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Generation X and Generation Y: An Exploration of Student Motivation to Learn and Technology Use

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ABSTRACT

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Student motivation and technology use are important considerations for higher education institutions. With increasing proportions of institutional funding being tied to student success and retention outcomes, gaining an awareness of how students tend to be motivated as well as their comfort and skill level with technology is critical for supporting student success in the collegiate classroom. The purpose of this study was to examine motivations for learning and technology use by specific generations, Generation X and Generation Y, among participants in two learning settings, a four-year university and a two-year community college. Differences in motivation type including intrinsic, extrinsic, and amotivation, and technology proficiency were also assessed based on respondent gender and institution type.

Results found that students from Generation Y had significantly higher scores on extrinsic motivation and amotivation compared to Generation X. Students in the two-year institution group scored significantly higher on intrinsic motivation compared to students from four-year institutions, and students from four-year institutions demonstrated significantly higher levels of amotivation. Female participants scored significantly higher than males on intrinsic and extrinsic motivation, and male participants scored significantly higher than females on the amotivation dimension than females. For technology use, participants from Generation X and participants from four-year institutions scored significantly higher than students from Generation Y and

students from two-year institutions. No significant differences in technology use were found between male and female respondents.

DEDICATION

This study is dedicated to my family and friends. Without their unending love and support, I could not have completed this journey.

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Chapter 1. Introduction

Managing how students learn in the classroom is one of the major challenges faced by faculty. In the past, the primary way students learned was by attending lectures presented by scholars, but with the current age of rapid growth in technology-based delivery, the face of education and learning continues to change (Allen et al., 2016). Classrooms are no longer traditional in that many age groups are mixed together in most higher education classrooms. Leadership and instructional faculty within higher education are now faced with uncertainty in how to address generational differences that affect the learning environment (Greer, 2010). To build curricula to address students' varying needs, faculty and institutions must understand the different learning preferences across generations (Hartman et al., 2005; Moskal et al., 2013; Wiedmer, 2015). According to Worley (2011), "Students of different generations have different motivations and learning styles" (p.32). In the past, many institutions of higher education focused on the academic and social attributes of their student populations but had minimal focus on the generational differences between these student groups (Davis et al., 2006; Dziuban et al., 2005; Moskal et al., 2013; Strauss & Howe, 1991b). Leadership and instructional faculty within higher education are now faced with uncertainty in how to address the generational differences (Greer, 2010). Some of the issues faced by faculty include different motivations for being in the classroom and varied levels of ability in students' use of technology (Berrett, 2012; Hammill, 2005; Lipschultz & Leonard, 2007; Moore, 2007; Tinto, 2012). With student success and retention being increasingly important for the field of higher education, improving faculty awareness of student skills and motivation is imperative.

When trying to identify and understand important differences between the multiple age groups and the different learning experiences that take place in the classroom, it is helpful to

look at individual characteristics within each age group (Wiedmer, 2015). These multiple age groups can also be considered generational groups based on the shared experiences of people born in a set timeframe. Many researchers have analyzed generational differences and, although much of the characteristics remained the same, the labels for the generations and the span of years differed among scholars (Kane, 2010a; Oh & Reeves, 2014; Reeves & Oh, 2007; Smith & Clurman, 2007). The exact range of birth years for these generation cohorts varies between studies (Perry & Urwin, 2011). While researchers differ slightly in what precise years define each generation, most agree there are four broad living generations, which include the Silent Generation, Baby Boomers, Generation X, and Generation Y (Wong et al., 2008) and that each generation has different attributes (Hansen & Leuty, 2012; Kim, 2018). The majority of students currently pursuing a college degree fall into either Generation X or Generation Y.

Howe and Strauss (2007) and Howe (2014) specified age ranges for members of Generation X and Generation Y. Generation X individuals were born between 1961 and 1981 (Howe, 2014). These members are considered practical, resourceful, self-sufficient, independent, hard workers, and structured (Kane, 2010b). This generation often functions independently of anyone or anything (Hammill, 2005). Individuals in Generation Y were born between 1982 and 2004 (Howe, 2014) and are accustomed to communication, media, and digital technologies (Kane, 2010c). Generation Y has been described as demanding but helpful (Martin, 2005) and a confident generation that is also social (Glass, 2007). Generation Y is considered a caring generation that considers pursuing the greater good ahead of individual rewards (Greenberg & Weber, 2008). These generational trends may occasionally conflict and pose difficulties for faculty designing one course that works well for both groups.

Acknowledging generational attributes is essential for recognizing and addressing differences in the student population. Reeves and Oh (2007) defined generational differences or similarities as "the theory that people born within approximately 20-year time period share a common set of characteristics based on the historical experiences, economic and social conditions, technological advances, and other societal changes they have in common" (p. 295). Based on Oh and Reeves' 2014 analysis, people with the same commonalities and characteristics may share the same preferred methods of learning and experiences. Learners of different ages bring diverse skills and experiences to the classroom, and being aware of these dissimilarities can guide faculty in tailoring their curriculum and learning modalities.

Generational differences also account for the viewpoints of each group and its preferred methods and motivation for learning. Davis (2013) asserted that postsecondary classes contain a range of students across generations and developmental levels, which include both traditional and non-traditional ages. Davis stated "It is of particular importance for postsecondary instructors to be aware of learning strategies that can be used to encourage student growth and comprehension of classroom material" (p. 68). Hseih et al. (2011) concluded that students who receive teaching that matches their learning style are more likely to have a higher level of thinking about a certain topic or concept than a student who is receiving teaching that does not match their learning style. Mindfulness of generation-based preferences for learning and motivation could help faculty design optimal learning environments based on students' preferred learning approaches.

An opportunity exists for faculty to target needs, motivate learning, and tailor teaching methods to appeal to students from different generational backgrounds. Even though students from different generations may have different learning needs, one integral element of success

these students share is to have some form of motivation. Berrett (2012) stated that "motivation is often thought to be a fixed, inborn personality trait whose presence or absence helps explain why some students succeed while others fail to graduate" (para. 1). The researcher also stated that motivation is believed to be stationary, but there was a distinguishable instant in which a faculty member inspired student. A student from any generation may continue to learn throughout his/her life due to the simple gesture of positive motivation.

Faculty face challenges in capturing the attention of a diverse population in the classroom setting, which includes traditional and non-traditional students from different generations**.** It is within this new perspective that faculty express struggling to create significant and engaging courses (Coates, 2007; Eisner, 2004; Jones et al., 2003; Nicholson, 2010; Siemens & Conole, 2011; Twenge, 2006). In the past, many institutions of higher education focused on the academic and social attributes of their student populations but had minimal focus on the generational differences between these student groups (Davis et al., 2006; Howe, 2014 Moskal et al., 2013). As these diverse generational groups engage in higher education, they bring with them various cultural attributes, career expectations, and educational backgrounds (Coates 2007; Strauss & Howe, 1991). This can become a problem when curriculum in the classroom does not take these differences into account. According to Werth and Werth (2011), the expectations and needs of students of different generations that are in college or are going back to college are different. Researchers have reported that 21st century students are diverse individuals with varying learning needs that must be met in order for them to be successful and persist in the classroom (Cohen & Brawer, 2003; Mellow & Heelan, 2008; Phillipe & Sullivan, 2005; Tinto, 2012). The challenges include how to teach, how to motivate, how the students learn, and their technology levels and skills. According to Eddy (2007) and Tinto (2012), faculty are often unprepared for

the pedagogical challenges of the diverse student population, which require different approaches to teaching and learning.

Prensky (2001) and Harding (2010) explained that technology is often interpreted differently between digital natives who have grown up with technology and digital immigrants who have come to use technology later in their life. Harding (2010) described this difference as the digital divide. Farrell (2005) stated that students do not face the same digital divide, although there may be differences in the frequency with which various subgroups of college students use the technology to which they have access. The individuals from more recent generations that grew up with technology understand using the internet and technology for information and communication, whereas those from older generations tend struggle with using technology for information and communication (Van Volkom et al., 2013). The body of existing research suggests that Generation Y would be more comfortable with technology use while Generation X may require a bit more instruction and guidance to be successful in courses with a technology component.

Aside from the generation to which a student belongs, other factors may also affect a student's motivation for learning and technology use. Research has often found a gap in academic achievement based on student gender, with females tending to outperform their male counterparts (Conger & Long, 2010; Goldin et al., 2006). However, some subjects remain dominated by males such as science, technology, engineering, and mathematics (Miyake et al., 2010). It is unclear whether females or males tend to be more comfortable with technology in the classroom, but the aforementioned gender gap suggests that females might be more motivated to learn than males.

A lesser researched topic is how students differ based on institution type. Demographic information suggests that community colleges tend to serve higher populations of nontraditional adult students (Ma & Baum, 2016; Phillippe & Sullivan, 2005). As such, one might expect students at four year universities to be more proficient with technology. Additionally, these nontraditional adult learners at two-year institutions might be expected to display higher levels of intrinsic motivation than younger students (Williams & Williams, 2011). Given the lack of comprehensive research in this area related to motivation and technology use, additional research in this area is needed.

Statement of the Problem

The purpose of this study is to examine motivations for learning and technology use by specific generations among participants in two learning settings, a four-year university and two-year community college. Technology is consistently evolving, and novel research is needed to determine the best educational modalities to address ever-changing student motivation and technology skills. Differences in motivation and technology use will also be assessed based on respondent gender and institution type. A better understanding of differences by generation, gender, and institution type may increase educators' awareness of variances in students' motivation and technology proficiency.

Research Questions

In order to aid in the examination of the differences in motivations for learning and levels oftechnology use, the following six research questions guide this study:

Research Question 1

Is there a significant difference in student motivation to learn between Generation X and Generation Y students?

Research Question 2

Is there a significant difference in student motivation to learn between students at a two-year institution and students at a four-year institution?

Research Question 3

Is there a significant difference in student motivation to learn between male and female students?

Research Question 4

Is there a significant difference in technology use between Generation X and Generation Y students?

Research Question 5

Is there a significant difference in technology use between students at a two-year institution and students at a four-year institution?

Research Question 6

Is there a significant difference in technology use between male and female students?

Significance of the Study

The results of this study may help faculty further understand differences concerning motivations for learning and technology use among students from different generations, students with different genders, and students from different types of institutions. Identifying these differences may help educators plan and deliver more effective instruction in a classroom with a diverse student population. The potential impact of this study is to provide information to faculty to inform them of the variation of motivations and technology use among students in their classrooms. This knowledge is essential for faculty to be able to create and optimize learning environments.

Delimitations and Limitations

The sample for this study was delimited to students attending one public community college and one medium-sized public university in East Tennessee during the spring 2021 semester.

The study is limited in that it only includes participants from two types of institutions from one geographical area of Tennessee thereby impacting the ability of the researcher to generalize to a broader population. The study is also limited by the extent to which the participants understand the questions and were willing to honestly relate their experience regarding motivations for learning and technology-use.

Another limitation is social desirability bias. The effects of social desirability suggest that misreporting can result in biased research findings and survey estimates (Tourangeau & Yan, 2007). Socially desirable responding is the inclination for participants to present a favorable image of themselves (Johnson & Fendrich, 2002). Social desirability bias refers to the fact that in self-reports, there is a tendency for people to naturally want others to view them in a positive way. The person may respond to questions in a way that may seem more satisfactory and acceptable, rather than being entirely truthful. Recent studies indicate that undergraduate college students are one population that is particularly likely to engage in social desirability bias (SDB) (Miller, 2012).

Definitions of Terms

The following definitions apply to terms used for the purpose of this study.

- *Gender* – For this study, gender was self-reported by participants. Answer responses included Male, Female, Prefer not to say, or Prefer to self-describe as ----. Due to the small number of respondents who indicated they preferred not to say (6, 0.41%) and self-

described (24, 1.64%), only participants who reported male and female were included in the data analysis to ensure adequate sample size for comparison purposes.

- *Generational categories* - Boundaries produced by changes in social and historical events that cause the formative years of those born after such change(s) to result in different experiences or learning. Although not all directly experience each of their generation's defining events, all members of a particular generation typically share an awareness of or an appreciation for the events common to that generation (Crumpacker & Crumpacker, 2007). In this study, the generation categories are:
    - *Generation X* - Individuals born between 1961 and 1981 (Howe, 2014; Howe & Strauss, 2007); they are generally from a two-income family and have experienced a period of a rising divorce rates. Generation X initiated the generation of latchkey children due to many women entering the workforce. They tend to be less committed to one employer and willing to leave a job to get ahead (Kane, 2010b).
    - *Generation Y* - Individuals born between 1982 and 2004 (Howe, 2014; Howe & Strauss, 2007) and tend to be familiar with communications, media, and digital technologies (Kane, 2010c).
- *Student Motivation to Learn*- Motivation is an internal drive that activates behavior. The term motivation theory is concerned with the processes that describe why and how human behavior is activated and directed (Vos et al., 2010). Student motivation to learn will be measured/assessed using The Academic Motivation Scale (AMS-C 28) (Appendix C).
- *Student Technology Use* - Within the education field, technology is referred to as "the

study and ethical practice of facilitating learning and improving performance by creating, using and managing appropriate technological processes and resources" (Richey, 2008, pp. 24-25). Student learning experiences involving technology use will be measured/assessed using College Student Experiences Questionnaire (CSEQ) (Appendix D) and the Student Information Technology Use and Skills in Higher Education: Survey Questionnaire (Appendix E).

Overview of the Study

This quantitative study contains five chapters. Chapter 1 includes the Statement of the Problem, Significance of the Study, Limitations and Delimitations, Research Questions, and Definition of Terms. Chapter 2 consists of the Literature Review. Chapter 3 describes the methods and procedures used in the study. Chapter 4 includes the results of the study. Chapter 5 presents a summary, discussion of the findings from this study, conclusions, and recommendations for practice and research.

Chapter 2. Literature Review

Each generation has its own set of values, ideas, ethics, and culture that influences how many of them interact with faculty representing a previous generation. As the diversity of ages represented in the college classroom expands, the challenge for faculty to understand the learning needs of multiple generations becomes even greater (Moskal et al., 2013; Wiedmer, 2015). Wu and Hwang (2010) identified some of these challenges as different motivations for learning, different levels of technology proficiency, which is believed to stem from students being from different generations. With the rapid development of technology, the internet as a delivery platform has motivated colleges and institutions to invest their resources on developing online programs (Allen et al., 2016; Means et al., 2009; Van Doorn & Van Doorn, 2014; Wu & Hwang, 2010). Berrett (2012) stated that "motivation is often thought to be a fixed, inborn personality trait whose presence or absence helps explain why some students succeed while others fail to graduate" (p. 1). This review of literature is aligned to the research questions driving the present study, with the following major sections: The Sociology of Generations, Generational Categories, Motivational Learning, Learning Motivations, and Learning using Technology.

The Sociology of Generations

Mannheim (1952) indicated that generations would not exist as a cultural or tradition label without the social interactions of human beings and the definable social structure and history they created through this interaction that produced a sort of continuity. Eyerman and Turner (1998) defined a generation as people "passing through time who come to share a common habitus, hexis and culture, a function of which is to provide them with a collective memory that serves to integrate the generation over a finite period of time" (p. 93). A generation of people have shared emotions, practices and preferences that can be generalized across each

generation to create a culture or tradition (Schewe & Evans, 2000). Howe and Strauss denoted that a generation practices a culture that has morals, principles concerning family, faith, routine, gender roles and outlooks (Howe, 2014; Howe & Strauss, 2007).

Reeves and Oh (2007) compared generational labels and their time span, as shown in the table. Each generational group has shared experiences that create a generational bond that influences how they view life. These shared experiences may include change in gender roles, economic shifts, social change, experiencing war or peace, hunger or plenty, justice or oppression as well as changes in the educational system and technology used to influence learning (Field et al., 2008). Goulding and Syed-Khuzzan (2014) stated "evidence identifies that the more thoroughly instructors understand the differences in learning styles, the better chance they have of meeting the diverse learning needs of their learners" (p. 141). Generation Y tend to be different from the Baby Boomers and Generation X in that they have more knowledge of technology due to growing up around cell phones, laptops, and other devices (Kim, 2018). Text messaging or emailing is the preferred type of communication by Generation Y (Baker Rosa & Hastings, 2018).

