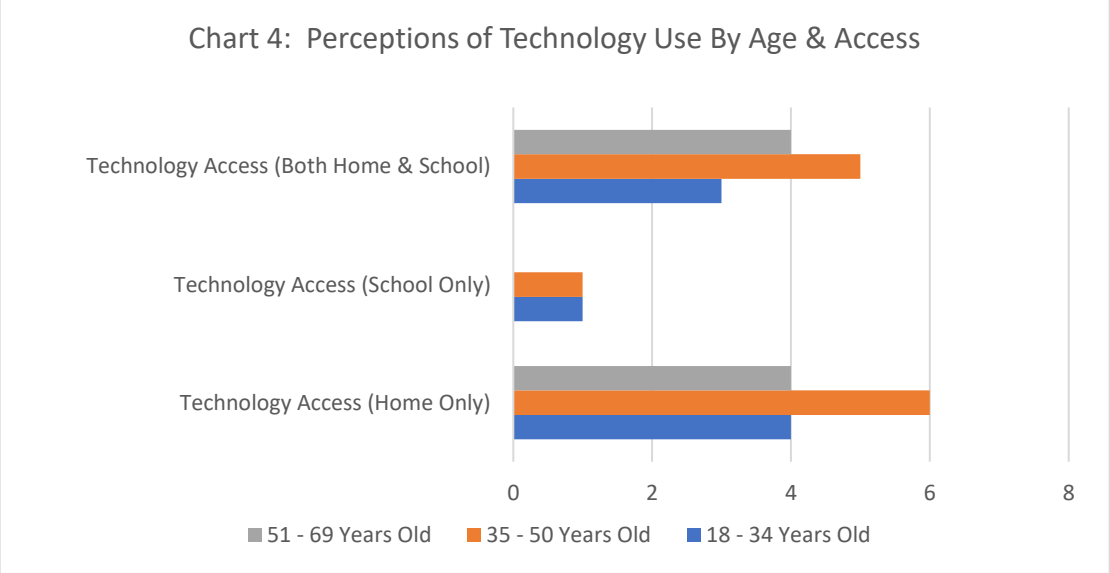

Figure 4. Perceptions of technology use by age and access.

Sub-category 1: Factors affecting perceptions. The participants in this study reported some determining factors that prevented them from using technology. These factors were essential to the participants using technology in higher education as it affected their overall perceptions and view of using technology, which prevented them from learning or improving their academic success. They were:

- "The previous school experience" (P1).
- "The teachers did not help the students use technology due to their lack of knowledge with understanding how to use it correctly for instruction" (P1).
- "The misconceptions about African-American adult learners not being knowledgeable with technology" (P2).
- "The misconceptions about older adult learners not being able to learn with technology as the younger adult learners between the ages of 18 to 34 years old" (P2).
- "The African-American adult learners felt intimidated by technology" (P8).
- "The time it takes for most, older adult learners like those between the ages of 35 to 69 years old because it is much harder for them to grasp the concept of using technology than the younger adult learners' ages 18 to 34 years old" (P5).
- "The misconceptions about the younger adult learners' ages 18 to 34 years old being able to do more with technology than other age groups. These factors have deterred some African-American adult learners from using technology for fear of not being able to keep up with their peers" (P9).

Sub-category 2: Barriers to not using technology. This present study also revealed several barriers to not using technology for African-American adult learners in college. The data from this study uncovered when African-American adult learners did not use technology in college, it hindered them from being successful in many ways.

- "The students will experience a decline in their grades when they are unable to use technology to complete their classwork" (P6).
- "The students had difficulty being successful in their higher education classes because they could not effectively complete their assignments in a timely manner" (P12).
- "The students could not do any research on the Internet when needed for class" (P13).

- "The students did not have access to their instructors outside of the classroom due to them not using technology" (P1).
- "The student participants shared when students do not use technology, they will not have instant access to their grades" (P4).
- "The students not having access to basic technology outside of school such as the Internet and computer hindered students from being successful" (P11).
- "The students do not have access to the various technologies outside of college due to them not being able to afford it or other economic factors beyond their control, which hindered them from being successful" (P8).
- "The students are not being properly trained by their teachers to use technology effectively" (P12).
- "The students' social economic factors such as the expensive cost of technology that prevent them from being able to afford to buy various technologies needed for college" (P2).

This present study results confirm previous research findings by Williams et al. (2014), which mentioned similar findings. Williams et al. found some barriers to technology use. They found one of the barriers to technology use in higher education was the fact that it may be too expensive for many students. Williams et al. also noted that one of the greatest barriers to using technology was teachers not being properly trained to know how to use technology as a result, which hindered students from the learning benefits and opportunities technology had to offer them. The present study results showed similar barriers to not using technology. Therefore, the present study findings illustrate the need for higher education institutions to provide the necessary training and technical support to these African-American adult learners in the various technologies utilized in the classroom as well as across higher education curriculum programs of study. This will help

to assist adult learners being familiar and comfortable with using technology. Technology is not going away. Therefore, it is imperative to reduce the digital divide amongst African-American adult learners that, educators better prepare these adult students to be successful in their academic endeavors through using technology, which will lead to a promising career in the end. Today's students must be prepared to be college and career ready. This present study will help educational leaders prepare students to meet this need.

Theme 2: Attitudes toward technology use. This present study revealed conclusive results for the perceptions of using technology in higher education from the African-American adult learner participants based on their attitudes toward using technology. This present study exposed how African-American adult learners felt about technology being beneficial to their success in life. In this study, the participants' attitudes toward technology were positive because most of them had good experiences with using technology. They stated that they believed whether students were African-American adult learners or not that everyone needs to know how to use technology.

Sub-category 3: Positive attitudes and perceptions. This study uncovered numerous positive attitudes and perceptions from the participants in this study as most shared that technology is a way of life. Once people learned how to use technology it makes things much easier. Many mentioned that they find it hard to stop using technology once they got started. The results of this study revealed that most of the participants felt that technology was a way for students to gather information. This study also revealed that technology was a way to help African-American adult learners form new ideas as a means for them to be able to find out how to do things, which ultimately assists them with creating and developing good ideas. Technology was also a way for African-American adult learners to collect information from the Internet and receive online

services to help them with their classes. The positive attitudes and perception comments shared by the participants in this study about technology was:

- "Technology has a definite use in the educational arena as it may be used in the classroom to teach, learn, research, read, listen, and create numerous documents to enhance learning" (P7).
- "Technology was a good way to help educate students" (P8).
- "Technology allows students to explore new things" (P11).
- "Technology makes things easier for students" (P11).

The result of this study showed most of the participants had positive perceptions and views of using technology for academic purposes. The present study findings revealed that most of the participants in this study believed that technology increased African-American adult learners' knowledge. The results uncovered that the participants in this study think that it is very important to know and understand how to use technology whether using it for school or work as most employers require the use of technology. The results showed that many of the participants believe that every adult learner should know how to use the computer and Internet for college. The results from the African-American adult learner participants in this present study contribute to the increase of knowledge that can unpack the intricate pattern of determining factors that must be considered when using technology in higher education. This present study is in line with studies conducted by Abdullah et al. (2015), which found the students showed positive attitudes when technology was used in the classroom (Abdullah et al., 2015). Abdullah et al. (2015) found, when technology was implemented and used properly in the classroom, the students' learning increased as they were actively engaged in the teaching and learning process.

This present study also confirms previous research studies by Chatanash and Miaji (2014) and Eyyam and Yaratan (2014), which also noted conclusive results when technology was used in

higher education. These studies showed the students' academic achievement increased as their attitudes for learning how to use various technologies were explicit because of the instructor's optimistic attitude toward using technology in the classroom. In previous research by Eyyam and Yaratan (2014) found, technology offers an excellent avenue for student motivation, assessment, and teaching. Their study showed that when technology was utilized properly in classroom teaching, it had a very positive effect on student achievement and success (Eyyam & Yaratan, 2014). Using technology in higher education classroom instruction assists instructors deliver instant feedback to students and encourages active student learning, cooperation, and support. It also assists instructors to deliver customized learning opportunities and rigor for their students. The results from this present study findings confirm previous study findings as the present study also showed positive results when effective use of technology was used in the classroom it helped to promote learning.

Sub-category 4: Negative attitudes and perceptions. The results from this present study also uncovered some negative attitudes and perceptions comments expressed by the participants as they shared their experiences about using technology for school or work. This present study uncovered that these participants had negative attitudes and perceptions about using technology in college because it took them forever to complete their assignments such as those on Blackboard. This was due, in part, because of their lack of knowledge with understanding how to use technology properly. These participants in this present study shared how they felt about technology in general. Some of the findings as noted by the participants were:

- "Technology constantly changes, which makes it difficult to keep up" (P13).
- "Technology was too much for me to grasp the concept of understanding how to use it effectively at my age" (P2).

- "My teachers did not take the time to teach me, because I was slower than most of my peers in my class" (P9).
- "I get frustrated trying to learn how to use technology to do my homework" (P10).
- "I just do not like using technology because I am fearful of making a mistake" (P8).
- "I do not have time to be trained on how to use technology at my age right now, because it is too time consuming" (P12).

Theme 3: Technology use for academic purposes. The African-American adult learners in this present study results showed that the participants felt optimistic about learning about technology as a whole. They also wanted to know more ways of how to use technology for academic and career purposes because they believed it was a worthwhile and necessary skill for them to know in society today. More than half of the African-American adult learners participating in this study believed based on their personal experiences that using technology was necessary to increase learning in all subject areas. As such, technology has many benefits in higher education for college students. There were over half of the African-American adult learners participating in this study who believed technology was significant to know how to use for school and work as it was now a part of their everyday life especially if a person wants to obtain a good paying job. Almost a 100% of these adult learners participating in this study believed that technology improves students overall academic performance.

These present study findings confirm findings by Delgado et al. (2015) on educational technology and effectiveness for K–12 education. According to Delgado et al. (2015), although technology use has increased, the number of teachers and students using technology effectively continues to be low. However, they did find a positive association between the teachers and students technology use. Their study found when teachers used technology in their classroom instruction the students showed an increase in their academic performance because the teachers

showed a positive attitude when presenting technology to their students for learning. The present study confirms previous studies as this study found that the students who had good teachers, those participants expressed that their learning increased because their teachers taught them effective uses of educational technology. Many of the participants in this study reported that technology increased their overall academic success in college. This present study found that the participants reported that it was important to understand and know how to use technology because technology was very, much needed by college students today.

