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Plus 50 Students and Their Experiences with Technology in Undergraduate Classes

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Abstract

As adult learners over 50 continue to pursue higher education, postsecondary institutions should have resources and services available to support this demographic. Previous research often combines Plus 50 students with all nontraditional students 24 years and older, making it difficult to understand the unique needs and learning experiences of older adult students in the academic environment. The use of technology for curriculum has increased significantly over the years and may present challenges for Plus 50 learners as they are introduced to it and learn to navigate it. The purpose of this study was to explore the experiences of Plus 50 students when they used technology in undergraduate courses. This phenomenological research study employed a purposeful homogenous sampling method to identify 10 Plus 50 participants at a 4-year institution in the Midwest. Malcolm Knowles' theories of andragogy and self-directed learning served as appropriate frameworks for this study allowing the researchers to gain a more holistic understanding of how Plus 50 students used technology in their classes.

The data from this research will contribute to the body of scholarship regarding the experiences of Plus 50 students and their use of technology in undergraduate classes. In addition, institutional stakeholders can use the findings from this study as a guide when reviewing curriculum and policy to support the needs of this unique student demographic. This research can also serve as a resource for Plus 50 students and provide them with insights on how to advocate for their learning needs and be adequately prepared when enrolling in courses that use technology.

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Jamillah L. Boyd

"Take the first step in faith. You don't have to see the whole staircase, just take the first step" (Martin Luther King Jr.).

My academic journey included many first steps and was propelled by my faith and community. This journey required much effort, and I was fortunate to have had a host of family members, friends, faculty, mentors, and peers who helped me navigate the many steps on this path to whom I express my deepest gratitude.

Thank you to my loving family, who listened to my academic goals and adventures for many years. This accomplishment would not have been possible without my foundation and is a testament to how the support of family can make anything possible. My dedication to this work is in appreciation of those who sacrificed and poured into me. I am blessed to have so many great friends, faculty, and mentors. Their unyielding encouragement and enthusiasm motivated me to stay the course and achieve my goal. Also, a huge thank you to Alexandra Gresick who supported everyone.

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Last but certainly not least, appreciation is extended to the study participants.

Your willingness to be candid about your experiences is what made this study possible. I

wish you all the best on your academic journey.

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Nykea Watts Edwards

PLUS 50 STUDENTS EXPERIENCES WITH TECHNOLOGY

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Chapter 1

Introduction

Margaret is a 52-year-old empty nester who has decided to reenter the workforce

after 30 years of managing a household and raising five children. When Margaret started

her job search, she realized that additional education might be necessary to start a career

in her desired field. Margaret's highest level of education was two semesters of

community college in the early 1990s. Margaret called the university she was interested

in attending to find out how to get started. She was immediately directed to the

institution's website to review more information about the enrollment process and to

complete the online application for admission. Margaret had many questions about the

online application process and relied upon the admissions representative to assist her in

navigating the site. She was able to start the process but still had to defer to her children

for assistance to complete the online application. After completing the online application

process, Margaret was admitted and happily on her way to start her first class, so she

thought.

Fast forward to the first day of class, Margaret was ready to hit the ground

running. On the first day, the instructor introduced herself and directed students to

download a copy of the syllabus from the learning management system. Margaret looked

around and noticed her peers knew how to access the syllabus, while she had no idea

where to get started. Margaret is familiar with using her laptop regularly to connect with

family and friends but has never used a computer for academic coursework. Margaret felt

too intimidated to ask for assistance, and she did not want to ask the traditional-age

students sitting near her. Margaret began to experience knots in her stomach from

nervousness and anxiety. The instructor proceeded to review the syllabus and directed

students to complete several more tasks in the learning management system. Margaret

stared at the screen intently during the class, and at the conclusion of class, she closed her

laptop and approached the instructor. Margaret stated that she is looking forward to the

class but as an older adult student, she realized she may need help using the technology.

Margaret asked if there is assistance available for students over 50 like herself who are

not as familiar with this new technology as the younger generation of students. Margaret

might not sound familiar to some, but Margaret's situation is more common than one

might think.

    According to Clark and Esters (2018), the number of college graduates who are

50 years and older is rising. In fall 2011, The National Center of Education Statistics

(NCES), recorded that there were over one half million students in this age group

enrolled in postsecondary institutions. In fall 2017, that number increased by 2.79%,

which is an increase of 17,000 students (NCES, 2019). Not only has the number of Plus

50 students grown on college campuses, but the addition of information technology (IT)

and education technology in postsecondary education classes has also transformed the

way students learn. "Information technology is used as an umbrella term to represent

communication and computing tools, while educational technology is used to denote the

application of IT tools to teaching and learning" (National Science Foundation [NSF],

1998, p. v). In this study, we documented the experiences of students who were 50 years

and older and enrolled in undergraduate classes that use technology for teaching and

learning.

    The growing number of Plus 50 students entering postsecondary education signals

the need for institutional leaders to examine ways in which they can broaden

postsecondary access for older adult learners. When exploring why older adults decided

to attend college, Simi and Matuzitz (2016), found that older adults knew how important

postsecondary education was and were ready to make the necessary life changes to attend

college. Kasworm (2012) stated that the impetus for older adults pursuing higher

education included becoming an empty nester or loss of employment. Although older

adult students brought a wealth of personal and employment experiences to the

classroom, this group of students found it difficult to juggle additional school obligations

such as learning new technology, which revealed that modifications would be needed in

order to remain a successful student. According to Jesnek (2012), some nontraditional

students over the age of 25 did not have a need or an opportunity to interact with

technology until returning to school, which created barriers for many as they attempted to

navigate and adopt new technologies. Jesnek (2012) stressed the importance of well-

integrated technology to support the teaching, learning, and academic goals of all student

learners and suggested that strategies should be established to assist with the success of

older adult students. Therefore, it is important for institutional strategies to align with the

technology support needs of nontraditional students.

The lack of technical skills and knowledge needed to navigate the modern

classroom can limit a student's ability to persist in postsecondary education. According to

Huber & Watson (2014), older adults who lack technology skills often feel overwhelmed

when learning new features, and in some instances, they lack interest because they do not

see the immediate value of learning new technology. Although Plus 50 students have

some negative feelings regarding technology use, Betts et al. (2019) noted that older

adults had a thirst for knowledge as it pertained to technology, and they regarded

technology use as a requirement to fully participate in society. Taking into consideration

the challenges and motivations of Plus 50 students in relation to technology usage,

universities can explore the needs of this specific demographic. Older adults pursuing

higher education bring a wealth of knowledge and experiences, as such they should be

considered assets at college and universities (Myles, 2017). According to Lowell &

Morris (2019), when it came to diversity in the classroom, thoughts should be extended

beyond gender, race, and culture, and include generational differences. Modern

undergraduate classrooms are often multigenerational. Consequently, learners from older

generations may encounter challenges with technology used in the classroom since they

did not have exposure during their formative years (Lowell & Morris, 2019).

Many studies related to older adult students' experiences with technology in

postsecondary education focused on the experiences of nontraditional students who are

typically 24 years of age and older. This study transcended the norms by examining a

very specific subset of the nontraditional student population, students aged 50 years and

older. The purpose of this study was to explore the experiences of Plus 50 students when

they used technology in undergraduate courses.

Background for This Study

According to Porter et al. (2007), postsecondary institutions provided older adult

students the opportunity to participate in the same programs that are offered to traditional

students such as non-credit courses, certificate and degree programs, as well as the

opportunity to travel abroad to take courses. Over time, these programs and others like

them have evolved to meet the diverse needs of older adults' but still have not adequately

aligned to support the increased demand for age-appropriate teaching and learning

strategies to support this population who use technology in the classroom. Alhramelah et al. (2014) found that technology had changed the landscape of postsecondary education, and it was imperative that educators adapt and incorporate technology into their teaching and learning objectives to support the needs of older adult students. As the U.S. population continues to increase in terms of aging adults, the likelihood of these adults seeking access to opportunities in the workplace or postsecondary education is possible (Porter et al., 2007).

The decision to attend college as a Plus 50 student comes with a host of competing priorities, obstacles, and responsibilities. As a result, the decision to attend college at this age is not an easy one, and some Plus 50 students may question the value of getting an education. According to Hardin (2008) preparation is needed to take place such as organizing work and family life in order to achieve success as an adult student. For some Plus 50 students, learning to use technology is a new world for them and without adequate preparation, the integration of technology into the classroom could make learning technology more intimidating for Plus 50 students.

Learning how to use technology while mastering course content can cause increased stress for older adult learners who might already suffer from anxiety. Technology adoption is important for older adults since technology use is an essential component of day-to-day tasks including work, education, communication, and healthcare (Czaja et al., 2006). A 2014 Pew Research Study indicated that older adults (defined as those 65 years and older) adopted technology at a much slower pace than younger Americans. Modern technologies are integrated into the modern postsecondary education systems; therefore, it is important for Plus 50 students to learn and leverage

these modern technologies.

The contemporary classroom is comprised of varying types of technology, and in some cases, curriculum may be completely accessible through technology. The use of technology and online resources in the classroom has increased in secondary and postsecondary education over the past decade (Vrba & Mitchell, 2019). Accordingly, there is an increased need for improved infrastructure and support. The technology infrastructure in postsecondary education is intended to support instruction, learning, and communication (Georgina & Olson, 2008). It is important for postsecondary institutions to rise to the challenge of successfully preparing students to leverage information communication technologies (ICT) in the classroom and in the global society (Zagami et al., 2001). Information and communication technologies are described as a varied collection of technological resources which are used to communicate, generate, distribute, collect and administer information (Sarkar, 2012). Therefore, it is important for instructors and students to possess reasonable skills pertinent to technology usage.

The integration of information technology (IT) in the modern educational system is important because it is necessary for instruction and learning (Al-Alwani, 2014). In postsecondary education, information technology is often referred to as educational technology. According to the National Science Foundation (NSF, 1998), educational technology is the application of information technology tools for teaching and learning. Education technology enhances teaching and learning experiences and opens students to global resources for communication, interaction, and collaboration (NSF, 1998). Postsecondary faculty can improve the teaching experience when they adopt and implement technology for learning in the classroom (Aldunate & Nussbaum, 2013).

According to Flavin (2016), Information and Communication Technology (ICT) has contributed extensively to postsecondary education. Present-day colleges and universities are comprised of a generation native to using numerous types of information communication technologies (Rashid & Asghar, 2016). However, all students have not had immediate access to or gained the skills and knowledge necessary to navigate the new and advanced technological tools available in postsecondary education environments. Educators must consider equitable technology support resources to guide students with varying access, skill levels, and experience in relation to technology usage (Githens, 2007). Otherwise, older students may feel marginalized regarding usage and access to technology (Hernández-Encuentra et al., 2009).

Nontraditional and Plus 50 Students

Postsecondary students are often categorized as having an association with a group or classification. Age is a common dividing classification regarding whether a student is traditional or nontraditional. According to Jinkens (2009), traditional students are frequently considered to be those under 24 years of age while nontraditional students are those frequently considered to be those 24 years of age and older. Kasworm (2018), on the other hand, stated that some institutions are using the term "nontraditional" loosely to include all adult non-residential students. According to Jesnek and Vincennes (2012), individuals returning to school to advance professionally, those motivated to complete undergraduate studies, and late bloomers deciding to pursue undergraduate studies for the first time are all characteristics used to describe "nontraditional" learners. Based on the multiple definitions of nontraditional students found in the research, it is clear that the population encompasses a multitude of student profiles (Jesnek & Vincennes, 2012;

Jinkens, 2009; Kasworm, 2018). Therefore, colleges and universities must consider various factors and attributes of nontraditional students in order to meet their unique needs (Wyatt, 2011).

Plus 50 students in postsecondary education are referred to by a plethora of names. From nontraditional student to senior learner to older adults, they are loosely placed in a category with all nontraditional students who are 24 years of age or older. Barr (2016) recommended that researchers aggregate their data and research to definitively label the Plus 50 population. Barr (2016) believed that postsecondary institutions failed to meet the unique needs of the Plus 50 student demographic because they are commonly grouped with all adult students. Postsecondary institutions should consider intentionally defining this group in order to strategically support their needs. Kasworm (2018) noted that categorizing and distinguishing among older adult and younger adult students can be challenging for postsecondary institutions. Some institutions have naive beliefs about adult learners and make problematic assumptions such as presuming that similar policies, access, and services equally serve both younger and older adults. Plus 50 students contribute to the diversity of the undergraduate population, similar to traditional students, and both should have equitable access to the support systems that meet their learning needs (Kasworm, 2018).

In 2009, the American Association of Community Colleges (AACC) launched an initiative to assist community colleges with developing programs to accommodate the needs of Plus 50 students. The initiative supported community colleges with the development of programming to engage older adult students and support them in their effort to earn credentials and advance their careers (AACC, 2009). Specifically, this

initiative which defined older adults as individuals who are 50 years of age and older,

separated the students over age 50 from the general population of nontraditional students

and brought a renewed focus to postsecondary education programming designed to

support this unique nontraditional demographic (AACC, 2009). For the current research

study, we used the term "Plus 50" to define our population of adult students who were

age 50 and older and enrolled in undergraduate classes. As such, we hope to contribute to

the field using the same definition parameters as identified by AACC and provide data

from interviews that will explain the experiences of Plus 50 students who use technology

in undergraduate classes.

Local Context

       When we consider the experiences of traditional undergraduate students and their

use of technology, it is likely they have utilized technology during their studies prior to

college enrollment. According to Gemin et al. (2015), increasing numbers of school

districts are implementing one-to-one computer programs that provide students access to

a laptop or mobile device to access course materials and complete assignments.

"Technology integration in schools not only provides access to the Internet but also

encompasses the use of technological tools and practices, including online courses, use of

various devices and hardware in classrooms, computer-based assessment, and adaptive

software for students with special needs" (National Science Board [NSB], 2018, p. 86).

Therefore, it is likely that traditional postsecondary education students were exposed to

some form of instructional technology during their K-12 studies. On the contrary, the

exposure to instructional technology for Plus 50 students may have been very limited.

The youngest members of the Plus 50 cohort would have matriculated as secondary

education students between 1983 and 1984. According to Plomp and Pelgrum (1991), upper secondary schools (grades 9-12) in the United States started using computers in 1982 with a student to computer ratio of 14 to 1 by 1989. Therefore, it would be unlikely that Plus 50 students regularly utilized computers or instructional technology for classroom learning. Also, the socioeconomic context of the school districts may have impacted when computers were contracted to school districts.

The current study was conducted in a four-year metropolitan, land grant research institution in the Midwest with a total enrollment of approximately 16,000 diverse students from 75 countries according to fall 2019 data. The mission of the University is to advance the lives of students and the region through education and research. According to the university's fall 2019 Enrollment by Age data, students aged 50 and older comprised approximately 2.3% of the student population. Of the 16,000 students who were enrolled, approximately 7,000 were undergraduate and approximately 150 were undergraduate students aged 50 and older (Anonymous, 2019).

The University uses the traditional academic schedule to define the academic year, which is three semesters: fall, spring, and summer semesters. The institution offers a wide array of academic disciplines for both on-campus and off-campus students. Courses are offered using several modalities, including in-person, blended, and online platforms. Flexible course scheduling options ensure that students can identify a variation that will accommodate their desire to attend college. Regardless of course modality, all students at the University in this study were required to utilize a learning management system to access course materials, grades, perform group work, and submit assignments. "A learning management system is a web-based systems that allows instructors and/or

students to share materials, submit and return assignments, and communicate online"

(Lonn & Teasley, 2009, p. 1). Examples include Canvas, Blackboard, Moodle, and Sakai.

Additionally, students utilized web-based student support services, including but not

limited to admissions, financial aid, academic advising, registration, technology support,

tutoring, textbook access, library services, and campus transportation. Students spend a

large majority of their academic journey utilizing technology (Anonymous, 2020).

The University provides technology support to students through several mediums.

The primary mediums students use to seek technology assistance are the Technology

Support Center (TSC), the Center for Teaching and Learning (CTL), and they can also

utilize resources provided by instructors in their respective courses. The TSC is a

"helpdesk" that students can physically access, or they can call, email, or submit a

support ticket request through an online portal. A live chat feature is also available

through the online portal. Students utilize technology support for university account

related issues such as email, account access, university provided software issues, and

campus connectivity issues. Support analysts in the TSC can assist with access to student

resources such as the learning management system, but they do not provide support for

utilizing those resources. The TSC operates during normal business hours (e.g., 7am-

5pm) with limited assistance during evenings and weekends (Anonymous, 2020).

In addition to the TSC, the University offers technology support resources to the

campus community through the Center for Teaching and Learning (CTL). The center

supports faculty with instructional design and integrating new and cutting-edge

technologies into their courses to enhance teaching and learning. The center supports

students by providing resources to ensure they have the necessary tools and skills to

navigate and master the technology that has been incorporated into classes (Anonymous, 2020). According to Ratliff (2009), postsecondary education has become dependent on technology to deliver and enhance distance courses and technology is being infused more and more into traditional lecture courses. The center's services include comprehensive online resources to support faculty and students in achieving their teaching and learning outcomes. The online resources empower students and faculty to easily find information on topics related to the right tools, staying connected, staying motivated, and staying well (Anonymous, 2020).