Table 1

Generational Labels and Dates Reported in Different Sources

Author	Generation X	Generation Y
Howe & Strauss (2007) Howe (2014)	1961-1981	1982-2004
Lancaster & Stillman (2002)	1965-1980	1981-2000
Martin & Tulgan (2002)	1965-1977	1978-2000
Oblinger & Oblinger (2005)	1965-1980	1981-1995
Tapscott (1998)	1965-1975	1976-2000
Zemke et al., (2013)	1960-1980	1980-1999

Frand (2006) and Howe (2014) described Generation Y, referred to as digital natives, as a group who multitasked and prefer visuals to graphics and text. They are intricately connected or networked via cell phone, blog, Facebook, and YouTube, thriving on instant gratification and preferring games to work. In fact, they do not remember and cannot imagine a world without digital technology (Frand, 2006). Instead, learning takes place on an on-going basis through our daily interactions with others and with the world around us. The generational periods denoted are not scientific, but rather subjective in that similar studies have not agreed on the denoted periods, which include Baby Boomers, Generation X, and Generation Y. According to Hammill (2005), this has not been problematic in that the inconsistency of years is minimal. When trying to understand some important differences between the three indicated generations, it is helpful to look at individual characteristics within each of the generations (Tinto, 2007). Through generational differences in character, choices, and reactions, demographers look beyond birth to childhood experiences referred to as defining events. Gibson (2009) stated:

> A defining event happens before we are 18 years old and has the potential to shape our generation. While a defining event may be a major worldwide event, major worldwide events are only defining events for some of us experiencing them – those who are younger than 18 at the time. (p. 4)

Paris (2008) also suggested that Generation X tends to be good at multi-tasking and need constructive feedback, while Generation Y prefers training, mentoring, and continuing their education.

In 2003, researchers and scholars turned their attention to a phenomenon named the new or next generation learner (Oblinger, 2003). Describing today's students as new learners suggests an essential difference in the way they attain knowledge and their methodology, problem

solving, and transition into the workplace. The concerning question is whether the needs of the present generation are being met. These questions cause supposition and conjecture about how higher education might be changed or reorganized (Moskal et al., 2013).

Generational Categories

Generational categories refer to boundaries produced by changes in social and historical events that cause the formative years of those born after such change(s) to result in different experiences or learning. Although not all directly experience each of their generation's defining events, all members of a particular generation typically share an awareness of or an appreciation for the events common to that generation (Crumpacker & Crumpacker, 2007). Given that faculty and students typically come from different generations, increasing knowledge and awareness of these generational trends could help create common ground in higher education classrooms.

Generation X

Howe and Strauss (2007) and Howe (2014) indicated Generation X was born between 1961 and 1981 and embodied more than age and technological differences, which redirect the outcome of a changing society on a generation. Brown (1997) noted that Generation X had completely different life experiences than the generations before them. Taylor and Gao (2014) and Gibson (2013) explained that many Generation Xer's were latchkey children, able to do what they wanted after school since their parents were not usually home, either at work or continuing their education. They also pointed out that many of them lived in a single parent home because the divorce rates increased so much. Brown (1997) explained that due to these circumstances, "fast" food and "quick response" devices, such as microwaves and remote controls became a way of life. This provided Generation X with instant gratification. However, Brown (1997) noted that previous generation saw an economic increase along with growing

opportunities, but Generation X was faced with limited economic opportunities. Generation X was influenced by MTV, AIDS and worldwide competition and are accustomed to receiving instant feedback from playing computer and video games (O'Bannon, 2001; Wiedmer, 2015). They value continuous learning and skill development (Bova & Kroth, 2001). Money does not necessarily motivate members of this generation, but the absence of money might lead them to lose motivation (Karp et al., 2002). This generation values a balance between family life and career, is extremely independent, and thrives on change. Generation Xers have been on the college scene for over a decade; however, some are first time students. Generation Xers are resourceful and independent and do not like to be micromanaged (Chi et al., 2013; Coates, 2007). They are savvy, self-reliant, and skeptical (Swanbrow, 2012; Taylor & Gao, 2014; Wiedmer, 2015). The values of Generation X lean toward skepticism and informality; however, their financial beliefs tend to be more conservative and careful with their money when compared to their parent's generation. Generation Xers often function independently of anyone or anything (Wiedmer, 2015). This generation is stuck between two much larger generations, the Baby Boomers and Generation Y, but often is considered just the bridge between the two very different generations (Drukier, 2015; Taylor & Gao, 2014).

Generation Y

Howe and Strauss (2007) and Howe (2014) noted that Generation Y were the children of the Baby Boomers and were born between 1982 and 2004. Goldgehn (2004) explained:

> These so-called "Millennials" are privileged in a way different from any generation before them. Raised during a period when the world has welcomed and protected children. Many believe the group will grow up to be "doers" and "achievers" and thus a powerhouse generation. They are happy, wholesome, accepting of all peoples, and the

> first generation in which females not only have equal rights, but they are making names for themselves. (p. 25)

Goldgehn (2004) also stated that Generation Y was better educated than their elders were at their same age and the revolution in technology played a significant role in shaping Generation Y. In comparison to other generations, Generation Y is the most immersed in technology and tend to use technology as a way to communicate as opposed to face-to-face communication (Chi et al., 2013; Rentz, 2015). According to Erickson (2011), Generation Y is technology savvy and they learn quickly. They are the first cyber generation, having grown up with technology all of their lives, and are therefore very technologically savvy. This generation comprises the largest number of students in college classrooms (Erikson, 2011, p. 26). Generation Y students have learned to work together with their peers when accomplishing a task and are very good at multi-tasking (Coates, 2007; Saxena & Jain, 2012). This generation was raised from birth on digital technology (Behrens, 2009; Erickson, 2011). As previously stated, Black (2010) implied that the difference between the digital natives of Generation Y and digital immigrants occurs from the rewiring of the brain, which leads to different thought processes. Goldgehn (2004) explained that Generation Y has an overabundance of technological devices of convenience to include ATM cards, cell phones, and digital cameras. Generation Y has been characterized as demanding (Martin, 2005), and as the most confident generation (Glass, 2007; Saxena & Jain, 2012; Sujansky & Ferri-Reed, 2009). Despite a great deal of research exploring characteristics of each generation, relatively few studies have examined how these generational differences come into play in collegiate classrooms.

Motivational Learning

Maslow (1954) stated that based on personality and motivation, a person will be hopeless the rest of their lives if they purposely plan on being less than they are capable of being. Maslow (1943, 1954) found that people's motivations change when personal growth occurs and people constantly seek fulfillment of some personal need. According to Maslow's hierarchy, fundamental needs of survival, safety, and belonging have to be met before status, achievement, and self-realization needs can be addressed. Maslow described self-actualized people as those who were fulfilled with all their capabilities. Mezirow (1990) considered the constant transformation people experience as they become more educated. Mezirow (1990) believed that one's education allows one to contextualize information from one experience to another, using formal education as a foundation and everyday opportunities as the layers, which enrich and add to one's learning.

Motivation to learn has been explored by many researchers. "Students of different generations have different motivations and learning styles" (Worley, 2011, p. 32). Intrinsic motivation and extrinsic motivation are the two main ways that students are motivated to learn. Most students have varying degrees of both of these types of motivations (Hsieh et al., 2011). Students that are more intrinsically motivated are focused on learning course information more than gaining external rewards whereas student that are more extrinsically motivated rely solely on desirable rewards such as high test scores and a high GPA (Psychology: Motivation And Learning, 2017; Williams & Williams, 2011). Good course design and learning activities are essential in maintaining and moving students toward intrinsic motivation (Harun et al., 2012; Lavasani & Ejei, 2011; Martin et al., 2008; Prince & Felder, 2006; Vansteenkiste et al., 2009; Vos et al., 2010; Wijnia et al., 2011). According to Williams and Williams (2011), students who

are externally motivated are more likely to perform lower academically than those intrinsically motivated. One main reason for this is that extrinsic motivation can also be driven by the fear of failure based on the belief that grades amount to judgment of the student on intelligence or personal ability instead of their performance on a specific learning task (Psychology: Motivation And Learning, 2017). Extrinsic motivation is also affected by attitudes towards the teacher, the peer group, the appropriateness of the classroom, and the adequacy of teaching materials. Consequently, teachers play a big role in the learning motivations of the students (Williams & Williams, 2011). Identifying differences in student motivation is key to designing engaging courses where students can be successful.

Adult Learning

Knowles (1978) was instrumental in developing the concept of adult learning and is known as the father of andragogy, which is the science of helping adults learn. Knowles (1990) argued that adulthood arrived when people acted in adult ways and thought they were adult and therefore, mentors should treat those persons as adults. He praised the individuality and distinctiveness of adult learning because adult learners could bring a great deal of experience and resource to the educational environment. Knowles believed that mentors and educationalists should encourage the active involvement of students and learners in planning and executing their educational programs. He observed that adults wished to take part in the evaluative process and expected deliberation of their responses.

Adult learning has been further explored throughout the years. Merriam (2001) believed that adult learners are inspired to learn by internal influences rather than external and the learners should be involved in as many parts of their education as possible. Marsick and Watkins (2001) stated that “informal and incidental learning is at the heart of adult education, because it is

learned from life experience" (p. 25). More recently, Kearsley (2010) recognized that beyond adults needing to be involved in their instruction, learning from their experiences including mistakes, being interested in subjects of immediate importance to their job or personal life, that they are problem-centered rather than content-oriented. Cercone (2008) stated that this is because most students believe learning is only an instructor led and designed effort that occurs in the classroom instead of a something that can occur through internal motivation.

Trivette et al. (2009) identified four main theories of how adults learn. They are accelerated learning, coaching, guided design, and just-in-time training. Accelerated learning consists of creating a multi-sensory learning environment to develop a relaxed emotional state that promotes active learner engagement. Coaching is the master to trainee teaching learning method where knowledge from those that are more experienced is transferred to the student. Guided design is a more self-directed learning method that promotes critical thinking and problem solving with the guidance of a facilitator. Just-in-time training is a more individualized learning method where the learner learns through the context of real-life situations and challenges (Trivette et al., 2009). However, barriers to learning exist in all of these forms of learning. These consist of the effects of aging, changes in health, roles they play, motivation, staying focused, or being anxious (Falasca, 2011).

Motivation for Learning

According to Brophy (1986) motivation to learn is competence acquired "through general experience but stimulated most directly through modeling, communication of expectations, and direct instruction or socialization by significant others (especially parents and teachers)" (p. 40). Infants and young children appear propelled by curiosity, driven by an intense need to explore,

interact with, and make sense of their environment. As Raffini (1993) noted, “Rarely does one hear parents complain that their preschooler is ‘unmotivated’” (p. 63).

Ames (1990) found that adults are motivated to learn for a variety of reasons ranging from a healthcare scare, to a class assignment, to following the news. Some people are motivated to learn to try and better their life with a better income and some are motivated to learn due to hobbies or special interests (Ames, 1990; Worley, 2011). Bath and Smith (2009) noted that:

> having the skills and ability for lifelong learning, an individual needed to have a certain viewpoint or particular beliefs about knowledge in order to also possess the internal motivation for learning to engage in a process of discovering new knowledge or building on existing knowledge. (p. 175)

Teachers commonly struggle to motivate their students (Brophy, 1986; Froiland, 2010; Worley, 2011) and most students lose basic motivation to learn each year as they progress (Lepper et al., 2005). Minimally guided instructional approaches are intuitively appealing for most instructors, but most learners require high prior knowledge and academic motivation to be successful and satisfied in this learning environment (Kirschner et al., 2006; Nie & Lau, 2010; Van Bommel et al., 2012). Basic motivation to learn involves engaging in learning opportunities because they are interesting, relevant, and enjoyable (Ryan & Deci, 2000). Basic motivation, also known as intrinsic motivation, is the most long-term form of motivations and is strongly linked to academic success and psychological well-being (Deci et al. 1991; Froiland, 2011).

Zavyalova (2020) examined student motivation in a higher education classroom that used a blended/hybrid modality. This qualitative study included eight interviews with higher education lecturers in the United Kingdom. Results showed contrasting views about the level of learner motivation in the blended/hybrid context. Some participants indicated their experience

with students in this context showed high motivation and the need for autonomy and challenging materials. Other participants noted that students lacked motivation and required more support in online aspects. Zayvolva's findings are applicable to the present study because the author noted that instructors had different experiences with student motivation, specifically in learning environments that had both online and on ground aspects.

Differences in motivation to learn among college students based on the type of institution they attend have been less explored. Pizzolato et al. (2017) examined student motivation to learn and achievement goals in community college students. This study employed a qualitative methodology and the data collected consisted of 48 interviews with community college students. Results indicated that goal setting increased students' intrinsic motivation and graduation rates. Additionally, support programs, faculty interaction, and career exploration opportunities enhanced student motivation and academic achievement.

Motivation to learn based on student gender has also been studied in many contexts. Although females were not historically admitted into institutions of higher education until much later than males, the past several decades have found that females tend to outperform males in academic settings (Conger & Long, 2010; Goldin et al., 2006). Conger and Long (2010) noted that education is often considered a feminine activity, so males may not demonstrate the same level of motivation and skills that contribute to academic success. However, some fields of study, particularly STEM fields, remain male dominated (Miyake et al., 2010). Miyake et al.'s (2010) work suggests that males in STEM fields like information technology may show higher levels of learning motivation because the gendering of the field matches their own gender.

Learning Using Technology

Learning occurs continually throughout life, whether in a structured learning environment, such as the classroom, or an unstructured learning environment based on life experiences, social interactions, and one's own quest for knowledge. Each generation of students exhibits its own unique set of characteristics that have been shaped by societal values, trends, and historical events (Coates, 2007; Strauss & Howe, 1991a). Traditionally, higher education faculty have taught these students in the same manner regardless of documented generational differences in student learning styles (Jones et al., 2003). Eisner (2004) wrote, "It is not unusual for even veteran college instructors to express some bewilderment about teaching today's students. Pedagogy that these instructors previously used no longer seems to be effective" (p. 1). This same feeling is found in research presented by Nicholson (2010), Siemens and Conole (2011), and Twenge (2006) when speaking mostly of the latest generation within higher education. It is within this new environment that faculty expresses struggles in order to create relevant and engaging instructional courses (Coates, 2007; Eisner, 2004; Jones et al., 2003; Nicholson, 2010; Siemens & Conole, 2011; Twenge, 2006).

There is now more information accessible than at any preceding time in history. Moreno (2006) found that instructional technology shares a common purpose. The common purpose is to improve learning. With the exponential growth of digital technologies in recent years, there is no doubt that in economically advanced countries, many young people have accumulated a huge amount of technology experience before they enter university (Lai & Hong, 2014). Moreno (2006) stated that advance instructional technology promotes deeper learning and this is in spite of the instructional methods. Moreno suggested age, gender, culture, and abilities influence the amount learned with particular methods and media.

Oblinger and Oblinger (2005) stated, "Learning is advanced when the use of information technology is predicated on an understanding of the diverse needs, expectations and values of all of these students, rather than on the internet technology capabilities" (p. 69). According to Hoskins (2010), learning is also enhanced when it is done as a social activity. Techniques that make learning social in a classroom can also be conveniently employed in the online classroom. The student populations associated with online education as a whole are becoming more diverse in age, educational background, and cultural traits (Dabbagh & Bannan-Ritland, 2005). The traditional age college student is most often referred to as digital natives, while the digital immigrants are older and referred to as non-traditional students. As reported by Zur and Zur (2016) and Lipschultz and Leonard (2007), the traditional age group prefers multi-tasking and receiving information at a faster pace, while the non-traditional age group prefers step by step instruction, receiving information slower, and learning one thing at a time like lectures. The student populations associated with online education as a whole are becoming more diverse in age, educational background, and cultural traits (Dabbagh & Bannan-Ritland, 2005). Ultimately, the problem is that discrete generations have different motivations to learn and different experiences involving technology resulting in the faculty of the higher education classroom not always teaching in a way that promotes learning for all the students in the classroom.