Sub-category 5: Helpful technology tools. The results by the adult learners in this study showed that technology was a necessary tool to have in society. The results also revealed that the African-American adult learners in this study considered technology as being a resourceful tool, which allowed them access to their teachers and grades in real-time through the Internet and using the email system. The data from this study also indicated that technology has many benefits to assist African-American adult learners with being successful in college. The data uncovered several resource tools to assist African-American adult learners in their academic endeavors. Some resource tools African-American adult learners can use to increase their learning are:

- Google: "Google is a resource tool I found most helpful to me. Google allows students the ability to easily find information on the Internet" (P7).
- MapQuest: "MapQuest is an app that allows individuals the ability to find step-by-step directions to and from their destination" (P7).
- YouTube: "YouTube is an educational resources tool that teaches you all you do not get from your teachers. You can get a better understanding of lessons on YouTube" (P8).

- Khan Academy: “Khan Academy is an online educational resource tool, which assists in educating students in all subject areas, age groups, and educational level gaps. It has been very helpful to me with learning things I do not grasp in class” (P6).
- Blackboard: “Blackboard is an educational learning system that allows educators and students to interact and learn using the Internet” (P10).
- Skype: “Skype was helpful because it allowed me the ability to communicate with others from anywhere in the world. Skype is a technology software application, which is downloaded to the computer to allow students to learn over the Internet through audio and video calling to learn or share learning experiences with others around the world” (P13).
- Xoom: “I found Xoom helpful. Xoom is a PayPal app, which allows students the ability to pay bills, send or receive money securely from the comfort of their computer or smartphone using the Internet” (P1).

Theme 4: Anxiety toward using technology. This study uncovered that most of the participants did not experience feeling any anxiety when they used technology to do their schoolwork. Although, there were a small percentage in the 35 to 50 years old age group and the 51 to 69 years old age group who mentioned they felt intimidated when they used technology. They mentioned that once they got the hang of technology, they felt okay or did not feel any anxiety. It just took up too much time because they were slow to grasp the concept of how to use technology effectively. Thus, there was no significant difference between the different age groups perceptions of using technology. Some of the participants stressed that they just needed more time to complete their work using technology.

Sub-category 6: Comfort level with using technology. Most of the adult learners in this study results revealed they felt comfortable using technology and they believed technology was necessary to know how to use. The African-American adult learners in this present study believed that it is necessary to train African-American adult learners how to use educational technology to understand the full benefits of using it for learning, work, or other academic purposes. These present study findings confirm findings by Meehan and Salmun (2016). Previous study findings by Meehan and Salmun found that higher education students' perceptions are significant factors that affect how a student learner when technology was integrated into the learning environment.

Discussion of the Results in Relation to the Literature

This study was designed to explore the perceptions of African-American adult learners use of educational technology to provide educators with resources to assist these students with being successful in college. There was limited literature, which focused on the perceptions of African-American adult learners' technology use in education and the digital divide. Therefore, the participants in this study provided their perspectives on the topic so that the researcher could gain an understanding of the phenomenon. The results of this study relate to the literature in many ways. Previous studies conducted by Brooks (2016), Meehan and Salmun (2016), Machado and Chung (2015), Chien (2013), Williams et al. (2014), Chatanash and Miaji (2014), Eyyam and Yaratan (2014), and Delgado et al. (2015) were just a few noted studies that relate to the results of this present study from the literature.

Brooks (2016) study found a significant increase in access to technology through the student ownership of smartphones, iPhones, iPads, tablets, and laptops. Brooks (2016) discovered that academic use of technology increased the students' academic achievement. According to Brooks (2016), students believed technology contributed to their active engagement in the classroom with their teachers and classmates as technology enhanced their complete learning

experiences while encouraging them to be better students. The results from this present study were in line with Brooks (2016) study. This present study uncovered that the participants noted that when they had access to technology at home and school that they were more productive in their studies and showed an increase in their academic performance when technology such as laptops, tablets, smart phones, iPads were used.

Meehan and Salmun (2016) conducted research on integrating technology in today's undergraduate classrooms was another study that was consistent with the results from this study. According to Meehan and Salmun (2016), students' perceptions are an important factor, which affects teaching and learning as such it ultimately affected the success of the students. This study was also in line with prior studies conducted by Machado and Chung (2015) who discovered several factors that affect students' perceptions. They found out when technology was used in the classroom the teachers must be willing to use it in instruction as the teachers set the tone for learning through utilizing technology. The present study results showed that the teachers' perceptions of technology and their use in the classroom helped set the tone for the students' perception of technology. The participants in this study mentioned that previous school bad experience, misconceptions of thinking all Millennials no more than other generational age groups of adult learners were some factors, which affected their perceptions of using technology to assist them with learning.

Chien (2013) study uncovered some barriers that may prevent the effective use of technology in the classroom. According to Chien (2013), technology cost too much, fear of the unknown, overall access to it, and not having the proper training to use technology. The results from this study were also consistent with earlier studies by Williams et al. (2014), who conducted a study about teaching with technology at North Carolina Agriculture. Their study identified several barriers to not using technology in higher education. According to Williams et al. (2014),

some barriers to students and teachers not using technology in higher education were not having the proper training to effectively use technology. This present study results revealed several barriers consistent with previous studies for students when technology was not used. The barriers discovered by this study when African-American adult learners did not use technology were not having access to technology, a computer, or Internet and when these adult learners were not properly trained to utilize technology for learning.

Chatanash and Miaji (2014) conducted a study about technology in higher education focusing on student attitudes toward using laptop computers. According to Chatanash and Miaji (2014), students showed positive attitudes when technology was used as it proved to enhance learning. The students felt confident in their ability to learn through using laptop computer technology. This study findings were aligned to the results exposed by Chantanash and Miaji (2014). The present study uncovered that when teachers used technology in the classroom, the students felt more confident with using technology for learning because their teachers helped them use it effectively in the classroom. This study revealed that those students had positive attitudes about learning using technology.

Eyyam and Yaratan (2014) conducted research on the impact of using technology in a mathematics class on student achievement and attitudes was another previous study conducted consistent to the results in this study. According to Eyyam and Yaratan (2014), the students' academic performance increased in every subject area when technology was used to promote learning. The results from this study were also in line with prior studies conducted by Delgado et al. (2015) who conducted a study on educational technology use. According to Delgado et al. when teachers utilized technology in the classrooms, the students' academic achievement improved significantly because they felt a part of the teaching and learning process. The results from this present study discovered similar findings in that using technology in college increased

the overall student performance of those adult learners who used it. The participants in this study mentioned that teachers should use the Internet more to enhance learning and make students learn how to use the Internet to complete their assignments as well as study topics covered in class.

The findings from this present study were consistent with previous studies conducted by June, Yaacob, and Kheng (2014). Their study found the potential of YouTube as a helpful resource tool, which stimulates students learning and promotes their critical thinking. According to June et al. (2014), when students used YouTube, they became interested in learning and education became fun. June et al. (2014) found when they applied the constructivist learning theory to teaching and learning using YouTube to assist with instruction the students were actively engaged and demonstrated a strong interest in the learning process as they were able to understand lectures better by visualizing the content and relating it to the real workplace. The results from this present study were also in line with other studies conducted by Georgas (2015) using Google as a learning tool, Almobarraz (2018) students used YouTube to support classroom learning, Zengin (2017) studies the students learning increased through using Khan Academy, and studies conducted by Akbaba and Baskan (2017) when students used Skype students were able to collaborate sharing in the learning experience. Another study conducted by Mbuva (2015) supports this study findings with the use of Blackboard in college to assist with online teaching and learning. According to Mbuva (2015) Blackboard assists teachers communicate learning to students through applying concepts taught in class and it helps students obtain knowledge. The students can communicate with their peers and their instructors about lessons learned.

Concluding Thoughts from Findings

This 21st-century learner is full of limitless possibilities for the use of technology in the teaching and learning process (Onyema & Daniil, 2017). Higher education leaders, educators, and instructors must embrace the technological changes in the classroom to meet the needs of these

students. No longer will students learning needs be limited to the traditional way of teaching. Other teaching platforms must be explored to assist students with learning. Thus, educators must find innovative ways to use technology effectively in higher education to capture the attention of the 21st-century learner. African-American adult learners learn better and show progress when they can relate learning to their experiences.

It is my belief through conducting this study that African-American adult learners' successful use of technology not only lies with the individual student, but it also lies with the instructors, as they are influential to teaching and learning. Teachers must have a positive perspective on implementing technology in the classroom instruction for students to be motivated to learn with technology. The students' first impression of technology use plays a critical role in how they perceive using technology to assist with learning. Although, this present study focused on the perceptions of African-American adult learners, the teachers' perceptions of utilizing technology in the classroom plays a significant role in technology use in higher education.

The TPACK theory can assist the instructors with meaningful ways of using technology in constructivist learning environments in higher education, which focuses on the needs of the students. Machado and Chung (2015) stressed the fact that there are many determining factors to consider such as teacher willingness, accessibility, and training educators when using technology in higher education classroom. These factors influence teaching and learning as teachers' perceptions significantly set the tone for successful technology use and student achievement. When teachers are unwilling to use technology in the classroom, it hinders students from learning because technology allows learning to take place in and outside of the classroom in innovative ways. It is my belief that the more teachers use technology the more students will use it and become comfortable utilizing technology as a learning tool to assist them with being successful in college. If technology is introduced to students in meaningful ways, the students are more

receptive to change because the students' perception about using technology may be influenced by their instructors.

Limitations

There were very few strengths and weaknesses resulting in limitations to this present study. This present study was performed as intended with little to no significant modifications to the protocol guides and in the procedures of this study. However, since conducting this present study, the generational age labeling changed slightly limiting the age range groups based on new research findings presented by the Pew Research Center's updated report (Doherty, Kiley, & Jameson, 2015). This study was limited to resource materials because there were little to no known research conducted on this topic. However, there were studies within this topic for K–12 education. Another limitation was the sample size. It was small and only included 14 participants from two programs at a local community college. This study may require replication by expanding the scope of this study to other 4-year colleges or universities and include more African-American adult learner participants from all program areas of study. This research explored the perceptions of technology use by African-American adult learners at a community college, which is a 2-year college. This may have caused the results of this qualitative intrinsic case study not to be generalizable across all 4-year colleges or universities. This study lacks information from the perceptions of teachers that may be significant to this issue. The teachers' perceptions are significant because teachers have influence over their students.