In addition, the institution where this study is located provides resources and implements strategies to support teaching and learning with technology. The technology support resources are available to all students in the campus community. The University does not offer technology support resources specifically tailored to Plus 50 students, such as a dedicated technology support point-of-contact or technology peer mentors. The lack of adequate technology knowledge could cause their unique needs to be overlooked and create barriers for these adult learners in the classroom. For example, a Plus 50 student who has not used information communication technologies for school or work might need support with introductory computer basics and software programs before starting classes. The Plus 50 students may have a very different set of questions related to technology; therefore, they could benefit from personalized orientations to support their participation and enhance their confidence in navigating technology in undergraduate courses. Postsecondary institutions should consider offering customized support services to meet the needs of nontraditional students because they often have needs beyond those of traditional students (Caruth, 2014). Providing dedicated technology support resources

for their existing Plus 50 population creates an opportunity for the universities to be a

supportive and welcoming environment and could result in attracting more students from

this demographic. In addition to the unique support needs of this population identified in

this section, it is also necessary to examine the social context in terms of instructional

design bias and the digital divide as we consider this group of learners.

Social Context
Instructional Design Bias

Plus 50 students experience additional responsibilities that some traditional

students may not encounter. Simi and Matuzitz (2016) noted that some students 50 years

of age and older have many family and work responsibilities. These responsibilities could

include caring for a sick family member, caring for children, or working long hours

which could serve as barriers for college attendance. Age can contribute to attrition, non-

attainment, and dropout. According to Siedman (2012), dropout refers to students leaving

college before achieving their goals, non-attainment refers to the level of school not

completed, and attrition is the unit of measurement used to determine who does not return

to school.

In addition to balancing work and family commitments, Plus 50 students may feel

a sense of anxiety when taking courses with younger students who are technologically

proficient. They may feel as if they are receiving limited on-campus support and feel

unwelcomed by staff. Kasworm (2012) stated that some institutions lack the services

needed to support students who work full time to support a family or are 50 years of age

and older. Whether it is institutional programs, staff, or policies, adult undergraduates

may not be included as part of the population identified to receive support. An example

would be adult students seeking a college education in the evenings, on the weekends, or

through e-learning venues, but most universities and colleges offer their support services and advising/counseling opportunities during the daytime. Kasworm (2012) also pointed out that faculty and staff viewed adult students differently, for instance, as someone who failed in college earlier in life or did not have a clear set of goals to participate fully in academic studies during their young adult years. Subsequently, these perceptions fostered a lack of respect for the adult learner among key faculty and staff who interacted with the adult student.

According to Simi and Matuzitz (2016), older adult students with minimal college experience and inadequate skills may require support services for college preparation. The preparation that this group of individuals may need could focus on providing support navigating the institution's learning management system. Also, adjustments may be necessary to ensure inclusion for Plus 50 students. Institutions should make sure that instructional design bias is not a factor for Plus 50 students. The instructional design process involves making sure that student needs are clear. This includes determining goals, objectives, and making sure that quality instruction is leveraged for those who are teaching as well as those who are learning (Kurt, 2017). It is important to make sure that when a variety of different types of students are considered during the design process and bias is not present. According to Vann (2017), it is the responsibility of the instructional designer to make sure that learning outcomes are achievable when implementing teaching and learning methodologies, but the implementation does not consider the empathy older adult students seek.

According to Lee & Coughlin (2014), researchers or instructional designers may not have access to the needs of older adults and there may be a disconnect between

design interpretation and student needs. Lee & Coughlin (2014) suggested that

developers were not familiar with the reasons why technology use was important to older

adults. According to Cercone (2008), administrators who are involved in the design

process of alternative learning spaces specifically online, should become familiar with the

various adult learning styles, so that this learning environment is conducive to their

needs. Ensuring technology can be used to support all learners is paramount to student

success. Considerations must be made to acknowledge and accommodate Plus 50 student

learners in order to eliminate the digital divide.

Digital Divide

Postsecondary education students have different levels of experience using

information communication technologies for classwork. Lowell & Morris (2019)

suggested that students may be at a disadvantage if they have not experienced technology

usage in coursework. The general lack of experiences or gap in knowledge was

popularized by the term "digital divide" in the early 1990s. According to van Dijk (2006),

the digital divide is the gap between those who do and do not have access to the internet

or information technology. Access is a limiting view of exploring inequalities of

technology as it pertains to information communication technology in postsecondary

education. "The new conceptualization of the digital divide includes numerous and

diverse inequalities that can arise from differences in ICT access and use" (Ball et al.,

2017, p. 1172).

Beyond the inequalities stemming from access and use, individuals may

encounter inequalities due to lack of digital skills or a mental gap in access (Ball et al.,

2017). "Mental gaps are emotional and psychological gaps that stem from individuals'

lack of experience with ICTs" (Ball et al., 2017, p. 1170). An example would be an individual who avoids ICTs and appears disinterested. van Dijk and Hacker (2003) explored the digital divide by proposing a framework that built upon van Dijk's (2003) four barriers to access, including "material access, skills access, mental access, and usage access" (p. 3). van Dijk (2003) stated that material access is considered the traditional idea that a user lacks access to technology or does not possess a computer. In addition to material access, van Dijk (2003) asserted that users might lack the skills needed to use technology. Also, users might not be interested in using or suffer from computer anxiety. Finally, users might lack access because they have not experienced significant opportunities where use was necessary.

van Dijk's (2003) four concepts of access may help further explain the unique experiences of Plus 50 students when they use technology in class. For example, a Plus 50 student who has used ICTs for social interactions with friends and family but has never used ICTs for classes might display a lack of access because they did not have significant opportunities for use in a classroom environment. Therefore, access to the internet or ICTs did not necessarily eliminate the digital divide. Other access barriers such as lack of skills, mental access issues, and significant opportunities for use may still exist after an individual has gained access to or possesses information or communication technologies. Consequently, the digital divide is a complex and dynamic phenomenon which makes it challenging to clearly define the problem (van Dijk & Hacker, 2003).

Candidate's Perspective

The two researchers in this study work with Plus 50 students in different capacities in postsecondary education. Researcher 1 works with older adults as an

admissions counselor, and Researcher 2 is a faculty member who works with older

adults. Both have varying perspectives, experiences, and assumptions concerning older

adult learners and technology. Below, each researcher provides their perspective as it

relates to this study.

Perspective of Researcher 1. As an admissions counselor, I have empirically

witnessed how being a digital immigrant can negatively impact students. Prensky (2001)

defined a digital immigrant as "those who were not born into the digital world but have,

at some later point in their life, adopted many or most aspects of the new technology"

(pp. 1-2). For instance, I have encountered older adults who struggled to complete the

online admissions application process. These applicants visited my office requesting one-

on-one assistance through the entire application process, which included creating a login

and password as well as uploading supporting documents. I have received email

messages from applicants who became frustrated trying to complete the admissions

application online and decided not to apply for college admission. My reflection

regarding these experiences compelled me to think that if older adult applicants struggle

with what I assume to be a simple online application, what problems with technology do

they encounter when their status changes from applicant to enrollee?

Perspective of Researcher 2. As an assistant teaching professor, I have developed

and delivered courses in the physical classroom and asynchronous environments. There is

an unspoken expectation that all students in the course have the prerequisite knowledge

to navigate the learning management system, course resources, assignments, and

submission processes without assistance. However, I regularly encounter older adult

students who lack the basic technical skills and knowledge necessary to navigate the

course. Challenges range from accessing and navigating the electronic textbook to creating and completing electronic assignments. I have witnessed older adult students struggle to compete with the younger students in reference to coursework such as coding and data analysis. Resources to support online students are usually offered online and can add to the technical challenges older adult learners encounter.

As higher education professionals, we have observed Plus 50 students' experiences with technology through two different lenses. These encounters have led us to believe that older adult students can be confronted with technology barriers at multiple stages, from the status of the applicant to enrollee. We believe that the experiences of Plus 50 students can be successful if adequate support resources and tools are implemented to encourage self-directed learning for this group as they use technology.

Specific Problem of Practice

Katsinas and Moecek (2002) stated that although there are many students prepared to embrace technology use, there are some college students who are uncomfortable, and as a result there may be a concern with persistence. Persistence for the purpose of this study was defined as students enrolled in classes on a recurrent basis to achieve passing grades of C- or better, according to the institution's four-point grading system. Katsinas and Moecek (2002) stated that when analyzing student needs, there must be a concerted effort among institutional leaders that all students are accommodated and the adjustments are woven into instructional policy, practices, and procedures. Many institutions fail to recognize that students enter institutions of higher learning with varying experiences of technology use. As it relates to successful student learning outcomes, it is important for postsecondary institutions to realize that technology resources are not universal and may need to be adjusted to meet the needs of Plus 50

students.

The purpose of this study was to explore the experiences of Plus 50 students when they use technology in undergraduate classes. Additionally, the experiences of this student population should be of focus to institutions because the number of nontraditional students aged 50 and older is increasing in postsecondary education. Barr (2016) contended that there is a growing trend among the Plus 50 student population, yet there is no current research to reflect the growing trend. According to the National Center for Education Statistics, there were 2.8 million Plus 50 undergraduate students enrolled in higher education programs in fall 2017, and enrollment is projected to reach 3.2 million by 2027 (NCES, 2019). "As the population of Plus 50 students grows, and as more of these students seek training and retraining opportunities, especially in community colleges, postsecondary institutions are scrambling to meet the specific needs of this unique set of students" (Barr, 2016, p. 51). To effectively identify the needs of Plus 50 students enrolled in postsecondary institutions, more current research should be conducted.

Significance of the Study

This study can serve as a guide for institutional leaders as they consider strategies and processes to support the needs of Plus 50 students who use technology to complete academic coursework. This exploration has implications relative to the academy and particularly for the Plus 50 population in postsecondary education. We utilized a phenomenological approach to investigate common themes through the lived experiences of the student participants of this study. "Phenomenological research is a design of inquiry coming from philosophy and psychology in which the researcher describes the lived experiences about a phenomenon as described by the participants" (Creswell, 2017,

p. 39). "Lived experiences are the world as we immediately experience it rather than as

we conceptualize, categorize, or theorize about it" (van Manen, 1984, p. 37). According

to Cilesiz (2011), technology has an impact on individuals and society, and it is important

to understand how individuals experience technology. Therefore, using a qualitative

method such as phenomenology will facilitate greater depth of study and allow for a

deeper understanding of Plus 50 students' experiences with technology in undergraduate

classes.

   The intent of this study is to fill a gap in scholarly research on Plus 50 students

and document their experiences using technology in undergraduate classes. The data from

this study can guide postsecondary institutions in determining the unique needs of this

student population. There is a lack of research about the experiences of this group of

learners and their experiences with technology. Some of the literature regarding the

technology experiences of nontraditional students focus on a broad age range of these

students rather than a smaller subset of this group (Bordeaux & Schoenack, 2016; Park

2009). Students above the age of 25 are usually grouped together as nontraditional

students. This means researchers know relatively little about the technology experiences

of smaller subsets of the nontraditional student population. For example, experiences of a

25-year-old student can be very different from that of a 50-year-old student when they

use technology in undergraduate classes. If researchers and educators want to better

understand technology experiences of Plus 50 students in undergraduate classes, they

must examine experiences of Plus 50 students separate from the overall population of

nontraditional students.

   Data from this study is pertinent for postsecondary administrators who are

experiencing a growth of the Plus 50 undergraduate student population and are seeking

guidance on how to support this demographic with technology in classes. Institutions

might also design support resources that may attract Plus 50 students to return to the

classroom. The Plus 50 population can serve as a growing market in postsecondary

education. Providing specialized technology support to this population could lead to

retention and persistence and in some cases, degree completion.

Current events are also impacting how technology is being used in undergraduate

classes. In spring 2020, the world experienced the early stages of an outbreak of the novel

coronavirus (Covid-19). The Center for Disease Control (CDC) Frequently Asked

Questions Coronavirus Disease 2019 defined coronavirus as a virus that can cause

disease and is primarily spread from person to person, typically through respiratory

droplets from coughing, sneezing, or talking. The new strand of the virus began spreading

around the world in December 2019 and was declared a pandemic by the World Health

Organization in March 2020 (World Health Organization [WHO], 2020). The magnitude

of this event could classify the pandemic as a black swan in postsecondary education.

According to Taleb (2007) black swans are categorized as unfathomable events that have

a major impact on the world that are justified after the event has taken place. Taleb states:

> Our minds are wonderful explanation machines, capable of making sense out of
>
> almost anything, capable of mounting explanations for all manner of phenomena,
>
> and generally incapable of accepting the idea of unpredictability. These events are
>
> unexplainable but intelligent people thought they were capable of proving
>
> convincing explanations for them after the fact. (Taleb, 2007, p. 10)

Due to the uncertainty of the pandemic and for the safety of campus communities,

many institutions, in the interest of public safety, were compelled to make the decision to

deliver courses remotely in spring 2020 and continued through fall 2020. Remote

learning has increased the use of information technology in class. Also, with the gradual

return for colleges and universities to normal post Covid-19, the reintroduction to

blended and face-to-face courses will be slow, and institutions will be heavily dependent

on technology for the foreseeable future. Plus 50 students who have computer anxiety or

are intimidated by technology may have reconsidered enrolling in classes if their only

option is to learn remotely. In order to encourage their participation and engagement in

what may be perceived as unfamiliar territory, institutional leaders must be cognizant of

what it takes to ensure that these learners have what they need to succeed in this learning

environment. Remote learning will require a different set of skills for Plus 50 students as

well as a different level of support from the institution. At the time of this study, we are

in the second year of the pandemic. As the world enters a new phase of the pandemic,

with Plus 50 students pursuing higher education, it is important to ensure that this group

of learners have adequate access to resources and services to support their academic

success in these unprecedented times.

The researchers hope that this study will contribute to the body of scholarship

regarding the experiences of Plus 50 students and their use of technology in

undergraduate classes. Investigating how Plus 50 students experience technology in

undergraduate classes at postsecondary institutions may aid university administrators,

instructional designers, student support services, and faculty to better understand the

technology support needs of the Plus 50 population. In addition, future research can be

directed toward examining technology support of enrolled and prospective Plus 50

students.

Stakeholder Perspective

Jongbloed et al (2008) believed that stakeholders traditionally shared similar

interests in a goal, responsibilities, and expectations. Because postsecondary students are

an important group, stakeholders are expected to consider their best interests.

Postsecondary administrators should care about the Plus 50 student population because

they bring a substantial amount of real-life experiences to the classroom. Due to the lack

of knowledge and skills in relation to using learning management systems in the

classroom, Plus 50 students could potentially experience barriers with regard to their

ability to understand and complete course assignments. According to Rahim and Finch

(2011), there are many adult students who are not as technologically savvy as some

traditional students. This could be a result of commitments such as lack of time, being a

caregiver, and work. These serve as barriers to technology usage, and learning

opportunities must be evaluated to support adult student needs. According to Lowell and

Morris (2019), postsecondary administrators and instructors should consider modifying

pedagogical techniques to support a diverse student population which shares the same

campus learning environment (Lowell & Morris, 2019).

Stakeholder perspective is critical to institutional success. This is true when

analyzing the quality of the resources, technology, and equipment that support course

delivery mechanisms, the quality of the academic and support staff, the quality of

matriculated students who have been accepted for admission to the university, as well as

the quality of the graduates. The outcomes of this research can serve key stakeholders at

this study's institution along with Plus 50 students, technology support staff, faculty, and

university administrators. First, having the necessary prerequisite knowledge and support

with technology resources can provide a foundation for Plus 50 students to be successful in undergraduate classes. Plus 50, students will be able to focus on learning the content of the class instead of having to learn the technology needed to navigate the course. In addition, technology support staff can benefit from this research by having detailed information about the experiences of this student demographic while using technology in class. Results from the study can be used to amend existing support resources and inform the design of new support resources for this demographic. Furthermore, instructors can benefit from this study by understanding the possible challenges faced by this population in class. If students enter the classroom with adequate technology skills, instructors can focus on the class learning goals and will no longer need to spend time on remediation of technology skills. Finally, this study can help university administrators rethink and reimagine how they serve diverse student populations and what the future of holistic student supports might look like at their institution. Knowing firsthand the experiences of Plus 50 students, university administrators can strategize how to successfully serve their technology support needs. In addition, data gathered from this study may help institutions recruit from this demographic. Overall, the results of this study can lead to better insights about the experiences of Plus 50 students' technology use in undergraduate classes.

Purpose and Research Questions

The purpose of this study was to explore the experiences of Plus 50 students when they use technology in undergraduate classes. The specific research questions are as follows,

RQ1: What are the experiences of Plus 50 students who use technology while enrolled in undergraduate classes?

RQ2: Based on their experiences, what do the Plus 50 students identify as critical factors to success when using technology in undergraduate classes in terms of their

ability to be self-directed learners?

RQ3: How do the experiences of Plus 50 students and their use of technology in undergraduate classes impact their persistence toward course completion?

Study Limitations

The purpose of this study was to explore the experiences of Plus 50 students when they use technology in undergraduate classes. The researchers hope that this exploration will provide a more detailed view of the Plus 50 learner experience. Limitations of this study lie within the population, sample size, local context, and existing research. According to Marshall & Rossman (2011), all studies have limitations, and the intent of phenomenological study is not to generalize findings to individuals, sites, or places outside of those under the study.