Technology is employed in the learning process is used both in the classroom and out; however, generations differ in their knowledge of and access to technology. With the availability of emerging technologies, the ability for students to learn collaboratively and through personal learning experiences has increased dramatically (Koohang et al., 2009; Martin et al., 2008; Oh & Reeves, 2014; Overbaugh & Nickel, 2011; Vos et al., 2010; Yang & Wu, 2012). The U.S. Department of Commerce (2011) stated that 77% of households in American own a computer,

and 71% have internet access within the home. However, this access is not uniform across all demographic groups, age, race, socioeconomic status, and area of residence. According to File (2013), "In 2011, 76.2 percent of non-Hispanic White households and 82.7 percent of Asian households reported Internet use at home, compared with 58.3 percent of Hispanic households and 56.9 percent of Black households" (p. 3). The term "digital divide" refers to the gap between those with access to technology (especially computers and the Internet), and the information to be gained through technology, and those without such ready access (Cullen, 2001).

As characterized by Lipschultz and Leonard (2007), digital natives "are accustomed to receiving information at high speeds, process information simultaneously and/or in parallel, tend to multi-task, prefer random (that is, non-linear) access to information, and crave frequent interactivity" (p. 73). These students are digital natives who use technology to construct their own knowledge and ideas based on the information encountered through technology and social media (Beyers, 2009; Oblinger & Oblinger, 2005; Prensky, 2001; Roberts, 2010; Tapscott, 2009; Oh & Reeves, 2014). On the other hand, digital immigrants "receive information, slowly and carefully, process information step-by-step, like to work on one thing at a time, prefer linear access to information, and are accustomed to lectures" (p. 73). This may, in part, explain why some older students have difficulty accepting and adjusting to new technologies, while younger students see these technologies as simply as an extension in the way they live.

The U. S. Department of Commerce (2011) provided statistics on technology use based on the Census Bureau's 2010 Current Population Study School Enrollment and Internet Use Supplement. Results from this study support the digital divide concept across a range of groups. For example, this study reported that individuals over 65 report have access to a household computer and internet less frequently than younger counterparts.

Student learning and outcomes have the ability to be affected by this use of technology, regardless of the device (Devlin et al., 2013). According to Devlin et al. (2013), "There is substantial evidence that incorporating technology, of any kind, in the classroom as an instructional and learning tool enhances student learning and educational outcomes" (p. 4). Greaves et al. (2010) suggested:

> When integrated into teaching and learning, these resources allow for productivity in knowledge access, evaluation, and real-time content aligned with standards. Gaming and simulation solutions are increasingly higher quality, tied to real-life issues and requiring higher-order thinking skill sets. (p. 29)

Today's students have grown up with technology and use it in their personal lives to connect with friends (Tapscott, 2009). According to Robertson (2015), "The use of technology in education is something that has been taking place for some time now, and has been deemed as a priority in our school environments today" (p. 13). Modern students' familiarity with technology shapes their classroom expectations, and that may be at odds with faculty's technology comfort and use.

Chapter Summary

Generations are a socially constructed concept based on similar experiences and attributes. According to Howe (2014), Generation X (1961-1981) are considered resourceful, self-sufficient, and hard workers (Kane, 2010b). Generation Y (1982-2004) (Howe, 2014) has been described as demanding, but helpful (Martin, 2005) and a confident generation that is also social (Glass, 2007). For one to truly appreciate the difference in motivation, technology use, and lifelong learning experiences, the understanding of what motivates each generation must occur. The literature indicated that lifelong learning is continuous process and each generational group has a defined culture. The extent to which technology is used and what it is used for also creates

different learning experiences for each generation. The rest of the present study will attempt to identify the motivational triggers for each group and how each group partakes of learning experiences and lifelong learning experiences.

Chapter 3. Research Design and Methodology

The purpose of this study is to examine motivations for learning and technology use by specific generations among participants from a two-year institution and four-year institution. Technology is consistently evolving, and novel research is needed to determine the best educational modalities to address ever-changing student motivation and technology skills. Differences in motivation and technology use will also be assessed based on respondent gender and institution type. A better understanding of differences by generation, gender, and institution type may increase educators' awareness of variances in students' motivation and technology proficiency. This chapter presents the methodology used in the present research and includes information about the population and sample, data collection, and data analysis procedures. A quantitative approach was chosen for this study because it focuses on describing a phenomenon across a larger number of participants thereby providing the possibility of summarizing characteristics across groups or relationships (Creswell, 2014). This approach applies statistical techniques to recognize overall patterns in the relations of processes.

Research Questions and Null Hypotheses

The following research questions and corresponding null hypotheses guided this study.

Research Question 1: Is there a significant difference in student motivation to learn between Generation X and Generation Y students?

$Ho1_{1:}$ There is no significant difference in intrinsic motivation to learn between Generation X and Generation Y students.

$Ho1_{2:}$ There is no significant difference in extrinsic motivation to learn between students in Generation X and students in Generation Y.

$Ho1_{3:}$ There is no significant difference in amotivation to learn between Generation X and Generation Y students.

Research Question 2: Is there a significant difference in student motivation to learn between students at a two-year institution and students at a four-year institution?

$Ho2_{1:}$ There is no significant difference in intrinsic motivation to learn between students at a two-year institution and students at a four-year institution.

$Ho2_{2:}$ There is no significant difference in extrinsic motivation to learn between students at a two-year institution and students at a four-year institution.

$Ho2_{3:}$ There is no significant difference in amotivation to learn between students at a two-year institution and students at a four-year institution.

Research Question 3: Is there a significant difference in student motivation to learn between male and female students?

$Ho3_{1:}$ There is no significant difference in intrinsic motivation to learn between male students and female students.

$Ho3_{2:}$ There is no significant difference in extrinsic motivation to learn between male and female students.

$Ho3_{3:}$ There is no significant difference in amotivation to learn between male and female students.

Research Question 4: Is there a significant difference in technology use between Generation X and Generation Y students?

$Ho4_{:}$ There is no significant difference in technology use among Generation X and Generation Y students.

Research Question 5: Is there a significant difference in technology use between students at a two-year institution and students at a four-year institution?

Ho5: There is no significant difference in technology use between students at 2-year and 4-year institutions.

Research Question 6: Is there a significant difference in technology use between male and female students?

Ho6: There is no significant difference in technology use between male and female students.

Population and Sample

The target population for this study was the undergraduate student bodies at a public community college and at a medium-sized public university in East Tennessee during spring 2021. The sample that represents the population included full-time and part-time undergraduate students, which accounts for approximately 10,300 students from the four-year institution and 5,100 students from the two-year institution. The sample was comprised of currently enrolled students who completed the survey and fell into either Generation X or Y based on their year of birth. Generation X included those born between 1961 and 1981; Generation Y included students born between 1982 and 2004. Only participants who agreed to the informed consent, indicated a year of birth in either Generation X or Generation Y, provided a gender, and designated they were currently enrolled in either a two-year or four-year institution.

A total of 1,658 respondents submitted the survey. However, 200 (12.06%) of those responses were discarded, because they did not complete the survey items, were not currently enrolled as students, or their birth year fell before or after the Generation X and Generation Y range. The final sample size for data analysis was 1,458 for a response rate of 8% from the four-

year institution and 2% from the two-year institution. Of the sample, 1,239 (84.98%) participants were classified as Generation Y, and 219 (15.02%) participants were categorized as Generation X. The self-reported gender breakdown of respondents included 1,066 (73.11%) females, 365 (25.03%) males, 6 (0.41%) who preferred not to state their gender, and 21 (1.44%) who preferred to self-describe as non-binary, gender fluid, gender neutral, gender non-conforming, and agender. Due to the small number of respondents who preferred not to state or preferred to self-describe their gender, responses from those groups were not included in the data analyses for gender, but their responses were included for analyses about their institution or generation. Students from two-year institutions totaled 254 (17.42%), and students from four-year institutions totaled 1,204 (82.58%).

Instrumentation

The survey instrument (Appendix A) was created by combining three established instruments: *Academic Motivation Scale* (AMS-C 28), *College Student Experiences Questionnaire* (CSEQ), and *Student Information Technology Use and Skills in Higher Education: Survey Questionnaire*. The combined instrument used in the present study is entitled *Generational Differences: Student Motivation to Learn and Experiences Involving Technology Survey.* The instrument consists of four sections built from portions of the three established surveys. The first section of the instrument, (items 1-4) asks for informed consent (Appendix B) and general demographic information, including year of birth, gender, and institution type. The second section (items 5-32) consists of the *Academic Motivation Scale* (AMS-C 28) which will be used to measure student motivation to learn. The third section (items 33-41) was used to measure student-learning experiences involving technology and consisted of items from the *Student Information Technology Use and Skills in Higher Education: Survey Questionnaire.* The

fourth section (items 42-61) consisted of technology from the computer and information technology portion from the *College Student Experiences Questionnaire* (CSEQ) by Gonyea et al. (2013). The final survey item was optional and allowed participants to provide their email address for inclusion in a random drawing to win two $50 gift cards.

Permission was granted to use any of the items of the AMS-C 28 by Robert J. Vallerand, PhD., FRSC (Appendix C) and incorporate it into this study, but not to take the instrument and make modifications to the items. The instrument was used in its entirety and exactly as it was written. Permission was granted to use, modify, and incorporate the *College Student Experiences Questionnaire* (CSEQ) by Robert M. Gonyea, Associate Director, Center for Postsecondary Research (Appendix D) into this study's survey, and permission was granted to use, modify, and incorporate the *Student Information Technology Use and Skills in Higher Education: Survey Questionnaire* by Leah Lang, Director of Analytics Services (Appendix F). The only permitted modification was to make the survey questions into complete sentences to stand alone as individual items instead of a series.

The AMS-C 28, developed by Vallerand et al. (1992), is based on the Self Determination Theory and assesses academic motivation. The AMS-C 28 instrument is targeted toward undergraduate students. The instrument is comprised of 28 questions and is separated into 7 sub scales, each consisting of 4 items. The scale exhibits reliability and validity (Orsini et al., 2015). The AMS has satisfactory levels of internal consistency (Cronbach's alpha 0.80) and temporal stability (mean test-retest correlation = .75). A factor analysis of the AMS-C 28 was used to establish a subscale structure, which was then used to confirm construct validity (Orsini et al., 2015). The AMS measures students on three dimensions: intrinsic motivation (12 items), extrinsic motivation (12 items), and amotivation (4 items).

The *Student Information Technology Use and Skills in Higher Education: Survey Questionnaire* was created in 2004 for the college audience to measure information technology use and skills. Subject matter experts were used to review the instrument and evaluate face validity. According to Leah Lang [personal communication, June 18, 2019], the questionnaire was developed and content revised based on the input and expertise input of a diverse and thoughtful group of subject matter experts. One set of subject matter experts helped to create content and another set of subject matter experts reviewed the final instrument. The subject matter experts who reviewed the final instrument ensured the instrument measured student technology experiences thus providing face validity [personal communication, Leah Lang, June 18, 2019]. The instrument has been in use since 2005 and has been used by 157 institutions across seven countries, thus establishing content validity (Brooks & Pomerantz, 2017). Reliability for the instrument was established using principal component analysis to identify three overall factors: disposition (Cronbach's alpha 0.85), usage (Cronbach's alpha 0.86), and attitude (Cronbach's alpha 0.91). Each factor had satisfactory levels of internal consistency (Dahlstrom & Bishsel, 2014). This survey contributes a demographic component about student use of technology.

Pace and Kuh (1998) developed *The College Student Experiences Questionnaire* (CSEQ). The Computer and Information Technology subset of questions from the CSEQ was added to the survey instrument for the present study. This scale has separate components or subscales that have their own validity and reliability. Cronbach's alpha reliability coefficient is .78 for the subscale *Computer and Information Technology.* The instrument had evidence of content validity due to content experts (Gonyea et al., 2003). The instrument had evidence of construct validity from regression analysis performed on the various items within in the survey

(Gonyea et al., 2003). Upon combining these three instruments, the final survey employed in this study contained 55 items.

Data Collection

Surveys were sent to all spring 2021 undergraduate students. The survey was distributed electronically using the SurveyMonkey platform. The survey was distributed to students at the community college via email from the institution's IRB office. The survey was also distributed via email by the Provost's Office at a four-year university. Reminder emails were sent four times, and survey responses were collected for a three week period.

The correspondence to the students explained that participation was voluntary, responses would be kept confidential, and participation in the survey would take approximately 15 minutes of their time. Students/participants were informed that their confidentiality would be protected, and results will be reported only in an aggregated form. An incentive for participation was provided in the form of a gift card drawing; two survey respondents were randomly selected to receive a $50 Visa gift card.

Data Analysis

Responses were grouped by generational category, gender, and institution type to assess for possible differences between students in Generation X and Generation Y, male and female participants, and students at two-year and four-year institutions. Research questions were addressed by testing the null hypotheses by a series of independent t tests. Specifically, Research Question 1 sought to determine if significant differences existed in levels of intrinsic, extrinsic, and amotivation to learn between students in Generation X and students in Generation Y. Research Question 2 was designed to assess differences in student motivation to learn between students at a two-year institution and students at a four-year institution. Research Question 3

explored differences in student motivation based on gender. Research Question 4 examined differences in technology use between students in Generation X and students in Generation Y. Research Question 5 was used to assess differences in technology use between students at two-year and four-year institutions. Finally, Research Question 6 explored differences in technology use between male and female students. The program Statistical Package for Social Sciences (SPSS) will be used to conduct the data analyses, all of which were performed at the .05 level of significance.

Chapter 4. Results

The purpose of this study was to examine different motivations for learning and technology use. Differences in motivations for learning were examined in two learning settings, a four-year university and a two-year community college in the southern Appalachian region. Differences in motivations for learning were also assessed based on generation and gender. Technology use was explored in relation to the student's generation, institution type, and gender.

The sample consisted of 1,458 undergraduate students enrolled in either a two-year community college or four-year university. There were 254 (17.42%) respondents from the 2-year institution and 1,204 (82.58%) from the 4-year institution. Of the respondents, 219 (15.02%) were classified as Generation X and 1,239 (84.98%) were classified as Generation Y. The gender breakdown of participants included 365 (25.03%) identifying as male, 1,066 (73.11%) identifying as female, 6 (0.41%) preferred not to say, and 21 (1.44%) self-described as gender nonconforming, non-binary, gender fluid, gender neutral, and agender. Due to the small number of respondents who preferred not to say their gender or preferred to self-describe, those participants were not included in comparisons related to gender. However, their responses are included for analyses related to generation and institution type.

Research Question 1

Is there a significant difference in student motivation to learn between Generation X and Generation Y students?

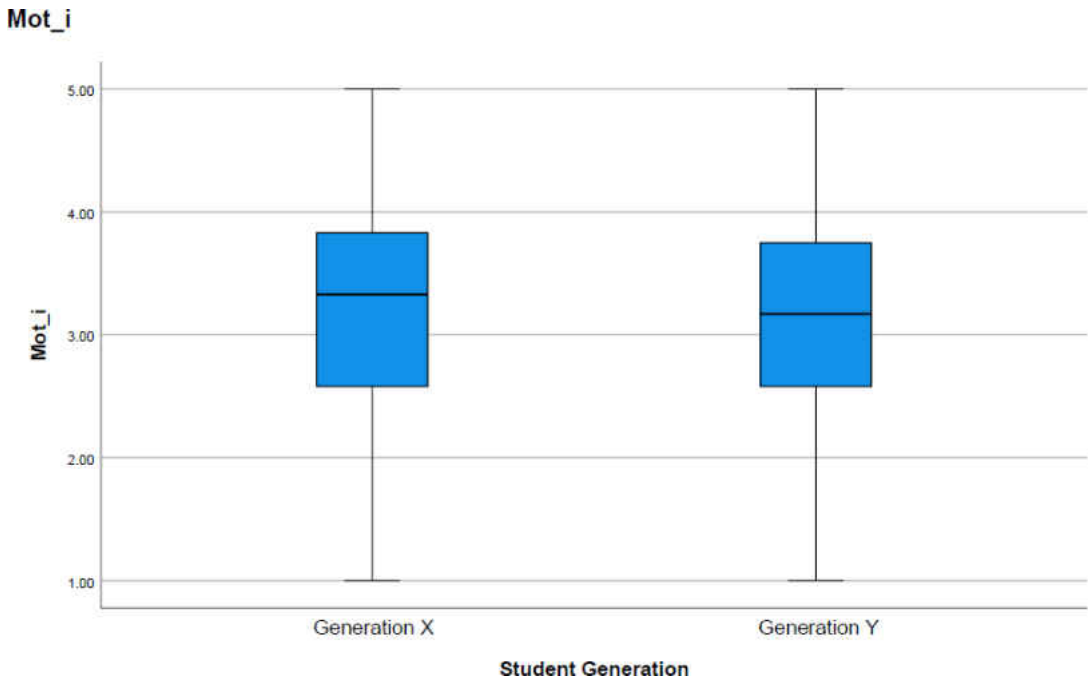
$Ho1_1$: There is no significant difference in intrinsic motivation to learn between Generation X and Generation Y students.