Implication of the Results for Practice, Policy, and Theory

This research adds to the body of knowledge critical to focusing on the constant demand for understanding African-American adult learners amongst educators and teachers in higher education. This research study is essential to the existing literature because it provides future researchers with information that informs the higher education community on understanding how

African-American adult learners perceive using technology as it is essential in the teaching and learning process. These adult learners' perceptions of utilizing technology in education play a significant role in how these African-American adult students learn with educational technology. It also provides future researchers with information on how to assist educators to teach these adult learners' as they must relate their experiences to teaching and learning to make learning meaningful as well as decrease the digital divide. The data obtained from this research study led the researcher to identify that there were a few implications for practice, policy, and theory based on the findings from this present study. As higher education leaders, teachers, and businesses collaborate, continuing in their efforts of striving to provide students from diverse backgrounds with a quality education while meeting the growing needs of this 21st century, it is important to understand how African-American adult learners use technology to improve their academic achievement. This present study provides a means for educators to help African-American adult learners find meaningful ways to utilize educational technology to assist them with being successful in college and in life while preparing them to be college and career ready.

Practice implications. The first implication for practice is the fact that this present study provides information to higher education leaders, educators, administrators, and teachers for understanding how to better serve the educational needs of African-American adult learners and how they perceive using technology. Educators in higher education should strategically plan more innovative ways to meet the needs of African-American adult learners through creating student-centered learning environments based on including cultural needs of these students. This can be done through setting up flipped classrooms (Long, Logan, & Waugh, 2016). The instructor can set up video lessons that allow the students to be actively engaged in learning, which focus on their cultural experiences to help establish a relevant foundation for meaningful learning in the classroom no matter the subject being taught. This will help close or lessen the academic

achievement gap or digital divide between African-American adult learners and other groups because the curriculum and instruction will tailor to the needs of these students.

Many of the participants in this present study expressed how their teachers were one of the determining factors, which played a significant part in their perception of technology use. Most of the participants mentioned, because of their teachers having a positive perception utilizing technology in the classroom, it helped them learn how to use technology to assist them with being successful in school. The teachers taught these participants various ways on how to use technology to complete their coursework. The implications for practice from this present study that can be implemented into higher education institutions teaching and learning practices through creating more culturally sound student-centered learning environments that are more focused on the needs of African-American adult students as well as all adult learners. This supports and confirms previous studies findings regarding minority students who are most likely to experience using technology upon entering college (Abdul-Alim, 2017; Flowers et al., 2014; Goode, 2010). Thus, these adult learners have a greater need for wanting access to technology and want to understand how to use the various types of technologies for academic and work purposes.

Teachers need to use the latest technology such as the Smartboards, Aqua boards, LCD projectors, and other multimedia to create innovative learning environments, which makes learning exciting, relevant, and fun. As technology is constantly changing, educators must be prepared to meet the needs of all adult learners to make learning better and more meaningful for them. Teachers must create culturally diverse lessons that are relevant to what students' experience such as giving them assignments, which requires them to use technology to do research on another country. Adult learners can find out relevant information about different topics and subjects, which require them to use critical thinking skills, problem-solving skills, social skills, and other

21st century skills to prepare them for their future. This supports and confirms practices in previous studies (Bhattacharjee, 2015 Boden, 2012; Flowers et al., 2014; Sharp, 2018).

Policy implications. The implication for policy that derives from this present study show the need to implement a teaching and instruction policy that assist teachers and African-American adult learners with understanding the benefits and importance of utilizing technology for academic and work purposes because technology is transforming higher education and the lives of adult learners today. The instructors' attitudes and beliefs about African-American adult learners' capabilities have direct implications for classroom instruction in higher education (Fives & Buehl, 2016). As such, the instructors' beliefs influence their practice (Fives & Buehl, 2016). The participants in this present study mentioned the fact that technology has changed their everyday lives and how everything has to do with some type of technology. The participants also mentioned that everyone should learn how to use technology to thrive in school and work. As such all higher education policymakers and other stakeholders need to be on board with establishing policies that support the needs of all learners, be culturally relevant, keep up to date with current trends in education reform, societal, and economic changes.

Educational leaders must reassess their beliefs about technology use and pedagogical practices pertaining to teaching and instruction as it affects the academic achievement of the students we serve. This will ensure that every student has an equal opportunity to quality education through using the necessary educational technology, tools, and platforms to assist with their individual learning needs. Using this present study as an informational guide to assist with implementing teaching and instruction policies that support the needs of African-American adult learners, minorities, and other groups will confirm that no African-American adult learner was left behind. If more higher education institutions would incorporate technology at the earliest juncture, our adult learners will become more adept and this present study will show the results.

There are other implications for policy resulting from this study to consider. However, the most significant implication to make mention was to understand the importance of the perceptions of African-American adult learners toward utilizing technology to increase their academic success in college. These students must see the relevance of using technology in higher education to become motivated to learn with using it. Technology influences African-American adult learners' daily lives and plays a significant role in developing their perceptions (Abdullah et al., 2015). Thus, the way these adult learners perceive using technology can affect their academic performance in their higher education classes (Abdullah et al., 2015). Many of the participants in this present study results revealed a conclusive perception of technology use for academic purposes. Most of the participants in this study recognize the benefits of technology. However, they need to understand the importance and value of technology in higher education especially since most jobs now require their employees to know how to use some type of technology for work.

Many of participants in this study mentioned knowing how to use technology and feel comfortable using the various technology software such as Microsoft Office Word, Excel, and PowerPoint to complete their class assignments as well as Blackboard. Although, many of the participants in this study expressed the need to learn more about technology to help them be more knowledgeable in other areas of their life beyond school. This way they can appreciate technology in all the many benefits it has to offer them. There should be a policy put in place to provide more training and technical support to these students as well as their instructors on best practices for using technology effectively in higher education. Based on the results of this study, there is a need for student training to increase learning and knowledge of various uses of technology to promote academic success as well as teacher training. This will provide students and teachers with innovative ways of using technology that will create meaningful learning opportunities, which

leads to an increase in their academic achievement. The present study supports previous studies who show how there is a need for effective training and support of technology in education to help change the perceptions of students and teachers about using technology to improve teaching and learning (Harris, 2016; Hussain, 2012; Meehan & Salmun, 2016; Ramorola, 2013; Sharp, 2018).

Theory implications. The theoretical implications addressed in this present study were a combination of constructivist and technological pedagogical content knowledge (TPACK) theories. Both theories assisted with understanding the perceptions of African-American adult learners considering utilizing technology in higher education to improve their learning. The implications for theory was based on the present study results, which showed that African-American adult learners' perception of using technology was conclusive because of their experiences afforded to them in school by their teachers. The participants in this study perception of technology were compared by gender, age groups, and program area. The results in all areas compared showed no significant differences.

It is my belief that because of the explicit experiences these adult learners experienced, as a result, changed their overall perceptions. This allows the learning experiences to become meaningful, which established their perception about technology. Learning is a constructive process, and teaching must be designed in a manner that provides students with opportunities to learn from such construction (Hirsh-Pasek et al., 2015). As such, African-American adult learners' perception of using technology may be altered in a meaningful way, if they are provided with opportunities to be in a learning environment, which tailors to the cultural needs as well as academic needs of these adult learners. Then this will help close the digital academic divide. These adult learners will be able to create meaning based on their experiences and knowledge because they can constantly organize and reorganize the meaning of their experience through self-structured intellectual activity within student-centered learning environments (Hill, 2014).

Recommendations for Further Research

There was a wealth of knowledge gained from conducting this study pertaining to the perceptions of African-American adult learners toward using technology in higher education to promote their academic success. As an educator, realizing the significance of student perceptions is critical as they play an essential part in the teaching and learning process. This study made me think about the topic from a different approach. From a comparison perspective of the perceptions of the instructors and how the teachers' perception of using technology might influence the students' definite perception. Data should be collected from the instructors. Further research should investigate the beliefs about technology from the instructors' perspectives and the ways in which the teachers use technology to present relevant and meaningful learning experiences where students become active participants in their own learning and the teacher becomes the facilitator of learning.

Future research on this topic should include conducting observations. Observe the teachers and the students in the classroom to see the student-teacher relationship as well as how they interact with using some type of educational technology when completing class assignments. This will allow the researcher to gain a better perspective and understanding of the phenomena by examining the student-teacher relationship. It also allows the researcher to understand how these adult learners learn by investigating how the students respond to the teachers who integrate technology into the teaching and learning process. Also, observe the teachers' level of satisfaction, anxiety, frustration, and the learning environment. This would help gain insight into how teachers feel about technology and how they use it in higher education classrooms. Many participants mentioned that they had access to various technologies in the classroom such as Aqua Boards, Smartboards, LCD Projectors, laptops, tablets, and the Internet. However, only a few participants mentioned how their instructors used technology in the classroom. If the teachers do not support

educational practices and the current trends in technology and utilize it in their classrooms the students will not see the need or see the benefits technology has to offer them for school and work. Therefore, the teachers must comply with the technological changes in higher education.

It would be significant to recommend extending future studies on this topic to include a mixed method approach. This would allow the researcher to explore the qualities of both qualitative and quantitative data in the study. This would also allow the researcher to appeal the research to a wider audience as well as provide a better perspective for understanding the problem under investigation. This would permit an examination of a larger sample size, which would offer the researcher to explore a generalization to a larger population. The mixed method would capture the essence of a mixture of both methods, which would make for a more in-depth study. This method would provide more strength to this research. Data may be collected and analyzed using a variety of techniques that will allow the information to be constructed as well as explored more in-depth. It would be beneficial to recommend extending future research to 4-year colleges and universities to gain the perspectives of African-American adult learners on that educational level to see if there would be a difference in the perceptions.