This study's population is Plus 50 students enrolled in undergraduate classes at an institution in the Midwest. This group was a subset of the university's nontraditional student population. The limitation here lies within the student's participation in undergraduate studies during the period after completion of their secondary education. That is, participants may or may not have taken undergraduate classes after high school, which would impact their experience using information communication technologies for classes. Members of the study population may have been nontraditional students at multiple points before their current enrollment.

A second limitation of the study was related to the sample size. Generalization of results was cautioned beyond similar samples to the one used in the study. Purposeful sampling was used to select participants from the study population to ensure that a closely defined group was selected. With purposeful sampling, "the inquirer selects individuals and sites for study because they can purposefully inform understanding of the

research problem and central phenomenon in the study" (Creswell, 2017, p. 125). Since

the sample population was identified by the researchers, the sample was prone to

selection bias. Selection bias occurs during purposeful sampling when the criteria used to

recruit is inherently different (Pannucci & Wilkins 2010).

A third limitation of the study was the study's location. The study was limited to

one large 4-year public university in the Midwest. The experience of the participants was

limited to the university under study. Therefore, no generalizations were made regarding

similar students or experiences at colleges and universities outside of the university under

study.

Finally, due to the gap in existing research regarding the technology experiences

for this specific subset of the nontraditional student population, it was difficult to

compare our findings to prior studies. The participants in this study were nontraditional

Plus 50 students. Conversely, much of the research on the experiences of nontraditional

students included students 24 years of age and older. We must acknowledge that existing

research related to this study did include a larger population of nontraditional students.

Chapter 1 Summary

This study was designed to provide a holistic understanding of Plus 50 students'

experiences using technology while enrolled in undergraduate classes. Chapter one

provided the introduction and background for this research, specific problem of practice,

purpose, significance of the study, and stakeholder perspective. Research questions and

limitations of the study were also introduced. Understanding how Plus 50 students

experience technology in classes can create an opportunity for postsecondary education

administrators to evaluate how they can better support this demographic. In chapter 2, we

examined existing literature on various studies related to the technology experiences of

nontraditional students, in order to support this study and help to further understand Plus

50 students' experiences using technology while enrolled in undergraduate classes.

Andragogy and self-directed learning were the frameworks selected to guide this study,

and both are presented in Chapter 2. Chapter 3 outlined the methodology, research

design, and analysis for this study. A discussion of the method and design, selected

sample of participants, study instrument and procedures used to collect data, and data

analysis are covered in this chapter. In Chapter 4 the researchers presented the results of

the current study. Chapter 5 concludes the study with a discussion and summary of

findings, recommendations, and conclusion.

Chapter 2

Review of Knowledge for Action

"Adult education is an attempt to discover a new method and create a new incentive for learning" (Lindeman, 1926, p.11).

Throughout the United States, nontraditional students are increasingly becoming a significant majority of undergraduate students on college campuses (Wyatt, 2011). According to Jinkens, (2009), nontraditional students are those 24 years of age or older. The Plus 50 population is a subset of the overall nontraditional population and have a multitude of reasons for enrolling in college classes. Schaefer (2009) pointed out that the primary reasons older students return to college are career advancement, career change, and life-long learning or personal enrichment goals. In addition to the growing number of Plus 50 students on college campuses, there has also been a surge in the use of technology in higher education. For Plus 50 students to manage and navigate the increasing amount of technology used in classes, they may need additional support to improve their basic technology skills. Caruth (2014) contended that this diverse population has had an impact on services and programs once exclusively designed for traditional students. Computer and other technology skills are vital to help Plus 50 students do well in their courses. Therefore, colleges and universities should take into consideration the technology support needs of this population.

The purpose of this study was to explore the experiences of Plus 50 students when they use technology in undergraduate classes. Plus 50 students are defined as students who are 50 years of age and older and are currently enrolled in undergraduate classes. In this study, we were specifically interested in exploring the experiences of Plus 50 learners who use technology in undergraduate classes at a four-year public university in the

Midwest. Therefore, this chapter provides literature to understand older adults'

experiences with technology, perceived barriers to learning for adult learners, perceived

technology-related barriers, technology and skills developments for older adult learners,

persistence in postsecondary education for older adult learners, and andragogy and self-

directed learning in postsecondary education. Andragogy theory and self-directed

learning theory were frameworks used to help understand the experiences of Plus 50

students' and the multiple variables impacting their use of technology for classes.

Theoretical Frameworks

According to Kivunja (2018), a theoretical framework allows researchers to use

previously tested and published knowledge to understand a theory or generalized

statement. This study utilized a phenomenological approach to document the experiences

of Plus 50 students who used technology in undergraduate classes. Phenomenology is a

qualitative research method used to understand the lived experiences of an individual as

told in their own words. Lived experiences are "the world as we immediately experience

it rather than as we conceptualize, categorize, or theorize about it" (van Manen, 1984, p.

37).

Plus 50 students enter postsecondary education with a unique range of

experiences, knowledge, and skills. In addition, they have needs and goals that may differ

from traditional undergraduate students (Barr, 2016). The theoretical frameworks used in

this study to understand the experiences of Plus 50 students enrolled in undergraduate

classes that use technology are Malcolm Knowles' andragogy and self-directed learning

theories. According to Merriam (2001), there is no single model or theory of adult

learning that explains all that we know about adult learners, and there is a mosaic of

theories, models, sets of principles and explanations that must be combined to compose

the knowledge base for adult learning. "Two important pieces of the mosaic are

andragogy and self-directed learning" (Merriam, 2001, p. 3). Due to the limited research

on the experiences of Plus 50 students who use technology in classes, it was appropriate

to use two theoretical lenses that aid in providing a holistic understanding of the research

topic. The subsequent sections will provide a review of both frameworks.

Andragogy Learning Theory

According to Caruth (2014), adults constitute nearly half of students enrolled in

colleges and universities, and it is important for postsecondary institutions to prepare to

effectively teach nontraditional learners. Education is a continuously developing field of

study, and there are many theories, methodologies, and assumptions about how

individuals learn. Malcolm Knowles has contributed many works to the field of adult

education and is best known for andragogy theory. Knowles' concept of andragogy

distinguishes between child and adult learning, and it addresses the distinct needs of the

adult learner (Sang, 2010). "The need for a distinctive method is due to the more complex

lives of today's adults" (Caruth, 2014, p. 24). Knowles (1980) described andragogy as the

science and art of educating adults. Knowles (1989) claimed that adult learners can direct

their own learning once they have the self-concept of being responsible for their own

lives. However, in some instances, adults enter learning scenarios and shift to a

pedagogical mindset with the expectation of being taught vs. being self-directed

(Knowles, 1989).

In Knowles' view of andragogy, learners become increasingly self-directed as

they mature (Merriam, 2001). According to Knowles et al. (2005), there are six core

principles of andragogy: (1) the learner's need to know; (2) self-concept of the learner;

(3) prior experience of the learner; (4) readiness to learn; (5) orientation to learning; and

(6) motivation to learn. The first principle of andragogy, the learner's need to know,

implies that adults have a desire to know why they need a particular skill before learning

occurs (Caruth, 2014). The second principle of andragogy is the self-concept of the

learner. Adults are responsible for the occurrences in their lives. According to Knowles et

al. (2005), individuals become adults when they arrive at the self-concept of being

responsible for their own lives and are becoming self-directed.

The role of the learners' prior experience is the third principle of andragogy. The

assumption here is that adults have greater volumes and various levels of experiences

than youth when participating in learning activities (Knowles et al., 2005). The fourth

principle of andragogy is readiness to learn. Adults are ready to learn when they

encounter things they need to know or do in real-life situations (Knowles et al., 2005).

For example, a stay-at-home dad may not be ready to enroll in undergraduate classes due

to parental obligations; however, if he needs to reenter the workforce, he may be ready to

return to school. Orientation to learning is the fifth principle of andragogy. This principle

suggests that adults' orientation to learning is life-centered (Knowles et al., 2005). The

final principle of andragogy, motivation, suggests that adults are responsive to external

motivators (Knowles et al., 2005). For example, an employee may enroll in courses to

earn a promotion or higher salary. "Adult educators, particularly beginning ones, find

these core principles invaluable in shaping the learning process to be more conducive to

adults" (Merriam, 2001, p.2).

According to Knowles (1975), andragogy requires a transformation of the

student-teacher relationship; the dynamic shifts to a learner-centered approach in contrast

to the student-centered approach of pedagogy. Knowles (1980) defined pedagogy as the

art and science of teaching children. In pedagogy, the role of the learner is to be

dependent on the instruction and guidance of the teacher. For example, the teacher is

responsible for what is to be learned, how it will be learned, and when it will be learned,

while the student depends on the teacher for direction. Conversely, in andragogy the

teacher encourages and nurtures the student to be increasingly self-directed (Knowles,

1980). Knowles (1980) believed that children entered the world in a complete state of

dependency, and there is a dramatic change to self-concept when people transition into

adulthood. In adulthood, people see themselves less as learners and more as producers

and doers. Under the principle of self-concept, adults expect to be treated as self-directed

because they are responsible for their own lives and see themselves as decision makers

regarding what they learn (Knowles, 1980). Self-concept of the learner and experience of

the learner are two of the principles significant to this study because they relate to the

experiences of adult learners, which is the focus of this research.

Self-Directed Learning

Knowles sought to understand the uniqueness of adult learners. In addition to his

work on andragogy, in 1975, he gained notoriety when his concept of self-directed

learning became popularized. Knowles (1975) had an epiphany that adult learners needed

to adopt a new perspective on learning in order to move to a level of self-direction.

Through his research Knowles (1975) discovered that as adult learners became more

visible on college campuses, they were not prepared to learn. Knowles (1980) pointed out

that adult learners were not naturally self-directed learners and needed to develop new

ways of learning.

Malcolm Knowles' research had a profound impact on the concept of how adults learn. Knowles (1975) broadly described Self-directed Learning (SDL) as a "process in which adults take the initiative, without the help of others in planning, carrying out, and evaluating their own learning experiences" (p. 19). Knowles (1989) believed that adult education had become one of the largest segments of the national educational enterprise. He also believed that when a student was engaged in the self-directed learning process, others such as peers or educators could be helpful in advancing improvement practices. Knowles (1989) believed that there were various learning stages in which adult learners and educators should familiarize themselves in order to reciprocate support. In general, learning occurred in conjunction with others. Although Knowles is credited as being the founder of the adult learning theory in which self-directed learning is a core concept, Stephen Brookfield is a scholar of adult education who has contributed to understanding how adults learn. Both researchers' views on adult learning were relatable, especially with the concepts of teacher-directed courses and self-directed learning and how they differ from each other.

Brookfield (1985) stated that for some adult learners, the concept of self-directed learning could present a challenge because they may not be as confident or independent as other adult learners; consequently, a teacher-directed approach was preferred. Teacher-directed learning was described by Knowles (1975) as the opposite of self-directed learning which meant learning occurred while holding the teacher accountable for how the learner would be taught. To prepare adult learners for self-directed learning, Brookfield (1985) suggested that preparation must become a part of the learning

experience which would include revising conventional teaching methods to encourage

adults who were ready to embark upon becoming self-directed learners self-directed

learners. Self-directed learning was important to engage in self-study when face-to-face

teaching was not available. Knowles (1975) and Brookfield (1985) agreed that it could be

a challenge for teachers to view themselves as facilitators of learning instead of using the

teacher directed learning approach since very few have been introduced to this model of

teaching.

Knowles (1975) also believed that in order to groom self-directed learners, the

teacher must understand the learner characteristics required to embrace a self-directed

teaching style. Knowles (1975) described the "why" of self-directed learning as "a basic

human competence, the ability to learn on one's own, that has suddenly become a

prerequisite for living in this new world" (pp. 16-17). Knowles (1975) identified three

reasons for self-directed learning. First, he believed that there was convincing evidence

that people who took the initiative in learning (proactive learners) learn more things than

people who passively waited to be taught (reactive learners). Second, Knowles suggested

that self-directed learning was more aligned with one's natural processes of

psychological development, which meant learners would take responsibility for their

learning. The third reason was that many of the new developments in education placed a

heavy responsibility on the learners to take a great deal of initiative regarding how they

learned. Students entering higher education without having learned the skills of self-

directed inquiry would experience anxiety, frustration, and often failure, and so would

their teachers (Knowles, 1975). As educators became aware of these negative experiences

that adult learners endured, the educator would have the opportunity to help adult learners

shift to become self-directed learners by creating learning environments that supported the transition (Knowles, 1989).

Knowles (1975) acknowledged there were circumstances under which teaching and instruction were needed but concluded that self-directed learning was best; however, the teaching and learning process should include an integrated provision that helps the learner become more self-directed. Knowles also believed that self-directed learning could be enhanced by others. The learner could also utilize peers, resources, and educators as an extension of learning when necessary. According to Knowles (1975), self-directed learning took place in association with various kinds of helpers, which included teachers, resources, peers, and mentors.

Knowles (1989) introduced the learning contract as a type of helper that would encourage and promote the self-directed learning process for adult learners. Knowles (1989) explained that learning contracts were a tool that provided a vehicle for establishing learning experiences as a mutual interaction between a learner and helper. The helper participates in the process by evaluating needs, formulating objectives, identifying resources, choosing strategies, and assessing the learner's accomplishments. Learning contracts provided a way to examine the external and internal needs of the learner. Knowles (1989) explained that participation in the exercise of the learning contract allowed the learner to develop a sense of ownership and commitment to the plan. The learning contract allows students to structure their learning and contribute their rich experiences to the classroom to ensure that they are active learners taking responsibility for their education. Malcolm Knowles' self-directed learning continues to influence and provide guidance for educators and researchers seeking to inspire and empower a

generation of independent adult learners such as Plus 50 students who are the focus of this study.

Foundational Adult Learning Theories

Andragogy and self-directed learning theories were appropriate to use for this study; because, when combined, they provide a critical lens to understand the experiences of Plus 50 learners as they navigate technology in courses. These frameworks were designed to assist Plus 50 students in their postsecondary education and encourage them to utilize institutional resources, external resources, and their own experiences to become accountable for their learning. Before students can become self-directed learners, teachers must understand and evaluate how students learn, and then set up the learning environment to be conducive to supporting those learning experiences; creating the space for self-directed learners to thrive. According to Knowles' concept of andragogy (1980), adult learning is a learner-centered approach; therefore, Plus 50 students must invest in the learning process. However, in some instances, the student is dependent upon the institution for support on their journey to self-directed learning.

As it relates to this study, once a Plus 50 student identifies their specific needs in using technology, self-directedness would guide them to become active participants in acquiring the necessary skills and resources to be successful in their undergraduate courses. As Knowles (1975), stated self-directed learning is a collaborative effort that included teachers, resources, and mentors. The student can further contribute to their learning by utilizing what they've learned from peers, and in turn, expand their knowledge network at the institution.

Faculty at Midwest University, which is the site for this study, can use andragogy

and self-directed learning to understand the experiences of Plus 50 students who use

technology in undergraduate classes. Instructors should be cognizant that teaching must

be individualized to support the learners' degree of self-direction and provide them with

additional opportunities to become more self-directed in their learning. In addition, the

role of the institution is to develop and deliver resources to support all adult learners and

their degree of self-direction. Andragogy and self-directed learning will continue to be

important areas of research to support Plus 50 students, specifically as more of these

learners enter postsecondary education and enroll in courses that use technology for

teaching and learning.

Purpose and Research Questions

The purpose of this study was to explore the experiences of Plus 50 students when they

use technology in undergraduate classes. The following research questions were

addressed:

RQ1: What are the experiences of Plus 50 students who use technology while

enrolled in undergraduate classes?

RQ2: Based on their experiences, what do the Plus 50 students identify as critical

factors to success when using technology in undergraduate classes in terms of their

ability to be self-directed learners?

RQ3: How do the experiences of Plus 50 students and their use of technology in

undergraduate classes impact their persistence toward course completion?

Literature Review

This study introduces literature focused on adult learners and their use of

technology. In this chapter, the researchers present literature on older adults' experiences

with technology, perceived barriers to learning for adult learners, perceived technology

related barriers, technology and skills developments for older adult learners, persistence

in postsecondary education for older adult learners, andragogy, and self-directed learning

in postsecondary education.

Older Adults' Experiences with Technology

According to Wu et al. (2015), as compared with younger adults, older adults lack

access to and usage of recent technologies. To bridge the knowledge gap of older adults'

awareness of different kinds of information and communication technologies (ICTs), the

researchers launched a 2-year project using focus groups and demonstrations of ICTs.

The project was titled "Gerontechnology and You". Wu et al. (2015) stated

Gerontechnology is an interdisciplinary study combining gerontology and technology.

The researchers conducted 14 focus groups over a two-year period. Focus group topics

included: ICT-related products, cognitive prosthesis, video conferencing applications,

assistive & companion robots, tablet PC, and video games. In the study, 23 older adults

between the ages of 63 to 83 attended the focus groups at varying participation levels.

The majority of the participants were female, and all had completed secondary education.

Participants attended as few as one or as many as six of the 14 focus groups.

Upon completion of the focus groups, the researchers transcribed the data and

performed an inductive thematic analysis. The findings resulted in four themes: project

participation, digital divide, ICT adoption, and opinions on assistive ICTs. In addition,

there were 21 subthemes including self-efficacy toward technology, technology anxiety,

and importance of training (Wu et al., 2015). The participants reported joining the project

to maintain active engagement and to keep themselves up to date with technology. In

addition, they were fascinated by the potential of technologies, and mentioned adopting

ICTs based on perceived needs (Wu et al., 2015). According to the researchers, the findings revealed that participants were pleased that they had taken part in the study and perceived the existence of a digital divide between older and younger generations. Wu et al. (2015) contended that the digital divide is considered a social inequality and social injustice that society must find ways to increase access for older learners to close the digital gap. This research explored the experiences of older adults as they were introduced to different forms of information communication technologies and therefore was relevant to this study which explores the experiences of adult learners who use technology in undergraduate courses.