An independent samples t test was conducted to test $Ho1_1$. Responses to survey items that corresponded to intrinsic motivation were averaged to create a mean score for participants in the

Generation X group and participants in the Generation Y group. These survey items were Likert-type scale and responses were converted to numerical values where “Does not correspond at all” = 1, “Corresponds a little” = 2, “Corresponds moderately” = 3, “Corresponds a lot” = 4, and “Corresponds exactly” = 5. Intrinsic motivation was measured by 12 items. The test was not significant $t(1458) = 1.185$ p =.236, therefore Ho1 was retained. Students from Generation X (M = 3.234, SD = .903) earned similar scores on intrinsic motivation compared to students from Generation Y (M = 3.162, SD = .822). The 95% confidence interval for the difference in means with equal variances assumed was -.048 to .0193. Figure 1 displays the boxplots for each group.

Figure 1

Intrinsic Motivation Scores for Generation X and Generation Y

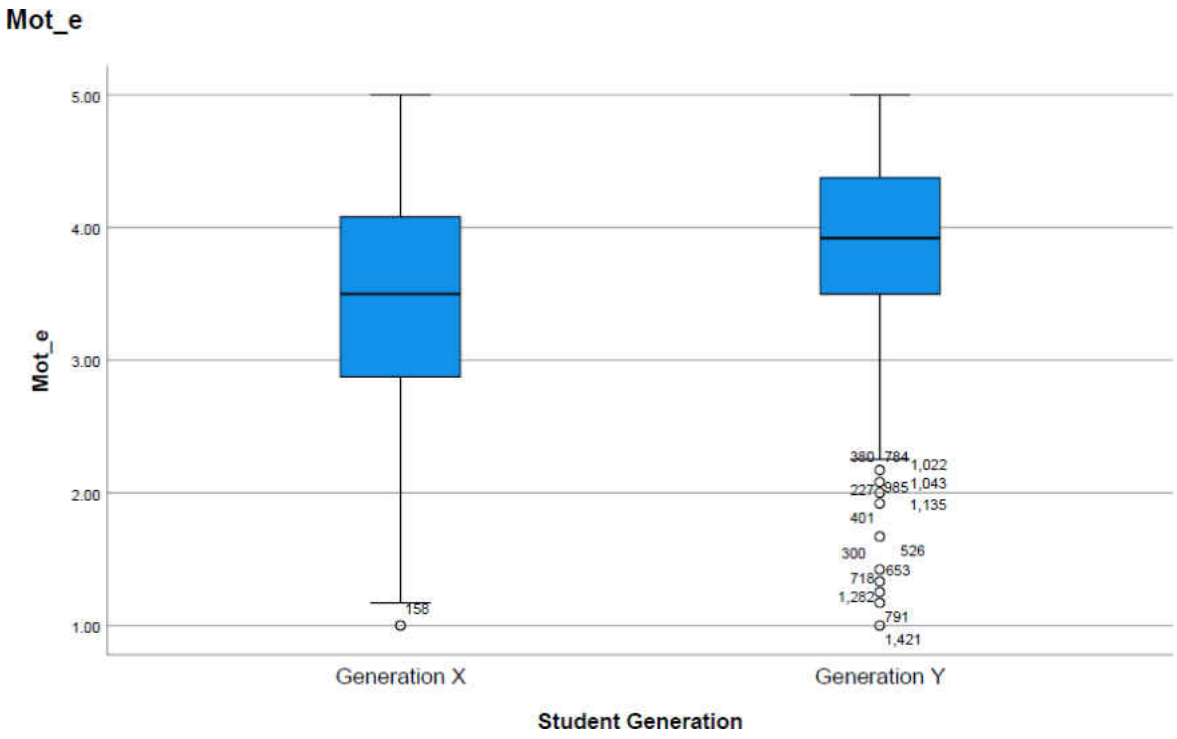


$Ho1_2$: There is no significant difference in extrinsic motivation to learn between students in Generation X and students in Generation Y.

An independent samples t test was conducted to test $Ho1_2$. Responses to survey items that corresponded to extrinsic motivation were averaged to create a mean score for participants in the Generation X group and participants in the Generation Y group. These survey items were Likert-type scale and responses were converted to numerical values where "Does not correspond at all" = 1, "Corresponds a little" = 2, "Corresponds moderately" = 3, "Corresponds a lot" = 4, and "Corresponds exactly" = 5. Extrinsic motivation was measured by 12 items. The test was significant $t(1458) = 7.575 < .001$, therefore $Ho1_2$ was rejected. Students from Generation Y (M = 3.865, SD = .688) earned significantly higher scores on extrinsic motivation than students from Generation X (M = 3.464, SD = .88). The 95% confidence interval for the difference in means with equal variances not assumed was -.525 to -.277. Figure 2 shows the boxplots for each group.

Figure 2

Extrinsic Motivation Scores for Generation X and Generation Y

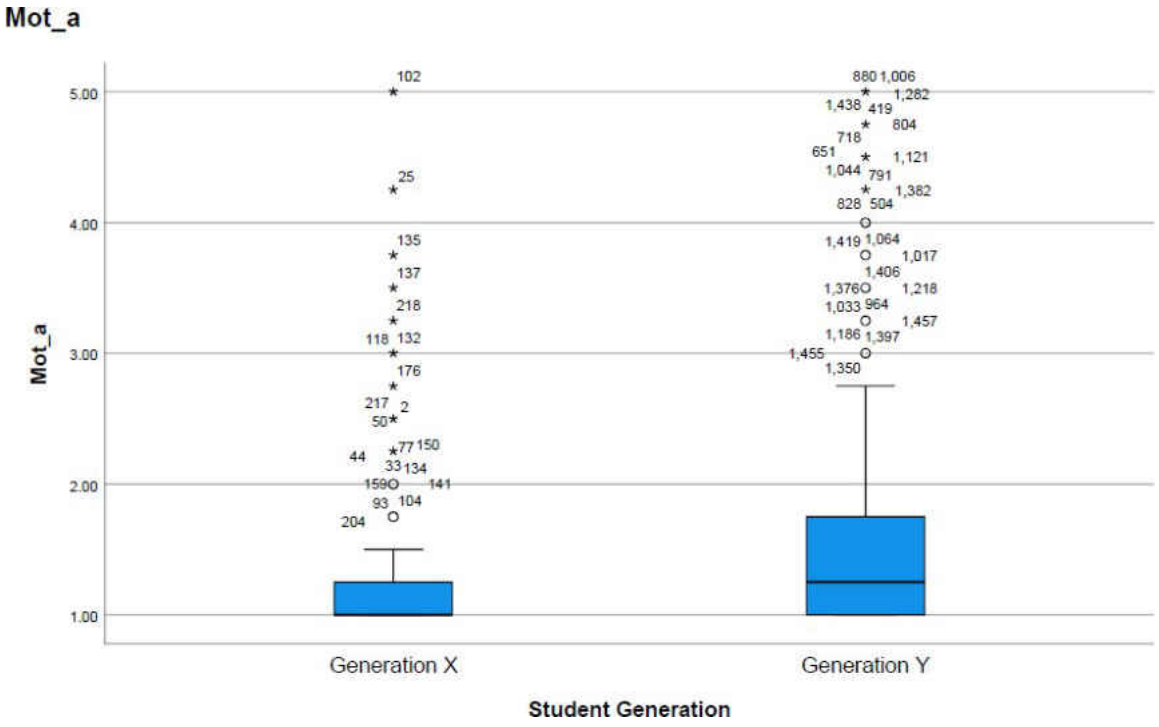


$Ho1_3$: There is no significant difference in amotivation to learn between Generation X and Generation Y students.

An independent samples t test was conducted to test $Ho1_3$. Responses to survey items that corresponded to amotivation were averaged to create a mean score for participants in the Generation X group and participants in the Generation Y group. These survey items were Likert-type scale and responses were converted to numerical values where "Does not correspond at all" = 1, "Corresponds a little" = 2, "Corresponds moderately" = 3, "Corresponds a lot" = 4, and "Corresponds exactly" = 5. Amotivation was measured by 4 items. The test was significant $t(1248) = 5.223$, $p < .001$, therefore $Ho1_3$ was rejected. Students from Generation Y ($M = 1.515$, $SD = 0.762$) earned significantly higher scores on amotivation than Generation X ($M = 1.279$, $SD = .588$). The 95% confidence interval for the difference in means with equal variances not assumed was -.325 to -.147. Figure 3 shows the boxplots for each group.

Figure 3

Amotivation Scores for Generation X and Generation Y



Research Question 2

Is there a significant difference in student motivation to learn between students at a two-year institution and students at a four-year institution?

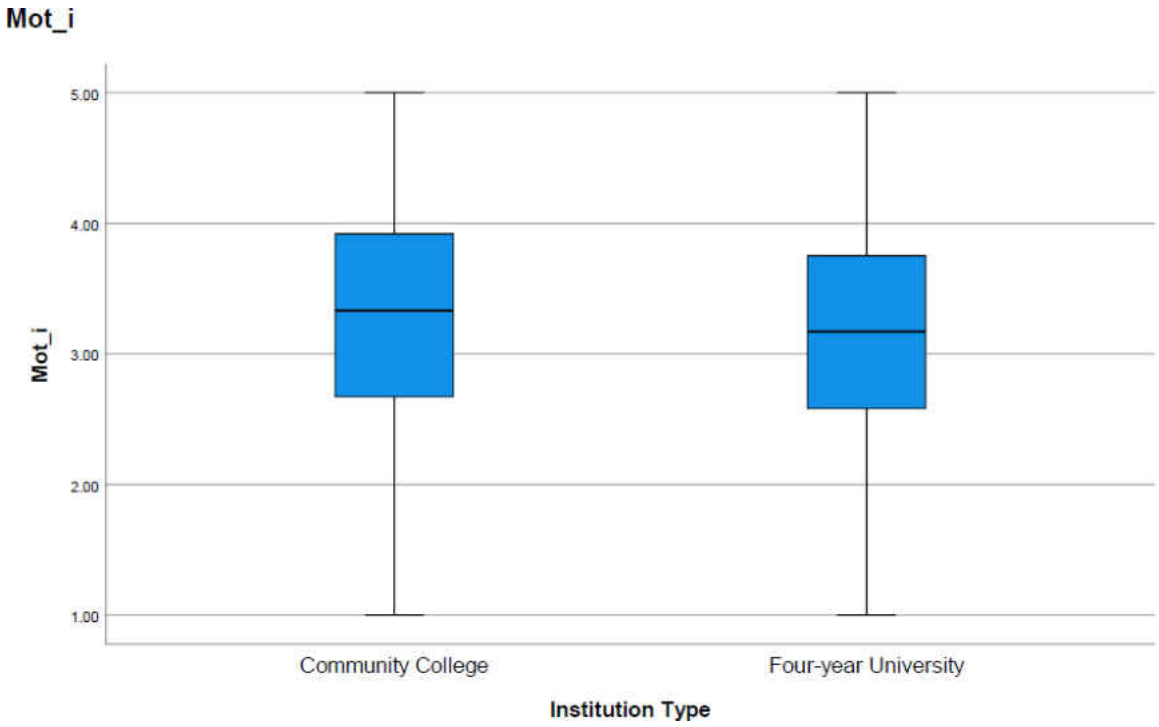
$Ho2_1$: There is no significant difference in intrinsic motivation to learn between students at a two-year institution and students at a four-year institution.

An independent samples t test was conducted to test $Ho2_1$. Responses to survey items that corresponded to intrinsic motivation were averaged to create a mean score for participants in the two-year institution group and participants in the four-year institution group. These survey items were Likert-type scale and responses were converted to numerical values where "Does not correspond at all" = 1, "Corresponds a little" = 2, "Corresponds moderately" = 3, "Corresponds a lot" = 4, and "Corresponds exactly" = 5. Intrinsic motivation was measured by 12 items. The test

was significant $t(1248) = 2.562$ p = .010, therefore $Ho2_1$ was rejected. Students from two-year institutions (M = 3.294, SD = .872) earned significantly higher scores on intrinsic motivation than students from four-year institutions (M = 3.147, SD = .825). The 95% confidence interval for the difference in means with equal variances assumed was .0346 to .260. Figure 4 shows the boxplot for both groups.

Figure 4

Intrinsic Motivation for Two-year and Four-year Institution



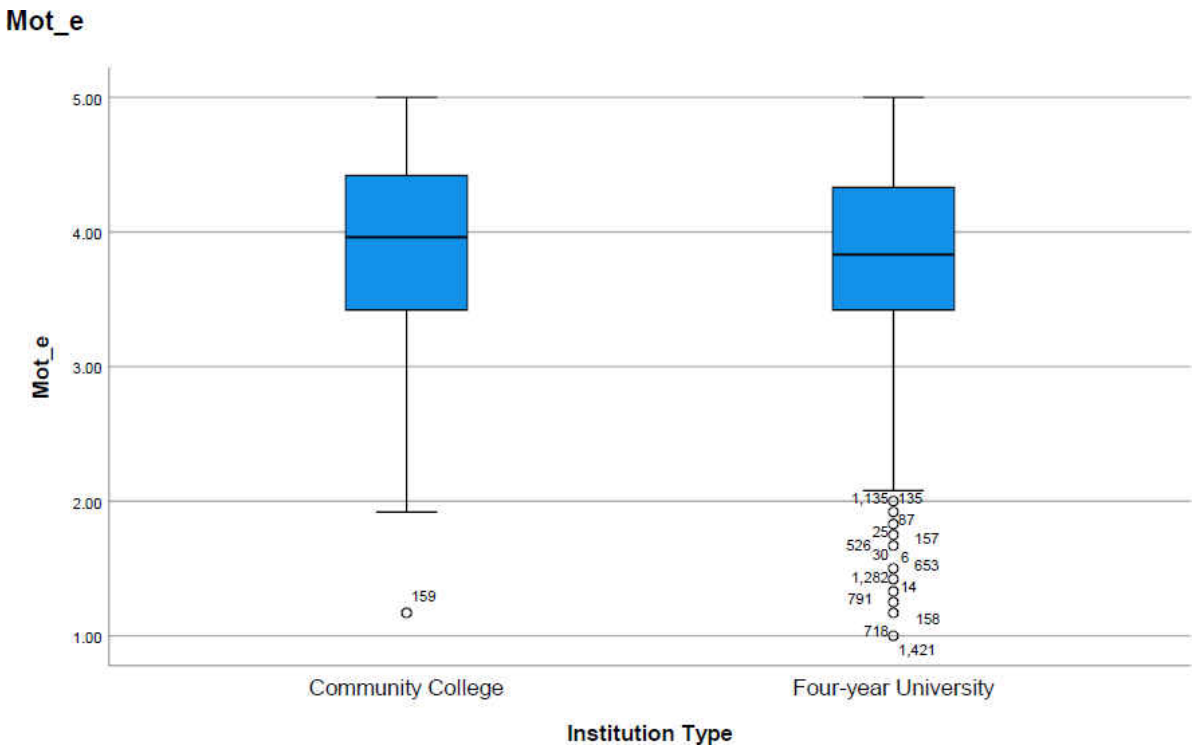
$Ho2_2$: There is no significant difference in extrinsic motivation to learn between students at a two-year institution and students at a four-year institution.