Recommendations for future practice. The future practice recommendations were based on the findings from this study. It is my recommendation to suggest that education leaders put into practice effective teaching and instruction strategies, which require the instructors and students to be properly trained to use the latest technology available. This will assist the teachers in utilizing technology more during class instruction. It will also help the students to see the relevance or benefit that technology has to offer them with being successful in college. This will also assist with the instructors and students comfort level with using technology, because the more it is used in instruction, the more comfortable they become. Training instructors and students how to use various educational technologies will assist with making them feel comfortable with using

technology for teaching and learning. Many instructors between the age groups of 35 to 69 years old resist using technology for fear of the unknown or not understanding how to use it effectively enough to teach their students. This hinders their students from experiencing the benefits technology has to offer them.

Conclusion

The intent of this present research was to explore how do African-American adult learners perceive using technology in higher education to promote their academic success. This study was significant because it presents educators with the insight of African-American adult learners, how they learn, and perceive utilizing technology to improve their learning and knowledge in their college classes. This study was also important because it offers understanding to educators into how African-American adult learners use technology in higher education to enhance their academic achievement. The research question investigated how do African-American adult learners perceive using technology in higher education to increase their academic success.

Based on the results of this present study African-American adult learners perceive using technology in many ways from their personal experiences. The perceptions of technology use by African-American adult learners depend on the student's initial introduction of technology and the teacher providing instruction to them about technology. It was determined from the findings in this study that African-American adult learners found technology very beneficial to the improvement of their academic success in higher education when applying technology use in the teaching and learning practices. Many of these adult learners had explicit perceptions of using technology for school and work. They even expressed the fact that they want to learn more about technology and how it could help them in their future academic and career endeavors. These adult learners also felt that training was necessary for both students and teachers on how to best utilize the various types of technology. This will allow them to be more marketable as well as be able to

understand the limitless possibilities technology has to offer as they prepare themselves to be college and career ready.

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Appendix A: IRB Approval Letter

DATE:	June 7, 2018
TO:	Kaira Bullock
FROM:	Concordia University - Portland IRB (CU IRB)
PROJECT TITLE:	[1172236-3, -2, and -3] The perception of African-American adult learners towards the use of technology to enhance learning in education.
REFERENCE #:	EDD-20171215-Graham-Bullock
SUBMISSION TYPE:	Response/Follow-Up
ACTION:	APPROVED
APPROVAL DATE:	initially February 23, 2018; confirmed June 7, 2018
EXPIRATION DATE:	February 23, 2019
REVIEW TYPE:	Expedited and Administrative Review

Thank you for your submission of New Project materials for this project. The Concordia University - Portland IRB (CU IRB) has APPROVED your submission. This approval is based on an appropriate risk/ benefit ratio. All research must be conducted in accordance with this approved submission.

This submission has received an Expedited Review based on the applicable federal regulations.

You are responsible for contacting and following the procedures and policies of Concordia University and any other institution where you conduct research.

Please note that any revision to previously approved materials must be approved by this committee prior to initiation. The form needed to request a revision is called a Modification Request Form, which is available at www.cu-portland.edu/IRB/Forms.

All UNANTICIPATED PROBLEMS involving risks to subjects or others and SERIOUS and UNEXPECTED adverse events must be reported promptly to this office. Please email the CU IRB Director directly, at obranch@cu-portland.edu, if you have an unanticipated problem or other such urgent question or report.

All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be reported promptly to this office.

This project requires continuing review by this committee on an annual basis. Please use the appropriate forms for this procedure. Your documentation for continuing review must be received with sufficient time for review and continued approval before the expiration date of February 23, 2019.

You must submit a close-out report at the expiration of your project or upon completion of your project. The Close-out Report Form is available at www.cu-portland.edu/IRB/Forms.

Please note that all research records must be retained for a minimum of three years after the completion of the project.

If you have any questions, please contact Dr. OraLee Branch at 503-493-6390 or irb@cu-portland.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Concordia University - Portland IRB (CU IRB)'s records. June 7, 2018

Appendix B: IRB Modification Approval Letter

CONCORDIA UNIVERSITY
-PORTLAND, OREGON-

DATE:	June 7, 2018
TO:	Kaira Bullock
FROM:	Concordia University - Portland IRB (CU IRB)
PROJECT TITLE:	[1172236-3, -2, and -3] The perception of African-American adult learners towards the use of technology to enhance learning in education.
REFERENCE #:	EDD-20171215-Graham-Bullock
SUBMISSION TYPE:	Response/Follow-Up
ACTION:	APPROVED
APPROVAL DATE:	initially February 23, 2018; confirmed June 7, 2018
EXPIRATION DATE:	February 23, 2019
REVIEW TYPE:	Expedited and Administrative Review

Thank you for your submission of New Project materials for this project. The Concordia University - Portland IRB (CU IRB) has APPROVED your submission. This approval is based on an appropriate risk/ benefit ratio. All research must be conducted in accordance with this approved submission.

This submission has received an Expedited Review based on the applicable federal regulations.

You are responsible for contacting and following the procedures and policies of Concordia University and any other institution where you conduct research.

Please note that any revision to previously approved materials must be approved by this committee prior to initiation. The form needed to request a revision is called a Modification Request Form, which is available at www.cu-portland.edu/IRB/Forms.

All UNANTICIPATED PROBLEMS involving risks to subjects or others and SERIOUS and UNEXPECTED adverse events must be reported promptly to this office. Please email the CU IRB Director directly, at obranch@cu-portland.edu, if you have an unanticipated problem or other such urgent question or report.

All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be reported promptly to this office.

This project requires continuing review by this committee on an annual basis. Please use the appropriate forms for this procedure. Your documentation for continuing review must be received with sufficient time for review and continued approval before the expiration date of February 23, 2019.

You must submit a close-out report at the expiration of your project or upon completion of your project. The Close-out Report Form is available at www.cu-portland.edu/IRB/Forms.

Please note that all research records must be retained for a minimum of three years after the completion of the project.

Appendix C: Informed Consent Form

Concordia University – Portland Institutional Review Board
Approved: February 28, 2018; will Expire: February 23, 2019

CONSENT FORM

Research Study Title: The perception of African-American adult learners towards the use of technology to enhance learning in education: A Case Study.
Principal Investigator: Kaira Bullock
Research Institution: Concordia University-Portland
Faculty Advisor: Dr. Donna Graham

Purpose and what you will be doing:

The purpose of this survey is to explore and identify African-American adult learner's view of using technology to enhance their education. The purpose will also be to explore relationships that may exist between the various demographic factors such as age, gender, and ethnicity of the adult learner's perception toward technology use in education. This study is significant because it will provide knowledge of why African-American adult learners lag with the positive uses of technology to promote academic success in education. We expect approximately 14 participant study volunteers. There is no paid compensation to be in the study. To be in the study, there are a few expectations required. All participants will participate in observations, interviews, and a focus group. There will be one interview, two focus group interview sessions, and two observation sessions. The interviews will be approximately 20 to 30 minutes of your time. The observations will be approximately 90 minutes per session. The observations, interviews, and focus group interviews will be conducted over the course of an eight-week semester.

Risks:

There are no risks to participating in this study other than providing your information. However, we will protect your information. Any personal information you provide will be coded so it cannot be linked to you. Any name or identifying information you give will be kept securely via electronic encryption or locked inside a locked file cabinet accessible only by the principal investigator. None of the data will have your name or identifying information when any of our investigators look at the data, we will only use a secret code to analyze the data. We will not identify you in any publication or report. Any information provided by participants will remain private at all times and all documents destroyed three years after the conclusion of this study.

Benefits:

Information you provide will help benefit educators. It will allow them the opportunity to help African-American adult learners on how to find positive ways to utilize educational technology to assist with being successful in their classes. You could benefit from this by forming a foundation of understanding as you correspond the various ways of how African-American adult learners can be successful academically using educational technology to promote learning.

Confidentiality:

There will not be any distribution of your information to any other agency and will remain private and confidential. The only exception to this is if you tell us abuse or neglect that makes

us seriously concerned for your immediate health and safety. To ensure confidentiality, the researcher will assign identification numbers to participants to protect your identity. Any audio and written recordings or personal information, three years after the conclusion of this study will be shredded and destroyed.

Right to Withdraw:

We appreciate your participation in this study and acknowledge that the questions we are asking are personal in nature. You are free at any point to choose not to engage with or stop the study. You may skip any questions you do not wish to answer. This study is not required and there is no penalty for not participating. If at any time you experience a negative emotion from answering the questions, we will stop asking you questions. You may withdraw your consent and discontinue participating in this study at any time by notifying the researcher.

Contact Information:

You will receive a copy of this consent form. If you have questions, you can talk to or write the principal investigator, Kaira Bullock . If you want to talk to a participant advocate other than the investigator, you can write or call the director of our institutional review board, Dr. OraLee Branch

Your Statement of Consent:

Please sign below indicating that you have read the above information. If you have any questions or concerns, please feel free to ask them to clarify any questions. Your signature indicates this consent is volunteer for the purpose of this study.

_____	_____
Participant Name	Date
_____	_____
Participant Signature	Date
Kaira J. Bullock	_____
Investigator Name	Date
Kaira J. Bullock	_____
Investigator Signature	Date

Investigator: Kaira Bullock
c/o: Professor Dr. Donna Graham;
Concordia University – Portland
2811 NE Holman Street
Portland, Oregon 97221

Appendix D: Letter to Potential Participants

Greetings, my name is Kaira Bullock. I am sending this email on (date email message sent) about the research study I am conducting. The purpose of the proposed study is to explore and identify African-American adult learner's viewpoint of using technology to improve their education. The purpose will also be to explore connections that may exist between the different demographic factors of the adult learner's experience and perception toward technology use in education. This study is important because it will provide knowledge of why African-American adult learners lag with the positive uses of technology to further their academic achievement in education. The study is about how do African-American adult learners perceive the use of technology in education. As part of this study, I am conducting interviews. The interviews will take approximately 30 to 45 minutes. All participants will be required to sign consent forms before completing the initial interview. If you have any questions about the nature of this study, the interview or consent form, please email me at. Please let me know the date, time, and provide a contact phone number in your email so we can discuss any questions or concerns you may have regarding this study as well as set up interview schedule convenient for you.

Appendix E: Interview Protocol Guide

Research Study Topic: How do African-American adult learners perceive the use of technology in education to promote their academic success?