Hill et al. (2015) conducted a study to gain a better understanding of the lived experiences of older adults' technology use. The researchers used focus groups and Interpretative Phenomenological Analysis (IPA) to document their experiences. "IPA was developed to understand the subjective experiences of individuals, including the cognitions and emotions that underlie their views about particular subjects. It involves an in-depth analysis of similar cases to try and understand the lived experiences of individuals, how those people make sense of their experiences, and the meaning these experiences have for a person" (Hill et al., 2015, p. 1152). In this study, the researcher conducted two focus groups with older adults who attended digital inclusion classes. Purposive sampling was used to identify 17 participants aged between 54 and 85 (Hill et al., 2015). The focus groups lasted approximately 1.5 hours and participants were asked about their awareness and usage of digital technology.

The researchers recorded and transcribed the data collected from the focus groups. During the coding process, emerging theme titles were developed, and connections

among the themes were revealed. The focus group discussions uncovered two primary

themes related to participants' experiences with digital technology: disempowerment and

empowerment, and several subthemes including barriers, negative consequences, and

debilitating impacts of digital technology on individuals (Hill et al., 2015). Participants

perceived digital technology as a barrier, but confidence and interest increased the more

exposure they had to digital technology. The researchers also found that the users had

self-limiting fears, which subsided once they learned more about the computer.

Conversely, participants felt empowered when they were able to use technology to

facilitate everyday tasks. The participants recognized the value of digital technology and

its ability to disempower (Hill et al., 2015). Similar to this study, the researchers in this

current study sought to understand the experiences of older adult learners and their use of

digital technology.

Perceived Barriers to Learning for Adult Learners

Chao et al. (2007) stated that at one time, the core market for postsecondary

education appealed to individuals who were interested in formal learning, career

advancement, or personal growth. As times changed, so did the profile of the college

student. Chao et al (2007) prepared a report titled Barriers to Success and Strategies to

Improve Results. The report was disseminated to three agencies, The U.S. Department of

Labor, Employment and Training Administration, and The Office of Policy Development

and Research. It highlighted perceived barriers that nontraditional adult learners

encountered. The report also presented emerging strategies for overcoming the identified

barriers that adult learners perceived as deterrents to pursuing a postsecondary degree.

The barriers presented in the report were gathered from the National Center of Education

Statistics (NCES) Graduation Rate Survey, which listed the following: "lack of time to

pursue education, family responsibilities, scheduling of course time and place, and cost of

educational courses" (NCES 2004, as cited in Chao et al., 2007, p. 7).

The results from the (NCES) Graduation Rate Survey were used to support claims

of barriers that were present for adult learners. The survey also contained standards that

were used to improve the current systems in the areas of accountability, affordability, and

accessibility in postsecondary education. The revised standards were implemented to

ensure that they supported the academic achievement of adult learners. This implied a

shift toward a more adult-focused postsecondary education system that encouraged

student success (Chao et al., 2007). According to Chao and colleagues (2007), there were

a substantial number of adults who desired to attend college, but persistence and success

were perceived as barriers to access. Also, Chao and colleagues (2007) believed that

there was a disconnect between the needs of adult learners and those who should be

accountable for the implementation of support services. Conventional postsecondary

education institutions should be doing all they can to promote adult learner success in

order to garner receptivity to college attendance. Chao, et al., 2007 noted that colleges

should recognize that adult learners harness a considerable amount of real-world and

academic experience; therefore, institutions should capitalize on those experiences as

strengths that adults bring to the classroom and the campus community.

At the end of the report, four key recommendations were identified to address

barriers adult learners encountered. The recommendations included the following: 1)

develop federal-state partnerships to promote and test innovative approaches to

increasing adult access to success in higher education; 2) update federal student financial

aid programs to stimulate and support the postsecondary education of working adults; 3)

create a national system to track and report individual adult student outcomes; and 4)

research and development programs to encourage employer engagement in the

postsecondary education of working adults (Chao et al., 2007). This study was relevant

because the researchers identified perceived barriers adult learners faced and presented

strategies to guide stakeholders in supporting adult learners to overcome barriers.

Similar to Chao et al., 2007, Deggs (2011) utilized a phenomenological approach

to study the perceived barriers of adult learners in an accelerated undergraduate degree

program. He believed that examining barriers related to work and academics would assist

college and university personnel with the development of programs and support resources

that could remove barriers identified by adult learners. Participants in this study consisted

of 21 adult learners required to enroll in an online course for an accelerated

undergraduate degree at a mid-south university. Deggs (2011) defined the adult learner as

students taking senior-level courses, but he did not directly identify an age range for this

group of learners in his research. The interview portion of the study was guided by

Thomas Flint's Principles of Effectiveness for Serving Adults, which describes processes

that could be adopted by higher education institutions seeking to improve access and

quality for all students. Participants were also asked about their experiences in

postsecondary education and were asked to give examples of barriers they had

experienced.

Deggs (2011) identified three key types of barriers adult learners faced while

enrolled in the accelerated degree program. Those barriers were intrapersonal (time

management), career and job related (lack of workplace support while attending college),

and academic related barriers. The two most common themes regarding academic related barriers were understanding and using technology and missing in-person relationships with college personnel and peers. According to Deggs (2011), the experiences that the participants discussed with the researchers also revealed that when one barrier had been overcome, other barriers seemed to arise. Ongoing obstacles in life will occur for adult learners, and the challenge to overcome these barriers may accompany them on their academic journeys.

Deggs (2011) suggested that the models of learning that were in place to assist adult students with overcoming barriers were geared toward traditional students. These models of learning did not work for adult learners, so a universal model would not suffice to meet the needs of adult learners. Deggs (2011) noted that the complexity of barriers adult learners faced should be considered by faculty, staff, and institutional leaders because making decisions regarding how to address these perceived barriers could impact access and degree completion for adult learners in postsecondary education. Deggs (2011) concluded that if barriers could not be resolved, institutions must continuously assess and refine their support services to acknowledge the varying needs of adult learners. This study was significant because the results could be used to assist postsecondary administrators, faculty, and staff in identifying the appropriate services and programs to support the holistic development of adult learners on their educational journeys. Several perceived barriers were identified that could impact the academic success of adult learners, such as aging, changes in health, life events, lack of support, and in some cases, technology-related barriers, which will be reviewed in the next section.

Perceived Technology-Related Barriers

Githens (2007) was interested in exploring the changing notion of work and learning in older adulthood. In addition, the researcher examined myths about older adults' use of technology, types of e-learning programs for older adults, and the barriers preventing older adults from fully participating in e-learning. Githens's (2007) research did not identify a specific age group of older adults. However, he did state that older adulthood can span several decades, and therefore older adults can participate in educational opportunities at various phases for various reasons. According to Githens (2007), flexibility in paid positions, volunteer assignments, and educational opportunities transformed what it meant to be retired. Flexible employment opportunities allowed older adults to work longer, and organizations were benefiting from this transformation, hence, the need for older adults to have basic technology skills. "One of the most damaging stereotypes of older adults is that they are rigid and do not want to learn" (Githens, 2007, p. 331). Githens (2007) pointed out that organizations can benefit from the expertise of older adults if they are willing to capitalize on their knowledge rather than focus on stereotyping deficits.

A significant number of Baby Boomers were familiar with computers and the internet; therefore, needing basic computer training would be less of an issue. Githens (2007), asserted that education providers needed to reach those who were less familiar with technology such as the poor and less educated older adults. Githens (2007) believed that educational programs were being offered for personal growth and change, workforce development, and workforce learning but did not adequately support the needs of older adult learners. Githens (2007) argued that barriers such as negative perceptions about older adults, class and educational barriers, technical problems, usability issues, course

design, and problematic new technologies could prevent the full participation of older

adults in e-learning. Githens (2007) questioned whether individuals or groups could

maximize the potential opportunities for working with older adults in order to create new

e-learning initiatives, workforce development programs, and employment opportunities.

This study provided insight into the experiences of older adults participating in e-learning

programs, which was relevant since the focus of this study is Plus 50 students and their

technology use in courses.

Vaportzis et al. (2017) investigated older adults' perceptions and barriers to

interacting with tablet computers. The main objective of the research was to build on

previous research investigating the perception of barriers to interacting with tablet

computers by healthy older adults who were novice users. The secondary objective was

to refine protocols for previous research with tablet devices. The researchers employed

focus groups as the methodology for the study to offer an open and exploratory way for

qualitative data collection. The focus groups were comprised of 18 community members

age 65 to 76 categorized into three subgroups. Two groups were tablet novices but had

experience with other technologies, and one group had no prior experience with

computers. The researchers' objectives were to "understand older adults' attitudes toward

technology use in general, and tablets in particular; the perceived advantages and

disadvantages of using tablets, and how they might be helpful; and familiarity with, and

barriers to interacting with tablets" (Vaportzis et al., 2017, p. 3).

The focus groups were a part of a larger study, "Tablet for Healthy Aging"

(Vaportzis et al., 2017). The researchers used the snowball principle to select 18

community dwelling adults to participate in the focus groups. The focus groups lasted

approximately two hours; during that time participants were asked to provide feedback on a protocol which referred to themes and activities that might appear during a tablet training course. Four primary themes emerged regarding what the older adults considered as barriers to technology use. The themes included lack of instructions and guidance, lack of knowledge and confidence, health-related barriers, and costs. When it came to the four primary themes, there was no significant relationship between the participants with prior computer experience and the participants without prior computer experience. However, there were differences noted for the two groups based on subthemes. Participants without prior computer experience identified lack of clear instructions, lack of knowledge, and confidence as barriers to using technology. Data from the three focus groups showed that participants were intimidated by the technical manuals, different types of technology and encountering viruses or spyware. Additionally, all groups expressed health concerns, including vision challenges and motor skills. However, participants from all focus groups were eager to adopt new technology and willing to learn how to use a tablet (Vaportzis et al., 2017). Similar to this study conducted by Vaportzis et al., (2017) the researchers of the current study were interested in understanding the perceived barriers of older adult learners using technology.

　　　Lee et al. (2011) suggested older adult computer users may have different constraints based on age segmentation. In a cross-sectional study the researchers explored computer users' constraints at various age stages and attempted to determine if demographic and socio-economic variables were relative to the constraints. Focus groups of computer users were conducted to generate a survey questionnaire. Survey participants' ages ranged from 50 to 93 and were segmented into the following three

groups: pre-seniors (50-64), younger-old (65-74), and older-old (75+). Of the 243

participants, close to half were in the pre-senior group. The younger-old group included a

third of the remaining participants, and the older-old category made up the smallest group

(Lee et at., 2011).

The survey instrument consisted of four themes, including the motivation to use

computer-mediated information technology, constraints in their learning and usage,

benefits, and online experience. The survey instrument was also utilized to collect

demographic data to build a demographic profile of the participant groups. Intrapersonal,

interpersonal, structural, and functional were the four constraints revealed after factor

analysis of the data (Lee et al., 2011). A mean comparison of constraints among the pre

seniors, younger-old, and older-old produced significant differences on three of the four

constraints. Descriptive statistics were used to document the participants' demographic

data, while exploratory factor analysis was used to explore potential dimensions of

barriers. The demographic data indicated that half of the participants were in the pre-

senior category, more than half were female, and 80% had a high school education or

higher. Four factors emerged (intrapersonal, interpersonal, functional, and structural) as a

result of the exploratory factory analysis. Three of the four factors (intrapersonal,

functional, and interpersonal) were positively related to the age of the respondents but

negatively associated with income and education (Lee et al., 2011).

Overall, older adults experienced different barriers based on the segmented age

group they were associated with, which confirmed the need for innovative support (Lee et

al., 2011). For example, participants in the older-old stage experienced more challenges

to start learning and using computer-mediated information technology than participants in

the pre-senior group. In addition, the pre-senior group reported significantly fewer issues

than the older groups when it came to functional constraints such as logic reason decline

and memory function decline. The findings of the study highlight the importance of

understanding that older adult learners have distinct learning needs and their adoption and

affluent levels of technology use are not the same. In the current study, the researchers

were intentional about not grouping Plus 50 students with other nontraditional learners in

order to understand the specific and unique needs of these older adult learners.

According to LoBuono et al. (2018), there is limited research regarding the forms

of technology older adults were interested in using and what strategies were used to help

older adults increase technology use. In an attempt to fill the gap and add to the scholarly

body of knowledge related to this topic, the researchers explored the interests of older

adults using technology. The study participants included 30 older adults ages 65-87

involved in an intergenerational service-learning program where they learned about

technology from higher education students at a Northeastern university. The student

educators used multiple teaching strategies to facilitate the sessions with the older adult

learners and recorded data about the sessions in observation logs. The researchers

analyzed the data from the observation logs and identified topics that were relevant to the

older adult learners. The older adult learners were interested in learning about technology

basics, effectively communicating using technology, and getting organized. LoBuono et

al., (2018) suggested that mastering these topics could enhance technology use and build

digital literacy. For example, participants who repeatedly returned to the program were

introduced to and given information on multiple technology topics. According to

LoBuono et al., (2018) data from this study can help organizations increase technology

adoption for older adults. This study was significant because it demonstrated the

importance of older adult learners taking responsibility for their learning by attending a

program that helped them gain additional knowledge about the use of technology. It also

highlighted the importance of facilitation of learning which helps to develop self-directed

learning. Finally, the study provided insight into the technology interests of adults, which

became the impetus for the participants to learn more about technology.

Technology and Skills Development for Older Adult Learners

Calvo et al. (2017) conducted surveys; and presented study participants with

questions to examine classroom spaces in which senior learners developed activities for

their well-being and sociocultural development while enrolled in Introduction to the Use

of Computers Modules (CM). Participants in the study were 14 adults over the age of 50

which included 10 women (71%) and four men (29%). The average age of the

participants was 64.86, the oldest being 75 years old and the youngest being 58.

Participants in the study took a class to learn how to develop activities for their well-

being and sociocultural development. The activities in the class included mapping

techniques, drawing, and completion of a survey with the assistance of an online guide

and instructions to help guide the participant through the activities (Calvo et al., 2017).

After a thorough analysis of the survey responses, it was determined that older adults

were open to learning technology. The responses from the survey also showed that

important differences were found regarding comprehension between older adults, which

differed in terms of educational levels, computer familiarity, computer use, age, and

understanding where a student's level of comfort lies regarding technology. It was also

revealed that younger participants reported fewer challenges because they used the

computer more. The researchers also analyzed the participant responses regarding the development activity. Overall, the responses to the questions were positive as participants expressed that the CMs were user-friendly because a template was available to assist with developing the activities. Without the template, additional time was required to complete the CMs. (Calvo et al., 2017).

Calvo and colleagues (2017) suggested that the increase in the development of technology platforms was perceived as a major advancement regarding widespread use; specifically to support the quality of life for older adults, but the percentage of older adults who leveraged the use of new technology developments was minimal. The researchers concluded that there was no difference in computer skill usage among older and younger adults; however, older adults might need additional time and resources to comprehend computer concepts. The significance of this research revealed that older adults are as capable of learning and developing computer skills as younger adults and additional support reinforces their understanding of technology as they use it in courses. In the current study, additional resources and guidance can also assist Plus 50 students in navigating the technology in undergraduate classes.

Ghost Bear's (2012) study focused on the learning strategies used by adults when participating in online auctions. Learning strategies were defined "as the techniques or skills that an individual elects to use in order to accomplish a learning task" (p. 30). Ghost Bear (2012) believed that the learning needs for adults that resulted from the constant increase in technology were rooted in the adult learning concepts of "andragogy, self-directed learning, learning-how-to-learn, real-life learning, and learning strategies" (p. 27). In order to describe the phenomenon being researched, Ghost Bear (2012)

utilized a descriptive design approach and gathered data from the internet that was based on how adults learn how to use the internet. The study involved a sample of 380 eBay users with the oldest participant being 70 years of age.

A questionnaire was completed by the participants which gave them an opportunity to express how they: "learned about eBay and navigated the site, formed and exercised their bidding strategies, communicated with other people on eBay, and how they felt about the skills they learned" (Ghost Bear, 2012, p. 30). To establish the preferred strategies of eBay users, The Learning Strategies of Adults (ATLAS) instrument was included in the questionnaire. Ghost Bear (2012) defined ATLAS, "as a valid and reliable instrument designed to quickly identify learning strategy preferences" (p. 30). Participants followed descriptive phrases by clicking their mouse indicators on selected responses. Each response led the participants to eventually discover their learning strategy group of Navigator, Problem Solver, or Engager.

Results from the findings revealed that adults utilized learning strategies in four areas. First, the process in which the participants engaged to learn about the online auction process provided support for adult learning principles. Second, the language and process used by the participants provided additional descriptors for the three learning strategy preference groups identified by ATLAS. Third, the results were that the process of achieving similar learning tasks could be successfully accomplished by using different learning strategies. Fourth, the findings showed that traditional literacy and computer literacy skills of internet users could be enhanced by using Keller's Instructional Materials Motivation Survey and Tinto's Student Integration Model. Ghost Bear's (2012) study was of significance because it showed the importance of identifying resources and

implementing strategies to encourage adult learners to become responsible for enhancing

their computer skill competencies. Facilitating ways that support older adult learners to

take responsibility for their learning, with the appropriate academic support structures,

can improve their persistence in postsecondary education, which is discussed in the next

section.