An independent samples t test was conducted to test $Ho2_2$. Responses to survey items that corresponded to extrinsic motivation were averaged to create a mean score for participants in the two-year institution group and participants in the four-year institution group. These survey items were Likert-type scale and responses were converted to numerical values where “Does not

correspond at all" = 1, "Corresponds a little" = 2, "Corresponds moderately" = 3, "Corresponds a lot" = 4, and "Corresponds exactly" = 5. Extrinsic motivation was measured by 12 items. The test was not significant $t(1458) = 1.339$, $p = .181$, therefore $Ho2_2$ was retained. Students from two-year institutions earned similar scores on extrinsic motivation to students from four-year institutions. The 95% confidence interval for the difference in means with equal variances not assumed was -.032 to .168. Figure 5 displays the boxplots for each group.

Figure 5

Extrinsic Motivation for Two-Year and Four-Year Institution



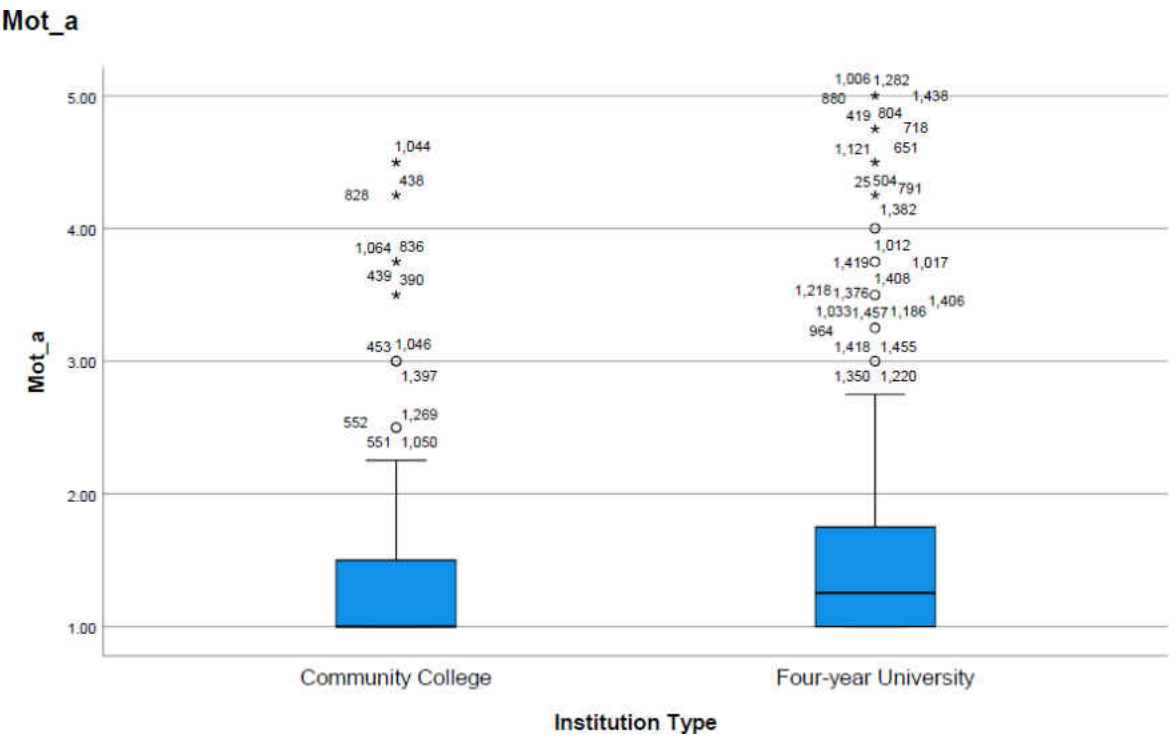
$Ho2_3$: There is no significant difference in amotivation to learn between students at a two-year institution and students at a four-year institution.

An independent samples t test was conducted to test $Ho2_3$. Responses to survey items that corresponded to amotivation were averaged to create a mean score for participants in the two-

year institution group and participants in the four-year institution group. These survey items were Likert-type scale and responses were converted to numerical values where “Does not correspond at all” = 1, “Corresponds a little” = 2, “Corresponds moderately” = 3, “Corresponds a lot” = 4, and “Corresponds exactly” = 5. Amotivation was measured by 12 items. The test was significant $t(1458) = 2.842$, p =.001, therefore $Ho2_3$ was rejected. Students from four-year institutions (M = 1.505, SD = .763) earned significantly higher scores on amotivation than students from two-year institutions (M = 1.359, SD = .629). The 95% confidence interval for the difference in means with equal variances not assumed was -.234 to -.057. Figure 6 shows the boxplots for each group.

Figure 6

Amotivation Scores for Two-year and Four-year Institution



Research Question 3

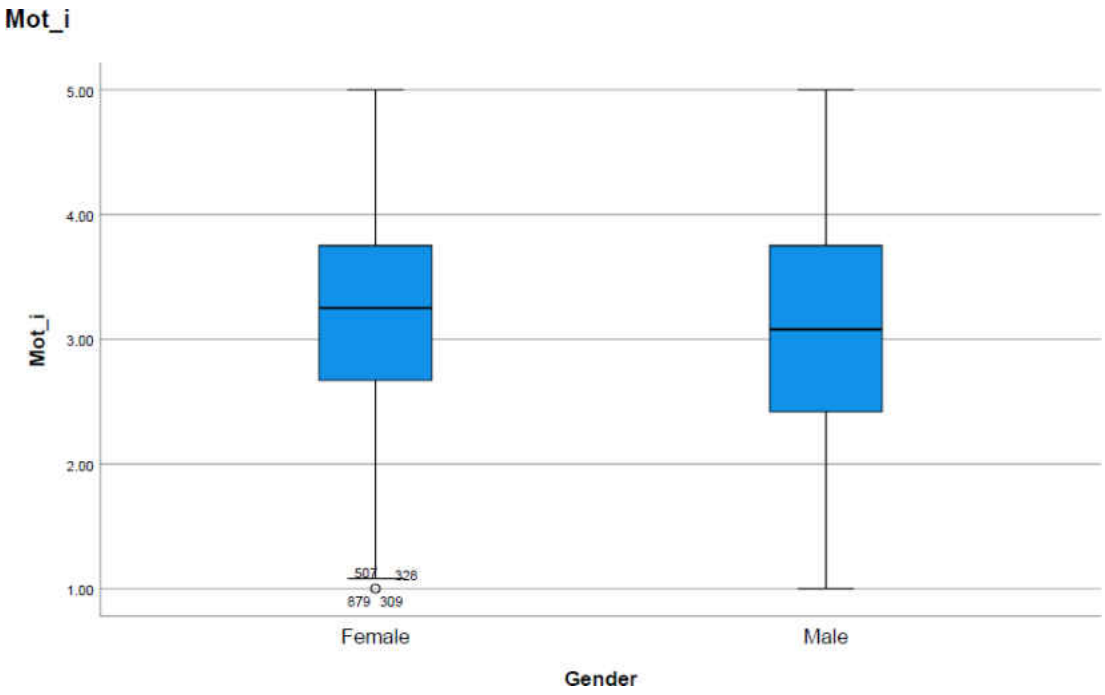
Is there a significant difference in student motivation to learn between male and female students?

$Ho3_{1:}$ There is no significant difference in intrinsic motivation to learn between male students and female students.

An independent samples t test was conducted to test $Ho3_1$. Responses to survey items that corresponded to intrinsic motivation were averaged to create a mean score for participants in the male and female gender categories. Due to the small number of respondents who preferred not to indicate a gender (6, 0.41%) or preferred to self-describe their gender (21, 1.44%), these participants were excluded from this analysis. These survey items were Likert-type scale and responses were converted to numerical values where "Does not correspond at all" = 1, "Corresponds a little" = 2, "Corresponds moderately" = 3, "Corresponds a lot" = 4, and "Corresponds exactly" = 5. The test was significant $t(1458) = 2.870$, p=.004, therefore $Ho3_1$ was rejected. Females (M = 3.210, SD = .808) earned significantly higher scores on intrinsic motivation than males (M = 3.065, SD = .047). The 95% confidence interval for the difference in means with equal variances not assumed was .046 to .244. Figure 7 displays the boxplot for each group.

Figure 7

Intrinsic Motivation Scores for Females and Males



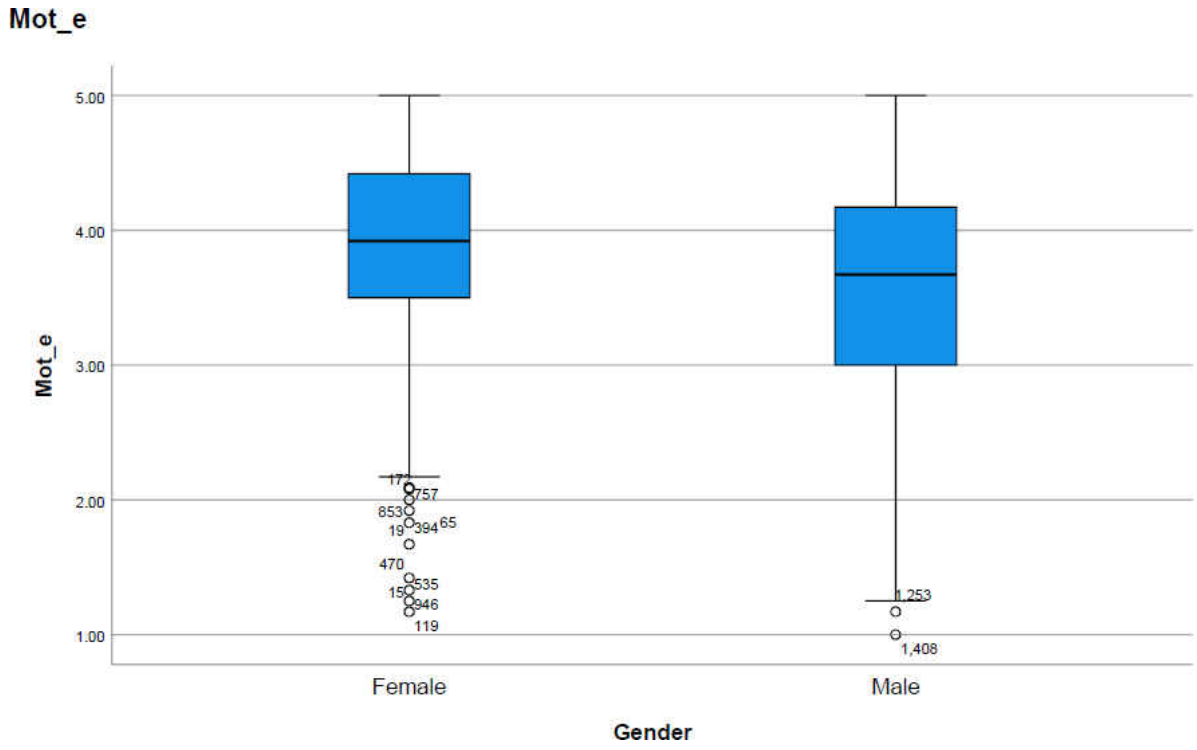
$Ho3_2$: There is no significant difference in extrinsic motivation to learn between male and female students.

An independent samples t test was conducted to test $Ho3_2$. Responses to survey items that corresponded to intrinsic motivation were averaged to create a mean score for participants in the male and female gender categories. Due to the small number of respondents who preferred not to indicate a gender (6, 0.41%) or preferred to self-describe their gender (21, 1.44%), these participants were excluded from this analysis. These survey items were Likert-type scale and responses were converted to numerical values where "Does not correspond at all" = 1, "Corresponds a little" = 2, "Corresponds moderately" = 3, "Corresponds a lot" = 4, and "Corresponds exactly" = 5. The test was significant $t(1458) = 6.910$, $p < .001$, therefore $Ho3_2$ was rejected. Females (M = 3.894, SD = .679) earned significantly higher scores on extrinsic

motivation than males (M = 3.563, SD = .825). The 95% confidence interval for the difference in means with equal variances not assumed was .237 to .425. Figure 8 displays the boxplots for each group.

Figure 8

Extrinsic Motivation for Females and Males



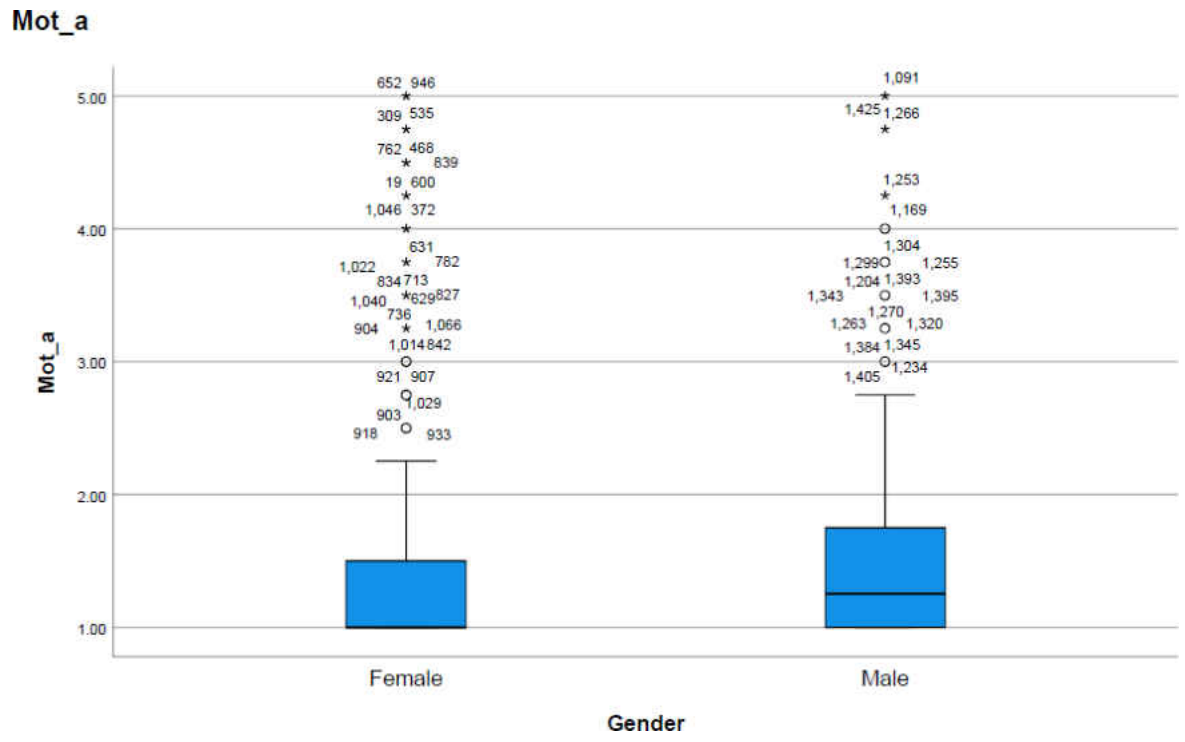
Ho3$_3$: There is no significant difference in amotivation to learn between male and female students.

An independent samples t test was conducted to test Ho3$_3$. Responses to survey items that corresponded to amotivation were averaged to create a mean score for participants in the male and female gender categories. Due to the small number of respondents who preferred not to indicate a gender (6, 0.41%) or preferred to self-describe their gender (21, 1.44%), these participants were excluded from this analysis. These survey items were Likert-type scale and responses were converted to numerical values where “Does not correspond at all” = 1,

"Corresponds a little" = 2, "Corresponds moderately" = 3, "Corresponds a lot" = 4, and "Corresponds exactly" = 5. The test was significant $t(1458) = 3.352$, p=.001, therefore $Ho3_3$ was rejected. Males (M = 1.591, SD = .833) earned significantly higher scores on amotivation than females (M = 1.440, SD = .707). The 95% confidence interval for the difference in means with equal variances not assumed was -.246 to -.055. Figure 9 shows the boxplots for each group.