Interview Date: _____ **Interview Time:** _____

Interview Location: _____

Name of the Interviewer: _____

Name of the Interviewee: _____

Interviewee Identification Number Assigned: _____

Interviewee Demographic Information:

Please provide the following demographic information to describe a portion of the perception of technology use in education information needed for this study below:

Age Group:	**1= ages 18 – 34**	**2= ages 35 – 50**	**3= ages 51 – 69**

Gender:	**1=Male**	**2=Female**

Enrollment Status:	**1=Full-Time**	**2=Part-Time**

Academic Level:	**1=Freshmen**	**2=Sophomore**	**3=Junior**	**4=Senior**	**5=Continuing Education Student**

Computer/Technology Access:	**1=Home**	**2=School**	**3=Work**	**4=No Access**

By signing below, I verify completion of the participant informed consent form and give permission for this interview to be recorded/transcribed for the purpose of this study:

Name: _____ ***Date:*** _____

Note: *Some of the questions in this interview protocol guide are similar/ modified to meet the needs of this study. However, credit goes to the following authors because of the use of their questions: Nickell, G. S., & Pinto, J. N. (1986). The computer attitude scale. Computers in Human Behavior, 2, 301 – 306. Retrieved from web.mnstate.edu/nickell/cas20.pdf. Sven De Maeyer, J., & Gijbels, D. (2014). Reconstructuring the pupil's attitude towards technology survey. Retrieved from https://www.researchgate.net/profile/Sven_De_Maeyer/publication/256475411_Reconstructing_the_Pupils_Attitude_Towards_Technology-survey/links/00463522f700e8f702000000/Reconstructing-the-Pupils-Attitude-Towards-Technology-survey.pdf*

Opening Questions:

- Describe how you feel about technology. Can you give me examples of some ways people use technology in the classroom/academic environment?
- Describe some obstacles students/educators face by not using technology to increase knowledge/learning.

General Questions:

1. Please indicate below how you prefer to take adult education or college courses:

1=Online	2=Face-to-Face/Traditional	3= Blended/Combination (Online & Face-to-Face)	4= No Preference

2. Please indicate below the frequency of how many times you use technology and the type of technology/computer you experienced using:

1=Occasionally (1 hour or less per week)	2=Often (2 – 5 hours per week)	3=Frequently (5 or more hours per week)	4=Never

   a. Toa. to do homework, projects, and other school assignments.
   b. For leisure activities (Playing video games and computer games).
   c. Social media (Facebook, YouTube, Twitter, and Periscope).
   d. Word processor (Microsoft Office Word or Google Docs).
   e. Database Software (Microsoft Office Access).
   f. Spreadsheet Software (Microsoft Office Excel).
   g. Presentation Software (Microsoft Office PowerPoint Presentation).
   h. Desktop Publishing Software (Microsoft Office Publisher).
   i. Other (Please state).

Personal Technology Use Questions:

3. Please indicate below if you have access and or own the following technology devices.

1=Yes	2=No

   a. Cell Phone (Smart Phone, iPhone)
   b. Desktop Computer
   c. Laptop Computer
   d. Tablet (E-Reader, Nook, iPad)

4. If you answered yes to any question from number 3 in this section, please respond to the following statements below or otherwise go to the next question number 5:

1=Strongly Agree	2=Agree	3=Not Sure	4=Disagree	5=Strongly Disagree

   a. Technology makes the world a better place.

b. I think integrating technology into the curriculum is necessary to increase learning (Math, Reading, Science, Social Studies, English, Language Arts, Writing, Computer Skills, and other subjects).
c. Everyone needs technology.
d. Technology is important in life.
e. I send emails to family, friends and coworkers.
f. I like blogging.
g. I enjoy watching TV, movies, and videos online.

5. Please indicate your response by describing how you feel about the statements below:

1=Strongly Agree	2=Agree	3=Not Sure	4=Disagree	5=Strongly Disagree

a. Technology will never replace human life.
b. Using technology makes me feel uncomfortable because I do not understand how to use it.
c. Technology allow people to become slaves to the computer.
d. Technology has many benefits.
e. Computers rule the world in which we live in many ways.
f. Technology intimidates me.
g. There are limitless possibilities through the use and knowledge of technology yet discovered.
h. Too much use of technology can be detrimental.

6. Please indicate your response by telling me how you feel about the statements below:

1=Strongly Agree	2=Agree	3=Not Sure	4=Disagree	5=Strongly Disagree

a. Computers are degrading society today.
b. Computers enhance our everyday way of life.
c. Technology has advanced the way people exchange and gain information.
d. Technology makes life much easier.
e. Computers are difficult and frustrating to work with for many people.
f. I feel sad when using the computer or Internet.

Attitude towards Technology Use Questions:

7. Please indicate your response by describing how you feel about the statements below:

1=Strongly Agree	2=Agree	3=Not Sure	4=Disagree	5=Strongly Disagree

a. I think computer/technology is boring.
b. I am interested in learning more about computers/technology.
c. I enjoy surfing the Internet.
d. I love using the computer/Internet for social media and playing video games.

8. Please indicate your response by explaining how you feel about the statements below:

1=Strongly Agree	2=Agree	3=Not Sure	4=Disagree	5=Strongly Disagree

a. I am familiar with social media networks like Facebook, Twitter, and Periscope.
b. I am familiar with the computer.
c. I know how to use a computer.
d. I feel out of place when using technology.
e. It is important to know how to use technology for school and work.
f. It is significant to learn about technology because it will help me succeed in life.
g. I feel confident with my ability to learn about technology
h. I like using technology.

9. Please indicate your response by telling me how you feel about the statements below:

1=Strongly Agree	2=Agree	3=Not Sure	4=Disagree	5=Strongly Disagree

a. I feel anxious and uncomfortable when using technology.
b. Technology makes me feel ridiculous.
c. I feel embarrassed using most technology.
d. Once I start using technology, I find it hard to stop.
e. I think using technology will be difficult for me.
f. I do not believe the quality of education has improved using technology.
g. I use my knowledge of technology in many ways as a student.

10. Please indicate your response by describing how you feel about the statements below:

1=Strongly Agree	2=Agree	3=Not Sure	4=Disagree	5=Strongly Disagree

a. I do not expect to use technology much at school.
b. Learning about technology is a worthwhile and a necessary skill for all students today.
c. I really enjoy using computers and the Internet to learn new things.
d. I like using technology to complete my schoolwork.
e. I am confident using technology as a learning resource.
f. I can do as well working with technology as other students my age or better.

11. Please indicate your response by explaining how you feel about the statements below:

1=Strongly Agree	2=Agree	3=Not Sure	4=Disagree	5=Strongly Disagree

a. I am tired of using the computer.
b. It is important to know how to use the computer if you want a good job.
c. I can do more when I use the computer.
d. Technology allows me many opportunities to increase my knowledge.
e. I feel that teachers should integrate technology into their class assignments.
f. I believe that technology improves students overall academic performance.
g. I believe when teachers use technology students are more interested in learning.

h. Technology is the key that unlocks the doors to new opportunities.

12. Please indicate your response by telling me how you feel about the statements below:

1=Strongly Agree	2=Agree	3=Not Sure	4=Disagree	5=Strongly Disagree

a. I feel that teachers should use the Internet more to enhance learning and make students learn how to use the Internet to complete assignments or study topics covered in class.
b. The email system is a good way to communicate with the teacher and student about coursework.
c. I love using Blackboard or Edmodo for schoolwork.
d. I believe using technology in class makes the students feel more engaged in the learning process.

School/Work Technology Use Questions:

13. Please indicate below your perspective on the use of technology for school/work by providing your opinion about how you feel regarding the following statements:

1=Strongly Agree	2=Agree	3=Not Sure	4=Disagree	5=Strongly Disagree

a. I will use technology for job/work related purposes.
b. I enjoy working with technology.
c. I want a job working with technology.
d. I am interested in learning more about technology, its uses, and benefits.
e. I would rather not have lessons involving technology and use the computer to complete my classwork.
f. There should be more classes about technology.
g. There should be more classes on how to use technology for school and work.

14. Please indicate by explaining whether you prefer to take adult education courses or college courses in the following manner below:

1=Online	2=Face-to-Face/Traditional	3= Blended/Combination (Online & Face-to-Face)	4= No Preference

a. Social Studies Courses
b. Mathematics Courses
c. English Courses
d. Language Arts Classes
e. Reading Courses
f. Technology Courses
g. English as a Second Language Courses
h. Other Courses (Please State)

15. Please indicate by describing the different ways technology can be used and if you have used technology for school/work from the list below:

1=Strongly Agree	2=Agree	3=Not Sure	4=Disagree	5=Strongly Disagree

a. It is useful to design and build a web page.
b. It is useful to create and present multimedia presentations or videos.
c. Creating spreadsheets using Microsoft Office Excel is useful for school/work.
d. Downloading lectures for class is useful.
e. Using the Internet is useful to access school or work resources.
f. The Internet is a resource tool to allow students access in real-time of their grades.

Closing Question and Remarks:

- This concludes our interview. Is there anything else you would like to add that will be useful to this study?
- Thank you for your time and for participating in this study. The interviewer provides a transcribed copy of this interview for your approval through an email for your records and acknowledgment. This interview is confidential. The content from this interview is only used for the purpose and nature of this study.

Appendix F: Focus Group Protocol Guide

Focus Group Discussion Date: _____

Focus Group Discussion Start Time: _____ Focus Group Interview End Time: _____

Focus Group Discussion Location: _____

Name of the Moderator: _____

Name of the Group Participants: _____

Opening:

Welcome and thank you for taking the time to participate in this study. My name is Kaira Bullock and I am the moderator of this group. This focus group is significant because it will provide pertinent information beneficial to this study. Before we get started, I would like to go over the disclaimer rules of this focus group.

Disclaimer Rules:

I ask that all focus group members respect the privacy of this group. This includes keeping anything discussed or pertaining to this study private. Please do not discuss or repeat any information said during this focus group session. That said, since we are in a group setting, if there are things that you want to keep private when in this group setting, it is best to talk in generic terms, using "he/she" instead of names or specific details. There are no risks to participating in this study other than providing your information. However, I will protect your information. I will record the interviews. The investigator will transcribe the recording; and the recording will be deleted as soon as the transcription has been completed. Any data you provide will be coded so people who are not the investigator cannot link your information to you. Any name or identifying information you give will be kept securely via electronic encryption on my password-protected computer locked inside the cabinet in my office. The recording will be deleted as soon as possible; all other study documents will be kept secure for 3 years and then be destroyed.