Persistence in Postsecondary Education for Older Adult Learners

Park and Choi (2009) utilized Keller's Instructional Materials Motivation Survey

and Tinto's Student Integration Model to understand the internal and external factors that

influenced persistence learners and dropouts. External factors included level of education

and age, and internal factors were motivation, satisfaction, and relevance about online

courses. Participants in the study were 147 adult learners aged 25-50 who had either

completed or dropped out of one of three online courses offered between fall 2005 and

summer 2007. In addition to examining the internal and factors that contributed to

persistence or dropout for adult learners, the researchers also wanted to explore what

factors would help predict why some adult learners dropped out or persisted in online

courses (Park & Choi, 2009). The researchers believed that early indicators influencing a

learner's decision to persist or dropout could assist institutional stakeholders with

developing strategies to better serve the needs of students who may want to dropout.

The findings of the study revealed that family and group support was important to

adult learners while enrolled in online courses, and without this support adult learners

were more likely to drop out (Park & Choi, 2009). Park and Choi (2009) pointed out that

the instructional design models used to develop courses and understanding what

motivates students to learn in online courses should be a priority for student engagement.

The findings also showed a difference in perception of satisfaction and relevance between

drop out and persistent learners, indicating that when students were satisfied with their

courses and found them relevant they were less likely to dropout. The researchers also

noted that individual characteristics such as age and level of education did not have a

significant or direct effect on the dropout decision of participants; however, these

characteristics should not be viewed as insignificant (Park & Choi, 2009). This study was

significant to the current research because external factors and internal factors are

important characteristics in understanding the whole student and could impact whether

Plus 50 learners decide to persist through college or drop out.

Adult learners pursue higher education for many reasons, including degree

completion, to gain additional knowledge in a new field, or an incentive for a career

advancement. According to Schaefer (2009), the success of older adult students who seek

postsecondary degrees depends, in part, upon fulfillment of critical support needs. In a

phenomenological study, Schaefer (2009) sought to identify appropriate actions and

strategies of institutional support for older adult learners. The researcher examined what

was meaningful to older baby boomer students, which resulted in greater clarity for those

most concerned with providing effective lifelong learning opportunities. Nancy

Schlossberg's transition model was used to provide the theoretical framework for this

phenomenological study. "The transition framework is designed to depict the

extraordinarily complex reality that accompanies and defines the human capacity to cope

with change" (Schlossberg et al., 2006, p. 55). Situation, self, support, and strategies are

leading aspects of Schlossberg's model. Purposeful sampling was used to select nine

older baby boomer students ages 56-62 enrolled in a Bachelor of General Studies (BGS)

program at a Midwestern university.

Schaefer (2009) found that most of the learners in the study were first-generation college students and needed a better understanding of the formal higher education process, were primarily motivated by career aspirations, and experienced complex support needs when returning to college. Schaefer (2009) noted a significant finding of the study was that the older baby boomer participants were first-generation college students but had children with college experience. The participants in this study had parents who focused on strong work ethics in their secondary education but did not expect them to attend college. Participants worked in trades rather than pursuing education in the profession based on their upbringing (Schaefer, 2009). Most participants returned to college because they were motivated by career related variables such as employment layoffs, work boredom, and recent or anticipated retirement or lack of promotion based on not holding a degree. Schaefer (2009) identified the primary reasons participants returned to school as career advancement, career change, and life-long learning or personal enrichment goals. The study participants noted the challenges of balancing family commitments and financial hardships when they returned to college. Many of the participants reported receiving support from family, faculty, advisors, and traditional-age students. According to Schaefer (2009), findings from this study provided support for program and policy changes that were necessary to offer an adult-friendly higher education environment. This study was significant in understanding the perceived support needs of older baby boomer students enrolled in undergraduate degree programs, which is the demographic of the current study.

In a 2014 study, Bergman et al. explored the effects of student characteristics,

external environment, and campus environment on adult student persistence. According

to the researchers, older adult students who persist on to graduation have experienced a

variety of barriers such as work and significant life events before being able to achieve

academic success. An empirical study was performed using data collected from the Adult

Learner Persistence (ALPS) survey instrument. The researchers used the ALPS tool to

collect data on relevant variables hypothesized to affect degree completion. Relevant

variable data included student entry and background data, internal campus environmental

data, and external influence data. The sample included students currently and formerly

enrolled in a Bachelor of Science (BS) degree program. Of the 437 respondents, a little

more than half were female, the mean age was 39 years, and most of the participants were

working adults. External factors such as prior learning assessment, finances, family

influences, work influences, significant life events, and community influences were

considered in addition to nontraditional student and institution characteristics (Bergman

et al., 2014).

Bergman and colleagues (2014) found there were no significant differences in

persistence outcomes by gender, race, ethnicity, or age. The researchers noted that

students who persisted had established relationships with their advisors and faculty, felt

the institution was responsive and received encouragement from home. The study results

revealed that the campus environment accounted for more variation in adult student

persistence than student entry characteristics or external factors. Students who felt the

campus was supportive were more likely to attain their education goals which played a

significant role in their persistence. This study was significant because the researchers

took into account student characteristics, external factors, and student to institution

relationships, which were relative to the student's experience. A multitude of factors can have an impact on a student's experience and persistence in postsecondary education. A student's academic achievement is one of the factors that contribute to their path to success in college. In the next section, we examine andragogy and self-directed learning as a means for students to improve their academic experience in higher education.

Andragogy and Self-Directed Learning in Postsecondary Education Institutions

There has been an increase in the number of adult learners seeking postsecondary education; therefore, understanding the strategies that increase student engagement and self-directed learning will support higher education institutions in meeting the needs of these learners. Bourdeaux and Schoenack (2016) sought to identify online class expectations as well as the expectations and behaviors of current faculty. This study investigated adult student experiences with instructors in online classes. The researchers conducted 22 interviews with adult learners 24 years of age and older, with the oldest participant being 60 years old. The questions asked in the interview were to help understand why students enrolled in online classes, expectations for instructors, and behaviors instructors employed.

The data from the interviews provided insight into adult learners' experiences in the online learning environment. During the data analysis phase, the researchers discovered why adult students chose online classes, online instructor expectations, students' dissatisfaction or satisfaction with online courses, and suggestions on how to improve the online environment (Bourdeaux & Schoenack 2016). Participants believed that advantages to taking online classes included the ability to manage their time, and online courses encouraged them to become responsible for their own learning. The

behaviors that adult learners expected from instructors were clarity, respect, and course design that integrated pedagogical strategies. Positive instructor behavior was identified as effective communication and an engaging learning environment that supported adult students in the learning process. Negative instructor behavior was identified as ineffectively using available tools and not responding to students' questions (Bourdeaux & Schoenack, 2016).

Three themes emerged from the data analysis: 1) The Course Design theme included student recommendations for instructors regarding creative, effective, and exciting ways to develop a course; 2) The Meeting Students Where They Are theme explained the necessity for faculty to adjust course expectations to meet individual student needs and offer flexibility as they are balancing additional responsibilities; and 3) The Do Your Job theme included recommendations from study participants about holding instructors accountable for performing the duties in their job description and having accountability feedback mechanisms to ensure that they are performing their job (Bourdeaux & Schoenack, 2016). In conclusion, postsecondary institutions should understand the importance of designing an online course to enhance teaching and learning, policies, and procedures that ensure instructors are effectively teaching online courses and acknowledging the needs of all students. This study was of significance because the researchers explored the enrolled college student experiences and expectations.

In a 2014 study, Kim et al. explored the experiences of 60 students enrolled in two sections of an online business management course. Each section had similar student profiles in terms of the ratio of male to female students, representation of diverse

ethnicities, average years of college study completed, and competency in using the computer and internet as integral parts of their course work. The researchers stated that some students who chose to take part in online courses felt unprepared for this type of learning environment. For this reason, implementing a traditional learning theory such as self-direct learning would encourage these students to monitor and manage their own learning outcomes.

Kim and colleagues (2014) explained that the focus of this study was to determine if the use of a self-directed learning system in an online course improved students' competency to self-manage their own learning processes. The researchers examined the change in self-directed learning competencies for those students who used the self-directed learning system with enhanced features that may have reinforced their self-directed learning abilities compared to those in the control group who used an unenhanced version. The features of the self-directed learning system included the ability to document learning goals, maintain a list of learning resources, schedule and plan study times and learning activities, track the performance of completed goals, and self-assess accomplishments and new ideas for learning.

Pre-test and post-test surveys were conducted related to the self-directed learning activities; next, the data was evaluated to show how the core self-directed learning activities made a difference in the findings and the relationship of the overall effectiveness of the self-directed learning system in reinforcing self-directed learning for online learners. The self-directed learning activities included determining the desired knowledge and skills, adopting appropriate learning strategies, and assessing learning outcomes. The survey findings concluded that the self-directed learning system would

improve competency in self-directed learning and highlighted that a student can

significantly increase their self-directed learning capabilities when given the proper tools

to reinforce active planning and organizing as learning strategies (Kim, et al, 2014). This

study was significant to the current study because it supports Knowles' (1975)

philosophy that self-directed learning could be enhanced by making additional resources

available to adult learners.

     Deggs and Machtmes (2012) suggested that as working adults pursued their

educational goals, it was important to investigate whether they acquired adequate

independent learning and self-directed learning abilities to achieve future career roles.

The purpose of this qualitative study was to describe plans for engagement in

independent learning and self-directed learning among working adults as they prepared to

transition from college. According to the researchers, examining their perceptions about

whether they acquired adequate independent learning and self-directed learning abilities

was the first step in measuring how the college experience had transformed the individual

and prepared them for their lives after college. For this study, 21 working adult students

were invited to participate in a structured online interview regarding their future plans for

engagement in independent and self-directed learning. Participant interviews were

conducted during the fall and spring semesters when students were enrolled in a

Professional Development Strategies course (Deggs & Machtmes, 2012).

     Three themes emerged from the analysis of data concerning students' plans for

future engagement in independent learning and self-directed learning. Overall, the themes

showed that the participants' postsecondary experience helped prepare them to become

working adults after college. The findings also revealed that students viewed independent

and self-directed learning as preparation for their career paths in the future, current jobs,

and personal growth and development. The researchers suggested that working adults can

utilize independent learning and self-directed learning strategies to realize and become

the possible self they envision in order to be able to achieve their future aspirations.

Deggs and Machtmes (2012) defined possible self, "as representation of self in the past

and included representations of the self in the future" (p. 29). Similar to the current study,

Deggs and Machtmes (2012) research affirmed self-directed learning as a valuable

approach to help students transition from dependent to independent learners. This study

also confirmed the importance of higher education stakeholders evaluating the curriculum

of undergraduate degree programs to ensure that the courses support the development of

self-directed learning skills for adult learners.

Chapter 2 Summary

Kasworm (2018) noted that some postsecondary professionals have naive beliefs

that adult learners are less worthy; in turn, there may be a lack of specialized institutional

support to serve older adults. In addition, Plus 50 students are confronted with their own

relative ignorance regarding technology use in postsecondary education (Barr, 2016).

This chapter introduced literature on older adult learners, their experiences with

technology, perceived barriers to learning for adult learners, perceived technology-related

barriers, technology and skills developments for older adult learners, persistence in

postsecondary education for older adult learners, and andragogy and self-directed

learning to support adult learners.

Andragogy and self-directed learning were frameworks that guided this study in

order to understand the experiences of Plus 50 students when they use technology in

undergraduate classes. These holistic frameworks support student engagement in the

online learning environment and encourage adult learners to take responsibility for their learning.

In Chapter 3, the researchers introduce the methodology approach used to explore the experiences of Plus 50 students when they use technology in undergraduate classes.

Chapter 3

Method and Design for Action

By 2027, the number of Plus 50 students is projected to increase by over 400,000 students (NCES, 2019). As the population of Plus 50 students continues to rise, it is important to continue research that focuses on this population since older adults might view higher education as a way to reinvest in themselves and engage in learning opportunities. "This unique subset of the college population brings with it diverse life experiences, prior knowledge, and viewpoints" (Barr, 2016, p. 51). In addition, they present some unique opportunities and challenges for postsecondary institutions to consider in order to ensure that they are providing the support that these learners need to successfully navigate courses that use technology. In chapter 3, the researchers present the methodology for this phenomenological study including, the research design, research questions, setting, participants, data collection, and data analysis. The purpose of this study was to explore the experiences of Plus 50 students when they use technology in undergraduate classes.

Research Questions

The following questions guided the study:

RQ1: What are the experiences of Plus 50 students who use technology while enrolled in undergraduate classes?

RQ2: Based on their experiences, what do the Plus 50 students identify as critical factors to success when using technology in undergraduate classes in terms of their ability to be self-directed learners?

RQ3: How do the experiences of Plus 50 students and their use of technology in

undergraduate classes impact their persistence toward course completion?

Methodology

According to Angrosino (2007), "qualitative research is a process of inquiry aimed at understanding human behavior by building complex, holistic pictures of the social and cultural settings in which such behavior occurs" (p. 2). Quantitative research, on the other hand, "is an approach for testing objective theories by examining the relationship among variables" (Creswell & Creswell, 2018, p. 26). A qualitative approach was appropriate for this study to explore the experiences Plus 50 students encounter with technology in undergraduate classes.

Using a phenomenological approach, the goal of this study was to document the personal experiences of Plus 50 students when they use technology in undergraduate classes. According to Creswell (2018), phenomenological research is a design of inquiry coming from philosophy and psychology in which the researcher describes the lived experiences about a phenomenon as described by the participants. Lived experiences are the ways an individual experiences the world as opposed to how they imagine or expect to experience the world (van Manen, 1984). Moran (2000) stated using the phenomenology approach, researchers attempt to unveil the truth of the phenomena and seek to avoid any misunderstanding of the human experience. Morrow and King (2015) asserted that "Descriptive phenomenology is concerned with revealing the "essence" or "essential structure" of any phenomenon under investigation – that is, those features that make it what it is, rather than something else" (p. 643).

Participants

As researchers, our goal was to gather data that would provide insight and understanding of the experiences of Plus 50 students when they use technology in

undergraduate classes. The target population for this study was Plus 50, students enrolled at a four-year public university located in the Midwest. Plus 50 students are defined as students who are age 50 years and older and currently enrolled in undergraduate classes. The population was identified using student enrollment reports from Cognos which is a reporting and analytics tool used by the university. Because of the nature of this study, we employed a purposeful homogenous sampling method to identify participants based on undergraduate enrollment and their age as 50 years and older. Homogenous sampling focuses on participants who share similar traits or specific characteristics, which allows the researcher to focus on precise similarities and how they relate to the topic being researched (Etikan et al., 2016). This sampling method was selected so that we could gain a rich understanding of the experiences of Plus 50 students when they use technology in undergraduate classes.

We contacted the university's Institutional Research Office, to request the fall 2019 student enrollment reports for our study's population. These reports were retrieved from Cognos and included the list of participants and their contact information. The fall 2019 report included 150 enrolled students who met the study criteria. We expected the enrollment number for Plus 50 students to be similar to the fall 2019 report at the time of the study that began in March 2020. We contacted the prospective participants by email (see Appendix A) and U.S. Postal mail (see Appendix B) to invite them to participate in the study. Interested parties responded to the researchers by email or phone to inform intent to participate in the study. After responses were received, we contacted respondents to perform prescreening interviews (see Appendix C). Participants were informed of all guidelines during the prescreen interview process (see Appendix D).

Once prescreening interviews were completed, the researchers determined which

participants were the best fit for the study. Potential participants for the study met the

following criteria: the participant was age 50 or older and enrolled as a student in an

undergraduate course that used technology for teaching and learning. Prospective

participants were also considered if they were 50 years of age or older and completed a

class in the prior semester.

Data Collection and Instrumentation

Before contacting potential candidates for this study, we submitted our research

proposal to the Institutional Review Board (IRB) for review and approval. After the study

was approved, we contacted the university's Institutional Research Office to request the

data we needed to start recruiting prospective participants for our study. Once the study

sample was identified, we arranged to interview candidates using the interview protocol

found in Appendix E. Interviews were recorded using a recording device to align with the

respective interview method. Online interviews were recorded using the recording feature

in the virtual meeting platform, Zoom, and an external recording device was used as a

backup. Recordings were transcribed by the researchers. We used introductory, probing,

and indirect interview questions (see Appendix E). The introductory questions allowed

interviewees to provide information about what they have experienced. The probing

questions allowed the interviewers to use the initial responses to probe for more content.

Indirect questions were used to gather the participants' perception of their peers. The data

collected from the interviews was confidential. Participants provided different accounts

of their experiences with technology while enrolled in classes. As the phenomenon was

uncovered, additional questions were asked to dig deeper into the participants' lived

experiences.

We performed interviews until saturation was reached. Saturation is determined when nothing new is apparent during the interview data collection process (Saunders et al., 2018). For this study, 10 participants were interviewed. Dworkin (2012) pointed out, with in-depth interview work, the researchers are not as concerned with making generalizations to a larger population; therefore, a smaller sample size will garner an in-depth understanding of the phenomenon. According to Dukes (1984), the sample size does not need to be large. However, in order to avoid seeing what we want to see, a sample should be expanded to include three to ten subjects (Dukes, 1984).