Figure 9

Amotivation Scores for Females and Males



Research Question 4

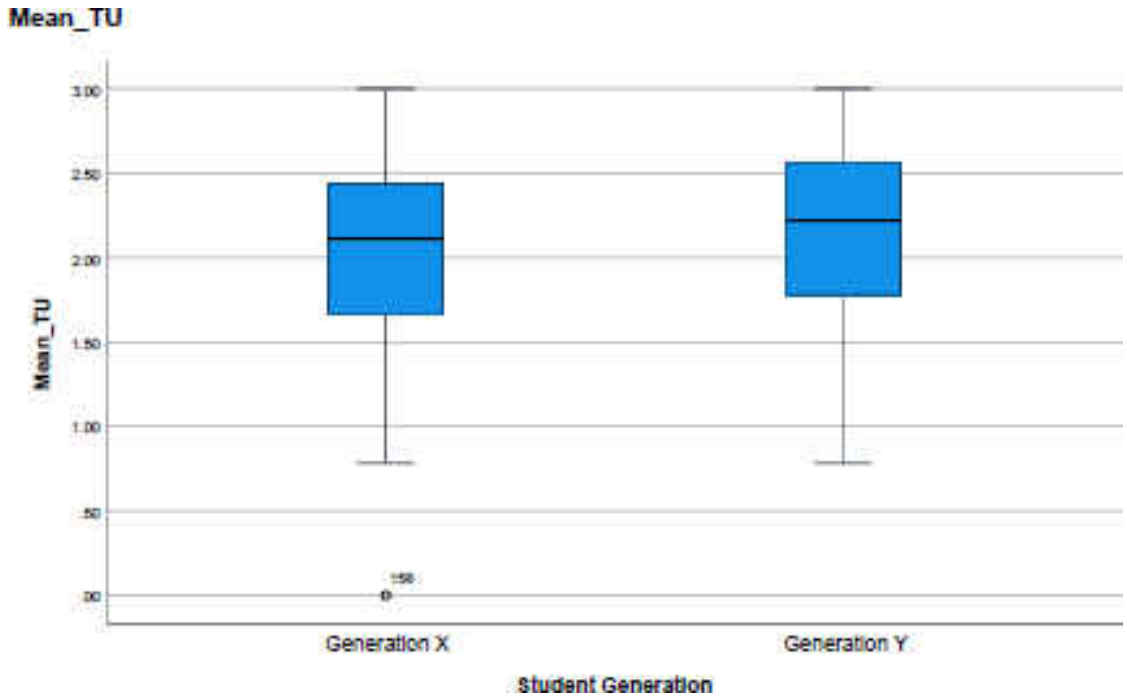
Is there a significant difference in technology use between Generation X and Generation Y students?

Ho4: There is no significant difference in technology use between Generation X and Generation Y students.

An independent samples t test was conducted to test Ho4. Responses to survey items that corresponded to technology use were averaged to create a mean score for participants in the Generation X group and participants in the Generation Y group. Nine survey items assessed technology use. These items were Likert-type scale and responses were converted to numerical values where "Never" = 0, "Occasionally" = 1, "Often" = 2, and "Very Often" = 3. Higher scores correspond with higher amounts of technology use. The test was significant $t(1458) = 2.199$, $p = .029$, therefore Ho4 was rejected. Students from Generation X (M = 2.157, SD .473) earned significantly higher scores on technology use than students from Generation Y (M = 2.071, SD = .541). The 95% confidence interval for the difference in means with equal variances not assumed was -.164 to -.009. Figure 10 shows the boxplots for each group.

Figure 10

Technology Use Scores for Generation X and Generation Y



Research Question 5

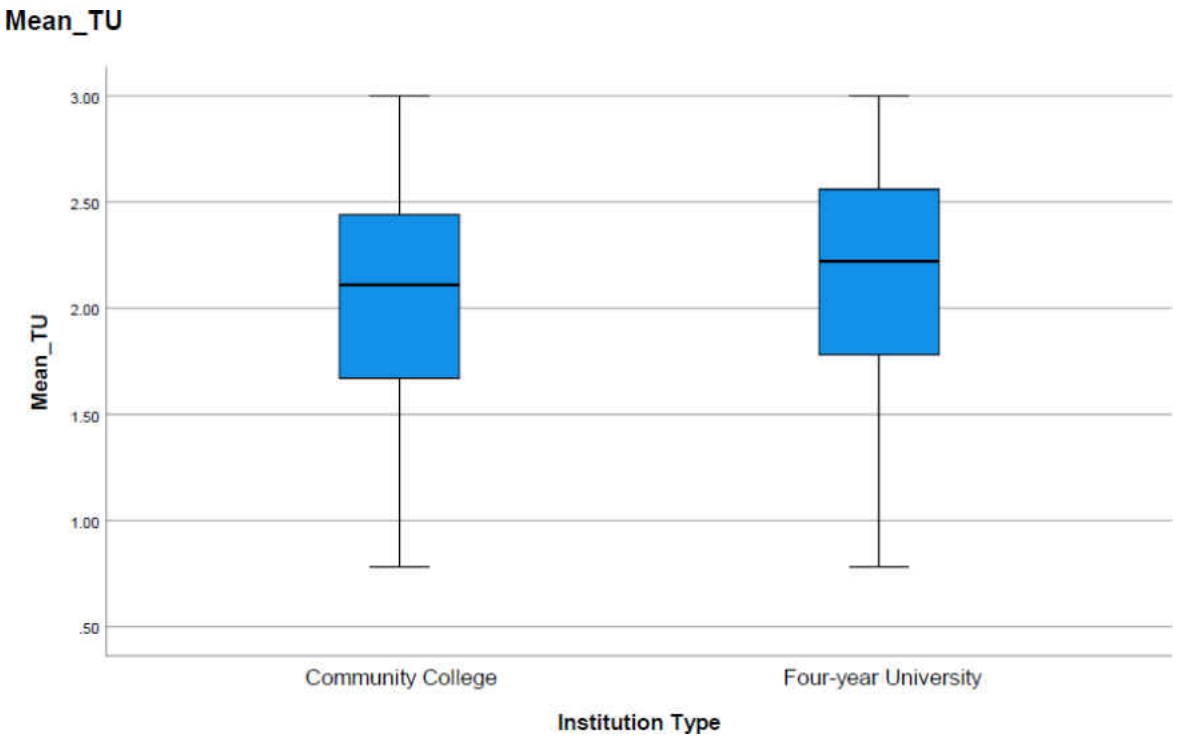
Is there a significant difference in technology use between students at a two-year and four-year institution?

Ho5: There is no significant difference in technology use between students at a two-year and four-year institution.

An independent samples t test was conducted to test Ho5. Responses to survey items that corresponded to technology use were averaged to create a mean score for participants in the two-year institution and four-year institution groups. Nine survey items assessed technology use. These items were Likert-type scale and responses were converted to numerical values where "Never" = 0, "Occasionally" = 1, "Often" = 2, and "Very Often" = 3. Higher scores correspond with higher amounts of technology use. The test was significant $t(1458) = -3.274$, $p = .001$, therefore Ho5 was rejected. Students from four-year institutions ($M = 2.166$, $SD = .467$) earned significantly higher scores on technology use than students from two-year institutions ($M = 2.043$, $SD = .550$). The 95% confidence interval for the difference in means with equal variances not assumed was -.196 to -.049. Figure 11 shows the boxplots for each group.

Figure 11

Technology Use Scores for Two-year and Four-year Institutions



Research Question 6

Is there a significant difference in technology use between male and female students?

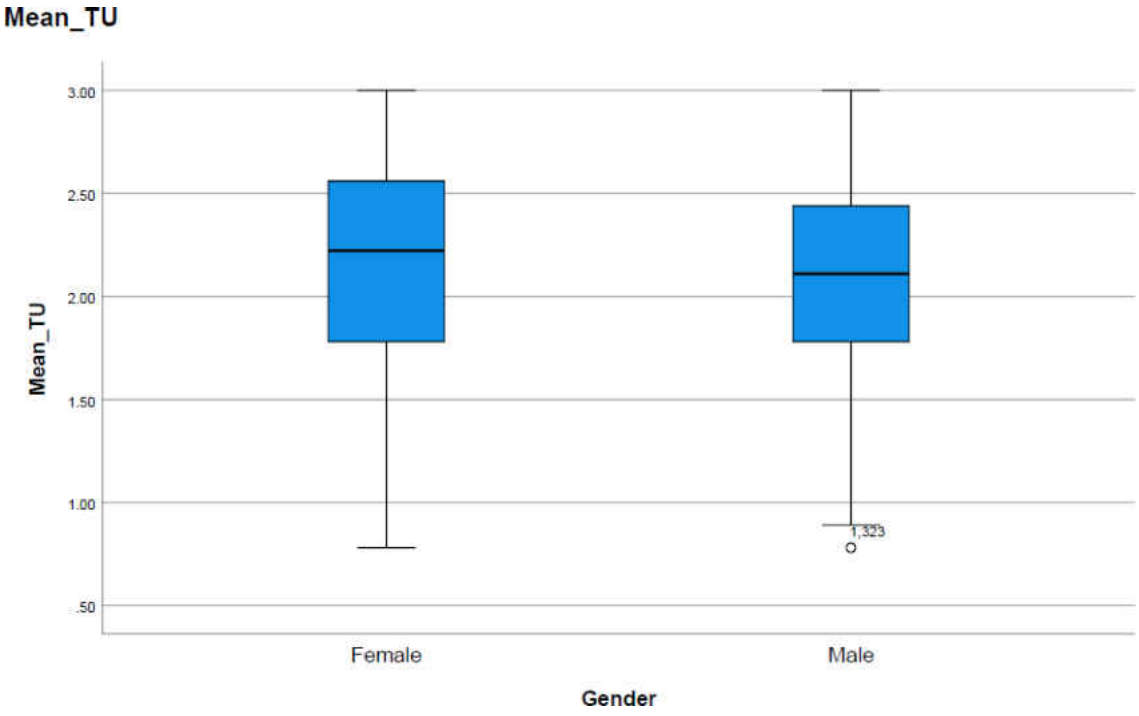
Ho6: There is no significant difference in technology use between male and female students.

An independent samples t test was conducted to test Ho6. Responses to survey items that corresponded to technology use were averaged to create a mean score for participants in the male and female gender categories. Due to the small number of respondents who preferred not to indicate a gender (6, 0.41%) or preferred to self-describe their gender (21, 1.44%), these participants were excluded from this analysis. Nine survey items assessed technology use. These items were Likert-type scale and responses were converted to numerical values where "Never" = 0, "Occasionally" = 1, "Often" = 2, and "Very Often" = 3. Higher scores correspond with higher

amounts of technology use. The test was not significant $t(1458) = 1.127$, p =.260, therefore Ho6 was retained. No significant differences between males and females regarding technology use were discovered. Figure 12 displays the boxplots for each group.

Figure 12

Technology Use Scores for Females and Males



Chapter 5. Summary, Conclusions, and Recommendations

Summary and Discussion of Results

Research Question 1 asked if there was a significant difference in student motivation to learn based on the generation to which the student belongs. No significant differences were found in intrinsic motivation between students from Generation X and Generation Y. However, students from Generation Y had higher scores on extrinsic motivation than students from Generation X. This is similar to the research of Wu and Hwang (2010) who found that students from different generations display different levels of motivation. Students from Generation Y also earned higher scores on amotivation. This aligns with the findings of Lepper et al. (2005) who noted that students tend to lose motivation each year as they progress. It follows that students at four-year universities may demonstrate lower levels of motivation due to the additional time they spend in college.

Research Question 2 explored differences in student motivation as a function of institution type. Students from two-year institutions scored higher on intrinsic motivation than students from four-year institutions. There was no difference in the scores of students from two-year and four-year institutions on extrinsic motivation. Students from four-year institutions earned higher scores on amotivation than students from two-year institutions. Additionally, students from four year universities may be less motivated academically because they elected to attend a four-year institution due to the more robust student life experience. Little research has explored differences in motivation between students at community colleges and universities, so these findings provide an interesting baseline for comparison.

Research Question 3 assessed differences in student motivation based on gender. Females earned higher scores on both intrinsic and extrinsic motivation than males. Since higher

motivation often correlated with higher academic performance (as in Wu and Hwang, 2010), this corresponds with the research of Conger and Long (2010) and Goldin et al. (2006). Males scored higher on the amotivation dimension than females. The tendency for males to be less motivated than their female counterparts and subsequently perform lower academically is also supported by existing research (Conger & Long, 2010; Goldin et al., 2006).

Research Questions 4, 5, and 6 evaluated differences in technology use based on generation category, institution type, and gender. Students from Generation X earned higher scores on technology use than Generation Y This finding is surprising because Generation Y is considered to more proficient with technology than Generation X (Frand, 2006; Howe, 2014). It conflicts with the research of Zur and Zur (2016) and Lipschultz and Leonard (2007) who suggested that older students would be less inclined to work well in environments with high levels of technology use. However, this finding supports the research of Tapscott (2009) who noted that although younger students have grown up with technology, they primarily use it to connect with friends. Students from four-year institution earned higher scores on technology scores than students from two-year institutions. No differences were found in technology use between males and females.

Conclusions

The present study agrees with much of the research about motivation and technology use. However, some unexpected findings include the fact that students from Generation X displayed higher levels of technology use than students from Generation Y. Additionally, students from two-year institutions earned higher scores on intrinsic motivation than students from four-year institutions. Despite having differences between males and females in motivation, no significant difference was found in technology use. Given that little research has explored these factors, the

present study provides novel insights into the different types of motivation and technology use of several student groups.

Recommendations for Practice

The findings from this study are applicable to faculty in the classroom. Overall, students had mostly positive experiences with technology in the classroom and felt it assisted their learning. It is recommended that faculty consider adopting at least some technology components into their courses because students appear to appreciate and enjoy them. Given that older, non-traditional aged students may be more intrinsically motivated, course modalities may have little impact on their success. However, students from younger generations demonstrated higher levels of extrinsic motivation, so they may benefit from the inclusion of some types of reward system implemented in the classroom. Therefore, it is recommended that faculty and administrators consider the age range of their students and adjust their instructional modalities, especially reward and recognition systems, to appeal to the students in their classroom. It is important to note that students from Generation Y were not found to be as technology savvy as faculty might assume. Traditional age college students may require more guidance and assistance with technology than expected, while older students may be more proficient than anticipated. It is recommended that faculty incorporate a technology use assessment at the beginning of their courses so they will be better informed about their students' actual technology skills. Additionally, many students would benefit from technology instruction if it is an important component in the course. Institutions would do well to be mindful of these differences and preferences to both educate faculty and appeal to different student demographics.

Recommendations for Further Research

Future research should explore motivations and technology use in other generations. Additional research is needed to determine how the COVID-19 pandemic may have affected students' motivations and use of technology due to many institutions being forced to go online, which may have increased participants comfort and skills with technology. Future research should also consider employing an experimental design to test whether or not faculty can increase motivation based on alterations to their course modality. Faculty experiences and use of technology would be an interesting addition to this body of knowledge as well. Given that students rated their skills levels with most types of academic technology as relatively high, further research should have faculty rate their students' skill levels with this technology to see if student expectations and faculty expectations match. Replication of this study in different locations with different populations would help determine if these findings exist in other areas.

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APPENDICES

APPENDIX A: Instrument

Generational Differences: Student Motivation to Learn and Experiences Involving Technology Survey

Welcome to My Survey

Dear Participant:

My name is LaDonna Hutchins, I am an Associate Registrar at East Tennessee State University. I am working on my Ed.D in Higher Education Leadership. In order to finish my studies, I need to complete my dissertation. The name of my research study is "Generational X and Generation Y: An Exploration of Student Motivation to Learn and Technology Use".

The purpose of this study is to examine different motivations for learning and technology use in learning by specific generations, while examining differences in two learning settings, a four-year university and two-year community college. I would like to give a survey to undergraduate students at a four-year university and a two-year community college using SurveyMonkey software. The survey will take about fifteen minutes to twenty minutes to complete. Your participation is very important and greatly valued. Your attentive and thoughtful responses are valuable to the success of this study. You will be asked questions about motivations for learning and technology use, there are no risks or benefits.