Post-Opening:

Now that the moderator has read the rules to the group as well as discuss the purpose and provide the overview of the topic, please start from left to right by telling us your name and a little something about yourself. This will help us become acquainted with one another and feel more comfortable with sharing.

Purpose and Overview of the Topic:

The purpose of the proposed study is to explore and identify adult learner's viewpoints especially African-American and minority adult learner's perspectives of using technology to improve their education. The purpose will also be to explore connections that may exist between the different demographic factors of the adult learner's experience and perception toward technology use in education. This study is important because it will provide an understanding into the perceptions of adult learners and African-American adult learners use technology in education to promote their academic achievement. This study is significant because it provides a means for educators to help adult learners find positive ways to utilize educational technology to assist with being successful in their college classes. This study explores and provides an understanding of how African-American adult learners perceive the use of technology in education to promote their academic success. This is a qualitative intrinsic case study.

Now, we can get down to business.

Terms:

- ***Adult Learner:*** The adult learner is an adult who did not follow the traditional pattern of enrolling in college after completing high school. They are a diverse group of adults ranging in age from 25 years or older that come from various educational and cultural backgrounds. They have adult responsibilities and job experiences who are seeking to continue their education.
- ***Adult Education:*** is the process through which adults pursue education to further themselves or their society through expanding their skills, knowledge, or developing in these ways. Adult education is continuing education. These adults continue their education using any platform of learning for individuals who are of the age to work, vote, get married, and enlist in the military.
- ***Educational technology:*** includes, but is not limited to, software, hardware, as well as Internet applications, such as wikis, blogs, and activities. Technology in education is the area of technology that deals with facilitating e-learning, which is the learning and improving performance by creating, using and managing appropriate technological processes and resources. The term educational technology is often associated with, and encompasses, instructional theory and learning theory.
- ***The Information Age:*** also known as the (Computer Age, Digital Age, or New Media Age), which is a period in human history characterized by the shift from traditional industry that the Industrial Revolution brought through industrialization, to an economy-based on information technology.
- ***Recreational Use of Technology:*** The use of technology for fun activities such as games or social media.
- ***Millennials:*** The generation of people born between 1981 to 1997 ages 18 to 34 years old also known as the Generation Y generation.

Questions:

1. What is your overall perspective of the topic of this study on how do African-American adult learners perceive the use of technology? How do you typically view technology as a whole? What is your experience with using technology?

2. What is your view regarding using technology? In your opinion, do you feel the use of technology in school is increasing or decreasing academic success?

3. What is your view of technology use by each generation? Do the millennials use technology more than other generations for school or work? Describe your level of frustration with using the computer or technology to complete class assignments. What is your overall attitude towards using the computer to complete classwork, use social media or gaming?

4. Describe some positive experiences you have with using technology. Think back to the first time you experienced using technology, how did you feel about it? What is your perception of technology use for school or work?

5. What is your attitude towards using technology to increase your knowledge? Explain your perspective. How well do you interact with using the computer and or any technology to complete classwork? Do you frequently have to ask for assistance with using technology to complete assignments?

6. As lifelong learners, do you feel adult learners use technology for more than recreational use than the millennials? Why or why not?

7. As adult learners, do you feel prepared for the challenges of this information age? Why or why not?

8. What are some determining factors that may affect the perceptions of adult learners and African-American adult learners towards using technology to promote their academic success?

9. What are some obstacles that may hinder adult learners and African-American adult learners from using technology to increase their academic achievements?

10. What types of technologies have adult learners found helpful?

11. What are some techniques or approaches that have helped adult learners and African-American adult learners that find technology useful?

Closing Question and Remarks:

- This concludes our focus group interview session. Is there anything else this focus group would like to add that will be useful to this study?

- Thank you for your time and for participating in this study. The focus group moderator provides a transcribed copy of this session for your approval through an email for your records and acknowledgment.

Appendix G: Individual Interview Participants Demographic Data

Demographics of Participants		
Demographics	***Frequency***	***Proportion***
Age Groups:	***# of Participants by Age Group***	
18 – 34 Years of Age	4	29%
35 – 50 Years of Age	6	43%
51 – 69 Years of Age	4	29%
Total Participants	***14***	***100%***
Gender Group:	***# of Participants in the Gender Groups***	***Proportion***
Male	4	29%
Female	10	71%
Total Participants	***14***	***100%***
Enrollment Status:	***# of Participants Enrollment Status***	***Proportion***
Full-Time	12	86%
Part-Time	2	14%
Total Participants	***14***	***100%***
Academic Levels:	***# of Participants Academic Levels***	***Proportion***
Freshmen	1	7%
Sophomore	3	21%
Junior	1	7%
Senior	3	21%
Continuing Education Student	6	43%
Total Participants	***14***	***100%***
Computer/Technology Access:	***# of Participants Computer/Technology Access***	***Proportion***
Home	0	0%
School	2	14%
Work	0	0%
No Access	0	0%
Both Home/School	12	86%
Total Participants N = 14	***14***	***100%***

Appendix H: Participant Responses

Table 14

Participants Responses from Interviews Questions 4 – 15 By Themes & Sub-Categories

Perceptions Measured by Highest Question Response Percentage					
Theme 1: Perceptions of Technology Use	**Technology Use Level %**				
	F %	**F %**	**F %**	**F %**	**F %**
Questions:	**SA**	**A**	**NS**	**SD**	**D**
(4A) Technology makes the world a better place.					
(4B) I think integrating technology into the curriculum is necessary to increase learning in all subjects.	9 (64)	3 (21)		2 (14)	
(4C) Everyone needs technology.	5 (36)	6 (43)	3 (21)		
(4D) Technology is important in life.	9 (64)	4 (29)			1 (7)
(5D) Technology has many benefits.	9 (64)	5 (36)			
(8C) I know how to use a computer.	9 (64)	5 (36)			
(8E) It is important to know how to use technology for school and work.	10 (71)	3 (21)		1 (7)	
(8F) It is significant to learn about technology because it will help me succeed in life.	6 (43)	7 (50)		1 (7)	
(10C) I really enjoy using computers and the Internet to learn new things.	8 (57)	4 (29)			2 (14)
(10D) I like using technology to complete my schoolwork.	7 (50)	4 (29)	2 (14)		1 (7)
Sub-category 1: Factors affecting Perceptions					
(No help from your teachers or previous school bad experience, misconceptions of thinking all Millennials no more than other generational age groups of adult learners)	12 (86)	2 (14)			
Sub-category 2: Barriers to not using technology					
(Not having access to technology, computer, or Internet; No training to use technology)	6 (43)	6 (43)	2 (14)		
Theme 2: Perceptions Measured by Highest Question Response Percentage					
Theme 2: Attitude toward Using Technology	**Technology Use Level %**				
	F %	**F %**	**F %**	**F %**	**F %**
Questions:	**SA**	**A**	**NS**	**SD**	**D**
(7B) I am interested in learning more about computers/technology.	6 (43)	5 (36)		2 (14)	1 (7)
(8H) I like using technology.	6 (43)	4 (29)	1 (7)		3 (21)
(11B) It is important to know how to use the computer if you want a good job.	8 (57)	5 (36)	1 (7)		
(13B) I enjoy working with technology.	6 (43)	5 (36)	1 (7)		2 (14)
Sub-category 3: Positive Attitudes & Perceptions					
(4G) I enjoy watching TV, movies, and videos online.	5 (36)	5 (36)	2 (14)		2 (14)
(7C) I enjoy surfing the Internet.	5 (36)	4 (29)	1 (7)		4 (29)
(7D) I love using the computer/Internet for social media and playing video games.	2 (14)	6 (43)	2 (14)	1 (7)	3 (21)
(9D) Once I start using technology, I find it hard to stop.	3 (21)	6 (43)	2 (14)		3 (21)
(11C) I can do more when I use the computer.	5 (36)	5 (36)	2 (14)		2 (14)

(12C) I love using Blackboard or Edmodo for schoolwork.	5 (36)	4 (29)	3 (21)	1 (7)	1 (7)
Sub-category 4: Negative Attitudes & Perceptions					
(6E) Computers are difficult and frustrating to work with for many people.	2 (14)	1 (7)	2 (14)	3 (21)	6 (43)
(7A) I think the computer and technology is boring.	2 (14)	1 (7)		9 (64)	2 (14)
(10A) I do not expect to use technology much at school.	1 (7)	2 (14)	1 (7)	4 (29)	6 (43)
(11A) I am tired of using the computer.		4 (29)		6 (43)	4 (29)
(13E) I would rather not have lessons involving technology and use the computer to complete my classwork.	1 (7)	1 (7)	1 (7)	5 (36)	6 (43)
Theme 3: Perceptions Measured by Highest Question Response Percentage					
Theme 3: Technology Use for Academic Purposes	**Technology Use Level %**				
	F %	**F %**	**F %**	**F %**	**F %**
Questions:	**SA**	**A**	**NS**	**SD**	**D**
(9G) I use my knowledge of technology in many ways as a student.	8 (57)	4 (29)	2 (14)		
(10B) Learning about technology is a worthwhile and a necessary skill for all students today.	11 (79)	3 (21)			
(11D) Technology allows me many opportunities to increase my knowledge.	9 (64)	3 (21)			2 (14)
(11E) I feel that teachers should integrate technology into their class assignments.	7 (50)	3 (21)	2 (14)	1 (7)	1 (7)
(11F) I believe that technology improves students overall academic performance.	5 (36)	3 (21)	2 (14)	1 (7)	1 (7)
(11G) I believe when teachers use technology students are more interested in learning.	7 (50)	4 (29)			3 (21)
(11H) Technology is the key that unlocks the doors to new opportunities.	8 (57)	4 (29)		1 (7)	1 (7)
(12A) I feel that teachers should use the Internet more to enhance learning and make students learn how to use the Internet to complete assignments or study topics covered in class.	5 (36)	4 (29)	3 (21)		2 (14)
(12B) The email system is a good way to communicate with the teacher and student about coursework.	7 (50)	5 (36)	1 (7)		1 (7)
(12D) I believe using technology in class makes the students feel more engaged in the learning process.	5 (36)	6 (43)	1 (7)	1 (7)	1 (7)
(13F) There should be more classes about technology.	6 (43)	5 (36)	1 (7)	1 (7)	1 (7)
(13G) There should be more classes on how to use technology for school and work.	7 (50)	5 (36)	1 (7)	1 (7)	
Sub-category 5: Helpful Technology Tools					
(15D) Downloading lectures for class is useful.	9 (64)	3 (21)	1 (7)	1 (7)	
(15E) Using the Internet is useful to access school or work resources.	9 (64)	5 (36)			
(15F) The Internet is a resource tool to allow students access in real-time of their grades.	11 (79)	3 (21)			
(Google, Skype, Black Board, YouTube, MapQuest, Xoom)	10 (71)	2 (14)	2 (14)		
Theme 4: Perceptions Measured by Highest Question Response Percentage					
Theme 4: Anxiety toward Using Technology	**Technology Use Level %**				
	F %	**F %**	**F %**	**F %**	**F %**
Questions:	**SA**	**A**	**NS**	**SD**	**D**
(5H) Too much use of technology can be detrimental.	7 (50)	6 (43)		1 (7)	