Transcripts were coded using thematic analysis to identify patterns, categories, and themes. Themes were determined based on the research questions, interview questions, and the transcripts from the interviews. We identified emergent themes during the reading, rereading, and coding of the transcripts. According to Creswell (2018), the traditional approach to coding in social sciences is to allow codes to emerge during the data analysis. We coded transcripts twice to ensure intercoder reliability and developed a qualitative codebook. "The intent of a codebook is to provide definitions for codes and to maximize coherence among codes— especially when multiple coders are involved" (Creswell, 2018, p. 187). Transcript text, pre-existing themes, and emergent themes were organized and color-coded to ensure all text was captured for each theme.

Data Analysis

We used Colaizzi's (1978) descriptive phenomenological method of data analysis. The seven steps below represent Colaizzi's process for phenomenological data analysis:

1. Transcription & familiarization – transcribe, read, and reread the transcripts for understanding and familiarization.

2. Extract significant statements – identify and label all significant statements from the interviews that are relevant to the phenomenon.

3. Formulate meanings – identify meanings from the relevant significant statements and organize using the bracketing method to discover and illuminate hidden meanings.

4. Clustering themes - categorize, and cluster identified meanings into themes common to all participant transcripts (emergent themes).

5. Develop an exhaustive description – a detailed description of the phenomenon will be written, and the identified detailed themes will be incorporated.

6. Identify fundamental structure – exhaustive statements will be condensed into a statement that describes the essential structure of the phenomenon.

7. Seeking verification of the fundamental structure – return to the participants to verify the results with their experiences, modifications will be made if necessary (Colaizzi, 1978).

Figure 3.1

Colaizzi's (1978) process for phenomenological data analysis
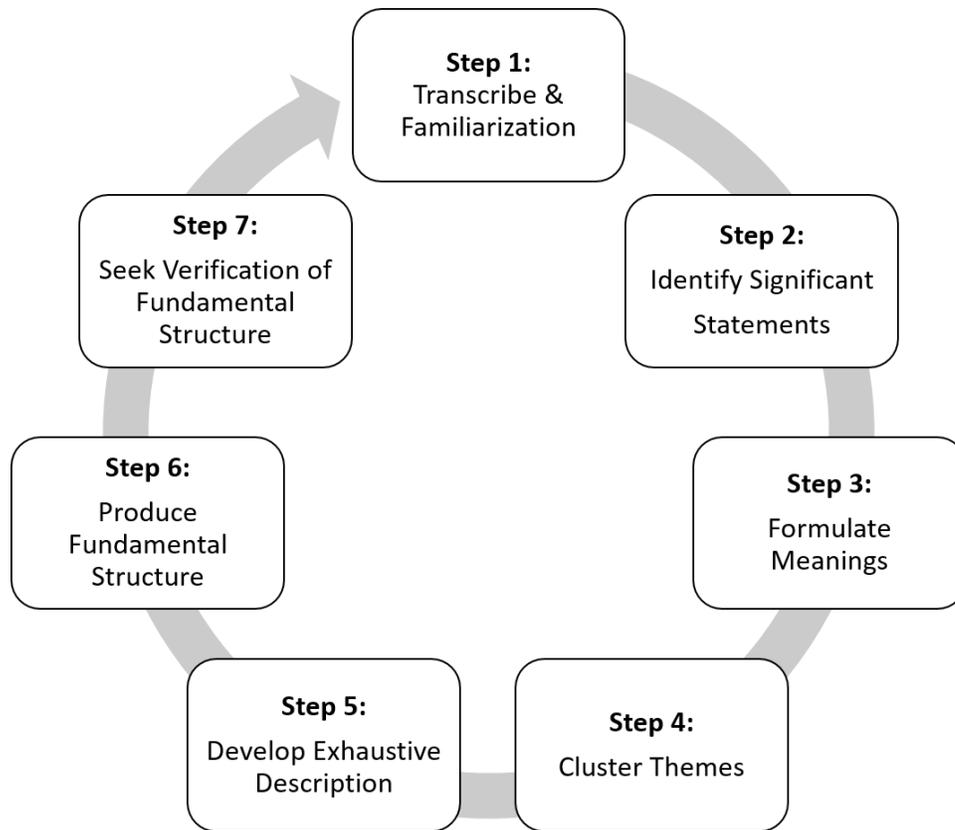
Note: Figure 3.1 is an illustration of Colazzi's (1978) seven-step phenomenological data analysis.

In step one of Colaizzi's (1978) descriptive phenomenological method, the researchers read each of the interview transcripts several times in order to become familiar with the data. In step two, the researchers identified all the significant statements from the interviews relevant to the experiences of Plus 50 students when they use technology in undergraduate classes. In the third step, the researchers formulated meanings from the statements. In step four, all identified meanings were clustered together into common themes referred to as emergent themes. In step five, the researchers developed a detailed description of the emergent themes. In step six, the researchers

condensed the detailed descriptions into summaries that described the phenomenon. In step 7, once the summaries were created, the researchers returned them to the participants to check for accuracy. Colaizzi's (1978) descriptive phenomenological method allowed the researchers to interpret significant statements, themes, and meanings to formulate the findings for this research study.

Member Check and Validation of Findings

Once the data was transcribed, the researchers sent each of the participants a copy of their transcript as a member check to validate, add, or delete content where necessary. Creswell (2008) described the member checking process as follows:

> Member checking is the process in which the researcher asks one or more participants in the study to check the accuracy of the account. This check involves taking the findings back to the participants and asking them (in writing or in an interview) about the accuracy of the report. You ask participants about many aspects of the study such as whether the description is complete and realistic, if the themes are accurate to include, and if the interpretations are fair and representative. (p. 267)

Participants were contacted by email and asked to review their transcript and notify the researchers to confirm whether the information was accurate. In two cases, participants wanted to add additional information, and three participants stated there were inaccuracies and provided updates. Participants emailed their updated responses, and the researchers incorporated the changes in the respective transcripts. To validate the findings, the researchers emailed each participant a descriptive summary and asked the following questions:

Q1. How does our descriptive summary compare with your experiences?

Q2. What aspects of your experience have we omitted?

Q3. Is this summary an accurate representation of your experience?

Chapter 3 Summary

Chapter three focused on the methodology used to document the experiences of

Plus 50 students using technology while enrolled in undergraduate classes. The

participants were enrolled at a selected four-year institution in the Midwest. Institutional

data was utilized to identify the population and sample. Participants were informed of all

guidelines during the prescreen interview process. The interview questions explored the

following research questions: What are the experiences of Plus 50 students using

technology while enrolled in undergraduate classes? Based on their experiences, what do

the Plus 50 students identify as critical factors to success when using technology in

undergraduate classes in terms of their ability to be self-directed learners? How do the

experiences of Plus 50 students and their use of technology in undergraduate classes

impact their persistence toward course completion? Structured interviews were used to

collect data. Analysis of the data was conducted using the thematic analysis method, as

well as open coding. Participants received the transcript and summary to review for

accuracy and validity. Interview summaries and themes were modified when necessary.

In chapter four, the researchers present the findings of the study, and chapter five

concludes the study with a discussion and summary of findings, recommendations, and

conclusion.

Chapter 4
Results

In this chapter, we present the results of the study based on an analysis of the interview data collected. The researchers will introduce demographic information of the participants, followed by a discussion of the main findings. The purpose of this phenomenological research study was to explore the experiences of Plus 50 students when they use technology in undergraduate courses. We employed a qualitative approach to document the experiences of Plus 50 students enrolled in undergraduate courses that utilized technology for teaching and learning. Understanding the experiences of this group can contribute to the limited body of research regarding Plus 50 learners. In addition, this research can inform administrators, faculty, and instructional designers of the unique needs of Plus 50 students as they consider curriculum, instructional strategies, and policies to support this diverse group of learners. The findings of this study might also help Plus 50 students understand how campus resources and support services can assist them in becoming more self-directed learners.

Hoepfl (1997) stated that qualitative research uses a naturalistic approach that seeks to understand phenomena in a context-specific setting. Additionally, qualitative researchers seek to illuminate, understand, and extrapolate to similar situations. Similarly, Creswell & Creswell (2018) stated that qualitative researchers seek to understand the context or setting of the participants through gathering information personally and generating meaning from data collected in the field. The ability of qualitative data to describe a phenomenon more fully is an important consideration from the researcher's perspective (Hoepfl, 1997). van Manen (1984) further asserted that phenomenology aims to come to a deeper understanding of the nature of our meaning of everyday experiences

and attempts to gain insightful descriptions of the way we experience the world. Utilizing

a phenomenological approach, this study provides a rich understanding of the experiences

of 10 Plus 50 students who utilized technology in undergraduate classes at a four-year

institution in the Midwest. This study was guided by three research questions:

RQ1: What are the experiences of Plus 50 students using technology while

enrolled in undergraduate classes?

RQ2: Based on their experiences, what do the Plus 50 students identify as critical

factors to success when using technology in undergraduate classes in terms of their

ability to be self-directed learners?

RQ3: How do the experiences of Plus 50 students and their use of technology in

undergraduate classes impact their persistence toward course completion?

In the next section, the researchers describe the participants' demographic

information, present a brief background of each participant and include relevant

information on the participant's gender, age, and enrollment status at the time of the

interviews.

Participant Demographics

The participants of this study consisted of 10 Plus 50 undergraduate students at a

public four-year university in the Midwest. Participants' ages ranged from 53-62 years,

with a median age of 55 years old. Of the 10 participants, 80%identified as female. Nine

participants were degree-seeking students. Six of the 10 participants were enrolled on a

part-time basis (i.e. enrolled in 12 credit hours or less). One of the participants was

enrolled in undergraduate classes for the first time, while the other nine were returning

college students. Table 4.1 illustrates each of the participant's demographic information

reported at the time of their participation in the interviews.

Table 4.1

Demographic Characteristics of Participants

Participant ID	Gender	Age	Enrollment Status	Degree/Non-Degree	Started at Study Institution
12101	F	55	PT	D	2020
12102	M	53	PT	D	2018
12103	F	54	FT	D	2020
12104	F	56	PT	ND	2021
12105	F	54	FT	D	1985
12106	F	59	PT	D	2019
12107	F	54	FT	D	2020
12108	F	62	FT	D	2021
12109	F	56	PT	D	2012
12110	M	53	PT	D	2016

Data Collection

Ten participants answered in-depth interview questions developed to understand

the experiences of Plus 50 learners who use technology in undergraduate classes at a

four-year institution in the Midwest. Data collection from individual interviews lasted an

hour. The researchers used introductory, probing, and indirect interview questions (see

Appendix E). The introductory questions allowed interviewees to provide information

about their technology experiences in undergraduate classes. The probing questions

allowed the interviewers to use the initial responses to probe for more content. Indirect

questions were used to gather the participant's perceptions of their peers. The data

collected from the interviews were confidential. Each participant shared their unique

experiences regarding their use of technology while enrolled in classes. As the

phenomenon was uncovered, additional questions were asked to dig deeper into the

participant's lived experience. We performed interviews until saturation was reached. Saturation is determined when nothing new is apparent during the interview data collection process (Saunders et al., 2018).

Data Analysis

Once the interviews were concluded, the researchers read the interview transcripts several times to become familiar with the data and determine if any patterns existed. Colaizzi's (1978) seven-step process for phenomenological data analysis, as described in chapter 3, was used to organize the data. The researchers identified and labeled all significant statements from the interviews that were relevant to the phenomenon. A total of 270 significant statements were derived from 10 interview transcripts.

The researchers formulated meanings from each significant statement, and from these formulated meanings, we created a cluster of themes and emergent themes. According to Colaizzi (1978), when formulating meanings, "the phenomenological researcher is engaged in something which cannot be precisely delineated, for here he is involved in that ineffable thing known as creative insight; he must leap from what his subjects say to what they mean" (Colaizzi, 1978, p. 59). Once the themes were reviewed and consolidated, five major themes emerged. The researchers were then able to identify statements from each of the participants' narratives that aligned with the themes. The emergent themes consisted of the following: Delivery Modes and Experience with Technology, Applying Existing Knowledge to Leverage New Technology, Importance of Support Resources, Importance of having a WHY, and Impact of Positive Experiences. The themes identified from this research provided unique perspectives of the 10 participants' experiences with using technology in undergraduate classes. The findings of the study will be presented in the next section.

Findings of the Study

The purpose of this study was to explore the experiences of Plus 50 students when they use technology in undergraduate classes. The researchers were able to document the unique perspectives of 10 participants as guided by the following research questions:

Research Question 1: What are the experiences of Plus 50 students using technology while enrolled in undergraduate classes? The following theme was derived from this research question which sought to gain insight regarding the 10 Plus 50 students' experiences with preferred course delivery modes, accessing and navigating the university's learning management system, navigating online textbooks, and using course specific technology tools.

Theme 1: Delivery Modes and Experience with Technology

Experiences using technology and various course delivery modes were a recurring theme during the participant interviews. Experience refers to the specific knowledge, skills, or feelings that the participants encountered while using technology in undergraduate classes. The initial interview question asked participants what course delivery mode was preferred. One participant expressed:

> Because of my challenges with the technology aspect, I prefer that in class, in person. I think if I was more technologically savvy. I think that I will be able to do either method, but right now, I think for where I am, I think face to face is more beneficial for me. (Participant 12104, personal communication, April 15, 2021)

Another participant believed that there were benefits to face to face and online. She stated the following:

> I would say face to face, and that's mostly because I feel more involved. There

are definitely some benefits on being online. I can stay at home, and there's no

commuting. I get to do whatever I want, but that's also part of the problem. I'm a

little less focused, and I'm a little less aware of what's required. Where I need to

be in terms of where I am supposed to be at class. (Participant 12110, personal

communication, April 13, 2021)

A third participant preferred face to face but since her class was moved to an online

format because of Covid-19 it motivated her to learn the technology and she shared:

I preferred face to face, going to school, sitting in the classroom, but since Covid

and having to do everything online, I like it a lot more. I'm having to learn the

technology, which is what this is all about. I enjoy being able to sleep when I

want and study when I want. (Participant 12105, personal communication, April

17, 2021)

The participants in this study also had various levels of experience using multiple types

of technology, such as accessing online textbooks, handouts, videos, assignments, grades,

and class announcements. One participant said he did not experience any problems. He

explained:

I use it all. I don't have any trouble navigating the site. It's been really easy. And

most of the classes have been laid out really, really well. The structure is excellent

as far as navigating Canvas to find the resources. (Participant 12102, personal

communication, April 12, 2020).

Participant 12109 said she was familiar with the various technology tools as well. She

added, "Any type of delivery system that the teacher prefers I've used, and it's been kind

of across the board from word documents all the way to, like I said, you know,

VoiceThread lectures." (Personal Communication, April 13, 2021)

Three participants expressed difficulty in navigating the online textbooks. Participant 12110 stated, "It's very hard to use an online textbook, I think, because you don't know. You can't just turn a page and find stuff."

Another participant recalled that she was not interested in using an online textbook because it didn't allow her to use her textbooks in the same manner as traditional textbooks. She said:

> I'm old school. You know, I have to have my textbooks. I just want to go to school the old-fashioned way. I want to look at my books and, you know, highlight take my notes in my notebook…. With all this technology stuff, it's not that way. It's different, and it can be challenging. (Participant 12104, personal communication, April 15, 2021).

From these findings one may conclude that face-to-face courses are an ideal way to learn, but taking online courses has its advantages, and students are willing to adapt to an online or blended mode of learning.

Research Question Two: **Based on their experiences, what do the Plus 50 students identify as critical factors to success when using technology in undergraduate classes in terms of their ability to be self-directed learners?** The second research question sought to understand what Plus 50 students identified as critical factors to success when using technology for their classes and their ability to be confident self-directed learners. Applying existing knowledge to leverage new technologies and the importance of support resources were two themes that emerged from the data to address the second research question.

Theme 2: Applying Existing Knowledge to Leverage New Technology

During the interviews, participants shared information about applying existing

knowledge and the need to develop their technology skills to be successful. Half of the

participants expressed that their confidence increased once they became familiar with the

technology processes, tools, and resources used in their courses. Students who started

courses with a strong background in technology felt comfortable navigating the Canvas

learning management system and technology resources. Students who believed that they

had skill deficiencies recognized their need for additional resources and were willing to

reach out for assistance from technology support staff, faculty, and peers. They also

pointed out that their confidence in using technology increased when they could apply

existing knowledge to technology-related tasks. For example, participants were confident

when they learned a technology-related tool or task that was reintroduced in subsequent

courses. In addition, the participants noted that when they were able to use the skills they

had acquired, they were motivated to take the initiative and responsibility to learn new

ways of using technology because the learning environment created an opportunity for

them to become self-directed learners. One participant recalled her experience using a

learning management system at a community college. She stated:

You know this is the second semester. I was kind of familiar with it because I

came   from Anonymous Community College, but it's a little bit different. But if you

were just coming straight into the program after many, many years, you can be

overwhelmed. (Participant 12108, personal communication, April 12, 2021)

Another participant shared her feelings when a new software was introduced in one of her

courses. She said:

Having used it for three semesters, I'm feeling more comfortable. It's like even

when she threw this new hypothesis program at me or software, I was like, OK,

here's another one. I thought I knew everything, but I didn't understand this. I

reached out. I got the help. And I did it! I didn't panic this time. I just was like, oh,

now they are doing it to me again. (Participant 12105, personal communication,

April 17, 2021)

Participants mentioned being aware of the differences between themselves and

their Plus 50 peers regarding access to technology and the diverse technological literacy

levels of this demographic. One participant explained, "I'm privileged enough to be able

to have the technology and the bandwidth and everything at home. That makes it pretty

easy for me to be able to use the technology" (Participant 12109, personal

communication, April 13, 2021).