Your confidentiality will be protected as best we can. Since we are using technology no guarantees can be made about the interception of data sent over the internet by any third parties, just like with emails. We will make every effort to ensure that your name is not linked with your answers. SurveyMonkey has security features that will be used: To help protect and secure the data stored in SurveyMonkey's back end database, the software application employs various methods to protect against malicious users who may attempt to identify and exploit any security vulnerabilities in the system. Your rights and privacy will be maintained, the research records may be looked at by individuals that have the legal right to see that information. This may include the ETSU IRB overseeing this research, other individuals at the University with the responsibility for ensuring we follow the rules related to this research, the federal Office of Human Research Protections (OHRP) that protects participants like you, and the research team. All information that can identify you will be removed from the data. This data will then be stored for possible use in future research studies. We will not ask for additional consent for those studies.

Taking part in this study is voluntary, you may decide not to take part in this study or quit at any time. You may skip any questions you do not want to answer or you can exit the online survey form if you want to stop completely. If you quit or decide not to take part, the benefits or treatment that you would otherwise get will not be changed. If you decide to take part in the survey, you can choose to give your email address for a chance to win a $50 gift card. Two participants will be drawn and each will receive a $50 gift card that will be given to the participant immediately.

If you have any research-related questions or problems, you may contact me, LaDonna Hutchins at 423-278-6205. I am working on this project with my Advisor, Dr. Hal Knight. You may reach him at 423-439-6081. This research is being overseen by an Institutional Review Board (IRB). An IRB is a group of people who perform independent review of research studies. You may contact the ETSU IRB at 423-439-6054 or irb@estu.edu for any questions about your rights as a research participant.

Sincerely,
LaDonna Hutchins

* 1. Clicking the AGREE button below indicates:
- I have read the above information
- I agree to volunteer
- I am at least 18 years old
- I am an undergraduate student
- I am physically present in the United States

☐ Agree

☐ Disagree

Directions: Please complete the entire survey with the most appropriate responses. If you want to participate in the drawing for one of two $50 VISA gift cards, please provide your email address where prompted.

2. What year were you born?

3. How would you describe your gender?

○ Male

○ Female

○ Prefer not to say

○ Prefer to self-describe as _____.

4. Which institution do you attend? (Please list either Northeast State Community College or East Tennessee State University).

Community College

4-Year College or University

5. Because with only a high-school degree I would not find a high-paying job later on.

- 1. Does not correspond at all.
- 2. Corresponds a little.
- 3. Corresponds moderately.
- 4. Corresponds a lot.
- 5. Corresponds exactly.

6. Because I experience pleasure and satisfaction while learning new things.

- 1. Does not correspond at all.
- 2. Corresponds a little.
- 3. Corresponds moderately.
- 4. Corresponds a lot.
- 5. Corresponds exactly.

7. Because I think that a college education will help me better prepare for the career I have chosen.

- 1. Does not correspond at all.
- 2. Corresponds a little.
- 3. Corresponds moderately.
- 4. Corresponds a lot.
- 5. Corresponds exactly.

8. For the intense feelings I experience when I am communicating my own ideas to others.

- 1. Does not correspond at all.
- 2. Corresponds a little.
- 3. Corresponds moderately.
- 4. Corresponds a lot.
- 5. Corresponds exactly.

9. Honestly, I don't know; I really feel that I am wasting my time in school.

- 1. Does not correspond at all.
- 2. Corresponds a little.
- 3. Corresponds moderately.
- 4. Corresponds a lot.
- 5. Corresponds exactly.

10. For the pleasure I experience while surpassing myself in my studies.

- 1. Does not correspond at all.
- 2. Corresponds a little.
- 3. Corresponds moderately.
- 4. Corresponds a lot.
- 5. Corresponds exactly.

11. To prove to myself that I am capable of completing my college degree.

- 1. Does not correspond at all.
- 2. Corresponds a little.
- 3. Corresponds moderately.
- 4. Corresponds a lot.
- 5. Corresponds exactly.

12. In order to obtain a more prestigious job later on.

- 1. Does not correspond at all.
- 2. Corresponds a little.
- 3. Corresponds moderately.
- 4. Corresponds a lot.
- 5. Corresponds exactly.

13. For the pleasure I experience when I discover new things never seen before.

- 1. Does not correspond at all.
- 2. Corresponds a little.
- 3. Corresponds moderately.
- 4. Corresponds a lot.
- 5. Corresponds exactly.

14. Because eventually it will enable me to enter the job market in a field that I like.

- 1. Does not correspond at all.
- 2. Corresponds a little.
- 3. Corresponds moderately.
- 4. Corresponds a lot.
- 5. Corresponds exactly.

15. For the pleasure that I experience when I read interesting authors.

- 1. Does not correspond at all.
- 2. Corresponds a little.
- 3. Corresponds moderately.
- 4. Corresponds a lot.
- 5. Corresponds exactly.

16. I once had good reasons for going to college; however, now I wonder whether I should continue.

- 1. Does not correspond at all.
- 2. Corresponds a little.
- 3. Corresponds moderately.
- 4. Corresponds a lot.
- 5. Corresponds exactly.

17. For the pleasure that I experience while I am surpassing myself in one of my personal accomplishments.

- 1. Does not correspond at all.
- 2. Corresponds a little.
- 3. Corresponds moderately.
- 4. Corresponds a lot.
- 5. Corresponds exactly.

18. Because of the fact that when I succeed in college I feel important.

- 1. Does not correspond at all.
- 2. Corresponds a little.
- 3. Corresponds moderately.
- 4. Corresponds a lot.
- 5. Corresponds exactly.

19. Because I want to have "the good life" later on

- 1. Does not correspond at all.
- 2. Corresponds a little.
- 3. Corresponds moderately.
- 4. Corresponds a lot.
- 5. Corresponds exactly.

20. For the pleasure that I experience in broadening my knowledge about subjects which appeal to me.

- 1. Does not correspond at all.
- 2. Corresponds a little.
- 3. Corresponds moderately.
- 4. Corresponds a lot.
- 5. Corresponds exactly.

21. Because this will help me make a better choice regarding my career orientation.

- 1. Does not correspond at all.
- 2. Corresponds a little.
- 3. Corresponds moderately.
- 4. Corresponds a lot.
- 5. Corresponds exactly.

22. For the pleasure that I experience when I feel completely absorbed by what certain authors have written.

- 1. Does not correspond at all.
- 2. Corresponds a little.
- 3. Corresponds moderately.
- 4. Corresponds a lot.
- 5. Corresponds exactly.

23. I can't see why I go to college and frankly, I couldn't care less.

- 1. Does not correspond at all.
- 2. Corresponds a little.
- 3. Corresponds moderately.
- 4. Corresponds a lot.
- 5. Corresponds exactly.

24. For the satisfaction I feel when I am in the process of accomplishing difficult academic activities.

- 1. Does not correspond at all.
- 2. Corresponds a little.
- 3. Corresponds moderately.
- 4. Corresponds a lot.
- 5. Corresponds exactly.

25. To show myself that I am an intelligent person.

- 1. Does not correspond at all.
- 2. Corresponds a little.
- 3. Corresponds moderately.
- 4. Corresponds a lot.
- 5. Corresponds exactly.

26. In order to have a better salary later on.

- 1. Does not correspond at all.
- 2. Corresponds a little.
- 3. Corresponds moderately.
- 4. Corresponds a lot.
- 5. Corresponds exactly.

27. Because my studies allow me to continue to learn about many things that interest me.

- 1. Does not correspond at all.
- 2. Corresponds a little.
- 3. Corresponds moderately.
- 4. Corresponds a lot.
- 5. Corresponds exactly.

28. Because I believe that a few additional years of education will improve my competence as a worker.

- 1. Does not correspond at all.
- 2. Corresponds a little.
- 3. Corresponds moderately.
- 4. Corresponds a lot.
- 5. Corresponds exactly.

29. For the "high" feeling that I experience while reading about various interesting subjects.

- 1. Does not correspond at all.
- 2. Corresponds a little.
- 3. Corresponds moderately.
- 4. Corresponds a lot.
- 5. Corresponds exactly.

30. I don't know; I can't understand what I am doing in school.

- 1. Does not correspond at all.
- 2. Corresponds a little.
- 3. Corresponds moderately.
- 4. Corresponds a lot.
- 5. Corresponds exactly.

31. Because college allows me to experience a personal satisfaction in my quest for excellence in my studies.

- 1. Does not correspond at all.
- 2. Corresponds a little.
- 3. Corresponds moderately.
- 4. Corresponds a lot.
- 5. Corresponds exactly.

32. Because I want to show myself that I can succeed in my studies.

- 1. Does not correspond at all.
- 2. Corresponds a little.
- 3. Corresponds moderately.
- 4. Corresponds a lot.
- 5. Corresponds exactly.

33. Used a computer or word processor to prepare reports or papers.

- Very Often
- Often
- Occasionally
- Never

34. Used e-mail to communicate with an instructor or other students.

- Very Often
- Often
- Occasionally
- Never

35. Used a computer tutorial to learn material for a course or developmental/remedial progam.

- Very Often
- Often
- Occasionally
- Never

36. Participated in class discussions using an electronic medium (e-mail, list-serve,chat group, etc.)

- Very Often
- Often
- Occasionally
- Never

37. Searched the World Wide Web or Internet for information related to a course.

- Very Often
- Often
- Occasionally
- Never

38. Used a computer to retrieve materials from a library **not** at this institution.

- Very Often
- Often
- Occasionally
- Never

39. Used a computer to produce visual displays of information (charts, graphs, spreadsheets, etc.)

- ( ) Very Often
- ( ) Often
- ( ) Occasionally
- ( ) Never

40. Used a computer to analyze data (statistics, forecasting, etc).

- ( ) Very Often
- ( ) Often
- ( ) Occasionally
- ( ) Never

41. Developed a Web page or multimedia presentation.

- ( ) Very Often
- ( ) Often
- ( ) Occasionally
- ( ) Never

42. Which of the following electronic devices do you own? Check all that apply.

- [ ] Personal desktop computer
- [ ] Personal laptop computer
- [ ] Personal digital assistant (PDA), e.g. Palm device
- [ ] Smart phone (combination cell phone and PDA device)
- [ ] Cell or digital phone

43. How many hours each week do you normally spend on each of the following activities using an electronic device (computer, Palm device, etc.). (Do not use, Less than an hour, 1-2 hours, 3-5 hours, 6-10 hours, 11 or more hours).

	Do not use	Less than an hour	1-2 hours	3-5 hours	6-10 hours	11 or more hours
Classroom activities and studying using an electronic device.	○	○	○	○	○	○
Playing computer games	○	○	○	○	○	○
Downloading or listening to music or videos/DVDs	○	○	○	○	○	○
Chatting with friends or acquaintances using instant messaging	○	○	○	○	○	○
Surfing the Internet for pleasure	○	○	○	○	○	○
On-line shopping	○	○	○	○	○	○

44. How many hours each week do you normally spend on using an electronic device (computer, Palm devic, etc.) at your place of employment?

- ○ I do not work
- ○ Do not use
- ○ Less than an hour
- ○ 1-2 hours
- ○ 3-5 hours
- ○ 6-10 hours
- ○ 11 or more hours

45. How many hours each week do you normally spend on each of the following activities using an electronic device (computer, Palm device, etc.)? (Do not use, Less than an hour, 1-2 hours, 3-5 hours, 6-10 hours, 11 or more hours).

	Do not use	Less than an hour	1-2 hours	3-5 hours	6-10 hours	11 or more hours
Creating, reading, sending email						
Writing documents (Word Processing)						
Creating spreasheets or chars (Excel, etc.)						
Creating presentations (Powerpoint, etc.)						
Creating graphics (Photoshop, Flash, etc.)						
Creating and editing video/audio (Director, iMovie, etc.)						
Creating web pages (Dreamweaver, FrontPage, etc.)						
Completing a learning activity or accessing information for a course using course management systems (WebCT, Blackboard, Desire2Learn, Learn@UW, etc.)						
Using a library resource to complete a class assignment (e.g., a library resource on your official university library web site)						

46. What is your skill level using the following computer programs and applications? (Do Not Use, Very Unskilled, Unskilled, Skilled, Very Skilled).

	Do Not Use	Very Unskilled	Unskilled	Skilled	Very Skilled
Email	○	○	○	○	○
Instant Messenger	○	○	○	○	○
Web Surfing	○	○	○	○	○
Word Processing	○	○	○	○	○
Spreadsheets (Excel, etc.)	○	○	○	○	○
Presentation software (Powerpoint, etc.)	○	○	○	○	○
Graphics (Photoshop, Flash, etc.)	○	○	○	○	○
Creating and editing video/audio (Director, iMovie, etc.)	○	○	○	○	○
Creating web pages (Dreamweaver, FrontPage, etc.)	○	○	○	○	○
Course management systems (Web-CT, Blackboard, Desire2Learn, Learn@UW, etc.)	○	○	○	○	○
Online library resources	○	○	○	○	○

47. During the academic year what is your most frequently used method for access to the Internet?

- ○ Commercial dial-up modem service (e.g., AOL, Earthlink, etc.)
- ○ University-operated dial-up modem service
- ○ Commercial broadband service (e.g., DSL modem, cable modem, etc.)
- ○ University-operated wired broadband service
- ○ Broadband wireless network

48. Which of the following best describes your preference with regard to the use of technology in your classes?

- I prefer taking classes that use no information technology.
- I prefer taking classes that use limited technology features (e.g., e-mail to instructors and limited use of PowerPoint in class).
- I prefer taking classes that use a moderate level of technology (e.g., e-mail, several power-point presentations, some online activities or content).
- I prefer taking classes that use technology extensively (e.g., class lecture notes on-line,computer simulations, PowerPoint presentations, streaming video or audio etc.
- I prefer taking classes that are delivered entirely "on-line" with no required face-to-face interactions.

49. To what extent do each of the following describe your experiences in your classes? (Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree)

	Strongly Disagree	Disagree	Agree	Strongly Agree
I spend more time engaged in course activities in those courses that require me to use technology.				
The use of technology in my classes met my expectations.				
The instructor's use of technology in my classes has increased my interest in the subject matter.				
I primarily use information technology in courses to improve the presentation of my work.				
I get better grades in courses that use information technology				
Faculty need to give more in-class training for information technology they are using in the class.				

50. To what extent has the use of information technology in classes helped you?

	Strongly Disagree	Disagree	Agree	Strongly Agree
The use of information technology in classes has helped me better understand complex or abstract concepts.	○	○	○	○
The use of information technology in classes has helped me to better communicate with the instructor.	○	○	○	○
The use of information technology in courses has helped me communicate and collaborate with my classmates.	○	○	○	○
The use of information technology in courses has resulted in prompt feedback from the instructor.	○	○	○	○
The use of information technology in courses provides more opportunities for practice and reinforcement.	○	○	○	○
Classes that use information technology are more likely to focus on real-world tasks and examples.	○	○	○	○
Classes that use information technology allow me to take greater control of my class activities (e.g., planning, apportioning time, noting success and failure).	○	○	○	○

51. Have you taken a class that used a course management system (such as WebCT, Blackboard, Desire2Learn, or Learn@UW)?

○ Yes

○ No

52. How would you describe your own overall experience using a course management system (such as WebCT, Blackboard, Desire2Learn, or Learn@UW)?

- Very positive
- Positive
- Neutral
- Negative
- Very negative

53. For each of the online features used in your classes, how did the features help you improve learning or your ability to manage your class activities?

	Did not use	Negative effect	No effect	Improved learning	Improved my management of class activities	Improved Learning and Improved my management of my class activities
Syllabus						
Online readings and links to other text-based course materials						
Online Discussion board (posting comments, questions and responses)						
Access to sample exams and quizzes for learning purposes						
Taking exams and quizzes online for grading purposes						
Turning in assignments online						
Getting assignments back from professor with comments and grade						
Sharing materials among students						
Keeping track of my grades on assignments and tests						

54. Which of the following benefits from using information technology in your classes was the most valuable to you?

- [ ] Improved my learning
- [ ] Saved me time
- [ ] Convenience
- [ ] Helped me manage my class activities (e.g., planning, apportioning time, noting success and failure)
- [ ] No benefits
- [ ] Other

55. What are the barriers for you (if any) to using a computer or information technology in your classwork? Check all that apply.