(6F) Technology intimidates me.	2 (14)	1 (7)	1 (7)	8 (57)	2 (14)
(8D) I feel out of place when using technology.	2 (14)	1 (7)	1 (7)	5 (36)	5 (36)
(9B) Technology makes me feel ridiculous.	2 (14)	1 (7)	1 (7)	5 (36)	5 (36)
(9C) I feel embarrassed using most technology.	1 (7)	2 (14)	1 (7)	5 (36)	5 (36)
Sub-category 6: Comfort Level with Using Technology					
(5B) Using technology makes me feel uncomfortable because I do not understand how to use it.	1 (7)	1 (7)	1 (7)	5 (36)	6 (43)
(6B) Using technology makes me feel uncomfortable because I do not understand how to use it.	2 (14)	1 (7)	1 (7)	4 (29)	6 (43)
(8G) I feel confident with my ability to learn about technology.	8 (57)	4 (29)	1 (7)		1 (7)
(9A) I feel anxious and uncomfortable when using technology.	1 (7)	3 (21)	2 (14)	5 (36)	3 (21)
Total # of Participants N=14					
Codes SA= Strongly Agree, A=Agree, NS= Not Sure, SD=Strongly Disagree, & D=Disagree					

Appendix I: Focus Group 1 Demographics

Table 15

Focus Group 1 Demographic Data

Participant Pseudonym	Gender	Age Group	Program Classification/Academic Status	Data Collection
P2	Female	18 - 34	Continuing Education/ Full-Time	Focus Group #1
P3	Female	18 - 34	Continuing Education/ Full-Time	Focus Group #1
P5	Male	18 - 34	Continuing Education/ Full-Time	Focus Group #1
P6	Male	35 - 50	Curriculum/Full-Time	Focus Group #1
P7	Male	35 - 50	Curriculum/Full-Time	Focus Group #1
P8	Female	35 - 50	Curriculum/Full-Time	Focus Group #1
Total # of Participants by Grouping N = 6	*3 of 6 (50%) Female* *3 of 6 (50%) Male*	*2 of 6 (33%) 18 – 34 yrs. old* *2 of 6 (33%) 35 – 50 yrs. old* *2 of 6 (33%) 51 – 69 yrs. old*	*3 of 6 (50%) Curriculum/Full-Time* *3 of 6 (50%) Continuing Education/Full-Time*	*6 of 6 (100%) Focus Group #1*

Appendix J: Focus Group 2 Demographics

Table 16

Focus Group 2 Demographic Data

Participant Pseudonym	Gender	Age Group	Program Classification/Academic Status	Data Collection Method & Group #
P1	Female	18 - 34	Curriculum/Full-Time	Focus Group #2
P9	Female	35 - 50	Curriculum/Full-Time	Focus Group #2
P10	Female	51 - 69	Continuing Education/ Part-Time	Focus Group #2
P11	Female	35 - 50	Curriculum/Full-Time	Focus Group #2
P12	Female	35 - 50	Curriculum/Full-Time	Focus Group #2
P13	Female	51 - 69	Continuing Education/Part-Time	Focus Group #2
Total # of Participants by Grouping	*6 of 6 (100%) Female*	*1 of 6 (17%) 18 – 34 yrs. old* *3 of 6 (50%) 35 – 50 yrs. old* *2 of 6 (33%) 51 – 69 yrs. old*	*4 of 6 (67%) Curriculum/Full-Time* *2 of 6 (33%) Continuing Education/Part-Time*	*6 of 6 (100%) Focus Group #2*
N = 6				

Appendix K: Participant Quotes

Theme 1: Perceptions of Technology Use (PTU)

- **Sub-category 1: Factors Impacting Perceptions of Technology Use**
  - "Factors that may affect my perception toward using technology would be my previous school experience affected my perception. I felt like my teachers did not help me learn how to use the computer because I was slower than other students in my class. I believe that your teachers play a big part in how you feel about learning things no matter what it is being taught."
  - "People perceive that most adult learners are not knowledgeable with technology. It is believed that adult learners can't learn it like the younger students. That is not true because many can. *Some just need a little more help than most millennial college students*. Some adult learners feel intimidated when using today's technology."
- **Sub-category 2: Barriers to not Using Technology**
  - "Some of the obstacles that students may face by not using technology is through not being able to access their assignments or not being able to register for their classes. The students are not able to communicate with their instructors by not using the computer and they cannot get to their Blackboard assignments for help or assistance. Students may be unable to conduct research for papers."
  - "Not being able to have access to the computer, technology or the Internet for lack of money or not having transportation to get to the library to be able to use the technology services available to students."
  - "Not having access to technology."
  - "Not having access to view your grades or communicate with your instructors. You can't complete your research assignments or other assignments that require you to use the computer. Students are not properly informed when they do not use technology, and this can hinder them from being successful in college."
  - "Not having a computer at home. Not having the computer skills needed for using technology can hinder them from learning."
  - "Students cannot complete their classwork without using technology. They cannot keep up with their homework assignments or grades."
  - "Not being able to market yourself to possible career opportunities."
  - "Technology is not always user friendly for most people. If students are not properly trained to use technology, it will be difficult for them to do their assignments."
  - "If students do not have access to technology then this can hinder them because they are unable to complete their homework."
  - "Not having access to technology would be an obstacle for students."
  - "Not knowing how to properly use technology can be a hindrance for people because they can face not knowing how to get to things on the computer right away. When students don't use technology, they cannot get their schoolwork done."
  - "Not having access to the computer and technology outside of school other than my cell phone because right now I can't afford a computer."

- "Students would have a difficult time trying to complete their homework assignments by not using technology."
- "Not having access to technology would pose as an obstacle for students today. Not being up-to-date with technology."

Theme 2: Attitude Toward Technology Use (ATTU)

- **Sub-category 3: Positive Attitudes and Perceptions**
  - "My overall perception of technology has been positive. Technology has a definite use in the educational arena. Technology may be used in today's classroom to teach, learn, research, read, listen, and create various documents. Technology may also be used to play video games, listen to music, or watch movies. None of these uses are educational on its face but may be used for dynamic lessons to learn from."
  - "I have a good perception of using technology because I have been using it since I was in elementary school. My teachers taught me how to use it to help me learn many things. I could go online to get tutoring in Math and so much more. Therefore, I would say that my perception of technology is positive. My overall perspective of using technology is positive for learning how to better myself in school. My perception of technology is that whether you are an African-American adult learner or not that everybody needs to know how to use technology for school and work. Most jobs require you to know how to use the computer to be able to do your job."
  - "I feel good or positive about technology because I think that technology is a good form for educating students. It is a way to help students form new ideas or for them to be able to find out how to do things creating and making good ideas."
  - "I feel ok with technology. I use it whenever I need to do whatever I need to do. I feel people use technology more in terms of communication. Technology is use for communication bases instead of what it was purposed or intended for. I believe that technology contradicts itself because people do not use it for what it is projected to be. They use it for the opposite of its intended purpose."
  - "My attitude toward using technology is that technology is a way to gather information from the Internet and receive online resources or services."
  - "Technology has really enhanced our lives but hurt it as well. It makes everything easier, because it's just a matter of touching a button."
  - "Technology is a way of life now. I enjoy learning new things and technology helps me to do that when I surf the Internet. People have to use technology to do schoolwork, to fill out medical and health forms online."
  - I feel that I am better prepared for the challenges of this information age because it's all I have been taught since elementary school. I can't go without it. I need some type of technology everywhere I go. I feel lost without it.
  - "My attitude toward using technology is like this, I really enjoy using the computer and learning how to use various technology devices. In society today, people use technology for many different reasons such as school, work, research, social media, and playing games on the computer."

- **Sub-category 4: Negative Attitudes and Perceptions**
    - "My teachers did not take the time to teach me how to really use a computer. I did not understand how to work it and I did not know how to type or do research. Whenever I learned how to use it was from my classmates but by then frustration had set in with trying to understand how to use it."
    - "I have good and bad experiences with using technology. However, the bad experiences were my initial high school experience. My teachers did not take the time to teach me. It seemed like they were always going so fast. I felt lost because I was slower than my classmates, but I knew I needed to be trained to use it. However, because I felt left behind, I was more frustrated with learning how to use it for school. Since then my children have taught me. They can do so much on the computer. They always helping me with my schoolwork and I'm in college. Like everyone else said, these millennials use technology way more than we do. They take pictures of their assignments and upload it to the computer. Were as myself, it takes me forever to just do one assignment on the computer because I do not know how to use it well. I usually must get help from my children when I get home in order to complete my work. Once they show me how to use technology, I can get it, but I am still slow with using it."
    - "I feel that the millennials know how to use technology more than other generations. However, I do use the computer often. I believe that I am just as prepared as the millennials to meet the challenges of this information age because of my training with using technology at work. I feel like you can never be prepared for the challenges of this information age because it is constantly changing all the time. My generation age group, the Baby Boomers, most don't want to learn about the computer. Since, I am in college and have grandchildren I want to learn more just to be able to keep up with them and the things going on in this world. I feel like the younger ones use technology more than we do and are more prepared for the challenges of this information age because they can keep up with the continuous changes with technology."
    - "I do not feel prepared. It's too much for my mindset to comprehend at one time. I just think it's' too much information on the computer to keep up with. I feel like the millennials have been exposed to using technology from the time they came out of their mother's womb and that's why I feel they use it more or feel more comfortable with using technology than my generation."
    - "I don't really like technology like that. I like using my cell phone and going on social media. I don't like the computer like that."