From these findings one may conclude that Plus 50 students are more confident

being self-directed learners when they are able to apply existing knowledge and can use

the same technology resources over time.

Theme 3: Importance of Support Resources

Participants stated they contacted the campus Technology Support Center (TSC)

and utilized external resources when they needed help with questions related to

technology for their courses. Six of the participants recalled needing assistance with

issues such as resetting their password, email access, wireless internet connection, and

navigating course technology platforms. Most participants reported they were able to find

the appropriate technology support resource to quickly get their issues resolved and apply

what they learned the next time they had similar issues. One participant stated:

> Well, I'm a hands-on learner, so generally, I have to be hands-on. I have to do what I have to, to put into action, and that's how I get my confidence. Another thing too, is, sometimes that I keep notes about a problem and what happened with it that helps if I have to go back later and check it. So, yeah, that's generally how I would build my confidence, basically hands-on and just the old repetition. But sometimes, I do have to jot things down so that if I need to refer back, I can do that. (Participant 12107, personal communication, April 12, 2021)

> Participants in the study also shared that they reached out to faculty members and

designated course assistants such as tutors and graduate teaching assistants when they needed technology support. Most of the participants reported receiving timely responses that helped them successfully complete their tasks. One participant discussed a time she sought help from her professor in using the campus online version of Google Docs which allowed her to better utilize the campus resources instead of her personal Google Docs account. She shared, "I've needed assistance with Google Docs I didn't know I could access it through Canvas I was using mine. The professor was very helpful with getting me the documents I couldn't access so I could get extra credit" (Participant 12106, personal communication, April 19, 2021).

In addition, a participant reflected upon an experience where the instructor provided a resource that allowed her to be self-directed. The participant stated:

> I reached out to the professor explaining I didn't know how to use VoiceThread, and she sent me a seven-minute video regarding how to use the new program.

They have been helpful and understanding. I also experienced trouble with using

a scientific calculator for my chemistry class. My professor sent me to his TA for

assistance. (Participant 12105, personal communication, April 17, 2021)

Four participants identified external resources for technology support. They relied

on family members, including siblings, children, and spouses, to help them with

technology. Participants also used technical support resources provided as a part of their

online textbooks and learning platforms. One participant shared that she utilized a retail

source for technology assistance. She stated, "A private computer repair shop with

employees around my age are helpful." (Participant 12105, personal communication,

April 15, 2021)

From these findings one may conclude that the participants are satisfied when

they can easily identify support resources, receive timely responses, and have access to

external support sources to successfully complete their objectives.

Research Question Three: **How do the experiences of Plus 50 students and their use of technology in undergraduate courses impact their persistence toward course completion?**

Research question three sought to understand how the Plus 50 students'

experiences with technology impacted their persistence toward course completion. The

participants provided in-depth responses to the interview questions used to support this

research question. They explained their motivation for returning to school and how

positive experiences with technology support resources were invaluable in helping them

reach their goals.

Theme 4: Importance of Having a "WHY"

The participants were compelled to reflect on their reasons for returning to college at this stage in their lives. Each participant in this study had a "Why" for pursuing higher education as a Plus 50 student. Some participants said they returned to school to advance or change career fields, satisfy personal goals of degree attainment, and due to changes in family dynamics. One participant shared:

> I have been in the cosmetology field for 16 years, and I just began to think about my exit plan. And I know that I did not want to continue in the cosmetology field. I didn't literally want to be standing on my feet, you know, as you get older. I just wanted to do something that I truly, truly love. I just think it was social work. (Participant 12108, personal communication, April l2, 2021)

Other participants were motivated by the desire to accomplish a lifelong goal and finally at a point in their lives where changing family dynamics allowed them to focus on being a student. One participant explained:

> My mom passed away. And it almost seems like things started falling into place. Things were popping up, and it was like, this is your time now. You have absolutely no excuse not to further yourself. I just don't want to be content, so I had no excuse but to do it plus, work is paying for it. All I have to do is pass. (Participant 21201, personal communication, April 13, 2021)

Another participant stated, "Well, it's something I had left undone from my younger, wilder days. You know, I couldn't stand having not ever finished a bachelor's degree" (Participant 12102, personal communication, April 12, 2021).

From these findings one may conclude that all the participants' 'Why' served as

motivation to pursue postsecondary education which helped them achieve their academic

goals.

Theme 5: Impact of Positive Experiences

Participants in this study described how positive experiences when seeking

technology support from others and user-friendly technology tools contributed to their

ability to accomplish the assignments and tasks needed to complete their courses. One

participant shared the following about her experience when seeking technology support

from the campus community. She explained:

> They have been superior. They have been superb to the point where I wrote a
>
> letter to the Provost because, I felt I needed to say something to someone about
>
> how grateful I am to have them work with me. The pandemic has caused
>
> enormous hardships on families and the staff deserves recognition for their
>
> compassion and how they work diligently to make sure that we succeed. I have
>
> personally been encouraged along the way. I really find that to be exceptional
>
> service. (Participant 12103, personal communication, April 13, 2021)

> Participant 12101 was fortunate to find support amongst her peers and shared, "It

was one that I connected with. We were both on the same level and we supported each

other" (Personal communication, April 13, 2021).

Participants also added how positive experiences with faculty contributed to their success

with accomplishing technology tasks required to complete their courses. One participant

pointed out:

> What helps me to feel confident is knowing that I have a support system, you

know, if it's anything that I do not understand. I can reach out to one of the

professors. It's amazing how easily they are able to call you right back really

quick. And they just reply their response time is amazing. I'm like, that is all they

do. That's great! (Participant 12108, personal communication, April 14, 2021)

Another participant reflected on a time when she contacted the helpdesk for assistance

accessing her campus email. She said:

I have engaged with IT when I needed passcode help. They are easily accessible

and knowledgeable in walking me through while on the phone. I may have a

problem with my technology. I can call him and say, Okay, I'm having a problem

with this; I can't get my email. They don't treat you like you have a technology

challenge. They represent the school pride fully. Overall, the school is doing

everything that they can to make sure that I have every access to everything that I

need to succeed. (Participant 12103, personal communication, April 12, 2021)

Also, during the interviews with participants, it was revealed that their experience with

using technology was more enjoyable when it worked as intended and was easy to use

once given instructions. Participant 12106 said, "I use SPSS for my statistics class,

Google Docs, Zoom, and Canvas which is set up real good." (Personal communication,

April 19, 2021). A second participant stated:

Initially, I think I would say maybe last semester I had a little bit of difficulty

logging onto Pearson, but when I got all the documentation that I needed, I was

able to actually get in there and get right to it. The participant also added, when I

tried to upload the assignment, it actually got uploaded. What I like now, is that

when you upload something, you get like some confetti or something to show that

you were successful. So that's a big deal. (Participant 10107, personal

communication, April 12, 2021)

From these findings one may conclude that Plus 50 students feel it is important to

know that technology support resources are available and that positive encounters when

seeking support can contribute to their success.

Chapter 4 Summary

The narratives shared by the 10 Plus 50 participants in this study allowed the

researchers to gain a holistic understanding of the experiences of these adult learners

when they use technology in undergraduate classes. Data collection and analysis of the

data revealed a total of five emergent themes. RQ1 was designed to elicit responses about

the experiences of Plus 50 students using technology while enrolled in undergraduate

courses. The predominant theme that emerged from this research question was delivery

modes and experience with technology. RQ2 was designed to elicit responses regarding

what Plus 50 students identify as critical factors to success when using technology in

undergraduate classes in terms of their ability to be self-directed learners. From this

research question two themes emerged which are as follows: a) applying existing

knowledge to leverage new technology; and b) importance of support resources. RQ3

was designed to elicit detailed responses regarding Plus 50 students' use of technology in

undergraduate courses and the impact on persistence toward course completion. The two

themes that emerged from this research question were as follows: a) importance of

having a "Why"; and b) impact of positive experiences. All participants shared their

experiences with various technology tools and discussed their preferred delivery modes

for learning. Some participants were encouraged to use the technology in courses when they could apply their existing knowledge to make learning more meaningful. Most of the participants found value in and emphasized the importance of technology support resources on campus. All participants had a strong "WHY" and unique circumstances such as shifting family priorities, career changes, necessity, and personal development that encouraged them to pursue higher education. Participants also attributed positive experiences when seeking support with technology as an important factor in helping them to accomplish their academic goals. In chapter five, the researchers present a discussion and summary, recommendations, and conclusion.

Chapter 5

Discussion and Summary, Recommendations, and Conclusion

Introduction

The number of students over age 50 is growing in postsecondary undergraduate programs, and the use of information technology is also increasing (NCES, 2019). Jesnek (2012) noted that nontraditional students may not have had an opportunity to interact with technology until returning to school, creating barriers for many of these learners who enroll in courses that use technology for teaching and learning. For these reasons, institutional leaders must investigate how they support the unique educational needs of this demographic (Simi & Matuzitz, 2016).

The purpose of this study was to explore the experiences of Plus 50 students when they use technology in undergraduate classes. The impetus for this study was to contribute to the lack of literature which has primarily focused on the technology support needs of the nontraditional student demographic 24 years or older which makes it difficult to understand the experiences of Plus 50 learners. According to Barr (2016):

> Although there is plenty of data, there has not been much interpretation of the data and there has been precious little research that would allow practitioners to address Plus 50 student needs. Indeed, a majority of the research that currently exists on Plus 50 students is years, if not decades, old. (p. 51)

Furthermore, the findings of this study might help institutions view technology support for Plus 50 students through a holistic lens. Understanding the experiences of older adult learners can help university administrators, faculty, and instructional designers implement best practices that serve the technology needs of this demographic.

The goal of the study was to present a rich description of the lived experience of Plus 50 students when they use technology in undergraduate classes.

For the purpose of this study, the researchers utilized a phenomenological approach to document the experiences of Plus 50 students when they use technology in undergraduate classes. To understand how adults learn, multiple adult learning models may be necessary to fully explain their lived experiences (van Manen, 1984; Merriam, 2001). Andragogy and self-directed learning are the two frameworks that shape this study and provide a holistic lens for this research. Both theories are learner-centered approaches that rely on the student's investment in the learning experience and the learning environment (Knowles, 1980). Lewis and Morris (2019) pointed out when examining the motivations and possible challenges of Plus 50 students in relation to technology usage; institutions can further understand the needs of this specific demographic by using andragogy and self-directed learning theories to help guide them in modifying pedagogical techniques for this diverse student demographic.

The researchers relied on a purposeful homogenous sampling method to identify 10 Plus 50 participants at a four-year institution in the Midwest. Data for this study was collected through structured interviews that were individually conducted using the Zoom web conferencing tool. Interview data were analyzed using Colaizzi's (1978) seven-step descriptive phenomenological method of data analysis. Data analysis revealed five themes: (1) delivery modes and experience with technology; (2) applying existing knowledge to leverage new technology; (3) importance of support resources; (4) importance of having a WHY; and (5) impact of positive experiences.

The five themes derived from the data analysis aligned to support the three

research questions for this study. What are the experiences of Plus 50 students using

technology while enrolled in undergraduate classes? Based on their experiences, what do

the Plus 50 students identify as critical factors to success when using technology in

undergraduate classes in terms of their ability to be self-directed learners? How do the

experiences of Plus 50 students and their use of technology in undergraduate classes

impact their persistence toward course completion?

Summary of Findings

Research Question One: What are the experiences of Plus 50 students using

technology while enrolled in undergraduate classes? The first research question

allowed the participants to discuss their experiences with using technology while enrolled

in undergraduate classes. Data revealed that the predominant theme for this research

question was participant experiences with technology.

     Theme 1: Participant Experiences with Technology. The participants had

different degrees of experience using technology in various course delivery modes such

as face-to-face, blended, and online. Some participants preferred a face-to-face learning

experience because they felt more involved in the teaching and learning process.

Participants who preferred the online learning environment enjoyed the opportunity to

study and complete assignments on their own time and the convenience of not having to

commute to campus.

     Data also revealed that since the shift to remote learning due to Covid-19 in

spring 2020, most participants were now attending online in synchronous and

asynchronous formats. This shift increased the amount of technology the participants

were using in their classes. Participants stated that they were using the University's

learning management system, Canvas, navigating online textbooks, and using course

specific technology tools, which was a new experience for many of them. Participants of

this study expressed the challenges of transitioning to a fully online format. Participants

who had taken a hiatus from school were not accustomed to the amount of technology

used in their classes; some experienced confusion with navigating through the online

textbooks and submitting assignments on Canvas. Other participants who had enrolled in

courses on a more consistent basis had more exposure to using technology for classes;

therefore, experienced fewer challenges, if any, when using the various technology tools.

Research Question Two: **Based on their experiences, what do the Plus 50 students**

identify as critical factors to success when using technology in undergraduate classes

in terms of their ability to be self-directed learners? The second research question

explored the critical factors participants noted that contributed to their success using

technology for courses and their ability to be self-directed. This research question

revealed that applying existing knowledge to leverage new technologies and the

importance of support resources were the two themes that emerged from the data.

       Theme 2: Apply Existing Knowledge to Leverage New Technologies. The

participants shared how their prior knowledge impacted how they navigated technology.

Many of the participants believed that applying existing knowledge with technology

helped them successfully leverage the technology needed to complete their coursework

and enhanced their ability to work independently. Most of the participants who used

similar technology tools were less intimidated by the newer technology tools. The

interview data also revealed that participants were encouraged to become more self-

directed learners when they were able to apply technology-related skills and tools they

mastered to subsequent courses.

  Theme 3: Importance of Support Resources. The data showed that participants felt having access to technology support resources was a critical factor to their success and contributed to their ability to be self-directed. Most of the participants felt they were able to locate the appropriate support resources when they encountered issues. Data also revealed that many of the participants felt they needed prerequisite technology support resources when they returned to postsecondary education. Participants suggested providing introductory courses on how to use the learning management system and refresher courses for software such as Microsoft PowerPoint and Excel. Several participants explained that it was challenging to learn new technology, including the learning management system and course-specific resources in conjunction with learning the course content to meet the course learning objectives.

  Participants in this study used the Technology Support Center, connected with their instructor, reached out to assigned tutors, and collaborated with peers to help with technology related issues. When asked about their experiences contacting faculty for assistance, several participants mentioned that they were hesitant to contact faculty because they felt intimidated, nervous, and in some cases, burdensome. One participant stated she did not feel it was the instructor's role to be her technology support. She said, "I don't specifically think that it's a teacher's role to be my tech support". She also felt intimidated to ask high-ranking faculty members simple technology questions. She said, "I feel a little intimidated saying, hey, could you unlock that document?" (Participant 12109, personal communication, April 13, 2021). Four participants shared thoughtful narratives about reaching out to faculty for technology support. All participants stated

that faculty members responded quickly to their questions about technology and provided

additional support resources when necessary. One student said she encountered a

challenge using new software and the instructor provided a short video that was helpful

on how to use the tool. Participants also stated that having access to tutors and graduate

assistants was invaluable as they relied heavily upon these supports to answer questions

regarding technology and course assignments.

Research Question Three: **How do the experiences of Plus 50 students and their use**

of technology in undergraduate courses impact their persistence toward course

completion? The third research question explored the participants' motivation for

returning to school and how technology support resources impacted their experience. The

two emergent themes that surfaced in response to this research question were the

importance of having a "Why" and impact of positive experiences.

      Theme 4: Importance of Having a "WHY" Participants in this study were

passionate about their 'Why' regarding the decision to return to college at this stage in

their lives. Participants' reasons for returning to college included internal and external

factors, such as career changes, personal goals, and family dynamics. Most participants

shared that completing college was a personal goal. One participant said he returned

because it was something left undone from his younger, wilder days, and he couldn't

stand the fact that he had not finished his bachelor's degree. A second participant shared,

she decided to return when contemplating her future after a long career as a

cosmetologist. All of the participants' 'Why' served as a motivator that helped them

achieve their academic goals.

      Theme 5: Impact of Positive Experiences. Participants believed their positive

interactions with various support units on campus contributed to their success in courses that used technology. The participants also shared that they felt encouraged when they had opportunities to discuss technology-related topics with peers who were willing to listen and help them work through some of their technology challenges. In many instances, their confidence in completing tasks increased because they discovered they were not alone, and they were able to identify accountability partners.

Four participants stated that the technology tools used in their courses were implemented efficiently, making it easier to work on assignments. Also, most participants who experienced positive interactions were more inclined to continue to reach out for assistance when they encountered issues. Overall, data from the interviews provided evidence that it was important to the participants in this study to know that there were support resources on campus to help them succeed in their classes.

Recommendations

As professionals working in two different areas of postsecondary education, we have encountered the Plus 50 student demographic from different lenses when it comes to technology use. These encounters prompted us to investigate the experiences of the Plus 50 student population and to offer suggestions on how to better serve this demographic and create a more inclusive learning environment. Expanding the research in this field can guide decision making when it comes to the support needs of Plus 50 students who use technology in undergraduate classes. The recommendations listed below are for future research, postsecondary administrators, faculty, Plus 50 students, and instructional designers.