- [ ] It feels like extra work with little connection to the course
- [ ] I don't have the necessary skills
- [ ] I dont have the technical support I need
- [ ] It is too expensive
- [ ] I don't have sufficient access to a computer
- [ ] I don't have sufficient access to a printer
- [ ] The applications don't run on my computer
- [ ] I have trouble connecting to the Internet from my place of residence. (I don't have reliable access to the Internet.)
- [ ] I have to set-up and trouble-shoot too many browser variations
- [ ] There are no barriers
- [ ] Other

56. The use of technology in my classes met my expectations.

- ( ) Strongly agree
- ( ) Agree
- ( ) Neither agree nor disagree
- ( ) Disagree
- ( ) Strongly disagree

57. The instructor's use of technology in my classes has increased my interest in the subject matter.

- ( ) Strongly agree
- ( ) Agree
- ( ) Neither agree nor disagree
- ( ) Disagree
- ( ) Strongly disagree

58. I spend more time engaged in course activities in those courses that require me to use technology.

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

59. I primarily use information technology in courses to improve the presentation of my work.

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

60. I get better grades in courses that use information technology.

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

61. Faculty need to give us more in-class training for information technology they are using in the class.

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

Generational Differences: Student Motivation to Learn and Experiences Involving Technology Survey

Optional

If you would like to be entered in the random drawing for the $50 Visa Card, please provide your email address in the box below. This is not required, will not be connected to your survey responses in any way, and will only be used to contact the gift card winners.

62. Please provide your email address.

Appendix B: Initial Invitation to Participate

Dear Participant:

My name is LaDonna Hutchins, I am a doctoral student at East Tennessee State University. I am working on my Ed.D. in Higher Education Leadership. In order to finish my studies, I need to complete my dissertation. The name of my research study is "Generational X and Generation Y: An Exploration of Student Motivation to Learn and Technology Use."

The purpose of this study is to examine different motivations for learning and technology use in learning by specific generations, while examining differences in two learning settings, a four-year university and two-year community college. I would like to give a survey to undergraduate students at a four- year university and two-year community college using SurveyMonkey software. The survey will take about fifteen minutes to twenty minutes to complete. Your participation is very important and greatly valued. Your attentive and thoughtfulresponses are valuable to the success of this study. You will be asked questions about motivations for learning and technology use, and there are no anticipated risks or benefits.

All responses will be confidential. However, while using technology no guarantees can be made about the interception of data sent over the internet by any third parties, just like with emails. We will make every effort to ensure that your name is not linked with your answers. SurveyMonkey has security features that will be used: To help protect and secure the data stored in SurveyMonkey's back end database, the software application employs various methods to protect against malicious users who may attempt to identify and exploit any security vulnerabilities in the system. Your rights and privacy will be maintained, the research records may be looked at by individuals that have the legal right to see that information. This may include the ETSU IRB overseeing this research, other individuals at the University with the responsibility for ensuring we follow the rules related to this research, the federal Office of Human Research Protections (OHRP) that protects participants like you, and the research team. All information that can identify you will be removed from the data. This data will then be stored for possible use in future research studies. We will not ask for additional consent for those studies.

Taking part in this study is voluntary, you may decide not to take part in this study or quit at any time. You may skip any questions you do not want to answer or you can exit the online survey form if you want to stop completely. If you quit or decide not to take part, the benefits or treatment that you would otherwise get will not be changed. If you decide to take part in the survey, you can choose to give your email address for a chance to win a $50 gift card. Two participants will be drawn and each will receive a $50 gift card that will be given to the participant.

If you have any research-related questions or problems, you may contact me, LaDonna Hutchins at 423-278-6205. I am working on this project with my Advisor, Dr. Hal Knight. You may reach him at 423-439-6081. This research is being overseen by an Institutional Review Board (IRB). An IRB is a group of people who perform independent review of research studies. You may contact the ETSU IRB at 423-439-6054 or irb@estu.edu for any questions about your rights as a research participant.

Sincerely,
LaDonna Hutchins

Top of Form

Question Title

* 1. Clicking the AGREE button below indicates:
- I have read the above information
- I agree to volunteer
- I am at least 18 years old
- I am an undergraduate student
- I am physically present in the United States

Agree

Disagree

Appendix C: Approval to use *Academic Motivation Scale* (AMS-C 28)

Hi LaDonna,

You have my permission to use the AMS. However, I would recommend using the AMS the way it was developed.

Good luck with your research,

RJV
Robert J. Vallerand, Ph.D., FRSC

Chaire de Recherche du Canada/Canada Research Chair-1
in Motivational Processes and Optimal Functioning

Professeur de Psychologie Sociale
Professor of Social Psychology and Director
Laboratoire de Recherche sur le Comportement Social
Département de Psychologie
Université du Québec à Montréal
Local SU-4325
(514) 987-4836
http://www.lrcs.uqam.ca

For more on passion: see my book on the Psychology of Passion with Oxford University Press that recently received the William James Award from the American Psychological Association
https://global.oup.com/academic/product/the-psychology-of-passion-9780199777600?cc=us&lang=en&

On Thu, May 16, 2019 at 4:21 PM LaDonna Hutchins <hutchinl@etsu.edu> wrote:

Hi,
I am a student at East Tennessee State University. I want to use your survey instrument, Academic Motivation Scale (AMS-C 28), in my dissertation. May I have your permission to use the survey instrument?

Am I able to modify portions into complete sentences?
For example:

> With only a high School degree, I would not find a high paying job later on.
> I experience pleasure and satisfaction while learning new things.

Sincerely,
LaDonna Hutchins

Appendix D: Approval to use *College Student Experiences Questionnaire* (CSEQ)

CSEQ

Item Usage Agreement
College Student Experiences Questionnaire
Assessment Program

The College Student Experiences Questionnaire Assessment Program is part of the Indiana University Center for Postsecondary Research. The CSEQ Assessment Program is home to the *College Student Experiences Questionnaire (CSEQ)* and the *College Student Expectations Questionnaire (CSXQ)*. These are copyrighted survey instruments, and the copyrights are owned by The Trustees of Indiana University. Any use of survey items contained within the *CSEQ* or *CSXQ* is prohibited without prior written permission from Indiana University. When fully executed, this Agreement constitutes written permission from the University, on behalf of the CSEQ Assessment Program, for the party named below to use an item or items from the *College Student Experiences Questionnaire* or *College Student Expectations Questionnaire* in accordance with the terms of this Agreement.

In consideration of the mutual promises below, the parties hereby agree as follows:

1) The University hereby grants **LaDonna Hutchins** ("Licensee") a nonexclusive, worldwide, irrevocable license to use, reproduce, distribute, publicly display and perform, and create derivatives from, in all media now known or hereafter developed, the item(s) listed in the proposal attached as Exhibit A, solely for the purpose of including such item(s) in the survey activity described in Exhibit A, which is incorporated by reference into this Agreement. This license does not include any right to sublicense others. This license only covers the survey instrument, time frame, population, and other terms described in Exhibit A. Any different or repeated use of the item(s) shall require an additional license.

2) In exchange for the license granted in section 1, Licensee agrees:

   a) to provide to the *CSEQ Assessment Program* frequency distributions and means on the licensed item(s);

   b) in all publications or presentations of data obtained through the licensed item(s), to include the following citation: "Items *xx* and *xx* used with permission from the *CSEQ Assessment Program, Indiana University,* Copyright 1998, The Trustees of Indiana University";

   c) to provide to the *CSEQ Assessment Program*, a copy of any derivatives of, or alterations to, the item(s) that Licensee makes for the purpose of Licensee's survey ("modified items"), for the *CSEQ Assessment Program's* own nonprofit, educational purposes, which shall include the use of the modified items in the *CSEQ*, *CSXQ* or any other survey instruments, reports, or other educational or professional materials that it may develop or use in the future. Licensee hereby grants the University a nonexclusive, worldwide, irrevocable, royalty-free license to use, reproduce, distribute, create derivatives from, and publicly display and perform the modified items, in any media now known or hereafter developed; and

Indiana University Center for Postsecondary Research
1900 East Tenth Street • Eigenmann Hall, Suite 419 • Bloomington, IN 47406-7512
Phone: (812) 856-5825 • Fax: (812) 856-5150

d) to provide to the *CSEQ Assessment Program* for its own nonprofit, educational purposes, a copy of all reports, presentations, analyses, or other materials in which the item(s) licensed under this Agreement, or modified items, and any responses to licensed or modified items, are presented, discussed, or analyzed. The *CSEQ Assessment Program* shall not make public any data it obtains under this subsection in a manner that identifies specific institutions or individuals, except with the consent of the Licensee.

The undersigned hereby consent to the terms of this Agreement and confirm that they have all necessary authority to enter into this Agreement.

For The Trustees of Indiana University:

5-2-19

Robert M. Gonyea
Associate Director, Center for Postsecondary Research
Director, CSEQ Assessment Program
Indiana University

Date

For Licensee:

LaDonna Hutchins

4/30/19

Name: LaDonna Hutchins
Title: Graduate Student
Institution: East Tennessee State University

Date

Indiana University Center for Postsecondary Research
1900 East Tenth Street • Eigenmann Hall, Suite 419 • Bloomington, IN 47406-7512
Phone: (812) 856-5825 • Fax: (812) 856-5150

Appendix E: Approval to use *Student Information Technology Use and Skills in Higher Education: Survey Questionnaire*

Great! This is helpful background. Since you are planning to create a local survey instrument that simply uses our questions in part or in whole for non-commercial purposes, we grant you permission to do so. As always, in exchange, we ask you to cite the EDUCAUSE Center for Analysis and Research as your source. Also, we would request that you share with us the results of your most interesting research findings from the items you borrow and/or modify from our surveys.

Leah Lang
Director of Analytics Services

EDUCAUSE
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direct: 303.939.0339 | main: 202.872.4200 | fax: 202.872.4318 | educause.edu
Twitter: meahlarie
Enhance decision making with the EDUCAUSE Core Data Service (CDS) and EDUCAUSE Technology Research in the Academic Community (ETRAC) - benchmarking data to inform IT planning.
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Program Details – *Connect colleagues with resources*

From: "Hutchins, LaDonna A." <HUTCHINL@mail.etsu.edu>
Date: Thursday, April 18, 2019 at 8:52 AM
To: Leah Lang <llang@educause.edu>
Subject: RE: [EXTERNAL] FW: Requesting permission to use your survey instrument-Student Information Technology Use and Skills in Higher Education: Survey Questionnaire

Leah,

I attached the survey instrument that I've pulled together if I am granted permission, so you can see it. Here is a snip it from my Chapter 3 to give you an idea about my dissertation.

Sincerely,

LaDonna

After an extensive search for an instrument to measure motivations of student learning and technology use in learning, three established surveys were identified. The survey instrument for this study will be *Generational Differences: Student Motivation and Technology Use Survey*, an established instrument (see Appendix A). This instrument consist of three sections built from

sections of the three established surveys. The first of which includes general demographic information. The second section consists of the *Academic Motivation Scale* (AMS-C 28) which will be used to measure student motivation to learn. The third section consists of various portions about technology from the *Student Information Technology Use and Skills in Higher Education: Survey Questionnaire*, as well as the computer and information technology portion from the *College Student Experiences Questionnaire* (CSEQ). The third section will be used to measure student learning experience involving technology.

From: Leah Lang <llang@educause.edu>
Sent: Wednesday, April 17, 2019 3:30 PM
To: Hutchins, LaDonna A. <HUTCHINL@mail.etsu.edu>
Subject: [EXTERNAL] FW: Requesting permission to use your survey instrument-Student Information Technology Use and Skills in Higher Education: Survey Questionnaire

Hi LaDonna –

Thanks for asking! We do typically grant this type of permission. I'm curious about how you will use the questions. Are you planning on running your own version of the survey?

-Leah

Leah Lang
Director of Analytics Services

EDUCAUSE
Uncommon Thinking for the Common Good
direct: 303.939.0339 | main: 202.872.4200 | fax: 202.872.4318 | educause.edu
Twitter: meahlarie

From: Hutchins, LaDonna A. <HUTCHINL@mail.etsu.edu>
Sent: Monday, April 15, 2019 10:23 AM
To: General <General@educause.onmicrosoft.com>
Subject: Requesting permission to use your survey instrument-Student Information Technology Use and Skills in Higher Education: Survey Questionnaire

Hi Joseph Galanek, Dana C. Gierdowski, D. Christopher Brooks,

I am a student at East Tennessee State University. I want to use your survey instrument, *Student Information Technology Use and Skills in Higher Education: Survey Questionnaire*, in my dissertation. May I have your permission to use the survey instrument?

Sincerely,

LaDonna Hutchins

Appendix F: Validity of Student Information Technology Use and Skills in Higher Education: Survey Questionnaire

From: Leah Lang <llang@educause.edu>
Sent: Tuesday, June 18, 2019 1:35 PM
To: Hutchins, LaDonna A. <HUTCHINL@mail.etsu.edu>
Subject: Re: Validity of the Instrument [EXTERNAL] FW: Requesting permission to use your survey instrument-Student Information Technology Use and Skills in Higher Education: Survey Questionnaire

Hi LaDonna,

Establishing evidence of validity for the data gathered from our instruments is important and an ongoing task (data are valid [or not], not instruments). In the past few years, as with CDS, we have begun revising and updating our survey instruments to better reflect the needs of our members, to reflect the changing nature of technology, and to align to CDS topics (where appropriate) and the Top Ten IT Issues.

Establishing the validity of these data can come in several forms and help to make a complete picture of the quality and appropriateness of the data collected. While we have begun the work to document our validity evidence, this is a work in progress that will continue iteratively as the instruments grow and change.

First, we develop and revise survey content based on the input and expertise of a diverse and thoughtful group of SMEs. These SMEs help us to not create the content, but they also help to review the final instrument (these two groups of SMEs are not the same). The experts who review these instruments provide us with the first step in evaluating validity – face validity. We know that this instrument that is supposed to measure student technology experiences looks like it measures student technology experiences.

As we continue to mature in the development of this service, we look forward to proceeding with the following analyses to establish additional validity:

- Cognitive interviews with students (and faculty for the fac study)
- Comparison of our instrument with other student-level instruments, and compare our results to those especially if they exhibit evidence of validity. (correlations, similar reliability scores if possible to compute – Likert Scale items)
- Humans agreeing that the data seem to align with what would be expected – qualitative things that others do.
- Consequential validity – are the results being used responsibly, both by our internal research team and with the schools. That is, are the conclusions that folks are drawing seem in line with what could logically be said based on the limitations of the data/collection/sample/original intent of the items.

These analyses are currently underway and are part of our development cycle.

Let me know if you need more –

Leah

Leah Lang
Director of Analytics Services

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Twitter: meahlarie

From: Hutchins, LaDonna A.
Sent: Tuesday, June 18, 2019 7:58 AM
To: Leah Lang <llang@educause.edu>
Subject: RE: Validity of the Instrument [EXTERNAL] FW: Requesting permission to use your survey instrument-Student Information Technology Use and Skills in Higher Education: Survey Questionnaire

Leah,

Can you help me? I have been searching and can't find the info.

Can you tell me how validity was established for Student Information Technology Use and Skills in Higher Education: Survey Questionnaire?

Sincerely,
LaDonna

VITA

LADONNA ANN HUTCHINS

Education:

Ed.D., Educational Leadership, East Tennessee State University, Johnson City, TN, 2021

M.Ed., Educational Media and Educational Technology, East Tennessee State University, Johnson City, TN, 2006

B.S., Digital Media, East Tennessee State University, Johnson City, TN, 2006

Professional Experience:

Associate Registrar – Records, East Tennessee State University, 2020 to Present

Assistant Registrar – Data Management, East Tennessee State University, 2005 to 2020

Technical Clerk, East Tennessee State University, 2001 to 2005