Theme 3: Technology Use for Academic Purposes (TUAP)

- "I feel technology is very important. I feel that using technology increases my knowledge. I love using the computer and technology because I enjoy learning new things. There is so much you can learn from using technology. I believe that in some way or another, technology has increased my knowledge as such I feel it is very important to know and understand how to use technology whether for school or work."

- "Technology is very much needed. I feel that all students in school need to know how to use the computer. Kids and people in general need technology because everything is turning over to technology."
- "I feel that students use the computer at work and school. I use technology for school. I think that you must know how to use the computer and technology today for almost everything. I believe that the use of technology increases students overall academic success in school."
- "I believe the recent use of technology in college has help improve my knowledge. I can do more now with the computer than before. I can get my reports done faster and my research for my papers too."

- **Sub-category 5: Helpful Technology Tools**
  - "What I found to be most helpful to me is Google. I can use Google to find just about anything I need to know on the computer. I just Google it and I get my answer. If I need to find out how to drive somewhere, I can just go to Google Maps or MapQuest or use Siri and it tells me step by step turn by turn how to get to where I need to go. It gives you instant and quick knowledge to what you need. Well what I find most helpful to me as an African-American student is Google and MapQuest. Like she said you can find whatever you need right away. I like to cook and sometimes I don't have the recipe in my cookbook and I just go to Google and lookup the recipes for what I want to cook. I use the apps on my smart phone too. They are helpful."
  - "All around just knowing how to navigate on the computer or Internet is useful. Just the ability to be well-rounded in technology is helpful especially when you are in college because you must navigate through Black Board and other technology to do your schoolwork. The use of smart phones has helped adult learners. They can download an app to help them learn or assist them with whatever is needed. I have found Google and Siri to be most helpful and the apps on my iPhone. I am able to do my schoolwork on the go because I can download the different apps on my cellphone or iPad."
  - "Some techniques that has helped me is knowing how to navigate the internet and computer to ask Google for help. Everything that I want to know from the weather to travel to vacation spots or the news can be found using different apps on the computer to get the information you need. I can stay connected to my teachers too."
  - "I would have to say the all-around word is Google. Just Google it or YouTube it to figure out what ever I am doing. It is just so much easier to just Google your questions to learn what you need to know. Basic computer classes have adult learners successfully use of technology. The use of Skype and Xoom helps adult learners be successful with using technology when they have a question, they can use Google to find the answer or gain a better understanding of a topic from class that they did not understand. If they want to see their friends or family every day in another city or state or country they can look at them by connecting with them on Skype."

Theme 4: Anxiety Toward Using Technology (ATU)

- **Sub-category 6: Comfort Level with Using Technology**
    - "My perception has changed about technology once I learned how to use it, I was ok with it. I found the more I used technology I got comfortable with it. Technology has really increased my knowledge."
    - "Using technology makes me feel uncomfortable because I do not really know how to use it. I get nervous whenever I have to use it for school."
    - "Technology does not intimidate me. I love using technology because I can get my schoolwork done faster. I feel comfortable using technology for school and work."
    - "I feel comfortable using technology now because of work and school. I enjoy using technology."
    - "I feel that technology is a part of our everyday life whether young or old."
    - "I feel uncomfortable at times using technology."
    - "I feel comfortable with using technology."
    - "I am not too fond of technology because I don't know how to work myself around it. I need a lot of help using technology. I feel like technology is used a lot in society today for kids to do work."
    - "I do not feel comfortable using technology. I get nervous using the computer at school. I feel out of place when using technology. I do not understand how to use the computer and need a lot of help trying to do research for my assignments. I think it is due to my age. I did not have to use the computer when I was in high school."
    - "I feel comfortable using technology. I enjoy using different types of technology. I believe technology is beneficial to students who use it for school because it allows us to be able to explore lots of information instantly."

Appendix L: Pattern Codes

Table 17

Pattern Codes Emerged from the Data Analysis

Pattern Codes/Emergence of Themes from Codes	Sub-Category Groups	Direct Participant Quotes
Perceptions of Technology Use *(PTU)*	Factors Affecting Perceptions	"Factors that may affect my perception toward using technology would be the fact from my previous school experience affected my perception of adult learners because I felt like most of them are not knowledgeable with using technology." "People perceive that most adult learners are not knowledgeable with technology. It is believed that adult learners can't learn it like the younger students. That is not true because many can. Some just need a little more help than most millennial college students."
	Barriers to Not Using Technology	"The time it takes to learn the effective process of using technology for most students my age. For my generation at first it takes a lot of time just to get an understanding of how to effectively use technology because people my age don't have the time it takes to put into it. We waste a lot of time trying to figure out the effective process of using it to get things done. Although, we realize once we learn how to use it, we can get things done much faster and easier. Where the Millennials grew up knowing how to use technology but for my age group most would rather do it the old way." "Not being up-to-date with technology." "Not properly trained to use technology, it will be difficult for them to do their assignments." "Not being able to have access to the computer, technology or the Internet for lack of money"
Attitude Toward Technology Use *(ATTU)*	Positive Attitudes & Perceptions	"My attitude toward using technology is that technology is a way to gather information" "Technology has really enhanced our lives but hurt it as well. It makes everything easier, because it's just a matter of touching a button." "Technology is a way of life now. I can't go without it (technology). I feel lost without it." "My attitude has changed about technology once I learned how to use it, I was ok with it. I found the more I used technology I got comfortable with it." "My attitude is that I have a good perception of using technology because I have been using it since I was in elementary school. My teachers taught me how to use it to help me learn many things. My perception of technology is positive. Whether you are an African-American adult learner or not that everybody needs to know how to use technology for school and work." "It is a

	Negative Attitudes & Perceptions	way to help students form new ideas or for them to be able to find out how to do things creating and making good ideas." "I feel people use technology more in terms of communication." "Technology is a way to gather information from the Internet and receive online resources or services." "My teachers did not take the time to teach me how to really use a computer. Therefore, frustration had set in with trying to understand how to use it." "I felt left behind I was more frustrated with learning how to use it for school." "It takes me forever to just do one assignment on the computer because I do not know how to use it well. I usually must get help from my children when I get home in order to complete my work. Once they show me how to use technology, I can get it, but I am still slow with using it." "The millennials know how to use technology more than other generations. You can never be prepared for the challenges of this information age because it is constantly changing all the time. My generation age group, the Baby Boomers, most don't want to learn about the computer."
Technology Use for Academic Purposes *(TUAP)*	Helpful Technology Tools	"Using technology increases my knowledge." "Technology has increased my knowledge as such I feel it is very important to know and understand how to use technology whether for school or work." "All students in school need to know how to use the computer." "Just Google it or YouTube it to figure out what ever I am doing. The use of Skype and Xoom helps adult learners be successful" "Just the ability to be well-rounded in technology is helpful especially when you are in college because you must navigate through Black Board and other technology to do your schoolwork." "Google Maps or MapQuest or use Siri and it tells me step by step turn by turn how to get to where I need to go."
Anxiety Toward Using Technology *(ATU)*	Comfort Level with Using Technology	"I feel comfortable using technology now." "I feel that technology is a part of our everyday life whether young or old." "I feel uncomfortable at times using technology." "I love using technology because I can get my schoolwork done faster. I feel comfortable using technology for school and work."

Appendix M: Perceptions of Technology Use

Table 18

Perceptions of Technology Use (PTU)

Participant Pseudonym	Positive Attitude Comments	Negative Attitude Comments
P1	13	1
P2	15	3
P3	9	1
P4	6	20
P5	10	2
P6	12	1
P7	10	1
P8	16	5
P9	7	1
P10	9	1
P11	12	1
P12	13	4
P13	10	2
P14	8	1
Total Participants = 14	Total Positive Attitude Comments = 150	Total Negative Attitude Comments = 45

Appendix N: Statement of Original Work

The Concordia University Doctorate of Education Program is a collaborative community of scholar-practitioners, who seek to transform society by pursuing ethically-informed, rigorously-researched, inquiry-based projects that benefit professional, institutional, and local educational contexts. Each member of the community affirms throughout their program of study, adherence to the principles and standards outlined in the Concordia University Academic Integrity Policy. This policy states the following:

> **Statement of academic integrity.**
>
> As a member of the Concordia University community, I will neither engage in fraudulent or unauthorized behaviors in the presentation and completion of my work, nor will I provide unauthorized assistance to others.
>
> **Explanations:**
>
> ***What does "fraudulent" mean?***
>
> "Fraudulent" work is any material submitted for evaluation that is falsely or improperly presented as one's own. This includes, but is not limited to texts, graphics and other multi-media files appropriated from any source, including another individual, that are intentionally presented as all or part of a candidate's final work without full and complete documentation.
>
> ***What is "unauthorized" assistance?***
>
> "Unauthorized assistance" refers to any support candidates solicit in the completion of their work, that has not been either explicitly specified as appropriate by the instructor, or any assistance that is understood in the class context as inappropriate. This can include, but is not limited to:
>
> - Use of unauthorized notes or another's work during an online test
> - Use of unauthorized notes or personal assistance in an online exam setting
> - Inappropriate collaboration in preparation and/or completion of a project
> - Unauthorized solicitation of professional resources for the completion of the work.

Statement of Original Work (Continued)

I attest that:

1. I have read, understood, and complied with all aspects of the Concordia University–Portland Academic Integrity Policy during the development and writing of this dissertation.

2. Where information and/or materials from outside sources has been used in the production of this dissertation, all information and/or materials from outside sources has been properly referenced and all permissions required for use of the information and/or materials have been obtained, in accordance with research standards outlined in the *Publication Manual of The American Psychological Association*

Kaira J. Bullock

Digital Signature

Kaira Janeen Bullock

Name (Typed)

06/05/19

Date