Recommendations for Future Research

The literature reviewed in Chapter 2 documented several studies about the experiences of non-traditional students and the use of technology in undergraduate courses. However, there was limited research on the Plus 50 population, which is a smaller subset of the overall non-traditional population. The data from our study revealed that future research should focus specifically on the Plus 50 student population and ways of promoting self-directed learning for this group of learners in an online environment. Future research on this topic could include other public Midwestern institutions. In addition, future research could incorporate the voices of faculty members to understand how they perceive the experiences of Plus 50 learners. Finally, this study was conducted using individual online interviews. Future research could include participant focus groups.

Recommendations for Administrators

The growing population of U.S. adults over the age of 65 signals the need for postsecondary institutions to examine the unique needs of a growing middle-aged student population (Clark & Esters, 2018). Based on the results of this study, the Plus 50 student population is immersed in the campus community and relies upon the institution to provide guidance and resources to ensure they are successful in their pursuit of course completion. The participants in this study provided rich data that can assist higher education administrators in evaluating their support models for older adult learners and the factors that influence their success in courses that use technology.

One recommendation for administrators is to find ways to engage the Plus 50 student demographic in a dialogue about their experiences. These interactions could

range from technology talks to forums about their experience as a part of the campus

community. These opportunities would give them a platform to discuss their experiences

with technology compared to the overall non-traditional student demographic. As a

result, administrators may be able to identify essential resources to help them be

successful using technology in classes.

A second recommendation for administrators is to consider allocating resources to

provide incoming and prospective Plus 50 students with technology orientations. Some

participants mentioned feeling frustrated or stressed when it came to using new

technology. One participant shared:

> When I went back to school, they were wanting me to prepare online
>
> presentations with Microsoft Office Suite, PowerPoint, VoiceThread for online
>
> classes, and Proctorio. It was all new to me and I didn't understand how to use a
>
> computer. Each semester they throw something new at you like Panopto.
>
> (Participant 12105, personal communication, April 17, 2021)

The participant also added:

> I didn't even consider how much technology was going to be involved…With all
>
> this technology going back to school it was like wow! I was really worried
>
> coming back the first semester. I know the answers to the questions I just didn't
>
> know how to get them into the computer. (Participant 12105, personal
>
> communication, April 15, 2021)

Orientations focused on technology use at the beginner, intermediate and advanced levels

could help students prepare for the multitude of software and tools they will be required

to navigate in their courses.

Recommendations for Faculty

Postsecondary classrooms consist of students from multiple generations including Baby Boomers, Generation X, Generation Y, and Generation Z, and this diverse group comes with different attitudes, values, and learning preferences based on their experiences (Lowell & Morris, 2019). A recommendation for faculty would be to develop support resources based on multiple skill levels. For example, several participants mentioned challenges using the Voicethread tool. One participant shared, "Voicethread was very intimidating" (Participant 12104, personal communication, April 15, 2021). A second participant said, "I reached out to the professor explaining I didn't know how to use Voicethread and she sent me a seven-minute video regarding how to use the new program" (Participant 12105, personal communication, April 17, 2021). A short video introducing students to the tool and providing an example of how it will be used in the course could minimize the number of questions and anxiety for Plus 50 learners. Based on the data from this study, it would also encourage them to become self-directed learners.

A second recommendation for faculty is to get clarity from students about whether the technology tools and support resources are serving the intended purpose. Soliciting feedback and creating opportunities for students to vocalize their experiences about using the technology could help to inform future decisions regarding the selection and implementation of technology tools and support resources. Study participants shared failures as well as success stories when it came to using technology and support resources. For example, one participant explained his experience when he attempted to use an online tutor resource provided by his instructor, "... you can leave a question. I did leave a couple of questions but I didn't know if I did it right. So yeah, the tutor page is not

very user friendly, in my opinion" (Participant 12110, personal communication, April 13,

2021). A different student shared a positive experience that allowed her to connect with

her peers:

> One of the things that I found most helpful was that one of the teachers had a
>
> discussion board that was about class questions and another discussion board that
>
> was more about the practical side of the class and about tech issues. That was
>
> priceless, and it was really helpful for people to be able to go in and ask these
>
> short, practical questions and then a peer, could respond. (Participant 12109,
>
> personal communication, April 13, 2021)

Recommendations for Plus 50 Students

While conducting interviews with the participants in this study, it was evident

they were receptive to increased support from staff, technology support services, and

administrators. It was also apparent that there were steps Plus 50 students could take in

order to make their experience with taking classes that use technology more favorable. In

some instances, students did not use the available support resources. One participant

mentioned the following when asked about using on campus support resources:

> You can sit in a waiting room, and I didn't want to do that, so I haven't even tried
>
> that yet. He also stated, "I definitely could have gone to the math center maybe or
>
> somewhere to get help.... I probably needed help. (Participant 12110, personal
>
> communication, April 12, 2021)

Our first recommendation for Plus 50 students is to take advantage of the services

that are available on campus because this could help eliminate some confusion and

frustration. Participant 12108 (personal communication, April 12, 2021) believed that

there are helpful resources available but you have to be proactive, "you really have to

stay connected to everything because it's a lot of communication, lots of groups, lots of

support. … I would just advise them to stay connected to Canvas". Another participant

shared:

> I think they are doing a great job. Having the tech support department is very
>
> important... I know I can go to the tech support department, and they are going to
>
> help me and won't judge me and I was worried about that at first. (Participant
>
> 12105, personal communication, April 17, 2021)

The data also revealed that some of the participants needed to increase their level

of confidence. A second recommendation for Plus 50 students would be to build

relationships with students in their age group to boost confidence. These relationships can

be beneficial when seeking advice regarding how to communicate with faculty or staff,

gaining the courage to ask questions in class, and providing mutual support to peers with

navigating the various learning platforms. Some participants pointed out that having the

support of peers was a welcomed strategy. Participant 12107 (personal communication,

April 12, 2021) said, "Just if we had peers, someone that we can contact". Another

participant said, "Find a partner to help. I found a partner around the same age"

(Participant 12105, personal communication, April 17, 2021). Making connections with

others that share some of the same experiences provides them with an opportunity to

learn from each other and reduces their sense of feeling overwhelmed by technology.

Recommendations for Instructional Designers

The role of an instructional designer is to create instructional strategy decisions

that will assist with achieving learning outcomes (Vann, 2017). This process includes

learning analysis to support teaching and learning and having empathy for this heterogeneous population. The findings of this study revealed that some of the participants felt isolated when it came to instructional designers understanding their needs specific to online learning.

Participant 12104 (personal communication, April 15, 2021) expressed her frustration with navigating the Career Centers job portal as part of an assignment for class. She stated:

> The designers are one minded in their train of thought regarding how they see things. They didn't think about a broader picture of people that were going to utilize this. You're going to have older people; you're going to have people who apply for positions for the very first time.

Another participant pointed out:

> Consumers of technology are often younger, and sometimes when we're dealing with this chat room I was on, it's definitely geared towards the younger people. So, it was a little awkward. It kind of just made me feel like an outsider. (Participant 12110, personal communication, April 13, 2021)

Our recommendation for instructional designers is to continue considering the characteristics of this demographic when designing instructional technologies. It may be valuable to include feedback from students in this demographic during the instructional design process. Gathering feedback from Plus 50 students could help them feel more connected to the resources that will support them on their education journey, encourage them to advocate for their learning needs and improve their experiences with using technology in classes.

Conclusion

The purpose of this study was to explore the experiences of Plus 50 students when they use technology in undergraduate courses. The narratives of these 10 Plus 50 participants provided unique insights into how they navigate technology in their classes at a four-year Midwest institution. Based on the research, it is evident that these older learners are pursuing higher education and making invaluable contributions to the education environment. However, they are often combined with nontraditional students 24 years or older, creating a disadvantage for postsecondary institutions in their efforts to provide the technology resources to support this unique group of learners.

Muñoz-Rodríguez et al., (2020) contended:

If advanced technologies are to provide sustainable learning opportunities for older adults and multiply their lifelong learning possibilities, there is a need to consider their digital identity...The question remains as to why online learning possibilities are infinite for younger generations while appearing to be limited for older adults (paras. 6-7).

The research literature dedicated to the experiences of Plus 50 learners who use technology is lacking. Therefore, future studies on this topic will possibly provide institutional leaders, faculty, and instructional designers with suggested information on how to best support the academic enrichment of these learners.

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Appendix A: Email to Potential Participants

FROM: Jamillah Boyd, M.Ed., MLIS, & Nykea Watts, M.Ed.
TO: Potential Study Participant
SUBJECT: Student research of experiences with technology by students age 50 or older in undergraduate classes

Hello,

We are doctoral candidates in the College of Education at the University of Missouri –St. Louis. Our faculty advisor is Dr. Shawn Woodhouse, Associate Dean & Associate Professor. We are in the process of conducting our doctoral dissertation by completing a research study on the experiences that students age 50 or older have with technology in their undergraduate classes. For example, using Canvas (UMSL's learning management system) or a specialized software to complete coursework.

This email is to request your voluntary participation in our study. We are seeking to interview students who are 50 years or older and have experience with technology while enrolled in undergraduate classes.

If you agree to participate in this study, you will be asked to participate in an interview that will take approximately 30-60 minutes to complete via the Zoom video communication platform. Your identity will be kept confidential, and your participation is voluntary; therefore, you may discontinue participation at any time. For completing the study, participants will receive a $10 gift card.

By taking part, your contribution may help other students age 50 or older, by providing them with insights on your experience.

To participate, please reply to this email with confirmation and include your phone number. You should expect to receive a follow-up phone call from the researchers.

Thank you in advance for helping us with this important study.

Sincerely,

Jamillah Boyd, M.Ed., MLIS
Doctoral Candidate
University of Missouri –St. Louis

Nykea Watts, M.Ed.
Doctoral Candidate
University of Missouri –St. Louis

Appendix B: Letter to Potential Participants

FROM: Jamillah Boyd, M.Ed., MLIS, & Nykea Watts, M.Ed.
TO: Potential Study Participant
SUBJECT: Student research of experiences with technology by students age 50 or older in undergraduate classes

Hello,

We are doctoral candidates in the College of Education at the University of Missouri –St. Louis. Our faculty advisor is Dr. Shawn Woodhouse, Associate Dean & Associate Professor. We are in the process of conducting our doctoral dissertation by completing a research study on the experiences that students age 50 or older have with technology in their undergraduate classes. For example, using Canvas (UMSL's learning management system) or a specialized software to complete coursework.

This email is to request your voluntary participation in our study. We are seeking to interview students who are 50 years or older and have experience with technology while enrolled in undergraduate classes.

If you agree to participate in this study, you will be asked to participate in an interview that will take approximately 30-60 minutes to complete via the Zoom video communication platform. Your identity will be kept confidential, and your participation is voluntary; therefore, you may discontinue participation at any time. For completing the study, participants will receive a $10 gift card.

By taking part, your contribution may help other students age 50 or older, by providing them with insights on your experience.

To participate, please call the researchers, Jamillah Boyd (314-516-7391) or Nykea Watts (314-516-6928) with your intent to participate. Please include your name and phone number in the voice mail message. You should expect to receive a follow-up phone call from the researchers.

Thank you in advance for helping us with this important study.

Sincerely,

Jamillah Boyd, M.Ed., MLIS
Doctoral Candidate
University of Missouri –St. Louis

Nykea Watts, M.Ed.
Doctoral Candidate
University of Missouri –St. Louis

Appendix C: Script for Pre-screen Interviews of Potential Participants

Thank you for calling to find out more about our research study
           or
I am returning your call to provide more information about our research study.

My name is Jamillah Boyd or Nykea Watts, and I am a doctoral candidate at the University of
Missouri-St. Louis. We are in the process of conducting our doctoral dissertation by completing a research study on the experience that students age 50 or older have with technology in their undergraduate classes, and we are asking for your help.

There are a series of questions that we (I) would like to ask to confirm that you qualify

for our research study.

- First, let me confirm your age. Are you 50 years or older? And were you 50 at the

  time of your most recent enrolled class?

- Are you currently enrolled?

- Have you used or are you currently using the learning management

  system/Canvas in your classes?

- Have you used or been required to use technology in your classes, such as a

  personal computer or software such as Microsoft Office?

Thank you for your responses, you are/are not a fit for our study.

If the candidate is a fit:

Your contribution may help other Plus 50 students by providing them with your insights

on experiences with technology in undergraduate classes.

Do you have questions or concerns regarding the study?

This study is completely voluntary, and you are welcome to withdraw at any time.

Would you like to participate in this study?
If yes:

We will send additional information regarding the study, and we will contact you to

schedule the interview. At the current time interviews are being facilitated via phone or

online using the Zoom video communication platform.

If you have any questions regarding this research study, please contact me via email at

Jamillah@umsl.edu, wattsn@umsl.edu or by telephone at (314) 516-7391 / (314)516-

6928. You may also contact Dr. Shawn Woodhouse, who is supervising this study, at

(314) 516-5889 or via email at woodhouses@umsl.edu.

Appendix D: Participant Information Form

College of Education
UMSL|Education 1 University Blvd. St. Louis, Missouri 63121-4499
Telephone: 314-516-4970

Information for Participation in Research Activities
Plus 50 Students and Their Experience with Technology in Undergraduate Classes

Participant   HSC Approval Number

Principal Investigator   PI's Phone Number

1. You are invited to participate in a research study conducted by doctoral candidates Jamillah Boyd and Nykea Watts under the direction of Dr. Shawn Woodhouse at the University of Missouri- St. Louis (UMSL).

2. The purpose of this study is to explore the experiences of Plus 50 students when they use technology in undergraduate classes. From our findings the researchers will make recommendations to guide postsecondary institutions in determining the unique needs of Plus 50 students.

3. Your participation will involve:

   a. Giving the researchers permission to conduct interviews and record them via Zoom web conferencing tool. With your permission, the researchers will also use a voice recorder as a backup, and we seek your permission to transcribe the recordings. The interview stage will include asking questions regarding your experiences as a student age 50 or older.
   b. The amount of time involved in your participation will be 30-60 minutes.
   c. The researchers acknowledge that there is the potential for minimal risk associated with this study. Participants may feel anxiety or distress while discussing their experiences. Also, there is a potential risk for loss of confidentiality. Confidentially, risks will be minimized by avoiding acquiring sensitive data unless necessary. Interview data will be coded. Each participant will be assigned a pseudonym.
   d. As a thank you for your participation in our study, the researchers will provide you with a $10 gift card.
   e. Your participation is voluntary, and you may choose not to participate in this research study or withdraw your consent at any time. You will NOT be penalized in any way should you choose not to participate or withdraw.
   f. We will do everything we can to protect your privacy. As part of this

effort, your identity will not be revealed in any publication that may result from this study. In rare instances, a researcher's study must undergo an audit or program evaluation by an oversight agency (such as the Office for Human Research Protection) that would lead to disclosure of your data as well as any other information collected by the researcher.

If you have any questions or concerns regarding this study, or if any problems arise, you may call the Investigator, Jamillah Boyd 314-516-7391, Nykea Watts 314-516-6928 or the Faculty Advisor, Shawn Woodhouse 314-516-5889. You may also ask questions or state concerns regarding your rights as a research participant to the Office of Research, at 314-516-5899 or email at ir@umsl.edu.

Appendix E: Interview Protocol

Initial Questions for Interviews

1. (Warm up question.) Hello, how are you today?

2. Please confirm your age.

3. For the purpose of this conversation, would you like to share your preferred

   pronouns? My preferred pronouns are she/her/hers.

4. Are you a degree seeking student?

5. What is your enrollment status? Part-time/Full-time

6. Is this your first time enrolling in undergraduate classes at this or any institution?

   Yes/No

7. When did you begin your undergraduate studies at this institution?

8. Why did you decide to attend classes and/or return to college?

9. What delivery method do you prefer for your classes, such as online, face to face,

   and blended?

10. What type of technology use was required for your classes (examples: computer,

    software, Canvas, etc.)?

11. What experiences did you have accessing online textbooks, handouts, videos, or

    assignments, grades, or class announcements for your classes?

12. As you look back on your time as a student at this institution, was there ever a

    situation where you encountered barriers with technology in your classes? Can

    you describe this situation? How did you resolve the issue?

13. Were you nervous about using technology for class resources, activities, or

assignments? Please explain.

14. Tell me about some of the experiences that you have had with your professors when it came to seeking assistance with using technology in your classes?

15. Do you use any technology support services offered by this institution? Describe your experiences with them. Has the technology support staff been helpful? In what ways? How could they be better?

16. Do you use any external support services? If so, what are they? Describe your experiences with them. Has the external support been helpful? In what ways?

17. What helps you feel confident when using technology in classes?

18. Would you be open to having a designated point of contact or peer mentor to consult when you experience technological issues?

19. Would you attend a technology orientation for Plus 50 students if there was one?

20. What do you think could have made your academic experience run more smoothly in reference to the use of technology?

21. What do you think your Plus 50 peers feel about technology use in classes?

22. Do you have any advice for prospective or current Plus 50 students regarding technology use in classes?

23. What can this institution do to make sure Plus 50 learners are properly supported with using technology in classes?

24. Is there anything you would like to add or tell me or did I leave anything out?